



**GOVERNMENT OF ANDHRA PRADESH**

# **KAKINADA MUNICIPAL CORPORATION**

## **EPC – TURNKEY SYSTEM**

**Name of the Work: Kakinada Municipal Corporation - Providing Storm Water Drainage and Disposal under AMRUT Phase-II for the year 2016-2020**

**Tender Notice No : Roc No:5989/2016-E3,Dt.13.09.2017**

**Evaluation uploaded for approval**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**KAKINADA MUNICIPAL CORPORATION**

**KAKINADA**

**INDEX FOR DOCUMENTS**

<b>DESCRIPTION</b>	
SECTION – 1	SCOPE & DELIVERABLES AND BASIC PARAMETERS.
	NOTICE INVITING TENDER
	INSTRUCTION TO TENDERERS
SECTION – 2	GENERAL CONDITIONS OF CONTRACT
SECTION – 3	SPECIAL CONDITIONS OF THE CONTRACT
SECTION – 4	TECHNICAL SPECIFICATIONS
SECTION – 5	FINANCIAL BID
SECTION – 6	MODEL FORMS
SECTION – 7	Deleted
SECTION – 8	DRAWINGS

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## **SECTION – 1**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## PUBLIC HEALTH AND MUNICIPAL ENGINEERING DEPARTMENT

### Name of the Work: Kakinada Municipal Corporation - Providing Storm Water Drainage and Disposal under AMRUT Phase-II for the year 2016-2020

Public Health and Municipal Engineering Department Under the aegis of Municipal Administration & Urban Development Department (M.A. & U.D) Government of Andhra Pradesh (GOAP) invites proposals from eligible bidders for the work of “ Kakinada Municipal Corporation - Providing Storm Water Drainage and Disposal under AMRUT Phase-II for the year 2016-2020”

#### I. SCOPE OF WORK :

The scope of work includes "ETS Survey, Investigation, Design, Build, Commissioning of Primary, Secondary & Tertiary Storm Water Drainage (SWD) network in Kakinada City in conformity with the existing drainage network and as per CPHEEO/Urban Drainage Guidelines to achieve the SLBs (Service Level Bench Marks) as stipulated by Govt. of India under EPC system”:

SI No	Description
1	Construction of Storm Water Drainage Scheme by conducting ETS Survey, Establishment of PBMs using DGPS/GTS Survey, Soil Investigation, Designing, Construction, Commissioning of Primary, Secondary & Tertiary Storm water network in Kakinada City in order to achieve the SLBs (Service Level Benchmarks) as Stipulated by Govt. of India.
2	2.1 The bidder should execute the project taking into consideration the SLBs specified by GoI like :  a) Incidence of Water logging/Flooding & b) Coverage of SWD network.  2.2 The primary objective shall be to reduce or minimize the incidence of water logging/flooding in all the drainage basins, at Key Road Intersections, along the road lengths with focus on Primary and Secondary SWD system duly integrating with the existing system.

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

SI No	Description
	<p>2.3 The Order of Priority &amp; Construction of SWD network shall be Major Drains (Primary or Outfall drains), subsequently Secondary Drains and finally the Tertiary Drains (Lateral/Minor Drains) in each “Drainage Basin” and also covering Key Road Intersections/Junctions, Road Way Crossings &amp; accordingly the bidder shall submit the detailed designs and drawings along with working estimates &amp; BoQs for approval by competent authority.</p> <p>2.4 The scope of work includes construction of new drains &amp; culverts, abutments, approaches and refurbishment/ retrofitting of the existing drains &amp; culverts. However, the cost of retrofitting &amp; refurbishment of the existing infrastructure shall be arrived after thorough investigation by the EPC agency and details worked out accordingly for approval by the competent authority as the retrofitting &amp; refurbishment cost is not included in the IBM. The EPC agency shall be bound to carry out the retrofitting &amp; refurbishment works for drains, culverts &amp; other structures as found necessary for achieving the objectives and the cost shall be paid from the provisional sum for the work done after approval by the competent authority.</p> <p>2.5 Appropriate State of the Art Construction procedures &amp; technologies shall be adopted for providing SWD network, and various alternatives shall be explored for providing best possible solutions at every stage of construction of SWD network, Box &amp; Slab Culverts, Approaches, Crossings etc., and the proposed network shall be compatible with the existing network at every stage and if necessary, suitable retrofitting/refurbishing shall also be done to the existing network in order to make it compatible with the proposed network.</p> <p>Note: Retrofitting &amp; Refurbishment proposals of the existing drains wherever necessary will be considered separately after detailed investigation and submission of estimates appropriate to site conditions by the EPC agency as the Cost of Retrofitting &amp; Refurbishment of the existing SWD network and other structures are not included in the IBM.</p> <p>2.6 The Sullage shall be considered in the Storm water drain network and for the purpose of design the flows resulting from the following population years are considered.</p> <ul style="list-style-type: none"> <li>• The Base Year Population 2018</li> <li>• The Prospective Population 2033</li> <li>• The Ultimate population 2048</li> </ul> <p>2.7 In this SWD project about 40.69 KM of Major Drains (Primary &amp; Secondary) and about 3.38 KM of Tertiary/Minor Drains are proposed to achieve the SLBs. The EPC agency has to conduct further detailed investigation and to arrive at appropriate figures in order to achieve the SLBs as stipulated by GoI for the SWD project.</p>

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

Sl No	Description																		
	<p>2.8 The area in which the present Storm Water Drainage proposed in Kakinada City is divided into 6 drainage zones based on the topography. The details of the basins are as follows.</p> <p><b>Zone-I: Sasikanth Nagar</b></p> <p><b>Zone-II: Vidyut Nagar, Rajeswari Nagar and Chaitanya Nagar</b></p> <p><b>Zone-III: Jayendra Nagar ; Sastry Nagar</b></p> <p><b>Zone-IV: Santhi Nagar, Postal Colony; Revenue Colony</b></p> <p><b>Zone-VI: Sanjay Nagar Area</b></p> <p><b>Zone-VIII: Jagannaickpur</b></p> <p>2.9 The classification of Primary, Secondary and Tertiary drains are as follows.</p> <p style="padding-left: 40px;">Primary Drains : Width above 1.5 m to 6.3m.  Secondary Drains : Width above 0.6m to 1.5m  Tertiary Drains : Width up to 0.6 m</p> <p>2.10 Tentative items of works to be executed under this scheme are detailed below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Sl. No.</th> <th style="text-align: center;">Description</th> <th style="text-align: center;">Quantity</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Investigation, Survey, Designs, Approval of Detailed Engineering Drawings, Preparation of Estimates etc. for Construction of Storm Water Drainage Scheme by conducting ETS Survey, Establishment of PBMs using DGPS/GTS Survey, Soil Investigation, Designing, Construction, Commissioning of Primary, Secondary &amp; Tertiary Storm water network in Kakinada City in order to achieve the SLBs (Service Level Benchmarks) as Stipulated by GoI. Preparation of Hydraulic and structural designs and drawings, preparation of estimations and BOQs and shall be got approved by the Department.</td> <td style="text-align: center;">1 Job</td> </tr> <tr> <td style="text-align: center;">2</td> <td><b>Construction of Primary Drains with VRCC M20 (above 1.50m to 4.00m width)</b></td> <td></td> </tr> <tr> <td style="text-align: center;">2.1</td> <td><b>Zone-I:Sasikanth Nagar</b></td> <td style="text-align: center;">6870 Mtr.</td> </tr> <tr> <td style="text-align: center;">2.2</td> <td><b>Zone-II:Vidyut Nagar, Rajeswari Nagar and Chaitanya Nagar</b></td> <td style="text-align: center;">3060 Mtr.</td> </tr> <tr> <td style="text-align: center;">2.3</td> <td><b>Zone-III: Jayendra Nagar ; Sastry Nagar</b></td> <td style="text-align: center;">1630 Mtr</td> </tr> </tbody> </table>	Sl. No.	Description	Quantity	1	Investigation, Survey, Designs, Approval of Detailed Engineering Drawings, Preparation of Estimates etc. for Construction of Storm Water Drainage Scheme by conducting ETS Survey, Establishment of PBMs using DGPS/GTS Survey, Soil Investigation, Designing, Construction, Commissioning of Primary, Secondary & Tertiary Storm water network in Kakinada City in order to achieve the SLBs (Service Level Benchmarks) as Stipulated by GoI. Preparation of Hydraulic and structural designs and drawings, preparation of estimations and BOQs and shall be got approved by the Department.	1 Job	2	<b>Construction of Primary Drains with VRCC M20 (above 1.50m to 4.00m width)</b>		2.1	<b>Zone-I:Sasikanth Nagar</b>	6870 Mtr.	2.2	<b>Zone-II:Vidyut Nagar, Rajeswari Nagar and Chaitanya Nagar</b>	3060 Mtr.	2.3	<b>Zone-III: Jayendra Nagar ; Sastry Nagar</b>	1630 Mtr
Sl. No.	Description	Quantity																	
1	Investigation, Survey, Designs, Approval of Detailed Engineering Drawings, Preparation of Estimates etc. for Construction of Storm Water Drainage Scheme by conducting ETS Survey, Establishment of PBMs using DGPS/GTS Survey, Soil Investigation, Designing, Construction, Commissioning of Primary, Secondary & Tertiary Storm water network in Kakinada City in order to achieve the SLBs (Service Level Benchmarks) as Stipulated by GoI. Preparation of Hydraulic and structural designs and drawings, preparation of estimations and BOQs and shall be got approved by the Department.	1 Job																	
2	<b>Construction of Primary Drains with VRCC M20 (above 1.50m to 4.00m width)</b>																		
2.1	<b>Zone-I:Sasikanth Nagar</b>	6870 Mtr.																	
2.2	<b>Zone-II:Vidyut Nagar, Rajeswari Nagar and Chaitanya Nagar</b>	3060 Mtr.																	
2.3	<b>Zone-III: Jayendra Nagar ; Sastry Nagar</b>	1630 Mtr																	

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

SI No	Description		
	2.4	Zone-IV: Santhi Nagar, Postal Colony; Revenue Colony	1640 Mtr
	2.5	Zone-VI: Sanjay Nagar Area	2540 Mtr
	2.6	Zone-VIII: Jagannaickpur	3710 Mtr
	3	Construction of Secondary Drains with VRCC M20 (above 0.60m to 1.50m width)	
	3.1	Zone-II:Vidyut Nagar, Rajeswari Nagar and Chaitanya Nagar	6010 Mtr.
	3.2	Zone-III: Jayendra Nagar ; Sastry Nagar	2020 Mtr
	3.3	Zone-IV: Santhi Nagar, Postal Colony; Revenue Colony	4990 Mtr
	3.4	Zone-VI: Sanjay Nagar Area	2690 Mtr
	3.5	Zone-VIII: Jagannaickpur	5430 Mtr
	4	Construction of Tertiary Drains with VRCC M20 (up to 0.60m width)	
	4.1	Zone-VIII: Jagannaickpur	3380 Mtr
	5	Bailing out of water for excavation and bed concrete drain walls with oil engine driven pump sets including hire charges, fuel charges etc.,	36208 Hp/Hr
	6	Providing High Yield Strength Deformed (HYSD)[Fe500]	3424790 Kg

#### Design Features of the Proposed SWD network:

SI No	Description
3	Construction of Storm Water Drainage Scheme by conducting ETS Survey, Establishment of PBMs using DGPS/GTS Survey, Soil Investigation, Designing, Construction,Commissioning of Primary, Secondary & Tertiary Storm water network in Kakinada City in order to achieve the SLBs (Service Level Benchmarks) as Stipulated by Govt. of India.
4	<p>4.1 It shall be expressly understood by the EPC agency that the Drawings and details enclosed/appended at the time of bidding are only indicative but not exhaustive.</p> <p>4.2 The Bidder shall conduct ETS survey and establish Permanent Bench Marks at regular intervals with reference to GTS/DGPS in order to execute the SWD network. The EPC agency shall submit the designs and drawings duly taking into account &amp; compatible</p>

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

SI No	Description
	<p>with the existing Storm Water drainage system/ network and shall got approved by the competent departmental authority.</p> <p>4.3 After getting approval of the designs and drawings by the competent authority the EPC agency shall prepare and submit the BoQ's and working estimates based on the approved designs &amp; drawings as per the provisions of EPC system based on which the execution shall be done and also form the basis for making payment.</p> <p>4.4 Necessary IMD Data or CWC data shall be obtained for the related Hydro Meteorological Zone/Sub Zone and Processed for arriving at suitable IDF curves appropriate to the area/ basin under consideration.</p> <p>4.5 The frequency of storm for which the SWD network to be designed depends on the importance of the area to be drained.</p> <p>4.6The bidder shall follow basin wise approach while submitting the designs. The designs shall be strictly prepared based on IMD data for designs and drawings shall be finalized accordingly taking in to account the hydraulic &amp; Structural considerations. The detailed designs &amp; drawings shall be got approved by Competent departmental authority after which BoQ's &amp; estimations shall be done.</p> <p>4.7 All the appurtenances needed like Grated Inlets, Kerb Opening Inlets, Slotted inlets, Combination inlets, SS Screens etc., shall be planned in each drainage basin as per site conditions which shall be part of the project.</p> <p>4.8 The minimum Bed width of the open drain shall not be less than 300mm.</p> <p>4.9TheStorm Water Drains shall be designed to carry the required design storm discharge based on the rain fall analysis as per IMD data applicable to appropriate drainage basin &amp; IDF curves. Design parameters shall be considered as per Guidelines and proper section arrived to carry the designed discharge.</p> <p>4.10 The Minimum Free Board while arriving at the Cross Sections shall be provided as per relevant codes</p> <p>4.11 Trapezoidal and Rectangular Cross sections shall be preferred from the point of O&amp;M. In all busy areas passing through built up area, the storm water drainage shall be covered. Whenever cover is proposed it shall have proper access for O&amp;M and the cover shall be of Min. M20 Grade RCC and shall be designed for the traffic loads, as required. Wherever covered drains are proposed, they shall be designed with proper Grated Inlets, Kerb Opening Inlets, Slotted Inlets, Combination Inlets, Man Holes etc.</p> <p>4.12 The Minimum bed width shall not be less than 300mm and Min. diameter shall not be less than 450mm in case of Pipes. Whenever, the site is so restricted that open type</p>

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .



SI No	Description
	<p>SWD is not possible, Min.NP3 Class VRCC/RCC pipes may also be considered of Min. of 450 mm dia with appropriate bedding as per BIS standards and access Man Holes/ Chambers at regular intervals as specified in Urban Drainage Guidelines in straight reaches &amp; covered with SFRC- MD-20 or EHD-35 frames and Covers duly taking into consideration the expected traffic loads.</p> <p>4.13 All the key road junctions shall be properly planned in order to reduce water logging to barest minimum and all the necessary inlets shall be accordingly planned to channelize the Storm water to the nearest Drain. Proper investigation need to be carried out how to prevent water logging at key road intersections and remedial solutions arrived accordingly.</p> <p>4.14 All the proposed SWD network in this project shall be compatible with the existing or ongoing SWD network in Kakinada Municipal Corporation.</p> <p>4.15 In case, if some modifications/ Retrofitting/ Refurbishment is needed to be carried out in the existing SWD network the same shall be investigated by the EPC agency and shall be submitted with details of BoQ at the time of approval of designs and drawings for consideration separately as the cost was not included in the IBM. Compatibility and Integration with the existing SWD system is of utmost importance and accordingly the drawings shall be submitted by the EPC agency. For retrofitting/ refurbishment of the existing drains, BoQ's need to be submitted separately by the EPC agency.</p> <p>4.16 For the sake of this project all the SWD sections having a bed width (ID) of 600 mm &amp; above are considered as Major drains (Primary &amp; Secondary Drains) and all those SWD sections having bed width (ID) less than 600 mm are considered as Lateral Drains (Tertiary Drains). All the drain sections shall be measured with reference to Bed width (ID) x Total Depth (TD) and any batter given inside will be extra over the proposed bed width (ID).</p> <p>4.17 The proposed SWD Cross Sections for Major drains (Primary &amp; Secondary) shall satisfy hydraulically, structurally and compatible with existing site conditions. Inside batter is preferable, if possible from various considerations.</p> <p>4.18 The sections shall be with minimum VCC/RCC M20 Grade for all drain cross sections and RCC M30 for Box Culverts. The actual cross sections will be finalized based on the approved designs and accordingly BoQ's shall be submitted basin wise.</p> <p>4.19 The proposed SWD Cross Sections for Minor Drains (Tertiary) shall satisfy hydraulically, structurally and compatible with existing site conditions. In any case, the bed width shall not be less than 300mm for tertiary drains.</p> <p>4.20 The MoC (Material of Construction) for the Minor/Lateral drain sections is minimum VRCC M20 Grade and for Culverts VRCC M30 Grade and Steel Reinforcement with</p>

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

SI No	Description
	Fe-500D. After approval of designs and drawings, the EPC agency need to submit the BoQs based on approved drawings. All the drain Cross sections shall have bedding layers with Stone Crusher Dust/ sand bed& PCC bedding with minimum proportion of 1:4:8 having appropriate thicknesses as per approved drawings.
4.21	There should be a sand bed of minimum 200 mm thick and PCC (1:4:8) of 150 mm thick below the raft slab of Storm Water Drains and Culverts.
4.22	All approaches at the Culverts should be provided with M-30 grade concrete of 200mm thick for a minimum length of 2.50 Mtr. All the excavated trenches shall be properly restored to original shape after completion of the drains/ culverts.
4.23	All the Box Culverts should be provided with 150 mm x 150 mm Haunches at four corners with VRCC M30 Grade Concrete.
4.24	Necessary arrangements such as temporary diversion channels for diverting existing sullage flow, traffic diversion with proper sign boards shall be provided by the bidder during execution of work.

- (i) Construction of Storm Water Drainage Scheme by conducting ETS Survey, Establishment of PBMs using DGPS/GTS Survey, Soil Investigation, Designing, Construction, Commissioning of Primary, Secondary & Tertiary Storm water network in Kakinada City in order to achieve the SLBs (Service Level Benchmarks) as Stipulated by Govt. of India.
- (ii) Appropriate state of the art Construction Procedures & technologies shall be adopted for providing the storm water drainage system and various alternatives shall be explored for providing best possible solutions at every stage of Construction of the system including Box & Slab Culverts wherever necessary, Approaches, Crossings etc., and the proposed network shall be compatible with the existing system and necessary interconnections should be done in order to make it compatible with the proposed system and to commission the same.
- (iii) Design Features of the Proposed storm water drainage system include but not limited to:
- (iv) The Bidder shall conduct Auto level and ETS survey and establish Permanent Bench Marks at regular intervals with reference to GTS/DGPS in order to execute the work. The EPC Agency shall submit the Designs and Drawings duly taking into account & compatible with the existing storm water drainage system.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

- (v) After approval of the Drawings and Designs by the competent authority, the EPC Agency shall submit detailed estimates along with BoQ's based on the approved drawings which will be approved by the Dept. authorities based on which the execution shall be done. As per the provisions of EPC system, this shall form the basis of payment within the overall % break up mentioned in the document.
- (vi) It shall be expressly understood by the EPC Agency that the Drawings and details appended at the time of bidding are only indicative but not exhaustive.

## II. DELIVERABLES OF THE SCHEME:

SI No	Description	Remarks
5.	Construction of Storm Water Drainage Scheme by conducting ETS Survey, Establishment of PBMs using DGPS/GTS Survey, Soil Investigation, Designing, Construction, Commissioning of Primary, Secondary & Tertiary Storm water network in Kakinada Municipal Corporation in order to achieve the SLBs (Service Level Benchmarks) as stipulated by Govt. of India.	
6	<p>6.1 Investigation, Survey, Designs, Approval of Detailed Engineering Drawings, Preparation of Estimates etc. for Construction of Storm Water Drainage Scheme by conducting ETS Survey, Establishment of PBMs using DGPS/GTS Survey, Soil Investigation, Designing, Construction, Commissioning of Primary, Secondary &amp; Tertiary Storm water network in order to achieve the SLBs (Service Level Benchmarks) as Stipulated by GoI. Preparation of Hydraulic and structural designs and drawings, preparation of estimations and BOQs and shall be got approved by the Department.</p> <p><b>Zone-I: Sasikanth Nagar for a length of not less than 6870 Metres</b> The details of Primary, Secondary and Tertiary Storm Water Drains proposed in Zone-I area are as follows.</p> <p><b>Primary Drains</b> of width above 1.5 m</p> <p><b>Secondary Drains</b> of width above 0.6 m and upto 1.5 m</p> <p><b>Tertiary Drains</b> of width upto 0.6 m</p> <p><b>Zone-II: Vidyut Nagar, Rajeswari Nagar and Chaitanya Nagar for a length of not less than 9160 Metres</b> The details of Primary, Secondary and Tertiary Storm Water Drains</p>	<p><b>Length of Primary &amp; Secondary Drains (Major Drains) and Lateral/Tertiary Drains are given in the tables.</b></p> <p><b>This also includes covered Drains where ever necessary with Proper Grated/Kerb Inlets. All the Junctions in the drainage basin shall be designed properly to let out the storm water to the nearest SWDs through proper Inlets and connectivity arrangements.</b></p>

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

SI No	Description	Remarks
	<p>proposed in Zone II area are as follows.</p> <p><b>Primary Drains</b> of width above 1.5 m</p> <p><b>Secondary Drains</b> of width above 0.6 m and upto 1.5 m</p> <p><b>Tertiary Drains</b> of width upto 0.6 m</p> <p><b>Zone-III: Jayendra Nagar; Sastry Nagar for a length of not less than 3650 Metres</b></p> <p>The details of Primary, Secondary and Tertiary Storm Water Drains proposed in Zone III area are as follows.</p> <p><b>Primary Drains</b> of width above 1.5 m</p> <p><b>Secondary Drains</b> of width above 0.6 m and upto 1.5 m</p> <p><b>Tertiary Drains</b> of width upto 0.6 m</p> <p><b>Zone-IV: Santhi Nagar, Postal Colony; Revenue Colony for a length of not less than 6630 Metres</b></p> <p>The details of Primary, Secondary and Tertiary Storm Water Drains proposed in Zone IV area are as follows.</p> <p><b>Primary Drains</b> of width above 1.5 m</p> <p><b>Secondary Drains</b> of width above 0.6 m and upto 1.5 m</p> <p><b>Tertiary Drains</b> of width upto 0.6 m</p> <p><b>Zone-VI: Sanjay Nagar Area for a length of not less than 5230 Metres</b></p> <p>The details of Primary, Secondary and Tertiary Storm Water Drains proposed in Zone VI area are as follows.</p> <p><b>Primary Drains</b> of width above 1.5 m</p> <p><b>Secondary Drains</b> of width above 0.6 m and upto 1.5 m</p> <p><b>Tertiary Drains</b> of width upto 0.6 m</p>	<p><b>All the Drains / Culverts shall be designed as per CPHEEO manual and relevant IS / IRC codes and approved by the Department.</b></p>

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

SI No	Description	Remarks
	<p><b>Zone-VIII: Jagannaickpur for a length of not less than 12520 Metres</b></p> <p>The details of Primary, Secondary and Tertiary Storm Water Drains proposed in Zone VIII area are as follows.</p> <p><b>Primary Drains</b> of width above 1.5 m</p> <p><b>Secondary Drains</b> of width above 0.6 m and upto 1.5 m</p> <p><b>Tertiary Drains</b> of width upto 0.6 m</p> <p>The total quantity of VCC M-20 for all Drains shall not be less than 9389.57 Cum and the total quantity of RCC M-20 for all Drains shall not be less than 52879.37Cum. In case of decrease in quantities of M20/M30 the proportionate cost as per SOR 2017-18 and Standard Data will be deducted as per approved designs.</p> <p>The above lengths include providing of necessary Culverts, Approaches, abutments which shall be designed accordingly. Covered drains shall be provided where ever necessary as per site conditions. The covered drains shall have proper access facilities for O&amp;M. All the important Road Junctions shall be covered in each drainage basin and the Storm water shall be properly diverted to the nearest SWD by means of proper Inlets. The size and Spacing of Inlets shall be as per Urban Drainage Guide Lines.</p> <p>All the Storm Water Drains shall be constructed with VCC/VRCC M20 Grade Mix and Culverts with M30 Grade Mix (Cement:fine aggregate: coarse aggregate) corresponding to Table 9 of IS 456 using 20mm size graded machine crushed hard granite metal (coarse aggregate) from approved quarry including cost and conveyance of all materials like cement, fine aggregate (sand) coarse aggregate, water etc., to site and including all taxes on all materials and all operational, incidental and labour charges such as machine mixing, laying concrete, curing, centering&amp; shuttering etc.,complete but excluding seigniorage charges, cost of steel and its fabrication charges for finished item of work. Fe-500D</p>	

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

SI No	Description	Remarks
	<p>shall be used for Steel Reinforcement. The bedding layers shall be with sand of 200mm Thick &amp; PCC (1:4:8) of 150mm Thick.</p> <p>The RCC surface shall have the smooth finish and accordingly the form work and the Mix design shall take place. It shall be the responsibility of the EPC agency to properly design the form work and the Mix design to achieve the desired quality in terms of Strength, surface finish, grades &amp; alignment.</p> <p>Necessary Weep Holes shall be provided in the bed of the main drains where the height of Water Table is expected to be above bed level of the drain.</p> <p>However, each drainage basin needs to be investigated further and details need to be worked out based on the existing drains and compatibility &amp; suitability of the same with the proposed network. The detailed investigation, designs and drawings shall be got approved by the departmental authorities after which BoQs need to be prepared and estimates submitted for approval by the competent authority satisfying the overall objectives of the SWD scheme in tune with the SLBs prescribed by GoI and the broad scope of work along with MoC specified in the document.</p>	
7	<b>Bailing out of water for excavation and bed concrete drain walls with oil engine driven pump sets including hire charges, fuel charges etc.</b>	<b>36208 Hp-Hr</b>
8	S&F HYSD/TMT/MS bars (Lap splicing) Providing High Yield Strength Deformed (HYSD)/ Thermo Mechanically Treated (TMT) / Mild steel (MS) steel bars ( Fe 500 grade as per IS 1786-1979) of different diameters for RCC works , including labour charges for straightening, cutting, bending to required sizes and shapes, placing in position with cover blocks of approved materials and size and tying and lap-splicing with binding wire of 18 SWG, forming grills for reinforcement work as per approved designs and drawings, including cost and conveyance of steel bars, including all wastages such as overlaps, couplings, chairs, spacer bars including cost and conveyance of binding wire, cover blocks and all incidental, operational, labour charges such as cutting, bending, placing in position, tying including sales and other taxes on all materials etc., complete for finished item of work in all floors.( APSS No.126).	<b>3424790 Kgs.</b>

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

14. The above items/quantities are only "indicative" and it shall be expressly understood that the EPC Agency shall furnish the detailed BoQ& estimate based on approved drawings as per provisions of the bid document/ CPHEEO Manuals/ BIS standards which shall form the basis of detailed percentage break-up of payment schedule within the overall component limits approved by EPC Committee-I and variations if any will be dealt with as per EPC guidelines.
15. All the trenches shall be properly restored as per IRC/ MORTH specifications and the quantities given above are only indicative but not exhaustive. The detailed drawings shall be submitted by the EPC agency which will be approved by the component authority based on which the quantities have to be arrived and they shall be in conformity with the IRC/ MORTH specifications but within the overall percentage breakup mentioned in the document and the quantities mentioned are only indicative but not exhaustive.
- 16 The EPC Contractor has to abide by the following conditions:
  - 16.1 The "Employer" is the Commissioner, Municipal Corporation, Kakinada i.e. the Agreement Concluding authority. "Engineer in Charge" is the "Executive Engineer" in charge of execution in terms of G.O. Ms.No.50 I&CAD Dept., Dt.02-03-2009.
  - 16.2 Entrustment of the additional items contingent to the main work and within the scope of contract will be authorized by the "Employer" and the EPC agency shall be bound to execute such additional items at no extra cost to the employer and the cost of such items shall be deemed to have been included in the contract price quoted except for Retrofitting & Refurbishment of existing drains/structures
  - 16.3 Entrustment of additional items of work contingent to main work and outside the scope of contract will be authorized by the employer with the prior approval of EPC- Committee-III in terms of G.O. Ms.No.217 M.A. &U.D. Dept., Dt.11-11-2014.
  - 16.4 The Competent authority for approval of designs is Engineer-in-Chief (PH), Tadepalli, Guntur District or any other officer delegated by the Engineer-in-Chief [PH]
  - 16.5 The EPC agency shall carry out investigation, detailed layout, designs and drawings of all components of the work to be approved by competent departmental authority. The EPC agency shall follow all the relevant issued from time to time for various components of works. The EPC agency shall furnish "Detailed Estimate" prepared based on approved designs and drawings by competent authority as per G.O.Ms.No.50 I&CAD Dept., Dt.02.03-2009.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

16.6 The contractor/ EPC agency shall be subject to the following penalties for failure to carry out its operations as indicated below during execution. The Key Performance Indicators (KPIs) are as follows. The KPIs will be monitored through the department and accordingly the EPC agency will be penalized for not complying with the following KPIs.

S.No	Basis of Penalty	Benchmark	Penalty Value for each Parameter specified in the bid document
1	Blocked Drains due to obstructions created by foreign bodies	Clearing within 24 Hrs	No penalty
		>24 hrs& Up to 48 hrs	Rs.500/- per Complaint
		>48 hrs& up to 72 Hrs	Rs.1,000/- per Complaint
		>72 hrs	Rs.2,000/- per Complaint or Termination of the Contract
2	Important junctions flooded due to clogging of Grated Inlets/ Kerb Inlets due to improper execution methods.	Clearing within 24 Hrs.	No penalty
		>24 hrs& Up to 48 hrs	Rs.2,000/- per Complaint
		>48 hrs& up to 72 Hrs	Rs.4,000/- per Complaint
		> 72 hrs	Rs.8,000/- per Complaint or Termination of the Contract
3	Replacement of Water pipelines, House Service Connections, existing UGD/ Drainage system	Clearing within 24 Hrs	No penalty
		>24 hrs& Up to 48 hrs	Rs.1,000/- per Complaint
		>48 hrs& up to 72 Hrs	Rs.2,000/- per Complaint
		>72 hrs	Rs.4,000/- per Complaint or Termination of the Contract

**The Internal Bench Mark of the above scope of work and deliverables is as follows:**

The Internal Benchmark (IBM) of the scope of work and deliverables is arrived (Excluding reimbursable items) based on SoR of 2017-18 with Cement OPC 43/53 grade@ Rs.5,000/- MT (Jan-2017 to Dec-2017), Cost of Steel TMT/ HYSD bars Fe-500D@ Rs.38,000/- MT and Cost of Pig Iron @ Rs 28000/- MT as on May- 2017.

Sl. No.	Quantity	Unit	Description of the Component	Est. Amount (Rs. Lakhs)	IBM Amount (Rs. Lakhs)	Remarks
1.	1 Job	Job	Investigation survey by total station, Hydraulic designs & drawings. Structural designs & drawings. Structural designs & drawings, detailed estimates/BOQs. Completion reports including executed drawings etc. complete as per directions of departmental authorities	40.00	40.00	

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



Sl. No.	Quantity	Unit	Description of the Component	Est. Amount (Rs. Lakhs)	IBM Amount (Rs. Lakhs)	Remarks
2.	6870 Rmt	Rmt	Construction of VRCC drain at Zone-1	1566.99	1566.99	
3.	9160 Rmt	Rmt	Construction of VRCC drain at Zone-2	1446.58	1446.58	
4.	3650 Rmt	Rmt	Construction of VRCC drain at Zone-3	636.18	636.18	
5.	6630 Rmt	Rmt	Construction of VRCC drain at Zone-4	1419.73	1419.73	
6.	5230 Rmt	Rmt	Construction of VRCC drain at Zone-6	979.23	979.23	
7.	12520 Rmt	Rmt	Construction of VRCC drain at Zone-8	1565.54	1565.54	
8.	12000 Rmt	Rmt	Replacement of rider mains and pipes for water supply house service connections with ISI mark GI pipes and fittings so as not to disturb the existing water supply connections	75.26	75.26	
9.	450 Nos	No	Shifting of utilities like water lines, Electrical cables, electrical poles, drains etc	83.88	83.88	
			<b>Sub total CAPEX</b>	<b>7813.39</b>	<b>7813.39</b>	
			<b>I B M value: (CAPEX )</b>	<b>7813.39</b>		
			<b>P R O V I S I O N S:</b>			
10.	LS		Provision towards Statutory Tax Component	781.34		
11.	LS		Provision towards seigniorage charges	60.00		
12.	LS		Provision towards Payments to other Departments	60.00		
13.	LS		Provision towards Price Adjustment	99.11		
14.	LS		Provision towards Unforeseen items	334.16		
			<b>Sub-Total</b>	<b>1334.61</b>		
			<b>Grand Total</b>	<b>9148.00</b>		

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

- (i) The Agency shall quote the rate inclusive of all taxes for all items, unless otherwise mentioned.
- (ii) The EPC Contractor has to abide by the following condition
- (iii) The "Employer" is the Superintending Engineer, P.H. Circle, Kakinada i.e., the Agreement Concluding authority. "Engineer in Charge" is the "Executive Engineer" in charge of execution in terms of G.O. Ms.No.50 I&CAD Dept., Dt.02.03.2009
- (iv) Entrustment of the additional items contingent to the main work and within the scope of contract will be authorized by the "Employer" and the EPC Agency shall be bound to execute such additional items at no extra cost to the employer and the cost of such items shall be deemed to have been included in the contract price quoted.
- (v) Entrustment of additional items of work contingent to main work and outside the scope of contract will be authorized by the employer with the prior approval of EPC - Committee: III in terms of G.O. Ms.No.217 MA&UD Dept. Dt.11.11.2014.
- (vi) In such cases, where the approved designs result in "Substantial Reduction" in quantities of that component from the estimated quantities, the payment schedule will be adjusted to the actual quantities. Payment schedule will remain unchanged in case of increase in the quantities in a component as per Govt. Memo No.28569/M&MI(T-IV)/2012-1, Dt.20.12.2012 of Irrigation & CAD (PW) Department
- (vii) The Competent authority for approval of designs is the Engineer-in-Chief, Public Health, Tadepalli, Guntur District or any other authority as specified by Government in terms of G.O.Ms.No.50 I&CAD Dt.02.03.2009.
- (viii) The EPC Agency shall carry out investigation, detailed layout, designs and drawings of all components of the work to be approved by competent departmental authority. The EPC Agency shall follow all the relevant CPHEEO manuals/BIS/GoI manuals/advisories etc. issued from time to time for various components of works. The EPC Agency shall furnish "detailed estimate" with BoQs prepared based on approved designs and drawings by competent authority as per G.O.Ms.No.50 I&CAD Dept., Dt.02.03.2009

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada.**

## **PAYMENT SCHEDULE**

**Name of work:** Kakinada Municipal Corporation - Storm Water Drainage And Disposal Project In Kakinada Municipal Corporation Under AMRUT For 2016-20.

<b>S.No</b>	<b>Description</b>	<b>Percentage of IBM Value</b>
1	Investigation survey by total station, Hydraulic designs & drawings. Structural designs & drawings. Structural designs & drawings, detailed estimates/BOQs. Completion reports including executed drawings etc. complete as per directions of departmental authorities	0.51%
2	Construction of VRCC drain at Zone-1	20.06%
3	Construction of VRCC drain at Zone-2	18.51%
4	Construction of VRCC drain at Zone-3	8.14%
5	Construction of VRCC drain at Zone-4	18.17%
6	Construction of VRCC drain at Zone-6	12.53%
7	Construction of VRCC drain at Zone-8	20.04%
8	Replacement of rider mains and pipes for water supply house service connections with ISI mark GI pipes and fittings so as not to disturb the existing water supply connections	0.96%
9	Shifting of utilities like water lines, Electrical cables, electrical poles, drains etc	1.07%
	<b>Total</b>	<b>100%</b>

**The EPC Agency shall furnish the detailed estimates, BoQs based on approved drawings as per provisions of the Deliverables. The above payment schedule can be sub divided into various sub-components with appropriate percentage break up as per the estimate &BoQs approved by the Department authorities but within the overall percentage break up of each component as approved by EPC Committee-I.**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## NOTICE INVITING TENDER

1.	Department Name	KAKINADA MUNICIPAL CORPORATION
2.	Circle / Division Name	Kakinada Municipal Corporation
3.	Tender Number	Roc No.5989/2016-E3
4.	Tender Subject	Kakinada Municipal Corporation – Providing Storm Water Drainage and disposal under AMRUT Phase-II for the year 2016-2020.
5.	<b>IBM Value(CAPEX Value))</b>	<b>Rs. 7813.39 Lakhs</b>
6.	Period of Contract	18 (Eighteen) Months
7.	Form of Contract	EPC – Turnkey system.
8.	Tender Type	Open
9.	Tender Category	Works
10.	EMD / Bid Security	Rs.78,13,390/- (Rupees Seventy eight lakhs thirteen thousand three hundred and ninety only)
11.	EMD / Bid Security Payable to	In the shape of unconditional & irrevocable Bank Guarantee in the standard format in favour of Commissioner, Municipal Corporation, Kakinada to be obtained from any Government owned/Public Sector Bank or any scheduled Commercial Bank (OR) EMD amount through Online Payment using Net Banking/RTGS/NEFT their registered bank accounts using Credit Card / Debit Card as per the VISA/Master Card guidelines as per G.O.Ms.No:8 Dt: 09/05/2016 of IT&C Department.
12.	Transaction Fee	Rs. 29,500/-(Rupees twenty nine thousand five hundred only) (INR)(Inclusive of Tax as applicable)
13.	Transaction Payable to	M/s Vupadhi Techno Services Pvt., Ltd., Hyderabad through Electronic gate way payment system.
14.	Bid document available from	15.09.2017 at 16.00 Hours
15.	Bid Document available upto	04.10.2017 at 16.00 Hours
16.	Pre-Bid Meeting	22.09.2017 at 11.00 Hours
17.	Bid submission closing time	04.10.2017 at 16.30 Hours
18.	Bid submission	Online

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

19.	Pre-Qualification / Technical bid opening date (Qualification and Eligibility stage)	04.10.2017 at 17.00 Hours						
20.	Price Bid Opening Date (Financial Bid Stage)	09.10.2017 at 11.00 Hours						
21.	Place of tender Opening	O/o The Commissioner, Municipal Corporation, Kakinada						
22.	Officer Inviting Bids/ Contract Person	The Commissioner, Municipal Corporation, Kakinada						
23.	Address / E-mail ID	O/o The Commissioner, Municipal Corporation, Kakinada kkd_mplcorp@yahoo.com						
24.	Contact Details/Telephone, Fax	Superintending Engineer, Municipal Corporation, Kakinada Cell No: 8978686555						
25.	<p><b>Eligibility Criteria:</b></p> <ol style="list-style-type: none"> <li>Contractor / Contracting firm shall be registered with Government of Andhra Pradesh with valid Registration in terms of G.O.Ms.No.94, I &amp; CAD (PW-COD) Dept., dt:1.7.2003 and G.O.Ms.No.130, I &amp; CAD (PW-REFORMS) Dept., dt:22.5.2007.</li> <li>Technical &amp; Financial criteria requirement shall be fulfilled by the Bidder/Contracting firm stipulated in the foregoing clauses.</li> <li>The bids are limited to those individuals, firms, companies, who meet the following Qualification and the eligibility requirements.</li> </ol> <p><b>4. Technical Requirement:</b></p> <p>The Bidder / Contracting firm should have executed in any “One Financial Year” during the last 10 Financial years (2007-08 to 2016-17) the following quantities in one or more projects</p> <table style="margin-left: 40px;"> <tr> <td><b>1) PCC (1:4:8) / M 7.5 and above</b></td> <td><b>: Not less than 2383Cum</b></td> </tr> <tr> <td><b>2) VRCC M 20 and above</b></td> <td><b>:Not less than 20756Cum</b></td> </tr> <tr> <td><b>3) Fabrication of Steel</b></td> <td><b>: Not less than 1141M.T</b></td> </tr> </table> <p>The bidder shall enclose the experience certificates in support of technical criteria issued by the Engineer-in-Charge of the State/ Central Government Departments/ Undertakings not below the rank of the Executive Engineer or Equivalent and Counter signed by the next higher authority.</p>		<b>1) PCC (1:4:8) / M 7.5 and above</b>	<b>: Not less than 2383Cum</b>	<b>2) VRCC M 20 and above</b>	<b>:Not less than 20756Cum</b>	<b>3) Fabrication of Steel</b>	<b>: Not less than 1141M.T</b>
<b>1) PCC (1:4:8) / M 7.5 and above</b>	<b>: Not less than 2383Cum</b>							
<b>2) VRCC M 20 and above</b>	<b>:Not less than 20756Cum</b>							
<b>3) Fabrication of Steel</b>	<b>: Not less than 1141M.T</b>							

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

## 5. Financial Requirement:

- I (i) The bidder/Contracting firm should have satisfactorily executed Drainage Projects with CC Drain works costing not less than **Rs.2604.46Lakhs** in any one Financial Year during the last Ten[10] financial years ending with 2016-17 (2007-08 to 2016-17). The value will be updated by giving 10% simple weightage per year to bring them to 2017-18 price level.
- (ii) The bidder/Contracting Firm should produce liquid assets / credit facilities / Solvency certificates from any Indian Nationalized / Scheduled Banks or as per instructions issued in G.O.Ms. No. 129 I & CAD Dept.,Dt.05-10-2015 for an amount of **Rs.1302.23 Lakhs**.
- (iii) The bidder's/Contracting Firm's average net worth for the last Three (3) financial years shall not be less than **Rs.2186.85 Lakhs**. In this regard a certificate issued by the Chartered Accountant in the current financial year shall be uploaded by the bidder.
- II (i) Assessed available Bid capacity as per formula (2AN-B) should be greater than IBM value assessed by the Department.
- A= Maximum Value of Civil Engineering works executed in any one financial year during the last ten years (updated to 2017-18 price level by giving simple weightage of 10% per annum ) taking into account the completed as well as works in progress.(Annual turnover certificate of civil Engineering works certified by C.A. or Certificate issued by the Executing Authority along with balance sheet shall be uploaded by the bidder)
- N= Number of years prescribed for completion of the works for which tenders are invited
- B= Value of existing commitments and ongoing works to be completed during the period of completion of the project for which tenders are invited. (Certificate in support of existing commitments shall be uploaded by the bidder)

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

(ii) The bidder / Contracting firm who has applied for / availed Corporate Debt Restructuring (CDR) / SDR in the last five[5] financial years are not eligible to participate in the bid. In regards to this clause, a certificate issued by the “Chartered Accountant” in the current financial year shall be uploaded by the Bidder.

(iii) The bidder should furnish the availability (either owned or leased) of following key and critical equipment required for the work:

1	Hydraulic Excavators	: 6 Nos.
2	Rock/Concrete Breakers	: 2 Nos.
3	Earth Compactors	: 4 Nos.
4	Concrete Plate &Pin Vibrators	: 10 Nos.
5	Hopper Mixers	: 10 Nos.
6	Tractors/Tippers	: 20 Nos.
7	Hydro 10 t capacity	: 3 Nos.
8	Concrete Sheet Metal Form work	: 15,000Sq.ft
9	Scaffolding Material	: 1000 Rmt
10	Water Tankers	: 5 Nos.

(iv) The bidder/Contracting firm should furnish the availability of key personnel:

Graduate Engineers (3Nos)	: 5years experience
Diploma Engineers (6Nos)	: 5 years experience

(v) The bidder/Contracting firm should furnish the particulars of quality control testing lab owned or tie up with established reputed quality control testing laboratories.

(vi) The bidder/Contracting firm should furnish the Income tax PAN along with Proof of submission of Latest IT-returns (ITR-V)

(vii) The bidder/Contracting firm should furnish the AP VAT/ GST Registration certificate with Government of Andhra Pradesh at the time of bidding. AP VAT Clearance Certificate if not uploaded at the time of bidding should be furnished at the time of agreement.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

27.	<b><u>Procedure For Bid Submission</u></b>
	<p>The bidder shall submit his response through Bid submission to the tender on aprocurement platform at <a href="http://www.aprocurement.gov.in">www.aprocurement.gov.in</a> by following the procedure given below. The bidder would be required to register on the e-procurement market place <a href="http://www.aprocurement.gov.in">www.aprocurement.gov.in</a> or <a href="https://tender.aprocurement.gov.in">https://tender.aprocurement.gov.in</a> and submit their bids online. Offline bids shall not be entertained by the Tender Inviting Authority for the tenders published in e-procurement platform.</p> <p><b>1.</b> The bidders shall submit their eligibility and qualification details, Technical bid, Financial bid etc., in the online standard formats displayed in aprocurement web site. The bidders shall upload the scanned copies of all the relevant certificates, documents etc., in support of their eligibility criteria/technical bids and other certificate/documents in the aprocurement web site. The bidder shall sign on the statements, documents, certificates, uploaded by him, owning responsibility for their correctness/authenticity. The bidder shall attach all the required documents for the specific tender after uploading the same during the bid submission as per the tender notice and bid document. Registration with aprocurement platform: For registration and online bid submission bidders may contact HELP DESK. <a href="http://www.aprocurement.gov.in">www.aprocurement.gov.in</a> or <a href="https://tender.aprocurement.gov.in">https://tender.aprocurement.gov.in</a>.</p> <p><b>2.</b> Digital Certificate authentication: The bidder shall authenticate the bid with his Digital Certificate for submitting the bid electronically on aprocurement platform and the bids not authenticated by digital certificate of the bidder will not be accepted on the aprocurement platform. For obtaining Digital Signature Certificate, you may please Contact: Andhra Pradesh Technology Services 4<sup>th</sup> Floor, RITZ Apartments, Prasadampadu Bus Stop, Vijayawada (OR) You may please Contact Registration Authorities of any Certifying Authorities in India. The list of CAs are available by clicking the link <a href="https://tender.aprocurement.gov.in/digital-signature.html#">https://tender.aprocurement.gov.in/digital-signature.html#</a></p> <p><b>3.</b> Hard copies: i) Vide ref. G.O.Ms.No.174, I&amp;CAD dept dated:1-9-2008, submission of original hard copies of the uploaded scanned copies of Proof of online Payment (Remittance)/BG towards EMD by participating bidders to the tender inviting authority before the opening of the price bid is dispensed forthwith. ii) All the bidders shall invariably upload the scanned copies of Proof of online Payment (Remittance)/BG in aprocurement system and this will be the primary requirement to consider the bid responsive. iii) The department shall carry out the technical evaluation solely based on the</p>

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .



uploaded certificates/documents, Proof of online Payment (Remittance)/BG towards EMD in the aprocurement system and open the price bids of the responsive bidders. iv) The department will notify the successful bidder for submission of original hardcopies of all the uploaded documents Proof of online Payment (Remittance)/BG towards EMD prior to entering into agreement. v) The successful bidder shall invariably furnish the original Proof of online Payment (Remittance)/BG towards EMD, Certificates/Documents of the uploaded scan copies to the Tender Inviting Authority before entering into agreement, either personally or through courier or post and the receipt of the same within the stipulated date shall be the responsibility of the successful bidder. The department will not take any responsibility for any delay in receipt/non-receipt of original Proof of online Payment (Remittance)/BG towards EMD, Certificates/Documents from the successful bidder before the stipulated time. On receipt of documents, the department shall ensure the genuinity of the Proof of online Payment (Remittance)/BG towards EMD and all other certificates/documents uploaded by the bidder in aprocurement system. In support of the qualification criteria before concluding the agreement.

**4.** The GO. Ms. No. 174 -I&CAD dated: 1-9-2008 Deactivation of Bidders If any successful bidder fails to submit the original hard copies of uploaded certificates/documents, Proof of online Payment (Remittance)/BG towards EMD within stipulated time or if any variation is noticed between the uploaded documents and the hardcopies submitted by the bidder, as the successful bidder will be suspended from participating in the tenders on aprocurement platform for a period of 3 years. The aprocurement system would deactivate the user ID of such defaulting bidder based on the trigger/recommendation by the Tender Inviting Authority in the system. Besides this, the department shall invoke all processes of law including criminal prosecution of such defaulting bidder as an act of extreme deterrence to avoid delays in the tender process for execution of the development schemes taken up by the Government. Other conditions as per tender document are applicable. The bidder is requested to get a confirmed acknowledgement from the Tender Inviting Authority a proof of Hardcopies submission to avoid any discrepancy.

**5.Payment of EMD:** It is mandatory for all participant bidders to electronically pay EMD Online by utilizing the Payment Gateway Service on E-Procurement platform". The Electronic Payment Gateway accepts all Master and Visa Credit Cards issued by any bank and Direct Debit facility/Net Banking/NEFT payment modes through ICICI Bank and/or

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

Axis Bank Payment Gateways to facilitate the transaction. This is in compliance as per G.O.Ms. 08 dated 08.05.2016. A Goods and Service tax of 18.00% + Bank charges on the transaction amount payable to APTS shall be applicable. In addition to this, Bidders can also pay the EMD through Download of PDF format of RTGS Challan for respective Payment gateway and pay the EMD through their Parent Bank account. Once the EMD is received by the aperocurement application, Bidders can automatically continue with their Bid Submission online.

**IMPORTANT NOTE REGARDING EMD PAYMENT:**

1. Bidders are encouraged to use only Net banking facility for payment of EMDs as far as possible for faster refunds in case of unsuccessful Bids for the Tender.

2. Bidders are advised not to use RTGS Challan downloads at the penultimate hour of Bid submission closing as any delay by their banker would not enable Bid submission on the platform. Please allow a minimum of 60 minutes for enabling, Continuation of Bid Submission, from the time the Pool Account receives credit of the EMD from the Bidder's Bank for both NEFT and RTGS Transfers. For RTGS Transfers, the Pool Account can get immediate credit whereas NEFT transfers would follow RBI Payment Cycle time.

3. Bidders are advised to pay EMD Online atleast T-1 or T-2 days before Bid submission closing date (T= Bid submission closing date) to avoid last minute delays and denials of successful Bid submission and to take care of any delays in Banking procedures. Un Successful Bidder EMD Refund process: - The bid is declared unsuccessful, under the following circumstances. Bid submitted by the bidder is not the lowest bid. Upon Finalization of the L1 Bid. Technical Disqualification of the Bid in case of 2 cover system. EMD paid but bid not submitted EMD refund will be initiated by the Tender Inviting Authority directly and through Online only and through the same payment channels as EMD received by the Department. (RTGS / NEFT /Credit Card /Debit Card refund), within 30 days from the date of publishing the Decision / Result. However, VupadhiTechnologies /GOAP will not be held responsible for the delays occurring due to banking channels/procedures/processes of the respective vendor.

**IMPORTANT NOTE REGARDING EMD REFUNDS:** Bidders are requested to use discretion in their choice of payment channel for remittance of EMD. Time taken for Refunds under Ideal conditions:

1. Net Banking / NEFT / RTGS Challan: One (1) Banking Business Day from time of

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

initiation of refund by Tender Inviting Authority subject to RTGS/NEFT timings of RBI.

2. Credit card/ Debit card: 7-10 working days from time of initiation of refund by the Tender Inviting Authority. However, this may be longer in case of certain bank cards. In case of delays, bidders are requested to contact the Card issuing Bank for faster resolution.

**6. Payment of Transaction Fee:** It is mandatory for all the participant bidders from 1st January 2006 to electronically pay a Non-refundable Transaction fee to M/s. APTS, the service provider through "Payment Gateway Service on E-Procurement platform". The Electronic Payment Gateway accepts all Master and Visa Credit Cards issued by any bank and Direct Debit facility/Net Banking of ICICI Bank, Axis Bank to facilitate the transaction. This is in compliance as per G.O.Ms. 13 dated 07.05.2006. A Goods and Service tax of 18.00% + Bank charges on the transaction amount payable to APTS shall be applicable.

**7. Corpus Fund:** As per GO MS No.4 User departments shall collect 0.04% of ECV (estimated contract value) with a cap of Rs. 10,000 (Rupees ten thousand only) for all works with ECV upto Rs.50 Crores, and Rs. 25,000/- (Rupees twenty-five thousand only) for works with ECV above Rs.50 Crores, from successful bidders on aprocurement platform before entering into agreement / issue of purchase orders, towards aprocurement fund in favour of Managing Director, APTS. There shall not be any charge towards aprocurement fund in case of works, goods and services with ECV less than and upto Rs. 10 lakhs

**8. Tender Document:** The bidder is requested to download the tender document and read all the terms and conditions mentioned in the tender Document and seek clarification if any from the Tender Inviting Authority. Any offline bid submission clause in the tender document could be neglected. The bidder has to keep track of any changes by viewing the Addendum/Corrigenda issued by the Tender Inviting Authority on time-to-time basis in the E-Procurement platform. The Department calling for tenders shall not be responsible for any claims/problems arising out of this.

**9. Bid Submission Acknowledgement:** The bidder shall complete all the processes and steps required for Bid submission. The system will generate an acknowledgement with a unique bid submission number after completing all the prescribed steps and processes by the bidder. Users may also note that the bids for which an acknowledgement is not

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

	<p>generated by the e-procurement system are treated as invalid or not saved in the system. Such invalid bids are not made available to the Tender Inviting Authority for processing the bids. The Government of AP are not responsible for incomplete bid submission by users.</p>						
<p>28.</p>	<p><b><u>General Terms &amp; Conditions</u></b></p> <p>To qualify for consideration of award of contract each tenderer should fulfill the following criteria.</p> <p>1. Contractor / Contracting firm shall be registered with Government of Andhra Pradesh with valid Registration in terms of G.O.Ms.No.94, I &amp; CAD (PW-COD) Dept., dt:1.7.2003 and G.O.Ms.No.130, I &amp; CAD (PW-REFORMS) Dept., dt:22.5.2007. 2. The bids are limited to those individuals, firms, companies, who meet the following.3.</p> <p><b>Technical Requirement:</b> The Bidder / Contracting firm should have executed in any “One Financial Year” during the last 10 Financial years (2007-08 to 2016-17) the following quantities in one or more projects</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 60%;">1) PCC (1:4:8) / M 7.5 and above</td> <td>: Not less than 4338 Cum</td> </tr> <tr> <td>2) VRCC M 20 and above</td> <td>:Not less than 20756 Cum</td> </tr> <tr> <td>3) Fabrication of Steel</td> <td>: Not less than 1141M.T</td> </tr> </table> <p>The bidder shall enclose the experience certificates in support of technical criteria issued by the Engineer-in-Charge of the State/ Central Government Departments/ Undertakings not below the rank of the Executive Engineer or Equivalent and Counter signed by the next higher authority.4. <b>Financial Requirement:</b> I (i) The bidder/Contracting firm should have satisfactorily executed Drainage Projects with CC Drain works costing not less than <b>Rs.2604.46 Lakhs</b> in any one Financial Year during the last Ten[10] financial years ending with 2016-17 (2007-08 to 2016-17). The value will be updated by giving 10% simple weightage per year to bring them to 2017-18 price level. (ii) The bidder/Contracting Firm should produce liquid assets / credit facilities / Solvency certificates from any Indian Nationalized / Scheduled Banks or as per instructions issued in G.O.Ms. No. 129 I &amp; CAD Dept.,Dt.05-10-2015 for an amount of <b>Rs.1302.23 Lakhs</b>. (iii) The bidder's/Contracting Firm's average net worth for the last Three (3) financial years shall not be less than <b>Rs.2604.46 Lakhs</b>. In this regard a certificate issued by the Chartered Accountant in the current financial year shall be uploaded by the bidder.</p> <p>II (i) Assessed available Bid capacity as per formula (2AN-B) should be greater than IBM value assessed by the Department.</p>	1) PCC (1:4:8) / M 7.5 and above	: Not less than 4338 Cum	2) VRCC M 20 and above	:Not less than 20756 Cum	3) Fabrication of Steel	: Not less than 1141M.T
1) PCC (1:4:8) / M 7.5 and above	: Not less than 4338 Cum						
2) VRCC M 20 and above	:Not less than 20756 Cum						
3) Fabrication of Steel	: Not less than 1141M.T						

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

A= Maximum Value of Civil Engineering works executed in any one financial year during the last ten years (updated to 2017-18 price level by giving simple weightage of 10% per annum ) taking into account the completed as well as works in progress.(Annual turnover certificate of civil Engineering works certified by C.A. or Certificate issued by the Executing Authority along with balance sheet shall be uploaded by the bidder)N= Number of years prescribed for completion of the works for which tenders are invited B= Value of existing commitments and ongoing works to be completed during the period of completion of the project for which tenders are invited. (Certificate in support of existing commitments shall be uploaded by the bidder)

(ii) The bidder / Contracting firm who has applied for / availed Corporate Debt Restructuring (CDR) / SDR in the last five[5] financial years are not eligible to participate in the bid. In regards to this clause, a certificate issued by the “Chartered Accountant” in the current financial year shall be uploaded by the Bidder. (iii) The bidder should furnish the availability (either owned or leased) of following key and critical equipment required for the work:

1	Hydraulic Excavators	: 6 Nos.
2	Rock/Concrete Breakers	: 2 Nos.
3	Earth Compactors	: 4 Nos.
4	Concrete Plate & Pin Vibrators	: 10 Nos.
5	Hopper Mixers	: 10 Nos.
6	Tractors/Tipplers	: 20 Nos.
7	Hydro 10 t capacity	: 3 Nos.
8	Concrete Sheet Metal Form work	: 15,000 Sq.ft
9	Scaffolding Material	: 1000 Rmt
10	Water Tankers	: 5 Nos.

(iv) The bidder/Contracting firm should furnish the availability of key personnel:

Graduate Engineers (3Nos)	: 5 years experience
Diploma Engineers (6Nos)	: 5 years experience

(v) The bidder/Contracting firm should furnish the particulars of quality control testing lab owned or tie up with established reputed quality control testing laboratories. (vi) The bidder/Contracting firm should furnish the Income tax PAN along with Proof of submission of Latest IT-returns (ITR-V) (vii) The bidder/Contracting firm should furnish the AP VAT/ GST Registration certificate with Government of Andhra Pradesh at the time of bidding. AP VAT Clearance Certificate if not uploaded at the time of bidding should be furnished at the time of agreement.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

- 1) The details and certificates are to be furnished as per the proforma available in the tender schedules.
- 2) The tenderer should have the key and critical equipment (either owned or leased) as mentioned in the tender document
- 3) The bidder is subjected to be disqualified and liable for black listing and forfeiture of EMD, if he is found to have misled or furnished false information in the forms/statements/ certificates submitted in proof of qualification requirements.
- 4) Even while execution of the work, if found that the contractor had produced False/fake certificates of experience he will be liable for black listing and the contract will be liable for termination and liable for forfeiture of EMD and all the amounts due to him.

**Special Conditions:**

- 1) Tenders with an excess of more than 5 % over the internal benchmark value arrived by the department shall be summarily rejected.
- 2) In respect of tenders beyond 25 % less than Internal Benchmark arrived by the Department, a Bank Guarantee (or) Demand Draft for the difference between the tendered amount and 75 % of Internal Bench Mark value should be furnished at the time of agreement as additional security deposits.
- 3) Transaction Fees: The transaction fee of Rs.25000/- + 18.00 % Goods and Service Tax (Rs.29,500/-) has to be paid through electronic gate way payment system to M/s Vupadhi Technologies Pvt Ltd, by each participating bidder at the time of Bid submission.
- 4) e-procurement Corpus fund: An e-procurement corpus fund of Rs.25,000/- administered by APTS has to be paid by the successful bidder in the shape of Demand Draft in favour of Managing Director, A.P. Technological Services at the time of concluding the Agreement
- 5) 0.15% CM Relief Fund and 0.10 % N.A.C has to be paid by the successful bidder to be recovered from the bills during execution.
- 6) The e-procurement application is PKI enabled and supports the digital certificates issued by APTS, for signing the bids at the time of submission by contractor. The contractor has to procure digital certificates issued by APTS Ltd., Hyderabad as per

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

the procedure. Digitally signed bids are to be submitted electronically through e-procurement, without which the tender will not be considered for opening the Price Bid.

- 7) The bidders intend to know the procedure of bid submission on e-procurement platform; suitable training will be given by M/s Vupadhi Technologies Pvt. Ltd.,
- 8) Government reserves the right to cancel/alter the bid conditions at any time.
- 9) The bidder should submit a copy of valid VAT/GST registration certificate issued by the VAT/GST registration authority.
- 10) In case of discrepancy between the price quoted online and in supporting documents uploaded, then the price quoted in the template provided online only would be the considered for evaluation

**Other Conditions:**

- 1) The scope of work mentioned in the tender document is indicative and the bidder should submit the detailed designs duly conducting survey.
- 2) The time for completion of the project is 18 months.
- 3) Issue of bid document will not automatically construe the eligibility of the bidders for participation in the subsequent bidding process and will be determined during evaluation.
- 4) Department reserves the right to accept or reject any or all the bids without assigning any reasons whatsoever.
- 5) The dates stipulated in the NIT are firm and under no circumstances they will be relaxed unless officially extended.
- 6) The bidders shall submit their tenders online only. The department is not responsible for any sort of difficulties for the problems in the Internet, website in submission of tenders.
- 7) Government reserves the right to cancel/alter the bid conditions at any time.
- 8) In the process, if the works are stalled due to legal intervention or due to natural calamities, no compensation will be paid.
- 9) All necessary permissions / clearance / approvals are to be processed and obtained by the firm only. As a user agency this Department will initiate the

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

proposals in respect of above.

10) All land cost required for the disposal of muck is rests with the firm only i.e., no land will be supplied by the department.

11) Other conditions can be seen in the bidding document.

**The IBM value is exclusive of the following recoverable/reimbursable amounts.**

1. Seigniorage charges of material
2. Towards Statutory Tax Component
3. Towards NAC @ 0.1%

The rates of items in the estimate are worked out based on SOR 2017-18 with Cement rate adopted for Rs. 5000/- per MT and Steel for Rs. 37,500/- for MT

**Note: The Internal Bench Mark (IBM) is arrived based on the probable quantities indicated in the deliverables. Any decrease in the deliverable quantities will be regulated based on the rates adopted for fixing of IBM. The length of the pipeline will be considered exclusive of specials.**

**Superintending Engineer,  
Municipal Corporation, Kakinada**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada.**



## **INSTRUCTION TO BIDDERS**

### **1. Description of the works**

Kakinada Municipal Corporation - Providing Storm Water Drainage and Disposal under AMRUT Phase-II for the year 2016-2020 in Kakinada Municipal Corporation

### **2. Source of funds**

Expenditure for this Project will be met from the fund released by Govt. of India under AMRUT Scheme, Government of Andhra Pradesh and Kakinada Municipal Corporation.

### **3. The EPC Contractor has to abide by the following conditions:**

3.1 The "Employer" is the Commissioner, Municipal Corporation, Kakinada i.e. the Agreement Concluding authority. "Engineer in Charge" is the "Executive Engineer" in charge of execution in terms of G.O. Ms.No.50 I&CAD Dept., Dt.02-03-2009.

3.2 Entrustment of the additional items contingent to the main work and within the scope of contract will be authorized by the "Employer" and the EPC agency shall be bound to execute such additional items at no extra cost to the employer and the cost of such items shall be deemed to have been included in the contract price quoted except for Retrofitting & Refurbishment of existing drains/structures

3.3 Entrustment of additional items of work contingent to main work and outside the scope of contract will be authorized by the employer with the prior approval of EPC- Committee-III in terms of G.O. Ms.No.217 M.A. &U.D. Dept., Dt.11-11-2014.

3.4 The Competent authority for approval of designs is Engineer-in-Chief (PH), Tadepalli, Guntur District or any other officer delegated by the Engineer-in-Chief [PH]

3.5 The EPC agency shall carry out investigation, detailed layout, designs and drawings of all components of the work to be approved by competent departmental authority. The EPC agency shall follow all the relevant issued from time to time for various components of works. The EPC agency shall furnish "Detailed Estimate" prepared based on approved designs and drawings by competent authority as per G.O.Ms.No.50 I&CAD Dept., Dt.02.03-2009.

### **3. Eligibility and Qualification requirements**

For Evaluation & Selection of a bidder for the project, 'Single Stage' process is proposed to be followed. No separate Pre-Qualification is proposed for short listing of bidders.

Eligibility Criteria: The proposals of only those bidders who possess the following minimum Technical criteria & Financial capability would be technically evaluated as per Clause 23 below and financial bids of bidders who qualify in technical evaluation shall only be opened and lowest bidder shall be awarded the work.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

## SECTION- 2

### GENERAL CONDITIONS OF THE CONTRACT

#### Name of the work

Kakinada Municipal Corporation - Providing Storm Water Drainage and Disposal under AMRUT Phase-II for the year 2016-2020 in Kakinada Municipal Corporation

#### **ELIGIBILITY CRITERIA :**

#### **The eligibility criteria are detailed below:**

1. Period of Completion: 18 months (Inclusive of Monsoon Period).
2. Contractor / Contracting firm shall be registered with Government of Andhra Pradesh with valid Registration in terms of G.O.Ms.No.94, I & CAD (PW-COD) Dept., dt:1.7.2003 and G.O.Ms.No.130, I & CAD (PW-REFORMS) Dept., dt:22.5.2007.
3. The bids are limited to those individuals, firms, companies, who meet the following Qualification and the eligibility requirements.

#### **4. Technical Requirement:**

The Bidder / Contracting firm should have executed in any "One Financial Year" during the last 10 financial years (2007-08 to 2016-17) the following quantities in one or more projects

- |   |                                |
|---|--------------------------------|
| <b>1) PCC (1:4:8) / M 7.5 and above</b> | <b>: Not less than 4338Cum</b> |
| <b>2) VRCC M 20 and above</b>           | <b>:Not less than 20756Cum</b> |
| <b>3) Fabrication of Steel</b>          | <b>: Not less than 1141M.T</b> |

The bidder shall enclose the experience certificates in support of technical criteria issued by the Engineer-in-Charge of the State/ Central Government Departments/ Undertakings not below the rank of the Executive Engineer or Equivalent and Counter signed by the next higher authority.

#### **5. Financial Requirement:**

- I (i) The bidder/Contracting firm should have satisfactorily executed Drainage Projects with CC Drain works costing not less than **Rs.2604.46Lakhs** in any one Financial Year during the last Ten[10] financial years ending with 2016-17 (2007-08 to 2016-17). The value will be updated by giving 10% simple weightage per year to bring them to 2017-18 price level.
- (ii) The bidder/Contracting Firm should produce liquid assets / credit facilities / Solvency certificates from any Indian Nationalized / Scheduled Banks or as per instructions issued in G.O.Ms. No. 129 I & CAD Dept.,Dt.05-10-2015 for an amount of **Rs.1302.23 Lakhs.**

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

(iii) The bidder's/Contracting Firm's average net worth for the last Three (3) financial years shall not be less than **Rs.2186.85 Lakhs**. In this regard a certificate issued by the Chartered Accountant in the current financial year shall be uploaded by the bidder.

6. (i) Assessed available Bid capacity as per formula (2AN-B) should be greater than IBM value assessed by the Department.

A= Maximum Value of Civil Engineering works executed in any one financial year during the last ten years (updated to 2017-18 price level by giving simple weightage of 10% per annum ) taking into account the completed as well as works in progress.(Annual turnover certificate of civil Engineering works certified by C.A. or Certificate issued by the Executing Authority along with balance sheet shall be uploaded by the bidder)

N= Number of years prescribed for completion of the works for which tenders are invited

B= Value of existing commitments and ongoing works to be completed during the period of completion of the project for which tenders are invited. (Certificate in support of existing commitments shall be uploaded by the bidder)

(ii) The bidder / Contracting firm who has applied for / availed Corporate Debt Restructuring (CDR) / SDR in the last five[5] financial years are not eligible to participate in the bid. In regards to this clause, a certificate issued by the “Chartered Accountant” in the current financial year shall be uploaded by the Bidder.

(iii) The bidder should furnish the availability (either owned or leased) of following key and critical equipment required for the work:

1	Hydraulic Excavators	: 6 Nos.
2	Rock/Concrete Breakers	: 2 Nos.
3	Earth Compactors	: 4 Nos.
4	Concrete Plate & Pin Vibrators	: 10 Nos.
5	Hopper Mixers	: 10 Nos.
6	Tractors/Tippers	: 20 Nos.
7	Hydro 10 t capacity	: 3 Nos.
8	Concrete Sheet Metal Form work	: 15,000Sq.ft
9	Scaffolding Material	: 1000 Rmt
10	Water Tankers	: 5 Nos.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada.**

(iv) The bidder/Contracting firm should furnish the availability of key personnel:

Graduate Engineers (3Nos) : 5years experience

Diploma Engineers (6Nos) : 5 years experience

(v) The bidder/Contracting firm should furnish the particulars of quality control testing lab owned or tie up with establishedreputed quality control testing laboratories.

(vi) The bidder/Contracting firm should furnish the Income tax PAN along with Proof of submission of Latest IT-returns (ITR-V)

(vii) The bidder/Contracting firm should furnish the AP VAT/ GST Registration certificate with Government of Andhra Pradesh at the time of bidding. AP VAT Clearance Certificate if not uploaded at the time of bidding should be furnished at the time of agreement.

**Note: The Internal Bench Mark (IBM) is arrived based on the probable quantities indicated in the deliverables. Any decrease in the deliverable quantities will be regulated based on the rates adopted for fixing of IBM. The length of the pipeline will be considered exclusive of specials**

## **7. Other Contractors:**

7.1 The Contractor shall cooperate and share the Site with other Contractors, Public Authorities, Utilities, and the Department. The Contractor shall also provide facilities and services for them as directed by the Engineer-in-charge.

## **8. Personnel:**

8.1 The Contractor shall employ the required Key Personnel named in the Schedule of Key Personnel to carry out the functions stated in the Schedule or other personnel approved by the Engineer-in-charge. The Engineer-in-charge will approve any proposed replacement of Key Personnel only if their qualifications, abilities, and relevant experience are substantially equal to or better than those of the personnel listed in the Schedule.

8.2 Failure to employ the required technical personnel by the contractor the following amounts will be recovered from the contractor over and above the provision made in Schedule-B from the contractors bills.

8.3 The technical personnel should be on full time and available at site whenever required by Engineer in Charge to take instructions.

8.4 The names of the technical personnel to be employed by the contractor should be furnished in the statement enclosed separately.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

- 8.5 If the contractor fails to employ technical personnel the work will be suspended or department will engage a technical personnel and recover the cost thereof from the contractor
- 8.6 If the **Employer/Employer's Representative** asks the Contractor to remove a person who is a member of Contractor's staff or his work force stating the reasons the Contractor Shall ensure that the person leaves the site forthwith and has no further connection with the work in the contract.
- 8.7 **The List of Key Personnel to be deployed on this project is mentioned in Annexure – A.**

**9. Contractor's Risks:**

- 9.1 All risks or loss of or damage to physical property and of personnel injury and death, which arise during and in consequence of the performance of the Contract are the responsibility of the Contractor.

**10. Site Inspections:**

- 10.1 The contractor should inspect the site and also proposed quarries of choice for materials source of water and quote his percentage including quarrying, conveyance and all other charges etc.
- 10.2 The responsibility for arranging the land for borrow area rests with the Contractor and no separate payment will be made for procurement or otherwise. The contractor's quoted percentage will be inclusive of land cost.

**11. Contractor to Construct the Works:**

- 11.1 The **Contractor** shall construct and Commission the Work in accordance with the specifications and Drawings.

**12. Diversion of streams /Vagus / Drains.**

- 12.1 The contractor shall at all times carry out construction of cross drainage works in a manner creating least interference to the natural flow of water while consistent with the satisfactory execution of work. A temporary diversion shall be formed by the contractor at his cost where necessary. No extra payment shall be made for this work.
- 12.2 No separate payment for bailing out sub-soils, water drainage or locked up rain water for diversion, shoring, foundations, bailing of pumping water either from excavation of soils from foundations or such other incidental will be paid. The percentage to be quoted by the contractor are for the finished item of work in situ and including all the incidental charges. The borrow pits are also to be de-watered by the contractor himself at his expense, if that should be found necessary.
- 12.3 The work of diversion arrangements should be carefully planned and prepared by the contractor and forwarded to the Executive Engineer technically substantiating the proposals and approval of the Executive Engineer obtained for execution

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

12.4 The contractor has to arrange for bailing out water, protection to the work in progress and the portion of works already completed and safety measures for men and materials and all necessary arrangements to complete the work.

12.5 All the arrangements so required should be carried out and maintained at the cost of the contractor and no separate or additional payments is admissible..

12.6 Coffor Dams.

Necessary coffer dams and ring bunds have to be constructed at the cost of contractor and same are to be removed after the completion of the work. The contractor has to quote his percentage keeping the above in view.

### **13. Power Supply.**

13.1 The contractor shall make his own arrangements for obtaining power from the Electricity dept., at his own cost. The contractor will pay the bills of Electricity Department for the cost of power consumed by him.

13.2 The contractor shall satisfy all the conditions and rules required as per Indian Electricity Act 1910 and under Rule-45 (I) of the Indian Electricity Rules, 1956 as amended from time to time and other pertinent rules.

13.3 The power shall be used for bonafide departmental work only.

### **14. Temporary Diversions (Works on Highways/Municipal Roads)**

14.1 The contractor shall at all times carryout work on the highway in a manner creating least interference to the flow of traffic while consistent with the satisfactory execution of the same. For all works involving improvements to the existing highway, the contractor shall in accordance with the directions of the Engineer-in-charge provide and maintain during the execution of the work a passage for traffic, either along a part of the existing carriage way under improvement or along a temporary diversion constructed close to the highway.

14.2 If in the opinion of the **Employer/Employer's Representative**, it is not possible to pass the traffic on part width of the carriageway for any reason, a temporary diversion close to the highway shall be constructed as directed. It shall be paved with the materials such as hard moorum, gravel and stone, metal to the specified thickness as directed by **Employer/Employer's Representative**. In all cases, the alignment, gradients and surface type of the diversion including its junctions, shall be approved by the **Employer/Employer's Representative** before the highway is closed to traffic..

14.3 The contractor shall take all necessary measures for the safety of traffic during construction and provide erect and maintain such barricades, including signs, markings, flags lights and information and protection of traffic approaching or passing through the section of the highway under improvement. Before taking up any construction, an agreed phased programme for the diversion of traffic on the highway shall be drawn up in consultation with the **Employer/Employer's Representative**.

14.4 The barricades erected on either side of the carriage way portion of the carriage way closed to traffic, shall be of strong design to resist violation and painted with alternative black and white stripe. Red lanterns or warnings lights of similar type shall be mounted on the barricades at night and kept lit throughout from sunset to sunrise.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

**15. Ramps:**

Ramps required during execution may be formed wherever necessary and same are to be removed after completion of the work. No separate payment will be made for this purpose.

**16. Monsoon Damages:**

Damages due to rain or flood either in cutting or in banks shall have to be made good by the contractor till the work is handed over to the Department. The responsibility of de-silting and making good the damages due to rain or flood rests with the contractor. No extra payment is payable for such operations and the contractor shall therefore have to take all necessary precautions to protect the work done during the construction period.

**17. The works to be completed by the Intended Completion Date:**

17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the programme submitted by the Contractor, as updated with the approval of the **Employer/Employer's Representative**, and complete the work by the Intended Completion Date.

**18. Safety:**

18.1 **The Contractor** shall be responsible for the safety of all activities on the Site.

**19. Discoveries:**

19.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Government. The Contractor is to notify **Employer/Employer's Representative** of such discoveries and carry out the **Employer/Employer's Representative** instructions for dealing with them.

**20. Possession of the Site.**

20.1 The **Department** shall give possession of the site to the Contractor. If possession of a part site is given, the Department will ensure that the part site so handed over is amenable to carryout the work at site by the Contractor.

20.2 Additional land acquisition in few isolated stretches is foreseen in this project. The Contractor shall submit relevant L.A. proposals as required and pursue with the authorities concerned to acquire the land. The Department will assist the Contractor in this regard and if any compensation has to be paid, department will arrange to pay the same.

The Site for the execution of the work will be available as soon as the work is awarded. In case it is not possible for the department to make entire site available on the award of the work, due to any unforeseen reasons like court orders etc., the contractor will have to modify his working programme accordingly. No claim whatsoever for not giving the entire site in one stretch on award of work, (or) for handing over the site in phases will be tenable.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada. .**

**21. Access to the Site:**

- 21.1 The **Contractor** shall provide the **Employer/Employer's Representative** and any person authorized by the Engineer-in-Charge, access to the site and to any place where work in connection

**22. Instructions:**

- 22.1 The Contractor shall carry out all instructions of the **Employer/Employer's Representative** and comply with all the applicable local laws where the Site is located.

**Site Order Book:**

A site order book shall be maintained on the site and it shall be the property of the Employer and the Contractor shall promptly sign orders given therein by the Engineer or his authorized representative and comply with them. The compliance shall be reported by Contractor to the Engineer in good time so that it can be checked. The blank site order book with machine numbered pages in quadruplicate with perforated sheet for three copies to be detached will be provided by the Engineer for this purpose. Whenever any instructions are written in the site order book, the Contractor will be supplied the first carbon copy.

**23. Settlement of disputes:**

- 23.1 If any dispute of difference of any kind whatsoever arises between the department and the Contractor in connection with, or arising out of the Contract, whether during the progress of the works or after their completion and whether before or after the termination, abandonment or breach of the Contract, it shall in the first place, be referred to and settled by the Employer/Employer's Representative who shall, within a period of thirty days after being requested by the Contractor to do so, give written notice of his decision to the Contractor. Upon receipt of the written notice of the decision of the Employer/Employer's Representative the Contractor shall promptly proceed without delay to comply with such notice of decision
- 23.2 If the Employer/Employer's Representative fails to give notice of his decision in writing within a period of thirty days after being requested or if the Contractor is dissatisfied with the notice of the decision of the Employer/Employer's Representative, the Contractor may within thirty days after receiving the notice of decision appeal to the Department who shall offer an opportunity to the contractor to be heard and to offer evidence in support of his appeal, the Department shall give notice of his decision within a period of thirty days after the Contractor has given the said evidence in support of his appeal, subject to arbitration, as hereinafter provided. Such decision of the Department in respect of every matter so referred shall be final and binding upon the Contractor and shall forthwith be given effect to by the Contractor, who shall proceed with the execution of the works with all due diligence whether he requires arbitration as hereinafter provided, or not. If the Department has given written notice of his decision to the Contractor and no claim to arbitration, has been communicated to him by the Contractor within a period of thirty days from receipt of such notice the said decision shall remain final and binding upon the Contractor. If the Department fail to give notice of his decision, as aforesaid within a period of thirty days after being requested as aforesaid, or if the Contractor be dissatisfied with any such decision, then and in any such case the contractor within thirty days after the expiration of

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .



the first named period of thirty days as the case may be, require that the matter or matters in dispute be referred to arbitration as detailed below:

## **24. SETTLEMENT OF CLAIMS:**

Settlement of claims for Rs.50,000/- and below by Arbitration.

All disputes or difference arising of or relating to the Contract shall be referred to the adjudication as follows:

- a) Claims up to a value of Rupees 10,000/-.  
- Superintending Engineer, Public Health, of another circle
- b) Claims above Rs.10,000/- and up to Rupees 50,000/-.  
- Engineer-in-Chief (PH), Hyderabad

The arbitration shall be conducted in accordance with the provisions of Indian Arbitration and Conciliation Act 1996 or any statutory modification thereof.

The arbitrator shall state his reasons in passing the award.

Claims above Rs.50,000/-.

All claims of above Rs.50,000/- are to be settled by a Civil Court of competent jurisdiction by way of Civil suit and not by arbitration.

A reference for adjudication under this clauses shall be made by the contractor within six months from the date of intimating the contractor of the preparation of final bill or his having accepted payment which ever is earlier.

## **B. TIME FOR COMPLETION**

### **25. Program:**

25.1 The total period of completion is **-18 months** from the date of entering with agreement to proceed including rainy season. Keeping in view, the schedule for handing over of site given in condition 25.4 of (II) e work should be programmed such as to achieve the milestones as in "Rate of progress statement". Mile stones will be drawn by the agency which should be acceptable to the Department.

25.2 The attention of the bidder is directed to the contract requirement at the time of beginning of the work, the rate of progress and the dates for the whole work and its several parts as per milestones. The following rate of progress and proportionate value of work done from time to time as will be indicated by Employer/Employer's Representative Certificate for the value of work done and completion of milestones will be required. Date of commencement of their programme will be the date for concluding agreement.

25.3 After signing the agreement, the contractor shall forthwith begin the work, shall regularly and continuously proceed with them.

25.4 Rate of progress:

- (i) Work programme of achieving the milestones (Statement).

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada.**

<b>Mile stone</b>	<b>By the end of</b>	<b>Percentage of work</b>	<b>Cumulative Percentage of Work</b>
1	3 <sup>rd</sup> month	15%	15%
2	6 <sup>th</sup> month	15%	30%
3	9 <sup>th</sup> month	15 %	45 %
4	12 <sup>th</sup> month	15 %	60 %
5	15 <sup>th</sup> month	20 %	80 %
6	18 <sup>th</sup> month	20 %	100 %

(ii) Site Schedule of programme of handing over Site to the Contractor

Site will be handed over to the contractor in stages according to the progress of work. The site required for execution of work other than the Government / ULB Property, has to be acquired by the agency.

- 25.5 The contractor shall commence the works on site within the period specified after the receipt by him of a written order to this effect from **Employer/ Employer's representative** and shall proceed with the same with due expedition and without delay, except as may be expressly sanctioned or ordered by **Employer/ Employer's representative**, or be wholly beyond the contractor's control.
- 25.6 Save in so far as the contractor may prescribe, the extent of portions of the site of which the contractor is to be given possession from time to time and the order in which such portions shall be made available to him and, Subject to any requirement in the contract as to the order in which the works shall be executed, Employer/ Employer's representative will with written order to commence the works, give to the contractor possession of so much of the site as may be required to enable the contractor to commence proceed with the execution of the works in accordance with the programme if any, and otherwise in accordance with such reasonable proposals of the contractor as he shall by written notice to the Employer/ Employer's representative, make and will from time to time as the works proceed, give to the contractor possession of such further portions of the site as may be required to enable the contractor to proceed with the execution of the works with due dispatch in accordance with the said programme or proposals as the case maybe ; if the contractor suffers delay or incurs cost from failure on the part of Employer/ Employer's representative to give possession in accordance with the terms of this clause, the Employer/ Employer's representative shall grant an extension of time for the completion of works.
- 25.7 The contractor shall bear all costs and charges for special or temporary way leases required by him in connection with access to the site. The contractor shall also provide at his own cost any additional accommodation outside the site required by him for the purposes of the work.
- 25.8 Subject to any requirement in the contract as to completion of any section of the works before completion of the whole of the works shall be completed in accordance with provisions of clauses in the Schedule within the time stated in the contract calculated from the last day of the period named in the statement to the tender as that within which the works are to be commenced or such extended time as may be allowed.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

## **25.9 Delays and extension of time:**

Time is considered as the essence of the contract. Should the amount of extra or additional work of any kind or any cause or delay referred to in these conditions or exceptional adverse climate conditions or other special circumstances of any kind whatsoever which may occur, other than through a default of the contractor be such as fairly entitle the contractor to an extension of time for the completion of works including for milestones as stipulated in Clause 24.4 the amount of such extension and shall notify the contractor has within 28 days after such work has been commenced or such circumstances have arisen or as soon there after as is practicable submitted to the Employer/ Employer's representative full and detailed particulars of any extension of time to which he may consider himself entitled in order that such submission may be investigated at the time to be approved by Employer/ Employer's representative. For award of EOT upto six (6) months, Engineer-in-Chief(PH), Hyderabad is competent and beyond six (6) months, Committee constituted for the purpose is competent.

## **26. Construction Programme:**

- 26.1 The Contractor shall furnish within 15 days from the receipt of the work order, the work a programme showing the sequence in which he proposed to carry out the work, monthly progress expected to be achieved, also indicating date of procurement of materials plant and machinery. The schedule should be such that it is practicable to achieve completion of the whole work within the time limit fixed and in keeping with the Mile stone programme specified and shall obtain the approval of Employer/ Employer's representative. Further rate of the progress as in the program shall be kept up to date. In case it is subsequently found necessary to alter this program, the contractor shall submit sufficiently in advance the revised program incorporating necessary modifications and get the same approved by Employer/ Employer's representative No revised program shall be operative with out approval Employer/ Employer's representative.
- 26.2 The Employer/ Employer's representatives shall have all times the right, without any way violating this contract, or forming grounds for any claim, to alter the order of progress of the works or any part thereof and the contractor shall after receiving such directions proceed in the order directed. The contractor shall also report the progress to the Employer/ Employer's representative within 7 days of direction to alter the order of progress of works.
- 26.3 The Contractor shall give written notice to the Employer/ Employer's representative whenever planning or progress of the works is likely to be delayed or disrupted unless any further drawings or order including a direction, instruction or approval is issued by Employer/ Employer's representative within a reasonable time. The notice shall include details of the drawing or order required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.

## **27. Speed of Work:**

- 27.1 The Contractor shall at all times maintain the progress of work to conform to the latest operative progress schedule approved by Employer/ Employer's representative. The contractor should furnish progress report indicating the programme and progress once in a month. The Employer/ Employer's representative may at any time in writing direct the contractor to slow down any part or whole of the work for any reason (which shall not be questioned) whatsoever, and the contractor shall comply with such orders of the Employer/

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

Employer's representative. The compliance of such orders shall not entitle the contractor to any claim of compensation. Such orders of the Employer/ Employer's representative for slowing down the work will however be duly taken into account while granting extension of time if asked by the contractor for which no extra payment will be entertained..

27.2 Delays in Commencement or progress or neglect of work and forfeiture of earnest money, Security deposit and withheld amounts:

If, at any time, Employer/ Employer's representative shall be of the opinion that the Contractor is delaying Commencement of the work or violating any of the provisions of the Contractor is neglecting or delaying the progress of the work as defined by the tabular statement. "Rate of progress" in the Articles of Agreement", he shall so advise the Contractors in writing and at the same time demand compliance in accordance with conditions of Tender notice. If the Contractor neglects to comply with such demand within seven days after receipt of such notice, it shall then or at any time there after, be lawful for the Employer/ Employer's representative to take suitable action in accordance with **Clause.60 of APSS.**

**28. Suspension of works by the Contractor:**

28.1 If the Contractor shall suspend the works, or sublet the work without sanction of the Employer/ Employer's representative, or in the opinion of Employer/ Employer's representative shall neglect or fail to proceed with due diligence in the performance of his part of the Contract as laid down in the Schedule rate of progress, or if he shall continue to default or repeat such default in the respects mentioned in clause.27 of the APSS Employer/ Employer's representative shall take action in accordance with **Clause 61 of APSS.**

28.2 If the Contractor stops work for 28 days and the Stoppage has not been authorised by the Employer/ Employer's representative the Contract will be terminated under **Clause 61 of APSS.**

28.3 If the Contractor has delayed the completion of works the Contract will be terminated under **Clause.61 of APSS.**

**29. Extension of the Intended Completion Date:**

29.1 The Employer/ Employer's representative shall extend or recommend for extension, in accordance with the Government orders in force, the Intended Completion Date if a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date.

29.2 The Employer/ Employer's representative shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Employer/ Employer's representative for the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

**30. Delays Ordered by the Employer/ Employer's representative:**

30.1 Employer/ Employer's representative may instruct the Contractor to delay the start or progress of any activity within the Work.

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

**31. Early Warning:**

- 31.1 The contractor is to warn the Employer/ Employer's representative at the earliest opportunity of specific likely future events or circumstances that may adversely affect the Execution of Works.
- 31.2 The Contractor shall cooperate with the Employer/ Employer's representative in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Employer/ Employer's representative.

**32. Management Meetings:**

- 32.1 The Employer/ Employer's representative may require the Contractor to attend a management meeting. The business of a management meeting shall be to review the programme for remaining work and to deal with matters raised in accordance with the early warning procedure.

**C. QUALITY CONTROL**

**33. Identifying Defects:**

- 33.1 The Employer/ Employer's representative shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Employer/ Employer's representative may instruct the Contractor to verify the Defect and to uncover and test any work that the Employer/ Employer's representative considers may be a Defect.

**34. Tests:**

**34.1 Laboratory for testing:**

The contractor shall for the purpose of testing the material shall establish a field laboratory of 40 sq. meter area. The contractor shall provide all equipments as per list in Annexure -D.

- 34.2 If the Employer/ Employer's representative instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the Contractor shall pay for the test and any samples.

**35. Correction of Defects:**

- 35.1 The Employer/ Employer's representative shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins on Completion. The defects liability period shall be extended for as long as defects remain to be corrected by the Contractor.
- 35.2 Every time notice of a Defect is given, the Contractor shall correct the notified defect within the length of time specified by the Employer/ Employer's representative notice.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

### **36. Uncorrected Defects:**

- 36.1 If the contractor has not corrected the defect within the time specified in the Employer/ Employer's representative notice, the Engineer-in-Charge will assess the cost of having the defect corrected and the contractor will pay this amount.
- 36.2 The Employer/ Employer's representative shall introduce O.K. cards and prescribed the formats there of. O.K. cards shall relate to all major components of the work. The contractor withhis authorized representative shall be required to initiate and fill in and present the O.K. card to the construction staff who would check the respective items and send to the quality control staff for final check and clearance / O.K. Any defects pointed out by the construction supervision staff or by the Quality Control staff shall promptly be attended to by the contractors and the fact of doing so be duly recorded on the back of O.K. card.
- 36.3 The Employer/ Employer's representative may also introduce check lists which shall be kept in Bound registers by the construction supervision staff. The contractor may be required to fill up these lists in the first instance and shall be subsequently checked by the Construction / Quality Control engineers.

### **37. Quality Control:**

In addition to the normal inspection by the Engineer regular staff in-charge of the Construction of work, the work will also be inspected by the Executive Engineer Quality control Circle or by the State or District level Vigilance Cell Unit and any other authorized external Agency if any sub-standard work or excess payments are noticed with reference to measurement books etc., during inspection, action will be taken based on their observations and these will be effected by the Engineer-in-Charge of the execution of the work.

## **D. COST CONTROL**

### **38. Lump Sum Price:**

- 38.1 The Contractor is paid for the quantity of the work done on prorata basis against each item as per Annexure-I, volume-III.
- 38.2 **Variations in Scope of Work:** It shall be generally understood that the price quoted by the tenderer shall be all inclusive price for completion of scope of work detailed in the tender document and is for finished work at site in all respects including minor modifications where felt essential.

In an unlikely event, should the exigencies of work so demand that any major modifications are found essential in any component of the works, the payment for the corresponding variations shall be regulated as per Annexure II & III of Volume III. The variations, not covered by Annexure II&III, rates of SoR 2017-2018 will be applied.

- 38.3 The extra items :
- (i) In case of contingent items, approval shall be accorded by Engineer-in-Chief (PH)
  - (ii) Non-contingent shall be approved by the committee constituted for the purpose
  - (iii) Contingent but outside the scope of the original contract shall be approved by the committee constituted for this purpose

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**39. Changes in the Scope:**

39.1 The contractor is bound to execute all supplemental works that are found essential, incidental and inevitable during execution of main work.

**40. Extra Items:**

40.1 Extra items of work shall not vitiate the contract. The contractor shall be bound to execute extra items of work as directed by the Employer/ Employer's representative. The rates for extra items shall be worked out by the Employer/ Employer's representative as per the conditions of the Contract and the same are binding on the Contractor.

40.2 The contractor shall before the 15<sup>th</sup> day of each month, submit in writing to the Employer/ Employer's representative a statement of extra items if any that they have executed during the preceding month failing which the contractor shall not be entitled to claim any.

40.3 Entrustment of additional items:

40.3.1 Where ever additional items not contingent on the main work and outside the scope of original agreement are to be entrusted to the original contractor dispensing with bids and if the value of such items exceeds the limits up to which the officer is empowered to entrust works initially to contractor without calling for tenders, approval of next higher authority shall be obtained. Entrustment of such items on nomination shall be at rates not exceeding the estimated rates.

40.3.2 Payment for the additional scope of work executed shall be decided based upon the following:

- Unit rates quoted and duly agreed by the Department.
- A.P. Standard Schedule of rates for the year 2016-2017.

**41. Cash flow forecasts:**

41.1 When the program is updated, the contractor is to provide the Employer/ Employer's representative with an updated cash flow forecast.

**42. Payment Certificates:**

42.1 The Contractor shall submit to the Employer/ Employer's representative monthly statements of the estimated value of the work completed less the cumulative amount certified previously.

42.2 The Employer/ Employer's representative shall check the Contractor's monthly statement within 14 days.

42.3 The value of work executed shall be determined by the Employer/ Employer's representative.

42.4 The value of work executed shall comprise the value of the quantities in proportion on prorata basis against each sub-head in Annexure – I, Volume – III.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

42.5 The Employer/Employer's representative may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

## **43. PAYMENT**

### **43.1 EPC Contractor's Application for Payment**

43.1.1 On the fifth Business Day of every month from the date of issue of the Notice to Proceed the EPC Contractor may serve a notice in writing on the Employer's Representative ("**Request for Payment**") requesting payment of the sum which is considered to be due on achievement of milestones as per the Annexure\_\_1. \_\_ ("**Milestone Payment**").

Less

- (a) Deleted
- (b) The amount to be deducted as Retention Money
- (c) Advance payment in proportionate amounts commencing upon the submissions by the EPC Contractor of the Request for Payment for the fourth monthly period after the date of issue of the Notice to proceed and ending upon the date of the last Request for payment; and
- (d) Any amounts due and owing from the EPC Contractor to the Employer pursuant to this Agreement.

43.1.2 The Request for Payment shall be:

- (a) Prepared on forms in the form indicated by the Employer's representative and at the expense of the EPC Contractor, the number of copies therefore shall be as the Employer's Representative may determine and
- (b) Accompanied by such supporting documentation as the Employer's Representative may require to establish the value of the work properly designed and Executed as referred to in the Request for payment and reasonableness of the amounts added in respect of goods and materials.

### **43.2 Certificates of Payment**

43.2.1 Within fourteen (14) Business Days after the receipt of the Request for payment, the Employer's Representative shall, subject to the EPC Contractor's compliance with Article 43.2 inspect the relevant parts of the Works and the relevant goods and materials in order to satisfy himself that the request for payment is correct.

If the Employer's Representative is so satisfied he shall issue a Certificate of Payment certifying what amounts are due to the EPC Contractor pursuant to this Article 43 subject to the provisions of Article 43.2.2 to 43.2.3 after giving credit to the Employer for any sums to which the Employer is entitled under this Agreement.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



43.2.2 No sum shall be included in the Certificate of Payment in respect of goods and materials yet to be incorporated into the payment works unless the employers' Representative is satisfied and has approved in writing that:

- (a) Such goods and materials have been properly acquired and properly and not prematurely delivered to the Project Site;
- (b) Such goods plant and materials are properly stored on the project site ;and fully protected against loss, damage or deterioration;
- (c) The EPC Contractor's records of the requisitions, orders, receipts and use of any goods and materials are kept in a form approved by the Employer's Representative, and such records are available for inspection by the Employer's Representative and
- (d) The EPC Contractor has submitted a proper statement of the cost of acquiring the goods and materials together with such documents as may be required for evidencing such cost.

43.2.3 In the event that the Employer's Representative ascertains that the value of the works properly designed and Executed in the relevant period is less than the Milestone Payment for the period, he shall include in the Certificate of payment, the value of the works and goods and materials so ascertained by him.

43.2.4 All Certificates of Payment shall specify the amount, which the Employer proposes to pay to the EPC Contractor and the basis on which that amount was calculated. Such amount shall become due on the issue of the said Certificate of Payment.

43.2.5 75% of the interim payment certificate shall be paid with in 7 days & balance shall be paid with in 14 days of receipt from the Engineer.

43.2.6 The final payment certificate (statement at completion) shall be paid with in 84 days of receipt form the Engineer.

#### **44. Certificate of Completion of works:**

44.1 Certificate of Completion of works:

44.1.1 When the whole of the work has been completed and has satisfactory passed any final test that may be prescribed by the Contract, the Contractor may give a notice to that be in writing and shall be deemed to be request by the Contractor for the Employer/ Employer's representative to issue a Certificate of completion in respect of the Works. The Employer/ Employer's representative shall, within twenty one days of the date of delivery of such notice either issue to the Contractor, a certificate of completion stating the date on which, in his opinion, the works were completed in accordance with the Contract or give instructions in writing to the Contractor specifying all the Works which, in the" Employer/ Employer's representative opinion, required to be done by the Contractor before the issue of such Certificate. The Employer/ Employer's representative shall also notify the Contractor of any defects in the Works affecting completion that may appear after such instructions and before completion of the Works specified there in. The Contractor shall be entitled to receive such Certificate of the Completion within twenty one days of completion to the satisfaction of the Employer/ Employer's representative of the Works so specified and making good of any defects so notified.

**Contractor**

**Commissioner, .  
Municipal Corporation, Kakinada. .**

44.1.2 Similarly, the Contractor may request and the Employer/ Employer's representative shall issue a Certificate of Completion in respect of:

- a) Any section of the Permanent works in respect of which a separate time for completion is provided in the Contract, and
- b) Any substantial part of the Permanent Works which has been both completed to the satisfaction of the Employer/ Employer's representative and occupied or used by the Department.

44.1.3 If any part of the Permanent Works shall have been completed and shall have satisfactorily passed any final test that may be prescribed by the Contract, the Employer/ Employer's representative may issue such certificate, and the Contractor shall be deemed to have undertaken to complete any outstanding work in that part of the Works during the period of Maintenance.

**45. Taxes included in the bid:**

45.1 The percentage quoted by the contractor shall be deemed to be inclusive of the sales Tax and other taxes on all materials that the contractor will have to purchase for performance of this contract.

**45.3 Interest on Money due to Contractor**

No omission by the Executive Engineer or the sub Divisional officer to pay the amount due upon certificates shall vitiate or make void the contract nor shall the contractor be entitled to interest upon any guarantee fund or payments in arrear, nor upon any balance which may on the financial settlements of his accounts, founded to be due to him.

**45.4 Income Tax:**

(a) As per I.E rules 1946 payment to the contractor / subcontractor during the urgency of contract deduction of income tax as follows shall be made from the gross value of each bill of the contract.

i. Huf / Individual	-	1%
ii. Others	-	2%

As per IE rule section 206 AA to PAN number is not available (or) PAN number mentioned in wrongly it 20% will be recovered from the payment of bill.

(b) Income Tax clearance certificate should be furnished before the payment of final Bill.

(c) The contractors staff, personal and labour will be liable to pay personnel income taxes in respect of their salaries and wages as are chargeable under the laws and regulations for the time being in force and the contractor shall perform such duties in regard to such deductions there of as may be imposed on him by such laws and regulations.

**45.5 Seigniorage Charges: (G.O.Ms No.100, I&C(M1)Dept. Dt. 31.10.2015)**

45.5.1 Seigniorage charges will be recovered as per rules from the work bills of the contract or based on the theoretical requirement materials at the following rates.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

<b>S. No.</b>	<b>Material</b>	<b>Seigniorage</b>
1.	Sand	Rs.50.00 / cum.
2.	Metal/Stone dust	Rs.75.00 / cum.
3.	R.R. stone for masonry.	Rs.75.00 / cum.
4.	Revetment stone.	Rs.75.00 / cum.
5.	CRS stone.	Rs.75.00 / cum.
6.	Gravel/ Soil Borrowed.	Rs.30.00 / cum.
7.	Earth used for formation obtained by carting from out side (R&B) road boundaries.	Rs. 30.00 / cum

#### **45.6 GST:**

45.6.1 GST, during the currency of the contract, deduction towards CGST Act 2017 & Andhra Pradesh SGST Act 2017, will be made at source, while making payments to the contractor as per the prevailing rules.

45.6.2 The contractor should produce a valid VAT/GST Clearance Certificate before the payment of the final bill, otherwise payment to the contractor will be withheld.

#### **45.7 Workers Welfare Cess:**

The Workers Welfare Cess at 1% on gross bill will be deducted while making payments

#### **46. Price Adjustment:**

Applicable as per G.O.Ms.No. 94 TR &B(R1) , Dated. 16-04-2008 and amendments from time to time.

#### **47. Retention:**

47.1 The department shall retain from each payment due to the contractor @ the rate of 7.5% of bill amount until completion of the whole of the Works.

47.2 The retention amount so accumulated will be released against an Unconditional and irrevocable Bank Guarantee in spell of Rs. 25.00 Lakhs.

47.3 On completion of the whole of the Works half (5%)of the total amount retained including 2.5 % EMD is re-paid to the Contractor and balance half (5%) when the Defects Liability Period has passed and the Employer/ Employer's representative has certified that all the Defects notified by the Employer/ Employer's representative to the Contractor before the end of this period have been corrected.

47.4 On completion of the whole works, the Contractor may substitute retention money with an "on demand" Bank Guarantee.

#### **48. Liquidated Damages:**

48.1 If for any reason, which does not entitle the contractor to an extension of item, the rate of progress of works, or any section is at any time, in the opinion of the Employer/ Employer's representative too slow to ensure completion by the prescribed time or extended time for

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

completion Employer/ Employer's representative shall so notify the contractor in writing and the contractor shall there upon take such steps as are necessary and the Employer/ Employer's representative, may approve to expedite progress so as to complete the works or such section by the prescribed time or extended time. The contractor shall not be entitled to any additional payment for taking such steps. If as a result of any notice given by Employer/ Employer's representative under this clause the contractor shall seek Employer/ Employer's representative permission to do any work at night or on Sundays, if locally recognised as days or rest, or their locally recognized equivalent, such permission shall not be unreasonably refused..

48.2 If the contractor fails to complete whole of the works or any part thereof or section of the works within the stipulated periods of individual mile stones (including any bonafide extensions allowed by the competent authority without levying liquidated damages), the Employer/ Employer's representative may without prejudice to any other method of recovery will deduct as detailed below for the period of delays subject to a maximum of 10% of the contract value as a penalty from any monies in his hands due or which may become due to the contractor. The payment or deductions of such damages shall not relieve the contractor from his obligation to complete the works, or from any other of his obligations and liabilities under the contract.

48.3 The liquidated damages will be as follows.

Mile stone	By the end of	Percentage of work	Cumulative Percentage of Work	Liquidated Damages
1	3 <sup>rd</sup> month	15 %	15%	Rs.50.00 per day per lakh on Delayed value of work.
2	6 <sup>th</sup> month	15 %	30%	Rs.50.00 per day per lakh on Delayed value of work.
3	9 <sup>th</sup> month	15 %	45 %	Rs.50.00 per day per lakh on Delayed value of work.
4	12 <sup>th</sup> month	15 % .	60 %	Rs.50.00 per day per lakh on Delayed value of work.
5	15 <sup>th</sup> month	20 % .	80 %	Rs.50.00 per day per lakh on Delayed value of work.
6	18 <sup>h</sup> month	20 % .	100 %	Rs.50.00 per day per lakh on Delayed value of work.

The maximum amount of liquidated damages for the whole of the works is ten percent of final contract price.

**49. Mobilisation Advance:** (As per G.O.Rt.No.1474 M.A & U.D (A1) Department, Dated.12.12.2007)

49.1 The contractors are permitted to avail the facility of Mobilization advance of 10% towards Labour and Material Mobilization against an 100% Unconditional and Irrevocable Bank Guarantee acceptable to the Department, to facilitate the agencies in procurement of materials to achieve better progress of works. The interest rate will be +2% of prevailing PLR of Banks.

49.2 A form of Bank Guarantee acceptable to Executive Engineer is indicated at Annexure B. The advance mobilization loan shall be used by the contractor exclusively for Labour and Material mobilization expenditures, in connection with the works.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

49.3 Should the contractor misappropriate any portion of the advance loan, it shall become due to the Employer/ Employer's representative and payable immediately in one lump by the contractor and no further loan will be considered thereafter.

49.4 The above advance shall bear an interest of prevailing SBI PLR+2% per annum. The interest on the amounts paid as advance is chargeable from the date the amount is paid. However if completion is delayed by circumstances beyond control of the contractor for which an extension has been granted by the Executive Engineer the interest charges on such advances shall be waived for the period of extension.

In case of contractor not maintaining the progress of works as per agreed programme the interest of mobilization advance shall be levied at prevailing SBI PL R+4% per annum for the period in which the progress is not maintained. In case the progress is made good as per the programme the rate of interest shall be at prevailing SBI PLR+2% per annum.

49.5 The value of Bank Guarantee for the advance payment given to the contractor can be progressively reduced by the amount repaid by the contractor as certified by the Executive Engineer.

**49.6 Recovery of advances:**

49.6.1 The advance loan together with interest at the rate as specified above shall be repaid within percentages deductions from the intermediate payments under the contract. Deduction shall commence from the first intermediate bill. The total advance amount plus interest amount shall be recovered before 90% of work is completed. The rate of recovery shall be adjusted suitably to satisfy the above criteria.

**50. Securities:**

50.1 The Earnest Money Deposit and Additional Security (for discount tender percentage beyond 25%) shall be provided to the Department not later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank acceptable to the Department. The Earnest Money shall be valid until a date 28 days from the date of expiry of Defects Liability Period and the additional security shall be valid until a date 28 days from the date of issue of the certificate of completion.

**51. Cost of Repairs:**

51.1 Loss or damage to the Works or materials to the Works between the Start Date and the end of the Defects Correction Periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

**E. FINISHING THE CONTRACT**

**52. Completion:**

52.1 The Contractor shall request the Employer/ Employer's representative to issue a Certificate of completion of the Works and the Employer/ Employer's representative will do so upon deciding that the work is completed.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

### 53. Taking Over:

53.1 Except as stated in clause 52 the works shall be taken over by the Employer when they have been completed in accordance with the Contract (except as described in sub-paragraph (a) below), have passed the Tests on Completion and a taking-Over Certificate for the works has been issued, or has deemed to have been issued in accordance with this Sub-Clause. If the works are divided into sections, the Contractor shall be entitled to apply for a Taking-over certificate for each section.

The Contractor may apply by notice to the Employer's Representative for a taking-over certificate not earlier than 14 days before the works or section (as the case may be) will, in the contractor's opinion, be complete and ready for taking over. **"The request for taking over shall be accompanied by as built drawings."** The employer's representative shall, within 28 days after the receipt of the contractor's application:

- (a) issue the taking-over certificate to the contractor, stating the date on which the works or section were completed in accordance with the contract (except for minor outstanding work that does not affect the use of the works or section for their intended purpose) including passing the tests on completion: or
- (b) reject the application, giving his reasons and specifying the work required to be done by the contractor to enable the taking-over certificate to be issued: the contractor shall then complete such work before issuing a further notice under this sub-clause.

If the Employer's representative fails to issue the taking over certificate or to reject the Contractor's application within the period of 28 days, and if the works or section (as the case may be) are substantially in accordance with the contract, the taking-over certificate shall be deemed to have been issued on the last day of that period.

### 53.2 Use by The Employer

The Employer shall not use any part of the works unless the employer's representative has issued a taking-over certificate for such part. If a taking-over certificate has been issued for any part of the works (other than a section), the liquidated damages for delay in completion of the remainder of the works (and of the section of which it forms part) shall, for any period of delay after the date stated in such taking-over certificate, be reduced in the proportion which the value of the part so certified bears to the value of the works or section (as the case may be), such values shall be determined by the Employer's Representative in accordance with the provisions of sub-clause 3.5. The provisions of this paragraph shall only apply to the rate of liquidated damages under sub-clause 8.6, and shall not affect the limit of such damages.

If the Employer does use any part of the works before the taking-over certificate is issued:

- (a) the part which is used shall be deemed to have been taken over at the date on which it is used,
- (b) the Employer's Representative shall, when requested by the Contractor, issue a taking-over certificate accordingly, and
- (c) the contractor shall cease to be liable for the care of such part from such date, when responsibility shall pass to the Employer.

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

After the Employer's Representative has issued a taking-over certificate for a part of the works, the contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding tests on completion, and the contractor shall carry out such tests on completion, and the contractor shall carry out such tests on completion as soon as practicable, before the expiry of the contract period.

### **53.3 Interference with Tests on Completion**

If the contractor is prevented from carrying out the tests on completion by a cause for which the Employer (or another contractor employed by the Employer) is responsible, the employer shall be deemed to have taken over the works or section (as the case may be) on the date when the Tests on Completion would otherwise have been completed. The Employer's Representative shall then issue a taking-over certificate accordingly, and the contractor shall carry out the tests on completion as soon as practicable, before the expiry of the contract period. The Employer's Representative shall require the tests on completion to be carried out by 14 days notice and in accordance with the relevant provisions of the Contract. If the contractor incurs additional cost as a result of this delay in carrying out the tests on completion, such cost plus reasonable profit shall be determined by the employer's Representative in accordance with the provisions of sub-clause 3.5 and shall be added to the contract price.

### **54. Final Account:**

54.1 The Contractor shall supply to the Employer/ Employer's representative a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Employer/ Employer's representative shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Employer/ Employer's representative shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the final Account is still unsatisfactory after it has been resubmitted, the Employer/ Employer's representative shall decide on the amount payable to the Contractor and issue a payment certificate with in 56 days of receiving the Contractor's revised account.

### **55. Termination:**

55.1 The Department may terminate the Contract if the contractor causes a fundamental breach of the Contract.

55.2 Fundamental breaches of Contract include, but shall not be limited to the following.

- a) The Contractor stops work for 28 days when no stoppage of work is shown on the current program and the stoppage has not been authorised by the Employer/ Employer's representative.
- b) The Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation.
- c) The Employer/ Employer's representative gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

correct it within a reasonable period of time determined by the Employer/  
Employer's representative; and

- d) The Contractor does not maintain a security which is required and
- e) The Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined.
- f) If the contractor, in the judgment of the Department has engaged in corrupt or fraudulent practices in competing for or in the executing the contract.

For the purpose of this paragraph: "corrupt practice" means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Government and includes collusive practice among Bidders (prior to or after Tender submission) designed to establish Tender prices at artificial non-competitive levels and to deprive the Government of the benefits of free and open competition.

55.3 Not with standing the above the Department may terminate the contract for convenience.

55.4 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secured leave the Site as soon as reasonably possible.

**56. Payment upon Termination:**

56.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Employer/ Employer's representative shall issue a certificate for the value of the work done less advance payments received upon the date of the issue of the certificate, less other recoveries due in terms of the Contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed. Additional Liquidated Damages shall not apply. If the total amount due to the Department exceeds any payment due to the Contractor the difference shall be a debt payable to the Department.

**57. Property:**

57.1 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Department if the Contract is terminated because of Contractor's default.

**58. Release from Performance:**

58.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Department or the Contractor the Employer/ Employer's representative shall certify that the contract has been frustrated. The Contractor shall make the site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works carried out before receiving it and for any work carried out afterwards to which commitment was made.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



**SECTION – 3**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## **SECTION – III**

### **SPECIAL CONDITIONS OF CONTRACT**

#### **SPECIAL CONDITIONS**

**59. Water Supply:**

The Contractor has to make his own arrangements for water required for the work and to the colonies and work sites, which are to be established by the Contractor.

**60. Electrical Power:**

The Contractors will have to make their own arrangements for drawing electric power from the nearest power line after obtaining permission from the Andhra Pradesh State Electricity Board at his own cost. In case of failure of electricity, the Contractor has to make alternative arrangements for supply of electricity by Diesel Generator sets of suitable capacity at place of work. If the supply is arranged by the Department, necessary Tariff rates shall have to be paid based on the prevailing rates.

The contractor will pay the bills of Electricity Board for the cost of power consumed by him.

The contractor shall satisfy all the conditions and rules required as per Indian Electricity Act 1910 and under rule —45(I) of the Indian Electricity Rules, 1956 as amended from time to time and other pertinent rules.

The power shall be used for bonafide Departmental works only.

**60.1 Electric Power for Domestic Supply:**

- a) The contractor has to make his own arrangements for the supply of electric power for domestic purposes and the charges for this purpose have to be paid by him at the rates as fixed by the Andhra Pradesh State Electricity Board from time to time.
- b) The contractor will have to make his own arrangements to lay and maintain the necessary distribution lines and wiring for the camp at his own cost. The layout and the methods of laying the lines and wiring shall have the prior approval of the Employer/ Employer's representative. All camp area shall be properly electrified. All lines, streets, approaches for the camp etc., shall be sufficiently lighted for the safety of staff and labour of the contractor, at the cost of the Contractor and it will be subject to the approval of the Employer/ Employer's representative.

**61. Land:**

**61.1 Land for Contractor's use:**

The contractor will be permitted to use Government land for execution of work. The contractor shall have to make his own arrangements for acquiring and clearing the site, leveling, providing drainage and other facilities for labour staff colonies, site office, workshop or stores and for related activities. The Contractor shall apply to the Department within

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

a reasonable time after the award of the contract and atleast 30 days in advance of its use, the details of land required by him for the work at site and the land required for his camp and should any private land which has not been acquired, be required by the contractor for his use. The same may be acquired by the contractor at his own cost by private negotiations and no claim shall be admissible to him on this account.

The Employer/ Employer's representative reserves the right to refuse permission for use of any government land for which no claim or compensation shall be admissible to the contractor. The contractor shall, however, not be required to pay cost or any rent for the Government land given to him.

### **61.2 Surrender of Occupied Land:**

- a) The Government land as here in before mentioned shall be surrendered to the Employer/ Employer's representative within seven days, after issue of completion certificate. Also no land shall be held by the contractor longer than the Engineer-in-Charge shall deem necessary and the contractor shall on the receipt of due notice from the Employer/ Employer's representative, vacate and surrender the land which the Engineer-in-Charge may certify as no longer required by the Contractor for the purpose of the work.
- b) The contractor shall make good to the satisfaction of the Employer/ Employer's representative any damage to areas, which he has to return or to other property or land handed over to him for purpose of this work. Temporary structures may be erected by the contractor for storage sheds, offices, residences etc., for non-commercial use, with the permission of the Employer/ Employer's representative on the land handed over to him at his own cost. At the completion of the work these structures shall be dismantled site cleared and handed over to the Employer/ Employer's representative. The land required for providing amenities will be given free of cost from Government lands if available otherwise the contractor shall have to make his own arrangements.

### **61.3 Contractor not to dispose off Spoil etc.:-**

The contractor shall not dispose off or remove except for the purpose of fulfillment of this contract, sand, stone, clay ballast, earth, trees and shrubs or other materials obtained in the excavation made or lying on the site of the work, and all such materials and produce shall remain property of the Government. The Department may upon request from the contractor, or if so stipulated in the conditions of the contract allow the contractor to use any of the above materials for the works either free of cost or after payment as may be specifically mentioned or considered necessary during the execution of the work.

### **62. Roads:**

In addition to existing public roads and roads Constructed by Government, if any, in work area all additional approach roads inside work area and camp required by the Contractor shall be constructed and maintained by him at his own cost. The layout design, construction and maintenance etc. of the roads shall be subject to the approval of the Employer/ Employer's representative. The contractor shall permit the use of these roads by the Government free of charge.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

It is possible that work at, or in the vicinity of the work site will be performed by the Government or by other contractors engaged in work for the Government during the contract period. The contractor shall without charge permit the government and such other contractor and other workmen to use the access facilities including roads and other facilities, constructed and acquired by the contractor for use in the performance of the works.

The contractor's heavy construction traffic or tracked equipment shall not traverse any public roads or bridges unless the contractor has made arrangement with the authority concerned. In case contractor's heavy construction traffic or tracked equipment is not allowed to traverse any public roads or bridges and the contractor is required to make some alternative arrangements, no claim on this account shall be entertained.

The contractor is cautioned to take necessary precautions in transportation of construction materials to avoid accidents.

**63. Payment for Camp Construction:**

No payment will be made to the contractor for construction, operation and maintenance of camp and other camp facilities and the entire cost of such work shall be deemed to have been included in the tendered rate for the various items of work in the schedule of quantities and bids.

**64. Explosive and Fuel Storage Tanks:**

No explosive shall be stored within 1/2(half) KM of the limit of the camp sites. The storage of gasoline and other fuel oils or of Butane, Propane and other liquefied petroleum gases, shall conform to the regulations of Andhra Pradesh State Government and Government of India. The tanks, above ground and having capacity in excess of 2000 liters, shall not be located within the camp area, nor within 200m, of any building.

**65. Labour:**

The contractor shall, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

Labour importation and amenities to labour and contractor's staff shall be to the contractor's account. His quoted percentage shall include the expenditure towards importation of labour amenities to labour and staff;

The contractor shall, if required by the Employer/ Employer's representative, deliver to the Employer/ Employer's representative a written in detail, in such form and at such intervals as the Employer/ Employer's representative may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the contractor on the Site and such information respecting Contractor's Equipment as the Employer/ Employer's representative may require.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

### **65.1 Transportation of Labour:**

The contractor shall make his own arrangement for the daily transportation of the labour and staff from labour camps colonies to the work spot and no labour or staff of the contractor shall stay at the work spot. No extra payment will be made to the contractor for the above transportation of the labour and his quoted percentage to the work shall include the transportation charges of labour from colonies to work spot and back.

- II. The contractor will at all times duly observe the provisions of employment of children Act XXVI of 1938 and any enactment or modification of the same and will not employ or permit any person to do any work for the purpose under the provisions of this agreement in contravention of said Act. The contractor here by agrees to indemnify the department from and against all claims, penalties which may be suffered by the department or any person employed by the department by any default on the part of the contractor in the observance and performance of the provisions of the employment of children Act. XXVI of 1938 or any enactment or modification of the same.

As per Govt. memo No.721/Gr.(I)/81-35, dt:17.11.87. The contractor shall obtain the insurance at his own cost to cover the risk on the works to labour engaged by him during period of execution against fire and other usual risks and produce the same to the Employer/ Employer's representative concerned before commencement of work.

### **66. Safety Measures:**

1. The contractor shall take necessary precautions for safety of the workers and preserving their health while working in such jobs, which require special protection and precautions. The following are some of the measures listed but they are not exhaustive and contractor shall add to and augment these precautions on his own initiative where necessary and shall comply with directions issued by the Employer/ Employer's representative or on his behalf from time to time and at all times.
2. Providing protective foot wear to workers situations like mixing and placing of mortar or concrete sand in quarries and places where the work is done under much wet conditions.
3. Providing protective head wear to workers at places like under ground excavations to protect them against rock falls.
4. Providing masks to workers at granulates or at other locations where too much fine dust is floating about and sprinkling water at frequent intervals by water hoses on all stone crushing area and storage bins abate to dust.
5. Getting the workers in such jobs periodically examined for chest trouble due to too much breathing in to fine dust.
6. Taking such normal precautions like fencing and lightening in excavation of trenches, not allowing rolls and metal parts of useless timber spread around, making danger areas for blasting providing whistles etc.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

7. Supply work men with proper belts, ropes etc., when working in precarious slopes etc.
8. Avoiding electrical wire etc., as they would electrocute the works.
9. Taking necessary steps towards training the workers concerned on the machinery before they are allowed to handle them independently and taking all necessary precautions in around the areas where machines hoists and similar units are working.

**67. Fair Wage Clause:**

1. The contractor shall pay not less than fair wages to labourers engaged by him on the work.
2. "Fair" wages means wages whether for time or piecework notified by the Government from time to time in the area in which the work is situated.
3. The contractor shall notwithstanding the revisions of any contract to the contrary cause to be paid to the labour, in directly engaged on the work including any labour engaged by the sub-contractor in connection with the said work, as if the labourers had been directly employed by him.
4. In respect of labour directly or indirectly employed in the works for the purpose of the contract part of the agreement the contractor shall comply with the rules and regulations on the maintenance of suitable records prescribed for this purpose from time to time by the Government. He shall maintain his accounts and vouchers on the payment of wages to the labourers to the satisfaction of the Employer/ Employer's representative.
5. The Employer/ Employer's representative shall have the right to call for such record as required to satisfy himself on the payment of fair wages to the labourers and shall have the right to deduct from the contract amount a suitable amount for making good the loss suffered by the worker or workers by reason of the "fair wages" clause to the workers.
6. The contractor shall be primarily liable for all payments to be made and for the observance of the regulations framed by the Govt. from time to time without prejudice to his right to claim indemnity from his sub-contractors.
7. As per contract labour (Regulation and abolition) Act. 1970 the contractor has to produce the license obtained from the licensing officers of the labour department along with the tender or at the time of agreement.
8. Any violation of the conditions above shall be deemed to be a breach of his contract.
9. Equal wages are to be paid for both men and women if the nature of work is same and similar.
10. The contractor shall arrange for the recruitment of skilled and unskilled labour local and imported to the extent necessary to complete the work within the agreed period as directed by the **Employer/ Employer's representative** in writing.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

**68. Indemnity Bond:**

**Name of work:**

I \_\_\_\_\_ contractor S/o. \_\_\_\_\_ aged Resident of \_\_\_\_\_ do hereby bind myself to pay all the claims may come (a) under Work men's Compensation Act. 1933 with any statutory modification there of and rules there under or otherwise for or in respect of any damage or compensation payable in connection with any accident or injury sustained (b) under Minimum wages Act 1948 (c) under payment of wages Act. 1936 (d) under the Contractor labour (Regulation and Abolition) Act. 1970 by workmen engaged for the performance of the business relating to the above contract ie., Failing such payment of claims of workmen engaged in the above work, I abide in accepting for the recovery of such claims, effected from any of my assets with the departments. accepting for the recovery of such claims, effected from any of my assets with the departments.

**69. Compliance With Labour Regulations:**

During continuance of the contract, the contractor and his sub contractors shall abide at all times by all existing labour enactment and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notifications that may be issued under any labour law in future either by the State or the Central Government or the local authority and also applicable labour regulations, health and sanitary arrangements for workmen, insurance and other benefits. Salient features of some of the major labour laws that are applicable to construction industry are given below. The contractor shall keep the Department indemnified in case any action is taken against Department by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Department is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provision stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the contractor, the Engineer-in-charge /Department shall have the right to deduct any money due to the contractor including his amount of performance security. The Department/Engineer-in-Charge shall also have right to recover from the contractor any sum required or estimated to be required for making good the loss or damage suffered by the Department.

The employees of the Contractor and the Sub-contractor in no case shall be treated as the Employees of the Department at any point of time.

**70. Salient features of some major labour laws applicable to establishment engaged in buildings and other construction work:**

- (a) **Workmen compensation Act 1923:** The Act provides for compensation in case if injury by accident arising out of and during the course of employment.
- (b) **Payment of Gratuity Act 1972:** Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if any employee has completed 5 years service or more, or on death, the rate of 15 days wages for every completed

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

year of service. The Act is applicable to all establishments, employing 10 or more employees.

- (c) **Employees P.F. and Miscellaneous provision Act 1952:** The Act provides for monthly contributions by the Department plus workers @ 10% or 8.33%. The benefits payable under the Act are:
- (i) Pension or family pension on retirement or death, as the case may be.
  - (ii) Deposit linked insurance on the death in harness of the worker.
  - (iii) Payment of P.F. accumulation on retirement/death etc.,
- (d) **Maternity Benefit Act 1951:** The Act provides for leave and some other benefits to women employees in case of confinements or miscarriage etc.
- (e) **Contract Labour (Regulation & Abolition) Act 1970:** The Act provides for certain welfare measures to be provided by the contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided by the Principal Department by Law. The Principal Department is required to take certificate of Registration and the contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Department if they employ 20 or more contract labour.
- (f) **Minimum wages Act 1948:** The Department is supposed to pay not less than the Minimum wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment construction of Buildings, Roads, Runways are scheduled employment.
- (g) **Payment of wages Act 1936:** It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made form the wages of the workers.
- (h) **Equal Remuneration Act 1979:** The Act provides for payment of equal wages for work of equal nature to Male or Female workers and for not making discrimination against Female employee in the matters of transfers, training and promotions etc.
- (i) **Payment of Bonus Act 1965:** The Act Is applicable to all establishments employing 20 or more employees. The Act provides for payment of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages to employees drawing Rs. 3500/- per month or less. The bonus to be paid to employees getting Rs.2500/- per months or above and up to Rs.3500/- per month shall be worked out by taking wages as Rs.2500/- per monthly only. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of this Act.
- (j) **Industrial Disputes Act 1947:** The Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations a strike or lock- out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .



- (k) **Industrial Employment (Standing Orders) Act 1946:** It is applicable to all establishments employing 100 or more workmen' (employment size reduced by some of the State and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Department on matters provided in the Act and get the same certified by the designated Authority.
- (l) **Trade Unions Act 1926:** The Act lays down the procedure for registration of trade unions of workmen and Departments. The Trade Unions registered under the act have been given certain immunities from civil and criminal liabilities.
- (m) **Child Labour (Prohibition & Regulation) Act 1986:** The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes, Employment Child Labour is prohibited in Building and Construction Industry regulation of employment of children in all other occupations and processes, Employment Child Labour is prohibited in Building and Construction Industry.
- (n) **Inter-State Migrant workmen's (Regulation of Employment & Conditions of service) Act 1979:** The Act applicable to an establishment, which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another State). The inter State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, travelling expenses from home up to the establishment and back, etc.
- (o) **The Building and Other Construction workers (regulation of Employment and conditions of service) Act 1996 and the Cess Act of 1996:** All the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Department of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as Canteens, First-aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Department to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- (p) **Factories Act 1948:** The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 person or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

## **71. Liabilities of the Contractor:**

### **71.1 Accident Relief and workmen compensation:**

The contractor should make all necessary arrangements for the safety of workmen on the occurrence of the accident, which results in the injury or death of any of the workmen employed by the contractor, the contractor shall within 24 hours of the happenings of the

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada.**

accident and such accidents should intimate in writing to the **Employer/ Employer's representative** of the Department the act of such accident. The contractor shall indemnify Government against all loss or damage sustained by the Government resulting directly or indirectly from his failure to give intimation in the manner aforesaid including the penalties or fines if any payable by Govt. as a consequence of Govt. failure to give notice under workmen's compensation Act or otherwise conform to the provisions of the said Act in regard to such accident.

- 71.2 In the event of an accident in respect of which compensation may become payable under the workmen's compensation Act VIII 23 whether by the contractor, by the Government it shall be lawful for the Employer/ Employer's representative to retain such sum of money which may in the opinion of the Employer/ Employer's representative be sufficient to meet such liability. The opinion of the Executive Engineer shall be final in regard to all matters arising under this clause.
- 71.3 The contractor shall at all times indemnify the Govt. of A.P. against all claims which may be made under the workmen's compensation act or any statutory modification
- (a) The contractor shall, at all times, maintain on the works, staff of qualified Engineers, and Supervisors of sufficient experience of similar other jobs to assure that the quality of work turned out shall be as intended in the specifications. The contractor shall also maintain at the works, a Work Manager or sufficient status, experience and office and duly authorize him to deal with all aspects of the day-today work. All communications to any commitments by the Work Manager shall be considered as binding on the Contractor.
  - (b) The Contractor shall at all times submit details of skilled and unskilled labour and equipment employed to the Engineer-in-Charge in prescribed proforma as he may require to assess and ensure the proper progress of work.
  - (c) If the contractor does not employ the technical person agreed to on the work a fine of Rs.25,000/- will be imposed. If he does not employ for 30 days, thereafter it becomes a fundamental breach of contract.

**72. Accommodation and food:**

The contractor should arrange accommodation he needs, at his own cost. The contractor shall make his own arrangements for supply of food grains, fuel and other provision to his staff and labourers including controlled commodities.

**73. Relationship:**

Contractor shall have to furnish information along with tender, about the relationship he is having with any officer of the Department, Government of Andhra Pradesh of the rank Assistant Engineer and above engaged in the work and any officer of the rank of Assistant Secretary and above of the Department of Government of Andhra Pradesh.

**74. Protection of adjoining premises:**

The contractor shall protect adjoining sites against structural, decorative and other damages that could be caused by the execution of these works and make good at his cost any such damages.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**75. Work during night or on Sundays and holidays:~**

The works can be allowed to be carried out during night, Sundays or authorised holidays in order to enable him to meet the schedule targets and the work shall require MORT&H round the clock working keeping in view:

- (i) The provisions of relevant labour laws being adhered to:
- (ii) Adequate lighting, supervision and safety measures are established to the satisfaction of the Employer/ Employer's representative and
- (iii) The construction programme given by the Contractor and agreed upon by the Employer/ Employer's representative envisages such night working or working during Sundays or authorised holidays.
- (iv) The construction programme given by the Contractor and agreed upon by the Employer/ Employer's representative envisages such night working or working during Sundays or authorised holidays.

The contractor shall deposit materials for the purpose of the work on such parts only of the ground as may be approved by the Employer/ Employer's representative before starting work. A detailed survey, clearly indicating position and areas where materials shall be stacked and sheds built is to be conducted by the contractor at his own cost and only after obtaining necessary approval of the plan for use of sites by the Employer/ Employer's representative, the Contractor can use the sites accordingly.

Procurement of blasting materials and its storage is the responsibility of the contractor. The contractor shall engage licensed blaster for blasting operation. The contractor is to act in accordance with Indian Explosive Act and other rules prevailing, during the execution of work. It is the responsibility of the contractor to see, that works by other agencies in the vicinity are not hampered, in such cases if any claim is made by other agencies that should be borne by the contractor. Carriage of blasting materials, from the magazine to the work site, is the responsibility of the contractor.

**76. Plant and Equipment:**

- 76.1 The contractor shall have sufficient plant, equipment and labour and shall work such hours and shifts as may be necessary to maintain the progress on the work as per the approval progress schedule. The working and shifts hours shall comply with the Govt. Regulations in force.
- 76.2 It is to expressly and clearly understood that contractor shall make his own arrangements to equip himself with all machinery and special tools and plant for the speedy and proper execution of the work and the department does not undertake responsibility towards their supply.
- 76.3 The department shall supply such of the machinery that may be available on hire basis but their supply cannot be demanded as matter of right and no delay in progress can be attributed to such non-supply of the plant by the department and the department cannot be made liable for any damage to the contractor. The Contractor shall be responsible for safe custody of the departmental machinery supplied to him (which will be delivered to contractor at the machinery yard at site of work) and he has to make good all damages and

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

losses if any other than fire, wear and tear to bring it to the conditions that existed at the time of issue to the contractor before handing over the same to the department. The hire charges for the machinery handed over to the contractor will be recovered at the rate prevalent at the time of supply. The contractor will have to execute supplemental agreement with Employer/ Employer's representative at the time of supply of the machinery.

76.4 The acceptance of departmental machinery on hire is optional to the contractor.

The contractor shall not deposit materials at any site, which will cause inconvenience to public. The Employer/ Employer's representative may direct the contractor to remove such materials or may undertake the job at the cost of the contractor.

**77. Conflict of interest:**

Any bribe, commission, gift or advantage given, promised or offered by on behalf of contractor or his partner, agent or servant or any one on his behalf to any officer, servant, representatives, agents of Employer/ Employer's representative, or any persons on their behalf, in relation to the obtaining or to execution of this, or any other contract with Employer/ Employer's representative shall in addition to any criminal liability, which it may occur, subject to the cancellation of this or all other contracts and also to payment of any loss or damage resulting from any such cancellation. Employer/ Employer's representative shall then be entitled to deduct the amount, so payable from any money, otherwise due to the contractor under this or any other contract.

**78. Contract documents and materials to be treated as confidential:**

All documents, correspondences, decisions and orders, concerning the contract shall be considered as confidential and/or restricted in nature by the contractor and he shall not divulge or allow access to them by any unauthorized person.

**79. General obligations of Contractor:**

79.1 The contractor shall, subject to the provision of the contract and with due care and diligence, execute and maintain the works in accordance with specifications and drawings.

79.2 The contractor shall promptly inform the Department and the Employer/ Employer's representative of any error, omission, fault and such defect in the design of or specifications for the works which are discovered when reviewing the contract documents or in the process of execution of the works.

79.3 If Contractor believes that a decision taken by the Employer/ Employer's representative was either outside the authority given to Employer/ Employer's representative by the Contract or that the decision was wrongly taken, the decision shall be referred to the technical expert within 14 days of the notification of the Employer/ Employer's representative decisions

79.4 Pending finalisation of disputes, the contractor shall proceed with execution of work with all due diligence.

**80. Security measures:**

a) Security requirements for the work shall be in accordance with the Government's general requirements including provisions of this clause and the Contractor shall

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

conform to such requirements and shall be held responsible for the actions of all his staff, employees and the staff and employees of his sub-contractors.

- b) All contractors' employees, representatives and sub-contractor's employees shall wear identifications badges provided by the contractor. Badges shall identify the contractor, showing and employee's number and shall be worn at all times while at the site. Individual labour will not be required to wear identification badges.
- c) All vehicles used by the contractor shall be clearly marked with contractor's name.
- d) All contractors' employees, representatives and sub-contractor's employees shall wear identifications badges provided by the contractor. Badges shall identify the contractor, showing and employee's number and shall be worn at all times while at the site. Individual labour will not be required to wear identification badges.
- e) The contractor shall be responsible for the security of the works for the duration of the contract and shall provide and maintain continuously adequate security personnel to fulfill these obligations. The requirements of security measures shall include, but not limited to maintenance of order on the site, provision of all lighting, fencing, guard flagmen and all other measures necessary for the protection of the works within the colonies, camps and elsewhere on the site, all materials delivered to the site, all persons employed in connection with the works continuously throughout working and non working period including nights, Sundays and holidays for duration of the contract.
- f) Other contractors working on the site concurrently with the contractor will provide security for their own plant and materials. However, their security provisions shall in no way relieve the contractor of his responsibilities in this respect
- g) Separate payment will not be made for provision of security services.

**81. Fire fighting measures:**

- a) The contractor shall provide and maintain adequate fire fighting equipment and take adequate fire precaution measures for the safety of all personnel and temporary and permanent works and shall take action to prevent damage to destruction by fire of trees shrubs and grasses.
- b) Separate payment will not be made for the provision of fire prevention measures.

**82. Sanitation:**

The contractor shall implement the sanitary and watch and ward rules and regulations for all forces employed under this contract and if the Contractor fails to enforce these rules, the Employer/ Employer's representative may enforce them at the expenses of the Contractor.

**83. Training of personnel:**

The contractor, shall, if and as directed by the Employer/ Employer's representative provide free of any charge adequate facilities, for vocational training of Government Officers, students, Engineers, supervisors, foremen, skilled workman etc. not exceeding six in number at any one time on the contractor's work. Their salaries, allowances etc. will be

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

borne by the Government and the training schemes will be drawn up by the Employer/ Employer's representative in consultation with the contractor.

**84. Ecological balance:**

- a) The contractor shall maintain ecological balance by preventing de-forestation, water pollution and defacing of natural landscape. The contractor shall so conduct his construction operation as to prevent any unnecessary destruction, scarring, or defacing of the natural surrounding in the vicinity of the work. In respect of the ecological balance, Contractor shall observe the following instructions.
- i) Where unnecessary destruction, scarring, damage or defacing may occur, as result of the operation, the same shall be repaired replanted or otherwise
  - ii) All trees and shrubbery which are not specifically required to be cleared or removed for construction purposes shall be preserved and shall be protected from any damage that may be caused by the contractor's construction operation and equipment. The removal of trees and shrubs will be permitted only after prior approval by the Employer/ Employer's representative. Special care shall be exercised where trees or shrubs are exposed to injuries by construction equipment, blasting, excavating, dumping, chemical damage or other operation and the contractor shall adequately protect such trees by use of protective barriers or other methods approval by the Employer/ Employer's representative. Trees shall not be used for anchorages. The contractor shall be responsible for injuries to trees and shrubs caused by his operations. The term "injury" shall include, without limitation bruising, scarring, tearing and breaking of roots, trunks or branches. All injured trees and shrubs be restored as nearly as practicable without delay to their original condition at the contractor's expense.
  - (iii) The contractor's construction activities shall be performed by methods that will present entrance or accidental spillage of solid matter contaminants, debris and other objectionable pollutants and wastage into river. Such pollutant and waste include earth and earth products, garbage, cement concrete, sewage effluent, industrial wastes, radio-active substances, mercury, oil and other petroleum products, aggregate processing, mineral salts and thermal pollution. Pollutants and wastes shall be disposed off in a manner and at sites approved by the Employer/ Employer's representative.
  - (iv) In conduct of construction activities and operation of equipments the contractor shall utilize such practicable methods and devices as are reasonably available to control, prevent and otherwise minimize the air pollution. The excessive omission of dust in to the atmosphere will not be permitted during the manufacture, handling and storage of concrete aggregates and the contractor shall use such methods and equipment as a necessary for collection and disposal or prevention of dust during these operation. The contractor's methods of storing and handling cement shall also include means of eliminating atmospheric discharges of dust, equipment and vehicles that give objectionable omission of exhaust gases shall not be operated. Burning of materials resulting from clearing of trees, bushes,

**Contractor**

**Commissioner, .  
Municipal Corporation, Kakinada. .**

combustible construction materials and rubbish may be permitted Only when atmospheric conditions for burning are considered favorable.

- b) Separate payment will not be made for complying with the provisions of this clause and all cost shall be deemed to have been included in the unit rates and prices included in the contract if any provision is not complied with within a reasonable time even after issue of a notice in this respect, the necessary operations would be carried out by the Employer/ Employer's representative at the cost of the Contractor, Orders of the Employer/ Employer's representative in this respect would be final and binding on the contractor.

**85. Preservation of existing vegetation:**

- a) The contractor will preserve and protect all existing vegetation such as trees, on or adjacent to the site which do not unreasonably interfere with the construction as may be determined by the Employer/ Employer's representative. The contractor will be held responsible for all unauthorized cutting or damage of trees, including damage due to careless operation of equipment, stockpiling of materials or trekking of grass areas by equipment. Care shall be taken by the Contractor in felling trees authorized for removal to avoid any unnecessary damages to vegetation and trees that are to remain in place and to structures under construction or in existence and to workmen.
- b) All the produce from such cutting of trees by the contractor shall remain the property of Government and shall be properly stacked at site, approved by the Employer/ Employer's representative.. No payment whatsoever, shall be made for such cutting and its stacking by the Contractor. If any produce from such cutting is not handed over to the Government by the contractor, he shall be charged for the same at the rates to be decided by the Employer/ Employer's representative.. The recovery of this amount shall be made in full from the intermediate bill that follows.
- c) The contractor shall also make arrangements of fuel deposits for supply of required fuel for the labourer to be employed for cooking purpose at his own cost in order to prevent destruction of vegetation growth in the surrounding area of the work site.

**86. Possession prior to completion:**

The Employer/ Employer's representative shall have the right to take possession of or use any completed part of work or works or any part there of under construction either temporarily or permanently. Such possession or use shall not be deemed as an acceptance of any work either completed or not completed in accordance with the contract with in the interest of Clause 28 of APSS except where expressly otherwise specified by the Employer/ Employer's representative.

**87. Payment upon termination:**

If the contract is terminated because of a fundamental breach of contract by the contractor, the Employer/ Employer's representative shall issue a certificate for the value of the work done less advance payment received upon the date of the issue of the certificate and less the percentage to apply to the work not completed as indicated in the contract data. Additional liquidated damages shall not apply. If the total amount due to the Department exceeds any payment due to the contractor the difference shall be a debt payable to the Department. In case of default for payment within 28 days from the date of issue of notice to the above effect, the contractor shall be liable to pay interest at 12% per annum for the period of delay.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**88. Access to the contractor's books:**

Whenever it is considered necessary by the Engineer-in-Charge to ascertain the actual cost of execution of any particular extra item of work or supply of the plant or material on which advance is to be made or of extra items or claims, he shall direct the contractor to produce the relevant documents such as payrolls, records of personnel, invoices of materials and any or all data relevant to the item or necessary to be by the Employer/ Employer's representative. and the Engineer-in-Charge's representative and by any other persons authorised by the Employer/ Employer's representative. in writing.

**89. B.I.S. [I.S.I.] books and APSS to be kept at site:**

A complete set of Indian Standard specifications ,CPHEEO manual on sewerage and treatment and any other relevant literature referred to in "Technical Specifications" and A.P.S.S. shall be kept at site for reference.

**90. Variations by way of modification, omissions or additions:**

For all modifications, omissions from or additions to the drawings and specifications, the Employer/ Employer's representative will issue revised plans, or written instructions, or both and no modification, omission or addition shall be made unless so authorised and directed by the Employer/ Employer's representative. in writing.

The Employer/ Employer's representative shall have the privilege of ordering modifications, omission or additions at any time before the completion of the work and such orders shall not operate to annul those portions of the specifications with which said changes do not conflict.

Employer/ Employer's representative Decision:

It shall be accepted as in separable part of the contract that in matters regarding materials, workmanship, removal of improper work, interpretation of the contract drawings and contract specification, mode of the procedure and the carrying out of the work, the decision of the Engineer-in-Charge, which shall be given in writing shall be binding on the contractor.

**91. Care and diversion of river/stream:**

The contractor shall submit details regarding the diversion and care of river or stream during construction of the work along with a separate print-out of the time table showing earliest and latest start and finish dates of various activities. He should submit a detailed layout plan with drawings for the diversion and care of river during construction of work. The above arrangements shall be at contractor's cost.

**92. Income tax:**

- a) During the currency of the contract deduction of income tax at 2.36% shall be made from the gross value of each bill of the contract, the contract value of which is in excess of Rs. 10,000/- for deduction of tax at rates lower than 2.36% procedure stipulated under section 194-C(4) of Income Tax Act, 1961 shall be followed.
- b) Income Tax clearance certificate should be furnished before the payment of final bill.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



- c) The contractor's staff, personnel and labour will be liable to pay personnel income taxes in respect of their salaries and wages as are chargeable under the laws and regulations for the time being in force, and the contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations.

**93. Seigniorage charges:**

- 93.1 *Seigniorage charges will be recovered as per rules from the work bills of the contract or based on the theoretical requirement materials at the following rates.*

<b>S. No.</b>	<b>Material</b>	<b>Seigniorage</b>
1.	Sand	Rs.50.00 / cum.
2.	Metal / Ballast	Rs.75.00 / cum.
3.	R.R.stone for masonry.	Rs.75.00 / cum.
4.	Revetment stone.	Rs.75.00 / cum.
5.	C.R.S. stone.	Rs.75.00 / cum.
6.	Gravel / Earth.	Rs.30.00/ cum.

- 93.2 The rates are liable to be revised and amended from time to time by the State Government, by notification in the 'Andhra Pradesh Gazette'. If the revised Seigniorage fee is more than the above mentioned, the recovery from the contractor's bills is as per revised rates.

**94. GST:**

- 94.1 GST, during the currency of the contract, deduction towards CGST Act 2017 & Andhra Pradesh SGST Act 2017, will be made at source, while making payments to the contractor as per the prevailing rules.
- 94.2 The contractor should produce a valid VAT/GST Clearance Certificate before the payment of the final bill, otherwise payment to the contractor will be withheld..

**95. Supply of construction materials:**

- i) The contractor has to make his own arrangements for procurements, supply and use of construction materials.

***[Any other special conditions applicable to the work put to Tender]***

97. The execution shall be strictly in accordance with bid conditions. Contractors shall not deviate from basic parameters of the project to reduce his costs. EPC being a turnkey system extra items / financial claims on the department contingent to the work other than price adjustments shall not be considered.
98. The Internal Bench Mark (IBM) put to tender value shall be the basis for comparison of tenders.
99. The agency shall furnish the detailed estimates prepared based on approved drawings as per provision of agreement.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

100. Drawings given, listed and indexed in bid documents are indicative. The above drawings show the system as a whole. The contractor shall carry out investigation to prepare detailed layout, designs and drawings of all components of the work within the stipulated time period, to be approved by consultant/ departmental authority. The contractor shall follow all relevant BIS codes / circulars issued by the department from time to time for various components of the works. In case of difference of opinion on technical matters between the contractor and the Engineer-in-charge, the decision of the appellate authority shall be final and binding on the contractor.
101. The appellate authority is Superintending Engineer in respect of designs and drawings approved by Engineer-in-charge.
102. The appellate authority is Engineer –in - Chief (PH)/ Chief Engineer in respect of designs and drawings approved by Superintending Engineer.
103. The appellate authority is the Committee constituted by the Government in respect of designs and drawings approved by Engineer – in – Chief (PH) /Chief Engineer.
104. The Engineer – in- Chief (PH) shall permit grant of extension of time up to six months and the State level Committee constituted by the Govt. for beyond six months, subject to levying liquidated damages wherever necessary and the employer conveys the same to the agency.
105. Entrustment of the additional items contingent to the main work and within the scope of contract will be authorised by the employer and the contractor shall be bound to execute such additional items at no extra cost to the employer and the cost of such items shall be deemed to have been included in the contract price quoted.
106. Entrustment of additional items of work contingent to main work and outside the scope of the contract will be authorised by the employer with the prior approval of the Committee constituted by the Government and the contractor shall be bound to execute such additional items and shall be compensated at the price decided by the Committee formulated by the Government.
107. Whenever additional items not contingent on the main work and outside the scope of original contract are entrusted to the contractor, entrustment of such items and the price to be paid shall be referred to the Committee formulated by Government for final decision.
108. Technical evaluation shall be done first following the criteria specified in the bid document and financial bid evaluation shall be done in respect of those who are qualified in technical bid evaluation.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

109. Measurements shall be recorded by EPC agency in M.Books and L.F. Books issued by the concerned EE duly numbered and certified. The M. Books and L.F. Books have to be maintained by the EPC agency through authorized graduate engineers as per procedure prescribed in Code and finally to be handed over to the department (Engineer-in-charge).
110. Wherever Quality Control agencies are in existence, such agency has to furnish certificates as prescribed separately.
111. In case the department has any new facts which will materially affect the cost of the project they shall be taken into consideration and brought to the notice of the IBM Committee. After approval of the IBM Committee, technical sanction will be accorded.
112. The M. Books and L.F. Books shall be maintained by EPC Agency and bills are to be submitted to the **Engineer in Charge** by the EPC agency along with a true extract of the entire set for checking and making payment. The Engineer-in-charge has to keep the full set of true extract with him and return the originals to the agency for further use. The entire original record shall be finally handled over for record to the Engineer-in-charge by the EPC Agency.
113. EPC Agency shall prepare monthly work bills based on measurements of work done and submit to Engineer-in-charge.
114. Payments shall be regulated in accordance with Schedule of Payments component wise.
115. The components may be further divided into appropriate sub components and stages. The payment of each stage of sub component shall be expressed as percentage of total cost of approved bid which shall also be approved by the Superintending Engineer and shall form part of contract.
116. The eligibility for payment shall be limited to completed portions of works, subject to other conditions envisaged in the agreement and executive instructions from time to time.
117. Bidder shall quote lump sum amount for the work as a whole.
118. The Superintending Engineer is empowered to modify the sub-components reach-wise/stage-wise keeping the component unaltered.
119. The Sub Divisional Officer and Engineer-in-charge shall exercise check to see that the bill submitted by EPC agency is in accordance with agreement conditions and certified by the departmental Quality Control Authorities (or) 3rd Party Quality Control Agency (or) by both if both are deployed on the work.
120. Engineer-in-charge (EE) should check the claim with reference to the measurements recorded to see that the percentage at which the bill is claimed is clearly traceable into the documents on which payments are to be made. Payments shall be adjusted for recovery of

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

advance payments, liquidated damages in terms of agreement conditions, security deposit for due fulfillment of the contract. Recoveries shall be affected towards seigniorage charges on the materials used and GST and other statutory recoveries as per State and Central Government Rules and Acts.

121. The bidders shall review the data / information provided in bid documents and satisfy themselves. Any doubts shall be got cleared in pre bid meeting. The contractor shall quote the bid price in lump-sum after careful analysis of cost involved for the performance work considering all basic parameters, specifications and conditions of contract. The bid offer shall be for the whole work and not for individual item / part of work. The bidder shall quote for the entire work on a single source responsibility basis.
122. The execution shall be strictly in accordance with bid conditions. Contractors shall not deviate from basic parameters of the project to reduce his costs. EPC being a turnkey system extra items / financial claims on the department contingent to the work other than price adjustments shall not be considered.
123. The Internal Bench Mark (IBM) put to tender value shall be the basis for comparison of tenders.
- 124.** The agency shall furnish the detailed estimates prepared based on approved drawings as per provision of agreement.
125. Drawings given, listed and indexed in bid documents are indicative. The above drawings show the system as a whole. The contractor shall carry out investigation to prepare detailed layout, designs and drawings of all components of the work within the stipulated time period, to be approved by consultant/ departmental authority. The contractor shall follow all relevant BIS codes / circulars issued by the department from time to time for various components of the works. In case of difference of opinion on technical matters between the contractor and the Engineer-in-charge, the decision of the appellate authority shall be final and binding on the contractor.
126. The eligibility for payment shall be limited to completed portions of works, subject to other conditions envisaged in the agreement and executive instructions from time to time.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**NOTE ON ROLES AND RESPONSIBILITES OF CONSTRUCTION STAFF, QUALITY CONTROL WING AND THIRD PARTY QUALITY CONTROL AGENCY IN EXECUTION OF PROJECT TAKEN UP UNDER EPC TURNKEY SYSTEM.**

The following are the guidelines with reference to the roles and responsibilities of field staff, quality control staff and 3<sup>rd</sup> party quality control agencies, procedure for recording of work executed in M Books for making payments to the contractors for the work executed every month including maintenance of records and certification of quality of work executed.

(A) The roles and responsibilities of field staff, Quality Control Staff and 3<sup>rd</sup> Party Quality Control Agencies.

I) FIELD STAFF

- 1) The field staff (construction staff) has to associate with the EPC agency while conducting the tests. In case of necessity they may conduct tests independently whenever required. Under EPC system the field staff play a vital role in quality assurance of the works.
- 2) The field staff shall invariably check and produce all the following Records and OK cards maintained by EPC Agency at the site to the Inspecting Officers.

Registers

- 1) Site Order
  - 2) Register of Bench Marks
  - 3) Material OK Register
  - 4) Register of Foundations
  - 5) Register of placement for concrete, Embankment, reinforcement and other test reports.
  - 6) Register of laying pipelines, testing.
  - 7) Register of test reports of comprehensive strength of concrete specimens
  - 8) Cement Day Book
- 3) In case of Earthwork excavation embankment, the field staff have to check and record the pre levels 25% of the pre levels taken by the EPC agency. In case of cut-off and foundations the field staff have to check and record 100% levels.

II) Department Quality Control Staff

- a) The Department Quality Control staff shall verify the records maintained at site by EPC agency and the third party quality control agency. The filed quality control staff have to check 25% of works such as pipes, laying, jointing, testing including pumping machinery and record independently.
- b) Regarding the tests and frequency of tests, the field quality control staff have to conduct / associate with construction staff as mentioned in Annexure – D. In case of ambiguity, they shall conduct tests in APERL / independent laboratory approved by employer.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

- c) Wherever the Third Party quality control agency is not appointed, the Department Quality Control staff have to issue the quality certificates for releasing payment to the EPC agency during construction and other completion.

### III) Third Party Quality Control Agency

- a) The Third Party Quality Control agency should possess all the testing facilities as per agreement and conduct independent testing to assure the quality of work. They should also verify 10% of the tests being done by the EPC agency independently.
- b) The third party quality control agency has to submit the reports and records to the Engineer-in-Charge.

#### (B) Recording of measurements and certifying payments to the EPC Agency.

- a) Measurements are to be recorded by the EPC Agency in the Measurement Book and LF Books.
- b) The measurement book and LF book are to be issued by the concerned Executive Engineer duly certified and numbered.
- c) Field Engineer (AE/AEEs) have to check and record 25% of pre-levels and 100% for final levels.
- d) Field Engineer (AE/AEEs) have to check measure 100 % of final measurement.
- e) Field Dy. EEs have to check the measure 25% of the levels and measurements spread over the entire work
- f) Field EE/SEs have to check measure as per codal provisions and rules in vogue.
- g) The measurement books and LF books have to be maintained by the EPC agency and finally to be handed over to the Department (Engineer-in-Charge)
- h) The Department QC Staff have to check 25% of the work such as pipes, laying, jointing, testing, concrete work, etc.
- i) Measurement will be recorded by the EPC agency for the finished work duly certifying that all tests are conducted and work done by the agency in accordance with specifications and contracts conditions by using the material specified in the contract.
- j) The EPC Agency shall prepare monthly work bills based on the recorded measurement of work done and submit to the Engineer-in-charge duly signed by them or his authorized signature for arranging
- k) The Engineer-in-Charge shall recommend for release of payment duly ensuring quality certificate by the third party quality control agency / Department quality control staff ( in absence of third party quality control).

NOTE: The above guidelines have to be followed duly inter relating with the relevant conditions / clauses of the respective Agreements concluded.

#### (C) Reporting procedure for adverse remarks of 3<sup>rd</sup> party Quality Control Agency and Departmental Quality Control Staff.

- 1 Reporting procedure shall be followed.
- 2 The third party quality control agency shall submit reports in four sets for specific cases of deficiencies for corrective action to the Engineer-in-charge soon after

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

verification. The sub-standard material shall be rejected and got them removed from the site. In case necessity, Engineer-in-Charge shall arrange to stop the work till the deficiencies are rectified to the satisfaction of the 3<sup>rd</sup> party Quality control Agency / departmental quality staff.

- 3 The Engineer-in-Charge shall communicate the above remarks of 3<sup>rd</sup> party quality control agency to the EPC agency for compliance of corrective action.
- 4 The EPC agency shall furnish compliance report to the Engineer-in-Charge, who in turn forward the same to the third party quality control agency / department quality control as the case may be for verification.
- 5 Soon after receipt of report on the compliance to the remarks of the third party quality control agency by the EPC agency, evidence of compliance of corrective action has to be furnished to the Engineer-in-Charge to proceed with further work.
- 6 In addition to the above, the observations made by the third party quality control and the Department quality control staff have to be invariably completed with before the next bill is present for payment and certificate to that effect has to be recorded in bills presented by the EPC agency duly countersigned by their field construction staff before making payments.
- 7 On completion of the works, the third party control agency and Department Quality Control staff have to certify that the work has been executed as per design and specifications satisfying intended scope of project as indicated in the agreement before making final payments to the EPC agency.
- 8 All Quality Control Units inclusive of 3<sup>rd</sup> party agency shall be under the Technical Control of Engineer –in-Chief ( Public Health)

**Salient points on the Duties of the Construction Engineers under E.P.C. System:**

1. Under E.P.C. System, the field Engineers are primarily responsible for Quality Assurance of the work executed by them and conduct all field tests before allowing further work.
2. Shall check and produce to inspecting officers the following Records and O.K. Cards maintained by the E.P.C. Agency.

Registers:-

1. Site order.
2. Register of Bench Marks.
3. Material O.K. Register.
4. Register of pipes, laying, jointing, testing.
5. Register of foundations.
6. Register of placement of concrete, Embankment, Reinforcement and other test reports.
7. Register of test reports of compressive strength of concrete specimens.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

E.Es/S.Es have to check measure as per Codal provisions and rules in vogue.

1. The Measurement records have to be maintained by E.P.C. Agency and finally handed over to the Engineer-in-Charge.
2. The observations made by Third party Quality Control, Department Quality Control Staff have to be invariably complied with before the next bill for payment is presented. To that effect certificate has to be recorded by E.P.C. Agency and countersigned by the field Engineers.

Under E.P.C. System of contract, fortnightly Management Meetings with E.P.C. Agency by the Superintending Engineer shall invariably discuss the Quality Assistance Aspects and records in the Minutes of Meeting regularly.

### **Salient Points on the Duties of Department Quality Control Staff.**

1. Shall verify the records maintained @ site by the E.P.C. agency and the Third Party Quality Control agency.
2. Shall check 25% of the pipe laying, testing, final levels/measurements of Earth work, revetment, leveling, concrete, linear dimensions of important structures, etc.
3. Shall conduct/Associate with construction staff with regard to Test & Frequency of Tests as stipulated in the Annexure 'D' of Committee on Q.C. Recommendations.
4. In case of Ambiguity of Test Results, they shall conduct tests in A.P. E.R.L. independently.
5. Shall issue quality certificates for releasing payment in absence of Third Party Quality Control to the E.P.C. Agency during construction and after completion.
6. Shall certify that the work has been executed as per designs & Specifications (agreement) before final payment to E.P.C. Agency.

### **Third Party Quality Control Agency**

The Third Party Quality Control Agency should possess all the testing facilities as per Agreement and conduct independent Testing to assure the Quality of Work.

1. Shall verify 10% of the tests done by the E.P.C.Agency.
2. Shall submit the Reports and Records to Engineer-in-Charge as per agreement with the Department.
3. Shall give Quality Control Certificate for each work bill executed by the EPC Agency.
4. On completion of the work, the third Party Quality Control Agency shall certify that the work has been executed as per Design and specifications indicated in the agreement satisfying intended scope project before marking final payment to the E.P.C. Agency.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .



**SECTION – 4**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## TECHNICAL SPECIFICATIONS

### Section-4: TECHNICAL SPECIFICATIONS

Sl. No.	Description	
<b>A)</b>	<b>CIVIL WORKS :</b>	
Division – 1	...	General Specifications
Division – 2	...	Site Work
Division – 3	...	Earth Work Excavation
Division – 4	...	Masonry
Division – 5	...	Plastering and Pointing
Division – 6	...	Concrete
Division – 7	...	Materials required for pipe line works
Division – 8	...	Laying and Jointing of pipe lines
Division – 12	...	Designing, Constructing And Commissioning Of SWD System Using RCC Box Drains

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

---

**Section – 4**

**TECHNICAL SPECIFICATIONS**

---

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## DIVISION – 1

### GENERAL SPECIFICATIONS

The I.S. Codes shall be those indicated or subsequent amendments thereon

SL. No.	Description	I.S. No.
A)	LIST OF INDIAN STANDARDS	
<b>I.</b>	<b>CEMENT</b>	
1.	Ordinary and Low Heat Portland Cement.	269 – 1976
2.	Pozzolana Portland Cement.	1489 – 1976
3.	43 Grade or 53 Grade Cement	8112 – 12269
<b>II.</b>	<b>AGGREGATES</b>	
1.	Aggregates, Course & Fine from Natural resources for concrete.	383 – 1970
2.	Sand for Masonry Mortar	2116 – 1965
3.	Methods of tests for aggregates for concrete	2386 - 1963
	Part – I Particle size and shape	2386 – 1963 (Part – I)
	Part – II Estimation of deleterious Materials & Organic impurities	2386 – 1963
	Part – III Soundness	2386 – 1963
4.	Specification for test sieves. Part – I: Wire Cloth test sieves.	460 – 2002 (Part – I)
<b>III.</b>	<b>BRICKS</b>	
1.	Common burnt clay building bricks	1077 – 1976
<b>IV.</b>	<b>STEEL</b>	
1.	Mild steel and medium tensile steel bars and hard drawn steel wire, concrete reinforcement. Part – I Mild Steel & Medium tensile Steel Bars.	432 - 1982

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

<b>Sl. No.</b>	<b>Description</b>	<b>I. S. No.</b>
2.	High strength deformed steel bars and wires for concrete reinforcement.	1786 – 1985
3.	High Tensile Steel for PSC Pipes.	1784 – 1986 (Part-I)
4.	Hand Drawn Wire	432 – 1953
5.	Bending and Flexing of Bars for Concrete reinforcement.	2502 – 1963
6.	Recommendations for detailing of reinforcement in reinforced concrete works.	5525 – 1969
<b>V.</b>	<b>CONCRETE</b>	
1.	Plain and reinforced concrete, code of practice for.	456 – 2000
2.	Laying in Situ cement concrete flooring	2571 – 1970
3.	Sampling and analysis of Concrete	IRC : 15-2002
4.	Code of practice for liquid retaining structures	3370 – 1967
5.	Code of practice of concrete roads	IRC : 15 – 2002.
<b>VI.</b>	<b>MASONRY</b>	
1.	Brick Masonry	2212 – 1962
2.	Construction of Stone Masonry	1597 – 1967

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

## **DIVISION-2**

### **SITE WORK**

#### **2.1 Intimation about commencement of work:**

Before commencing the works and also during progress the bidder shall give due notice to the concerned authorities, the Municipality, the Roads and Buildings and Electricity Board, Telephone Department, the Traffic Department attached to the Police, other Departments and companies as may be required to the effect that the work is being taken up in a particular locality and that necessary diversion of traffic may be arranged for. The bidder shall cooperate with the Departments concerned and provide for necessary barricading of roads, protections to existing underground mains, cables etc.

#### **2.2 Cross Drainage:**

The bidder shall handle all flows from natural drainage channels intercepted by the work under these specifications, perform any additional excavation and grading for drainage as directed and maintain any temporary construction required to bypass or otherwise cause the flows to be harmless to the work and property. When the temporary construction is no longer needed and prior to acceptance of the work, the bidder shall remove the temporary construction and restore the site to its original condition as approved by the Engineer-in-Charge. The cost of all work and materials required by this paragraph shall be included by the bidder in the unit prices quoted in the section 6 of Vol. III (bill of quantities) and no separate payment will be made for the same.

#### **2.3 Stacking of Excavated Material:**

Where the location of the work is such and does not permit the deposition of excavated earth while digging trenches for laying pipes, the excavated earth should be conveyed to a convenient place and deposited there temporarily, as directed by the Engineer-in-Charge. Such deposited earth shall be reconveyed to the site of work for the purpose of refilling of trenches, if such deposited soil is suitable for refilling. The unit rate for trench work of excavation and refilling shall include the cost of such operations.

#### **2.4 Disposal of Surplus Earth:**

The rate for excavation of trench work, shall include charges of shoring, strutting, any of these contingent works. While bailing out water care should be taken to see that the bailed out water is properly channelised to flow away without stagnation or inundating the adjoining road surfaces and properties.

#### **2.5. Shoring, Strutting and Bailing out Water :**

The rate for excavation of trench work, shall include charges of shoring, strutting, bailing out water wherever necessary and no extra payment will be made for any of these contingent works. While bailing out water care should be taken to see that the bailed out water is properly channelised to flow away without stagnation or inundating the adjoining road surfaces and properties.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## DIVISION-3

### EARTH WORK

#### 3.1 EARTH WORK - GENERAL:

##### 3.1.1 Earth work diagrams and Data:

To the extent that they exist plans and earth work data prepared for the Government's (that is Government of Andhra Pradesh) studies of earth work for construction of the related works will be available for Inspection by the bidders in the Office of the concerned Engineer-in-Charge.

Such information is made available solely for the convenience of bidders. The Government does not represent that this information is accurate or complete. Bidders are cautioned that this information is subject to revision and that the Government disclaims responsibility for any interpretations, deductions or conclusions which may be made therefrom. It is not intended that this earth work information will limit or prescribe the excavation and handling procedure of the contractor, and the Government reserves the right to utilise and distribute earth work materials during the progress of work as best serves the interest of the Government.

##### 3.1.2 Compacting Earth Materials:

Where compacting of earth materials is required, the materials shall be deposited in horizontal layers and compacted as specified in this paragraph. The excavation, placing, moistening and compacting operations shall be such that the materials will be uniformly compacted throughout the required section and will be homogeneous, free from lenses, pockets, streaks, voids, lamination or other imperfections. The compaction shall be carried out in accordance with the relevant clauses of I.S 4701 – 1982.

#### **EXCAVATION:**

##### **Classification of Excavation:**

Except as other-wise provided in these specifications, material excavated will be measured in excavation to the lines shown on the drawings or as provided in these specification, and all materials so required to be excavated will be paid for at the applicable prices bid in the schedule for excavation. No additional allowance above the price bid in the schedule will be made on account of any of the material being wet. Bidders and the contractors must assume all responsibility for deducting and concluding as to the nature of the materials to be excavated and the difficulties of making and maintaining the required excavation. The Government does not represent that the excavation can be performed or maintained at the paylines described in these specifications or shown on the drawings.

Excavation for removal of debris and deposited earth on berms while forming roads is to be carried out as specified in relevant clauses of 154701-1982 as compared before lying of berms with the same setting of roads.

##### **Excavation for Structures:**

###### **General:**

Excavation for the foundation of structures shall be to the elevation shown on the drawings or as directed by the Engineer-in-Charge. In so far as practicable, the material removed in excavation for structures shall be used for back fill and embankments. Otherwise it shall be disposed off as specified in paragraph 2.4.

###### **Foundations for Structures:**

The Contractor shall prepare the foundations at structure/sites by methods which will provide firm foundation for the structures. The bottom and side slopes of common excavation upon or against which the structure is to be placed shall be finished to the

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

prescribed dimensions and the surfaces so prepared shall be moistened and tamped with suitable tools to form firm foundation upon or against which to place the structure. The Contractor shall prepare the foundation for the structures as shown on respective drawings. The natural foundation material beneath, the required excavation shall be moistened if required and compacted in place.

Separate payment will not be made to the contractor for Moistering and compacting the foundation of structures. The contractor shall include cost thereof in the price bid per cubic meter of the item of the Bill of quantities for preparation of foundations.

Whenever unsuitable material is encountered in the foundation for a structure the Engineer-in-Charge will direct additional excavation to remove the unsuitable material. The cost of such additional excavation shall be paid at the unit price bid in the Bill of quantities for earth. The additional excavation shall be refilled by selected bedding material and compacted.

(c) **Over Excavation:**

If at any point in common excavation the foundation material is excavated beyond the lines required to receive the structure, or if at any point in common excavation the natural foundation material is disturbed or loosened during the excavation process, it shall be compacted in place or where directed, it shall be removed and replaced as follows. In excavation soils, the over excavation shall be filled in by selected bedding material and compacted. In excavation in rock it shall be filled with M5 grade cement concrete. Any and all excess excavation or over excavation performed by the Contractor for any purpose or reason except for additional excavation as may be prescribed by the Engineer-in-Charge and whether or not due to the fault of the contractor shall be at the expense of the contractor. Filling for such excess excavation or over excavation shall be at the expense of the contractor.

(d) **Measurement for payment:**

Excavation for structures will be measured for payment, for box cutting with vertical sides of foundation dimensions. The contractor will have to make his own arrangement for shoring, strutting, provision of adequate slopes for the sides to prevent slips etc., and no separate charge will be paid for any incidental charges arising either during excavation of foundation or construction of the structure.

(e) **Payment:**

*Payment for excavation for structures will be made at the unit price per cubic metre bid therefor in the Bill of quantities for excavation for structures. The unit price bid in the bill of quantities for excavation for structures shall include the cost of all labour and materials for coffer dam and other temporary construction, of all pumping and dewatering, of all other work necessary to maintain the excavation in good order during construction, of removing such temporary construction where required and shall include the cost of disposal of the excavated material.*

3.3 **BACKFILL:**

3.3.1 **Back Fill Around Structures:**

(a) **General:**

The item of the schedule for backfill around structures including pipe portions of structures includes all backfill required to be placed under these specifications.

(b) **Materials:**

The type of material used for backfill, the amount thereof, and the manner of depositing the material shall be subject to approval of Engineer-in-Charge. In so far as practicable backfill material shall be obtained from material removed in required excavations for structures. But

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .



when sufficient suitable material is not available from this source, additional material shall be obtained from approved borrow-areas. The borrow pit excavation shall be in accordance with clause-9.1 to 9.3 of I.S 4701-1982.

Backfill material shall contain no stones larger than 80 millimeters in diameter. If the excavation for the foundation of the structure is in swelling soils, a layer of cohesive non-swelling soil conforming to I.S..9451-1980 should be interposed between the swelling soil of the structure and compacted to atleast 95% standard proctors density.

(c) **Placing Backfill:**

Backfill shall be placed to the lines and grades shown on the drawings as prescribed in this paragraph or as directed by the Engineer-in-Charge. All backfill shall be placed carefully and spread in uniform layers not exceeding 150 mm, so that all spaces about rocks and clods will be filled. Each layer shall be watered and well compacted before the succeeding layer is laid, care being taken not to disturb the constructed structure. Backfill shall be brought up as uniformly as practicable on both sides of walls and all sides of structure to prevent unequal loading. Backfill shall be placed to about the same elevation on both sides of the pipe positions of the structures to prevent unequal loading and displacement of the pipe.

(d) **Measurement and Payment:**

Excavation refill required to be placed about structures that is within the pay line limits for excavation for the structures, will be measured in place for payment as backfill about structure provided that where the contractor elects not to excavate material which is outside the limits of the actual structure or pipe, but within the pay line limits of excavation, all such material will be included in the measurement for payment of backfill.

The unit price bid therefor in the Bill of quantities for excavation of foundation of structure shall include cost of backfilling about the structure upto ground level. No separate payment will be made for backfill of foundation.

Refill of excavation performed outside the established paylines for excavation for structures shall be placed in the same manner as specified for the adjacent backfill and such refill shall be placed at the expense of the contractor.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## DIVISION-4

### MASONRY

#### 4.1 MATERIALS:

##### 4.1.1 Stone for Masonry:

###### (a) General:

The stones used for stone masonry shall conform to the relevant specifications of Clause 4.1 of I.S 1597 (Part-I) 1967 code of practice for construction of stone Masonry Part-I Rubble Stone Masonry.

The stone of the required quality shall be obtained from the quarries specified in the lead chart appended to the Schedule. The common types of natural stones which are generally used are Granite and other ingeneous rocks, and shall be free from defects like decay, cavities, cracks, flaws, sand, holes, soft seams, veins, patches of soft or loose materials or any other deleterious materials like iron oxide Organic Impurities etc. They shall be free from rounded, worn or weathered surfaces or skin or coating which prevents the adherence of mortar. All stones used shall be clean of uniform colour and texture, strong, hard and durable.

The percent of water absorption shall not exceed 5% by weight as determined in accordance with I.S. 1124-1974.

The approval of the quarries by the Engineer-in-Charge shall not be constructed as constituting approval of all or any of the stones collected from the deposits; and the bidder will be held responsible for suitability of the stones used in the work.

###### (b) Cost:

The cost of collecting the stones for masonry will not be paid for separately and their cost including the cost of quarrying, transporting, stacking, royalty seigniorage charges shall be included in the unit price per cubic metre bid therefor in the relevant item in the bill of quantities.

##### 4.1.2 Brick for Masonry

###### General:

Bricks used for brick masonry shall conform to the relevant specifications of I.S. 1077-1986 common burnt clay building bricks shall be hand or machine moulded. They shall be sound, hard, homogeneous in texture well burnt and shall give a clear ringing sound when struck. They shall be clean, free from warping, distortion, cracks, chips, flaws, stones and nodules of free lime. Unless otherwise specified the sizes of the bricks shall be 190 x 90 x 90 mm. The compressive strength shall not be less than 40 Kg/Cm<sup>2</sup>. The percentage of water absorption shall not be more than 20 per cent by weight after 24 hours immersion in cold water.

###### (b) Cost:

The cost of collecting the bricks for masonry will not be paid for separately and their cost including the cost of transporting, stacking, royalty seigniorate charges shall be included in the unit price per cubic metre bid therefore in the relevant item in the bill of quantities.

##### 4.1.3 Sand for Masonry:

###### General:

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

Sand shall generally conform to specifications given in paragraph 6.2.5 except that the sand for mortar shall conform to the grading of sand given in clause 4 of I.S.2116-1189 as detailed below in Table 4(b).

Table 4(b): Grading of Sand for use in Masonry Mortars:

I.S. Sieve Designation	Percentage passing by Mass
4.75 mm	100
2.36 mm	90 to 100
1.18 mm	70 to 100
600 Micron	40 to 100
300 Micron	5 to 70
150 Micron	0 to 15

A sand whose grading falls out-side the specified limits due to excess or deficiency of coarse or fine particles may be processed to comply with the standard by screening through a suitably sized sieve and/or blending with required quantities of suitable size and particles.

The procurement of sand for masonry shall conform to the specifications given in paragraph 6.2.5.

**Cost:**

The cost of sand for masonry will not be measured and paid separately and the cost of sand including the cost of stripping, transporting and storing and royalty charges shall be included in the unit price per cubic metre bid therefor in the relevant item of work in the bill of quantities for which this and is required.

**4.1.4 Cement:**

**General:**

As per clause 4 of I.S. 456-1978 for the purposes of these specifications, cement used shall be any of the following with the prior approval of the Engineer-in-Charge Ordinary Portland (OPC) – GRADES 43 & 53 Conforming to BIS : 811 : 12269 respectively (or) portlandpozzolana cement conforming to I.S. 1489 relevant amendments upto date.

The provisions of this paragraph apply to cement for use in cast-in-place concrete required under these specifications. Portland cement required for items such as concrete pipes, precast concrete structural members and other precast concrete products, for grout and mortar and for other item is provided for in the applicable paragraphs of these specifications covering the items for which such portland cement is required.

The water used in making and curing of concrete, mortar and grout shall be free from objectionable quantities of silt, organic matter, injurious amounts of oils, acids, salts, and other impurities etc., as per I.S. specification No.456-1978.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

The Engineer-in-Charge will determine whether or not such quantities of impurities are objectionable. Such determination will usually be made by comparison of compressive strength, water requirement, time of set and other properties of concrete made with distilled or very clean water and concrete made with the water proposed for use. Permissible limits for solids when tested in accordance with I.S. 3025-1964 shall be as tabulated below.

**Permissible limit for Solids:**

	Maximum permissible limit
1. Organic	200 mg/litre
2. Inorganic	3000 mg/litre
3. Sulphates (as SO <sub>4</sub> )	500 mg/litre
4. Chlorides (as CL)	2000 mg/litre for plain concrete work and 1000 mg/litre for R.C.C. work
5. Suspended matter	2000 mg/litre

If any water to be used in concrete, mortar or grout is suspected by the Engineer-in-Charge of exceeding the permissible limits of solids, samples of water will be obtained and tested by the Engineer-in-Charge in accordance with I.S. 3025-1964.

#### 4.2 MORTAR

**Preparation of Mortar:**

Unless otherwise specified, the cement mortar used in Masonry works shall be cement mortar mix MM5 (1:5) grade using minimum 288 Kgs. of cement per cubic metre of mortar.

Mixing shall be done thoroughly preferably in a mechanical mixer. In such cases, the cement and sand in the specified proportions shall be mixed dry thoroughly in the mixer operated manually or by power.

Water shall be added gradually and wet mixing continued at least for 3 minutes. Water should not be more than that required for bringing the mortar to the required working consistency of 90 to 130 millimetres as required in clause 9.11 of I.S. 2250-1981. The mix shall be clean and free from injurious kind of soil, acid, alkali, organic matter or deleterious substance

**Time of use of Cement Mortar:**

Contractor

Commissioner,  
Municipal Corporation, Kakinada.

Cement mortar shall be used as soon as possible after mixing and before it has begun to set, within 30 minutes after the water is added to the dry mixture.

Mortar unused for more than 30 minutes should not be used and shall be removed from the site of work. The cost of such wasted mortar shall be borne by the bidder. The use of retempered mortar will not be permitted to be used for the masonry.

**Tests of Mortar:**

Mortar Test cubes shall be cast for the mortar used on the work and shall be tested in accordance with Appendix-A of I.S.2250-1965 code of practice for preparation and use of Masonry Mortars. Such cubes shall develop a compressive strength of atleast 50 Kgs/squarecentimetre for MM5 (1:5) Grade cement mortar mix, 75 Kgs/square centimetre for MM 7.5 (1:4) grade cement mortar mix and 30 Kgs/ square centimetre for MM-3 grade cement mortar mix.

Mortar not conforming to the specifications will be rejected, and the cost of such wasted mortar shall be borne by the bidder.

**Measurement and Payment:**

Cement Mortar will not be measured and paid separately and its cost, including cost of materials, transporting and placing shall be included in the unit price per cubic metre bid therefore in the bill of quantities of the contractor for the relevant finished item of work or which cement mortar mix mentioned in the above paragraph is required.

**4.2.5. Dismantling of Structures:**

During course of excavation of drainage works certain dismantling of brick masonry / R.R. masonry retaining walls in CM C.C M10 grade levelling course are to be carriedout. These have to be carriedout as specified under section 202 of A.P.S.S, and as per directions of Engineer-in-Charge and site cleared before facing up actual execution.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**DIVISION-5**  
**PLASTERING & POINTING**

**5.1 SECTION – MATERIALS:**

**5.1.1 Sand for Mortar for Plastering and Pointing:**

**(a) General:**

The sand for preparation of Mortar for plastering and pointing shall conform to the following gradation, shown in Table 5(A).

**TABLE 5 (A)**

**REQUIREMENTS OF GRADING FOR SANDS FOR EXTERNAL PLASTERING AND RENDERING**

I.S.	SIEVE	Percentage I.S., Sieve	by weight passing
	Designation	Class – A	Class - B
	4.75 MM	100	100
	2.36 MM	90 to 100	90 to 100
	1.18 mm	70 to 100	70 to 100
	600 Microns	40 to 85	40 to 95
	300 Microns	5 to 50	10 to 65
	150 Microns	0 to 10	0 to 10

For the purpose of indicating the suitability for use, the sand is classified as Class A and Class B in accordance with the limits of grading. Class ‘A’ sands shall be used generally for plastering and pointing, and when they are not available, Class ‘B’ sands may be used with the approval of Engineer-in-Charge.

The procurement of sand for Mortar for plastering and pointing shall conform to the specifications given in paragraph 6.2.5.

**(b) Cost:**

The cost of sand for mortar for plastering and pointing will not be measured and paid separately, and the cost of sand including the cost of stripping, transporting and storing and royalty charges shall be included in the unit price per Cubic metre bid therefor in the relevant item of work in the Schedule ‘A’ for which this sand is required.

**5.1.3 Cement:**

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

The specifications and conditions specified for supply for cement in paragraph 4.1.4 shall be applicable here also.

Portland pozzolana cement conforming to I.S. 1489-1976 shall be used for preparation of mortar for plastering and pointing work. Ordinary portland cement – Grades 43 & 53 may also be used in the event of non-availability of P.P.C.

**5.1.4 Water:**

The specifications and conditions specified for procurement of water in paragraph 4.1.5 shall be applicable here also.

**5.2 SECTION – MORTAR:**

**5.2.1 Preparation of Mortar for Plastering work:**

Unless otherwise specified, the cement mortar used in plastering work shall be in cement mortar mix of MM. 7.5 (1:4) grade, using minimum 360 Kgs. of cement per cubic metre of mortar.

The other specifications and conditions enunciated in paragraph 4.2.1 shall apply for this mortar for plastering work also.

**5.2.2 Preparation of Mortar for Pointing:**

The cement mortar used in pointing work shall be cement mortar mix of M.M 7.5 grade, using 480 Kgs. of cement per cubic metre of mortar.

The other specifications and conditions enunciated in paragraph 4.2.1 shall apply for this mortar for pointing work also.

**5.3 SECTION – PLASTERING WITH CEMENT MORTAR MIX. MM 7.5 GRADE 20 MM THICK:**

**5.3.1 Preparation of Surface:**

The roughening of the background improves the bond of plaster. All joints shall be thoroughly raked. After roughening the surface, care shall be taken to moisten the surface sufficiently before plastering as otherwise rashly exposed surface may tend to absorb considerable amount of water from the plaster. The surface shall be wetted evenly before applying the plaster. Care shall be taken to see that the surface is not too dry as this may cause lack of adhesion or excessive suction of water from the plaster. A fog spray may be used for this work. As far as possible, the plaster work shall be done under shade.

**5.3.2 Laying of Plastering with Cement Mortar Mix MM.7.5 grade 20 mm thick:**

The mortar used for plastering shall be stiff enough to cling and hold when laid. To ensure even thickness and true surface, plaster shall be applied in patches of 150 mm x 150 mm of

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

the required 20 mm thickness at nor more than 2 metres intervals horizontally and vertically over the entire surface to serve as guides. The surface of these guides shall be truly in the plane of the furnished plaster surface and truly plumb. The mortar shall then be applied to the surface to be plastered between the guides with a trowel. Each trowel full of mortar shall overlap and sufficient pressure shall be used to force it into thorough contact with the surface. On relatively smooth surfaces, the mortar shall be dashed on with the trowel to ensure adequate bond. The mortar shall be applied to a thickness slightly more than that specified, using a string, stretched out between the guides. This shall then be brought to a true surface by working with a long wooden float with small sawing motion. The surface shall be periodically checked with a string stretched across it. Finally the surface shall be rendered smooth with a small wooden float, over working shall be avoided. All corners, arises, and junctions shall be brought truly to a line with any necessary rounding or chamfering.

If it is necessary to suspend the work at the end of the day, it shall be left in a clean horizontal or vertical line not nearer than 150 millimetres for any corner or arises or on parapet tops or on copings etc. When recommencing the work, the edges of the old work shall be scraped clean and treated with cement slurry before the new plaster is laid adjacent to it. After the first coat is done, it shall be kept undisturbed for the next 24 hours and thereafter kept moist and not permitted to dry until the final rendering is applied.

After the plaster has sufficiently hardened cement slurry with cream like consistency shall be applied as thinly and evenly and rubbed to a fine condition.

The finished surface shall be cured with water for a period of 10 days.

#### **5.4 SECTION – POINTING TO STONE MASONRY WITH CEMENT MORTAR MIX MM.75 GRADE**

The joints in the masonry shall be raked out to a depth not less than the width of the joint or as directed when the mortar is green. Joints are to be brushed clean of dust and loose particles with a stiff brush. The area shall then be washed and the joints thoroughly wetted before pointing is commenced.

##### **5.4.2 Flush Pointing with Cement Mortar Mix MM. 7.5 Grade for Rubble Masonry:**

The pointing to be done shall be flush pointing with cement mortar mix MM. 7.5 grade. The mortar shall be pressed into the raked out joints according to the types of pointing required. The mortar shall not be spread over the corners, edges or surface of the masonry. The pointing shall then be finished as detailed below. The mortar shall be finished off flush and

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



level with the edges of the stones, so as to give a smooth appearance. The edges shall be neatly trimmed with a trowel and a straight edge.

The pointing shall be cured for seven days.

#### **5.5 SECTION – MEASUREMENT AND PAYMENT:**

##### **Plastering:**

The measurement of plastering will be in units of square metres, and it shall be paid at the relevant unit price bid per ten square metres of Plastering in the schedule Bill of Quantities which unit price shall include the cost of materials, their conveyance, charges for preparation of mortar including mixing charges and charges for performing the plastering work as illustrated in this division, including curing.

##### **Pointing:**

The measurement for pointing will be in units of square metres, and it shall be paid at the relevant unit prices per ten square metres bid in the schedule Bill of quantities which unit price shall include the cost of materials, their conveyance, charges for preparation of mortar including mixing charges and charges for performing the pointing work as illustrated in this division, including curing.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**DIVISION-6**  
**CONCRETE**

**6.1 CONCRETE STRUCTURES:**

**6.1.1 Concrete in Structures:**

- (a) Concrete in structures shall conform to the requirements of Paragraph 6.2
- (b) Measurement and payment for concrete in structures will be made as prescribed in paragraphs 6.3 & 6.4.

**6.1.2 Construction of Structures:**

Cast-in-place concrete for the structures shall conform to the requirements of section.

The structures shall be built to the lines, grades and dimensions shown on the drawings. The dimensions of each structure as shown on the drawings will be subject to such modifications as may be found necessary by the Engineer-in-Charge to adopt the structure to the conditions disclosed by the excavation or to meet other conditions. Where the thickness of any portion of a concrete structure is variable, it shall vary uniformly between the dimensions shown.

Where necessary, as determined by the Engineer-in-Charge, the Contractor will be furnished additional detailed drawings of the structures to be constructed. The bidder will not be entitled to any additional allowances above the prices bid in the schedule by reason of the dimensions fixed by the Engineer-in-Charge or by reasons of any modifications or extensions of a minor character to adopt a structure to a structure at site, as determined by the Engineer-in-Charge.

The cost of furnishing all materials and performing all work for installing timber, metal and other accessories for which specific prices are not provided in the schedule, shall be included in the applicable prices bid in the schedule for the work to which such items are appurtenant.

**6.2 GENERAL CONCRETE REQUIREMENTS:**

**6.2.1 Composition :**

**(a) General :**

Concrete shall be composed of cement, sand, coarse aggregate, water and admixtures (if any) as specified, all well mixed and brought to the proper consistency.

**(b) Nominal maximum size of Aggregates:**

**Contractor**

**Commissioner, .**  
**Municipal Corporation, Kakinada. .**

In coarse aggregates to be used in concrete shall be as large as practicable, consistent with required strength, spacing of reinforcement and embedded items, and placement thickness. The size of the coarse aggregate to be used will be determined by the Engineer-in-Charge and may vary incrementally according to the conditions encountered in each concrete placement. Nominal maximum size of aggregate for concrete in structures shall be as indicated in the relevant drawings appended to the contract documents. Smaller coarse aggregate than specified shall be used where in the opinion of the Engineer-in-Charge that proper placement of concrete is impracticable with the size of the aggregate specified in the drawings.

(c) **Mix Proportions:**

The proportions of various ingredients to be used in the concrete for different parts of the work will be established by proper mix design by the Engineer-in-Charge during the progress of the work. In proportioning concrete, the quantity of both cement and aggregate should be determined by mass as per clause 9.2 of I.S. 456-1978 water shall be either measured by volume in calibrated tanks or weighted. All measuring equipment shall be maintained in a clean serviceable condition and their accuracy periodically checked. Adjustments shall be made as directed to obtain concrete having suitable workability, impermeability, density, strength and durability without use of excessive cement. The acceptance or rejection of concrete shall be as per the acceptance criteria laid down in clause 15 of I.S. 456-1978.

The mix design and average concrete strength shall be adjusted according to the cube strength test results conforming to clauses 14.2, 14.3, 14.4, 14.5 of I.S. 456-1978. The bidder shall not be entitled for any additional allowances above the prices bid in the schedule due to adjustments of the mix proportions.

The net water cement ratio exclusive of water absorbed by the aggregate shall be sufficiently low to provide adequate durability in concrete. The water-cement ratio for various grades of concrete shall be as determined and ordered by the Engineer-in-Charge.

(d) **Consistencies:**

The slump of concrete at the placement shall be as follows:

Reinforced Cement Concrete:

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

Sl. No	Placing Condition	Degree of Workability	Value of Workability
1.	Concreting of lightly reinforced sections without vibration or heavily reinforced sections with vibration	Medium	25 mm to 75 mm slump for 20 mm aggregate
2.	Concreting of heavily reinforced section without vibration	High	75 mm to 125 mm slump for 20 mm aggregate

ii) For plan concrete work, slump requirements mentioned in item - (i) above are applicable.

If the specified slump is exceeded at the placement, the concrete is unacceptable. The Engineer-in-Charge reserves the right to require lesser slump whenever concrete of such lesser slump can be consolidated readily into place by means of vibration specified by the Engineer-in-Charge. The use of any equipment which will not readily handle and place concrete of the specified slump will not be permitted.

To maintain concrete at proper consistency, the amount of water and sand batched for concrete shall be adjusted to compensate for any variation in the moisture content or grading of the aggregates as they enter the mixer. Addition of water to compensate for stiffening of the concrete after mixing but before placing will not be permitted. Uniformity in concrete consistency from batch to batch will be required.

#### 6.2.2 Concrete Quality Control Measures and Concrete Quality Assurance Test Programme.

- (a) Concrete Quality Control Measures: The bidder shall be responsible for providing quality concrete to ensure compliance of the bid requirements.
- (b) Concrete Quality Assurance Programme: The concrete samples will be taken by the Departmental Engineers and its quality will be tested in the departmental laboratory as per the relevant Indian Standard Specifications I.S. No. 516-1959 and I.S. 1199-1959.

Tests: The Government will obtain samples and conduct tests as specified in I.S. 456-1978, I.S. 1199-1959 and I.S. 516-1959.

Test Facilities: The bidder shall furnish free of cost samples of all ingredients of concrete for testing and obtain approval from the Engineer-in-Charge. He should also supply free of cost, the samples of all the ingredients of concrete for conducting the required tests.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada.**

6.2.3 **Cement:**

**General:** Shall conform to paragraph 4.1.4.

6.2.4 **Water:** Shall conform to paragraph 4.1.5

6.2.5 **Sand (Fine Aggregate) :**

**General:**

The term sand is used to designate aggregate most of which passes 4.75 milli metre I.S. Sieve and contains only so much coarser material as permitted in Clause 4.3 of L.S. 383-1970. Sand shall be predominantly natural sand which may be supplemented with crushed sand to make up deficiencies in the natural sand gradings.

All sand shall be furnished by the bidder from any source approved by Engineer-in-Charge.

Sand as delivered shall have a uniform and stable moisture content. Determination of moisture content shall be made as frequently as possible, the frequency for a given job being determined by the Engineer-in-Charge according to weather conditions (I.S. 456-1978).

**Quality:**

The sand shall consist of clean, dense, durable, un-coated rock fragments, as per I.S.383-1970. Sand may be rejected if it fails to meet any of the following quality requirements.

Organic impurities in Sand: Colour no darker than the specified standard in clause 6.2.2 of I.S 2386 (Part-II) 1963. (Indian Standard method of test for aggregates for clearance Part-II estimation of deleterious materials and organic impurities).

Sodium Sulphate Test for Soundness: The sand to be used shall pass a Sodium of Magnesium Sulphate accelerated test as specified in I.S. 2386 (Part-V) 1963 for limiting loss of weight.

Specific Gravity: 2.6 minimum

Deleterious Substances:

The amounts of deleterious substances in sand shall not exceed the maximum permissible limits prescribed in Table I Clause 3.2.1 of I.S. 383-1970 (Indian Standard specification for coarse and fine aggregate from natural sources for concrete when tested in accordance with I.S. 2386-1963.

c) **Grading:**

The sand as batched shall be well graded and when tested by means of standards sieves shall conform to the limits given in Table-4 of I.S. 383-1970, and shall be described as fine

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

aggregates, grading zones-I, II, III and IV. Sand complying with the requirements of any of the four grading zones is suitable for concrete. But, sand conforming to the requirements of grading Zone-IV shall not be used for reinforced cement concrete work.

#### **6.2.6 Coarse Aggregate:**

##### **General:**

For the purposes of these specifications, the term “Coarse Aggregate” designates clean well grade aggregate most of which is retained on 4.75 mm I.S. Sieve containing only so much finer material as permitted for various types described under clause 2.2 of I.S 383-1970. Coarse aggregate for concrete shall consist of uncrushed, crushed and partially crushed stone.

Coarse Aggregate for concrete shall be furnished by the Contractor from the sources approved by the Engineer-in-Charge.

Coarse Aggregate as delivered shall generally have uniform and stable moisture content. In case of variations, clause 9.2.3 of I.S 456-1978 shall govern during batching.

##### **Quality:**

The Coarse aggregate shall consist of natural occurring (crushed or uncrushed) stones, and shall be hard, strong, durable, clear and free from veins and adherent coating, and free from injurious amounts of disintegrated pieces, alkali, vegetable matter and other deleterious materials.

Coarse aggregate for concrete shall be separated into various nominal maximum sizes specified in the relevant drawings. Separation of the coarse aggregate into the specified sizes shall conform to the grading requirements specified in Table-2 of I.S. 383-1970, when tested in accordance with I.S 2386-(Part-I) 1963 (Method of test for aggregates for concrete Part-I Particle size and shape).

Coarse aggregate for mass concrete may be separated as previously herein specified. Separation of the coarse aggregate into the various sizes shall be such that when tested in accordance with I.S. 2386 (Part-I) 1963 shall conform to the requirements specified in Table-3 of I.S. 383-1970.

Sieves used in grading tests will be standard mesh sieves conforming to I.S. 460 (Part-I) – 1978 (Specification for test sieves Part-I wire cloth test sieves).

#### **6.2.7 Mixing:**

##### **General:**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

The concrete ingredients shall be thoroughly mixed in mechanical mixers designed to positively insure uniform distribution of all the component materials throughout the concrete at the end of the mixing period. Mixing shall be done as per clause 9.3 of I.S. 456-1978. The mixer should comply with I.S. 1971-1968 (I.S. Specifications for batch type concrete mixers).

The concrete as discharged from the mixer, shall be uniform in composition and consistency from batch to batch. Workability shall be checked at frequent intervals as per I.S. 1199-1969. Mixers will be examined regularly by the Engineer-in-Charge for changes in conditions due to accumulation of hardened concrete or mortar or to wear of blades. The mixing shall be continued until there is a uniform distribution of the materials so that the mass is uniform in colour and consistency and to the satisfaction of the Engineer-in-Charge. If there is segregation after unloading, the concrete should be remixed.

Any mixer that at any time produces unsatisfactory mix, shall not be used until repaired. If repair attempts are unsuccessful, a defective mixer shall be replaced. Batch size shall be atleast 10% of, but not in excess of the rate capacity of the mixer unless otherwise authorised by the Engineer-in-Charge.

#### **Concrete Mixers:**

Water shall be admitted prior to and during charging of mixer with all other concrete ingredients. After all materials are in the mixer, each batch shall be mixed for not less than the time specified by the Engineer-in-Charge. The minimum mixing time shall be 2 minutes. The minimum mixing time specified is based on average mixer performance.

The Engineer-in-Charge will adjust the minimum mixing time as required by the observations of the mix delivered from mixer. Excessive over mixing which require addition of water to maintain the required concrete consistency will not be permitted.

#### **6.2.8 Forms:**

**General:** Forms shall be used wherever necessary, to confine the concrete and shape it to the required lines. The bidder shall set and maintain concrete forms so as to insure completed work is within the applicable to clearance limits prescribed in clause 10 of I.S 456-1978. If a type of form does not consistently perform in an acceptable manner, as determined by the Engineer-in-Charge, the type of form shall be changed and method of erection shall be modified by the bidder subject to approval by the Engineer-in-Charge.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

Plumb and string lines shall be installed before, and maintained during concrete placement. Such lines shall be used by the bidder's personnel and by the Engineer-in-Charge and shall be in sufficient number and properly installed as determined by the Engineer-in-Charge. During concrete placement, the bidder shall continuously monitor plumb, and string line, form positions and immediately correct deficiencies.

Forms shall have sufficient strength to with stand the pressure resulting from placement and vibration of the concrete and shall be maintained rigidly in position. Where form vibrators are to be used, forms shall be sufficiently rigid to effectively transmit, energy, form the form vibrators to the concrete, while not damaging or altering the positions of forms. Forms shall be sufficiently tight to prevent loss of mortar from the concrete. Chamfer strips shall be placed in the corners of forms and at the top of walls placements to produce levelled edges on permanently exposed concrete surfaces. Interior angle of intersecting concrete surface and edges of construction joints shall not be levelled except where indicated on the drawings.

Suitable struts or stiffeners or ties shall be used for the form work wherever necessary. All supports, shall be braced and cross braced in two directions. All splices and braces shall be secured by bolting unless specially intended otherwise. All struts shall be firmly supported against settlement and slipping by suitable means as directed. All supports shall be cut square at both ends and firmly supported against settlement and slipping. When the form work is supported on soils, planks, sleepers etc., shall be used to properly disperse the loads. In case, the supports rest on already completed beam or slab, suitable props shall be provided under the latter.

The form work shall be of well seasoned timber or steel. When timber forms are used, they shall be lined with M.S sheet or other suitable smooth faced non-absorbent material as specified. Supports may be of timber or steel. Suitable wedges in pairs to facilitate adjustment and subsequent releasing of forms shall be provided preferably at the upper end of the supports. The details of the proposed form work and supports shall be submitted to the Engineer-in-Charge and got approved before erection.

In case of columns, retaining walls or deep vertical component, the height of the column shall facilitate any placement and compaction of concrete and suitable arrangement may be made for securing the form to the already poured concrete for placing the subsequent lifts. No steel ties or wires used for securing this form work shall be left exposed on the face of the finished work.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .



Suitable inserts for blockouts for electrical and other service fixtures where necessary shall be provided in the required locations as specified.

**Cleaning and Oiling of Forms:** At the time the concrete is placed in forms, the surfaces of the forms shall be free from encrustation of mortar, grout or other foreign materials. Before concrete is placed, the surface of the forms shall be oiled with a commercial form oil.

**Removal of Forms:** The stripping of form work shall conform to clause 10.3 of I.S. 456-1978. The bidder shall be liable for damage and injury caused by removing forms before the concrete has gained sufficient strength. Forms on upper sloping faces of concrete such as forms on the water sides of warped transitions, shall be removed as soon as the concrete has attained sufficient strength to prevent sagging. Any needed repairs or treatment required on such sloping surfaces shall be performed at once and be followed immediately by the specified curing.

To avoid excessive stresses in concrete that might result from swelling of forms, wood forms for wall openings shall be loosened as soon as the loosening can be accomplished without damage to the concrete. Forms shall be removed with care so as to avoid injury to the concrete, and any concrete so damaged shall be repaired in accordance with paragraph 6.2.16.

**Cost:** The cost of furnishing all materials and performing all work for constructing forms, including any necessary treatment or coating of forms shall be included in the applicable prices bid in the schedule for the items of concrete for which the forms are used.

#### 6.2.9 Concrete Surface Irregularities:

##### **Surface Irregularities:**

**General :** Bulges, depressions and offsets are defined as concrete surface irregularities. Concrete surface irregularities are classified as “abrupt” or “gradual” and are measured relative to the actual concrete surface.

**Abrupt Surface Irregularities:** Abrupt surface irregularities are defined herein as offsets such as those caused by misplaced or loose forms, loose knots in form Lumber, or other similar forming faults. Abrupt surface irregularities are measured using a straight edge held firmly against the concrete surface over the irregularity and the magnitude of the offset is determined by direct measurement.

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

**Gradual Surface Irregularities:** Gradual surface irregularities are defined herein as bulges and depressions resulting in gradual changes on the concrete surface. Gradual surface irregularities are measured using a suitable template conforming to the design profile of the concrete surface being examined. The magnitude of the gradual surface irregularities is defined herein as a measure of the rate of change in slopes of the concrete surface.

The surface irregularities shall not exceed 6 mm for bottom slab and 12 mm for side slopes when tested with a straight edge of 1.5 metres in length. The magnitude of gradual surface irregularities on concrete shall be checked by the bidder to insure that the surfaces are within the specified tolerances. The Engineer-in-Charge will also make such checks to hardened concrete surfaces as determined necessary to ensure compliance with these specifications.

**Repair of Hardened Concrete not within specified tolerance:**

Hardened concrete which is not within specified tolerances shall be repaired to bring it within those tolerances. Such repair shall be in accordance with paragraph 6.2.16 and shall be accomplished in a manner approved by the Engineer-in-Charge. Concrete repair to bring concrete within the tolerances shall be done only after consultation with a representative of Engineer-in-Charge regarding the method of repair. The Government shall be notified as to the time when repair will be performed.

Concrete which will be exposed to public view shall be repaired in a manner which will result in a concrete surface with a uniform appearance. Grinding of concrete surface exposed to view shall be limited in depth such that no aggregate particles are exposed to view shall be limited in a depth such that no aggregate particles are exposed more than 1.5 millimetres at the finished surface. Where grinding causes exposure of aggregate particles greater than 1.5 millimetres at the finished surface. Concrete shall be repaired by excavating and replacing the concrete.

**Prevention of Repeated failure to meet tolerances:**

When concrete placements result in hardened concrete that does not meet the specified tolerances, the bidder shall submit to the Government an outline of all preventive actions such as modification to forms, modified procedure for setting screeds, and different finishing techniques to be implemented by the bidder to avoid repeated failures.

The Government reserves the right to delay concrete placement until the bidder implements such preventive actions which are approved by the Engineer-in-Charge.123

**6.2.10 Reinforcing Bars:**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada.**

**General:** Reinforcing bars shall be placed in the concrete as shown in the drawings or as directed.

**Materials:** Unless shown otherwise on the drawings, the reinforcement to be used shall be or High Yield strength deformed (H.Y.S.D) bars of grade Fe-415 conforming to I.S.

1786-1979 (IS. Specifications for High Yield strength deformed steel bars and wires for concrete reinforcement).

**Placing:** Reinforcement shall be bent and fixed in accordance with the procedure specified in I.S. 2502-1963 (code of practice for bending and fixing of bars for concrete reinforcement). All reinforcement shall be placed and maintained in the position shown in the drawings, splices shall be located where shown on the drawings provided that the location of the splices may be altered subject to the written approval of the Engineer-in-Charge.

Subject to the written approval of the Engineer-in-Charge, the bidder may for his convenience, splice bars at additional locations other than those shown on the drawings.

All additional splices allowed shall be at the expense of the bidder. In order to meet design and space limitation. On splicing, some bent bars may exceed usual clearance cutting and bending of such bars from stock lengths may be required at the site.

Unless otherwise prescribed, placement dimensions shall be to the centre lines of the bars. Reinforcement will be inspected for compliance with requirements as to size, shape, length, splicing, position, and amount after it has been placed, but before being covered with concrete.

Before reinforcement is embedded in concrete, the surfaces of the bars and the surfaces of any supports shall be cleaned of heavy flaky rust, loose mill scale, dirt, grease or other foreign substances which in the opinion of the Engineer-in-Charge, are objectionable. Heavy flaky rust that can be removed by firm rubbing with burlap, or equivalent treatment is considered objectionable.

As specified in Clause 11.3 of I.S. 456-1978 unless otherwise specified by the Engineer-in-Charge, reinforcement shall be placed within the following tolerances:

- a) For effective depth 200 mm or less -  $\pm 10$  mm
- b) For effective depth more than 299 m -  $\pm 15$  mm

The cover in no case be reduced by more than one third of specified over or 5 mm whichever is less.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

Reinforcement shall be securely held in position so that it will not be displaced during the placing of the concrete and special care shall be exercised to prevent any disturbance of the reinforcement in concrete that has already been placed. Welding of bars shall be done as directed by the Engineer-in-Charge and in conformity with the requirements of clause 11.4 of I.S 456-1978. Chairs, hangers, spacers and other supports for reinforcement shall be of concrete, metal or other approved material. Concrete over shall be as shown on the drawings.

(d) **Reinforcement Drawings:**

The Government will supply drawings of reinforcement details and bar bending schedules for adoption.

(e) **Measurement and Payment:**

Measurement for payment of reinforcement bars will be based on the weight of the bars placed in the concrete in accordance with the drawings supplied by the Government when conformance with these specifications drawings has been determined at the time of embedment. Except as otherwise provided below, payment for furnishing and placing reinforcing bars will be made at the unit price per one kilogram bid in the bill of quantities for furnishing and placing reinforcing bars which unit price shall include the cost of reinforcing bars, attaching wire ties or other approved supports and of cutting, bending, cleaning, securing and maintaining in position reinforcing bars as shown on the drawings.

6.2.11 **Preparation for Placing:**

**General:** No concrete shall be placed until all form work, installation of items to be embedded, and preparation of surface involved in the placement have been approved.

All surfaces of forms embedded materials shall be free from curing compound, dried mortar from previous placement, and other foreign substances before the adjacent or surroundings concrete placement is begun.

Prior to beginning concrete placement, the bidder shall make ready, a sufficient number of properly operating fibrators and operators, and shall have readily available additional vibrators to replace defective ones during the progress of the placement. The Engineer's representative at the placement may require that the bidder delay the start of the concrete placement until the number of working vibrators available is acceptable.

(b) **Foundation Surface:** All surfaces upon or against which concrete is to be placed shall be free from frost, ice, water, mud and debris.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

Rock surfaces shall be free from oil, objectionable coatings, and loose, semidetached and unsound fragments. Immediately prior to placement of concrete, surfaces of rock shall be washed with an air water jet and shall be brought to a uniform surface dry conditions.

Earth foundation surfaces shall be wet to a depth of 15 cm. or to impermeable material whichever is less before concrete is placed.

(c) **Construction Joint:** Construction joints are defined as concrete surface upon or against which concrete is to be placed and to which new concrete is to adhere but which have become so rigid that the new concrete can not be incorporated integrally with that previously placed. The provision of construction joints shall conform to clauses 12.4.1 and 12.4.2 of I.S. 456-1978.

When the work has to be resumed on a surface which has hardened such surface shall be roughened. It shall be swept clean and thoroughly wetted. For vertical joints neat cement slurry shall be applied on the surface before it is dry. For horizontal joints the surface shall be covered with a layer of mortar about 10 to 15 mm thick composed of cement and sand in the same ratio as the cement and sand in concrete mix. This layer of cement slurry or mortar shall be freshly mixed and applied immediately before placing of the concrete.

Where the concrete has not fully hardened all balance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgment of particles of aggregate. The surface shall be thoroughly wetted and all free water removed. The surface shall then be coated with neat cement slurry. On this surface, a layer of concrete not exceeding 150 mm in thickness shall first be placed and shall be well rammed against old work, particular attention being paid to corners and close spots, and work thereafter shall proceed in the normal way.

#### 6.2.12 **Placing:**

**General:** The Bidder shall notify the Engineer-in-Charge before batching begins for placement of concrete. Placing shall be performed only in the presence of an authorised Engineer's representative. Placement shall not begin until after all preparations are complete to the satisfaction of the Engineer-in-Charge.

All surfaces upon or against which concrete is to be placed shall be prepared in accordance with paragraph 6.2.11.

Retampering of concrete will not be permitted. Any concrete which has become so stiff that proper placing cannot be assured shall be wasted.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

Concretes shall not be placed in standing water except with written permission of the Engineer-in-Charge and the method of placing shall be subject to approval. Concrete shall not be placed in running water and shall not be subjected to running water until after the concrete has hardened.

Concrete shall be deposited as nearly as practical in its final position and shall not be allowed to flow in such a manner that the lateral movement will cause segregation of the coarse aggregate from the concrete mass. Methods and equipment employed in depositing concrete informs shall minimize clusters of coarse aggregate. Clusters that occur shall be scattered before the concrete is vibrated.

Forms shall be constantly monitored and their position adjusted as necessary during concrete placement in accordance with paragraph 6.2.8.

All concrete shall be placed in approximately horizontal layers. The depth of layers shall not exceed 25 cm. The Engineer-in-Charge reserves the right to require lesser depths of layers where concrete cannot otherwise be placed and consolidated in accordance with the requirements of these specifications. All construction joints which intersect exposed concrete surface shall be made straight and level to plumb as shown otherwise on the drawings.

The placing of concrete shall be in accordance with clause 12.2 of I.S.456-1978.

If concrete is placed monolithically around openings having vertical dimensions greater than 60 cm. or if concrete in decks, floor slabs or other similar parts of structures is placed monolithically with supporting concrete, the following requirements shall be strictly observed.

Concrete shall be placed upto the top of the formed openings at which point further placement will be delayed to accommodate settlement of fresh concrete. If levels are specified beneath nearly horizontal structural members such as decks, floor slabs, beams and girders, such bevels being between the nearly horizontal members and the vertical supporting concrete below, concrete shall be placed to the bottom of the levels before delay of placement.

The last 60 cm or more of concrete placed below horizontal members of levels shall be placed with a 50 mm or less slump and shall be thoroughly consolidated.

In placing concrete on unformed slopes so steep as to make internal vibration of the concrete impractical without forming, the concrete shall be placed ahead of non-vibrating slip form screed extending approximately 0.75 metres back from its leading edge. Concrete ahead of the slip form

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

screed shall be consolidated by internal vibrators so as to insure complete filling under the slip form.

A cold joint is an unplanned joint resulting when a concrete surface hardens before the next batch is placed against it. Cold joints will be allowed only in the event of equipment breakdown or other unavoidable prolonged interruption of continuous placing. If such unavoidable delays in placing occur which make it appear that unconsolidated concrete may harden to the extent that alter vibration will not fully consolidate it, the Bidder shall immediately consolidate such concrete to a stable and uniform slope. If delay of placement is then short enough to permit penetration of the underlying concrete, placement shall resume with particular care being taken to thoroughly penetrate and reverberate the concrete surface placed before the delay. If concrete cannot be penetrated with vibrator, the cold joint shall be then treated as a construction joint.

Care shall be taken to prevent cold joints when placing concrete in any part of the work. The concrete placing rate shall insure concrete is placed while the previously placed adjacent concrete is plastic so that the concrete can be made monolithic by normal use of vibrators.

Concrete shall not be placed in rain sufficiently heavy or prolonged to wash mortar from concrete. A cold joint may necessary result from prolonged heavy rainfall.

The bidder shall not be entitled to any additional payment, over the unit prices bid in the schedule for concrete, by reason of any limitation in the placing of concrete required under the provisions of this paragraph.

b) **Transportation:**

The transportation of concrete to clause 12.1 of I.S.456-1978.

c) **Consolidation:**

The consolidation of concrete shall conform to clause 12.3 of I.S. 456-1978

Concrete shall be consolidated by vibrators. The vibration shall be sufficient to remove the undesirable air voids from the concrete, including the air voids trapped against the forms. After consolidation, the concrete shall be free of rock pockets and honey bomb areas and shall be closed snugly against all surfaces of forms and embedded materials. All concrete shall be properly consolidated before it hardens.

Except as hereinafter provided, consolidation of all concrete shall be by immersion type vibrators. Immersion type vibrators shall be operated in nearly vertical position and the vibrating head shall penetrate and reverberate the concrete in the upper portion of the underlying layer. Care shall be exercised to avoid contact of the vibrating head with embedded items and with formed surfaces which will later be exposed to view. Concrete

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

shall not be placed upon either plastic concrete until the previously placed concrete has been thoroughly consolidated.

#### **6.2.13 Finished and Finishing:**

The requirements for finishing of concrete surface shall be as specified in this paragraph, paragraph 6.2.9 or as otherwise indicated on the drawings. The bidder shall notify the Engineer-in-Charge before finishing concrete. Unless inspection is waived, in each specific case, finishing of concrete shall be performed only when a Engineer's representative is present. Finished concrete which is not within the specified tolerances shall be repaired in accordance with paragraph 6.2.16.

Interior surface shall be sloped for drainage where shown on the drawings or as directed. Surfaces which will be exposed to the weather, and which would normally be level, shall be sloped for drainage.

Floating may be performed by use of hand or power driver equipment. Floating shall be started as soon as the screeded surface has stiffened sufficiently and shall be the minimum necessary to produce a surface that is free from screed marks and is uniform in texture. Joints and edge shall be tooled where shown on the drawings or as directed.

#### **6.2.14 Protection:**

The bidder shall protect all concrete against damage until final acceptance by the Engineer-in-Charge.

The Bidder shall provide protection to prevent erosion to fresh concrete whenever precipitation either periodic or sustaining is imminent or occurring.

When precipitation appears imminent, the bidder shall immediately make ready at the placement site all materials, which may be required for protection of fresh concrete. The Engineer-in-Charge may delay placement of concrete until adequate provisions for protection against weather are made.

All fresh concrete surfaces shall be protected from contamination and from foot traffic until the concrete has hardened. Hardened concrete surfaces which have to receive finish shall be protected against damage from foot traffic and other construction activity by covering with protective mats, ply-wood, or by other effective means. Methods of protection shall be subject to approval by the Engineer-in-Charge.

Concrete curing membranes shall be kept intact, and other curing materials and process shall be maintained as necessary to assure continuous curing for a minimum specified

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



curing time. Protection of curing membranes and other curing methods shall be as described in paragraph 6.2.15.

**6.2.15. Curing :**

a) **General :**

The Bidder shall furnish all materials and perform all work required for curing concrete. The curing of concrete shall conform to clause 12.5 to I.S. 456-1978 and clause 5.8. IS. 3873 – 1978.

Concrete shall be cured by water curing.

The unformed top surfaces of bridges or culvert decks shall be cured for 28 days with damp sand cover or curing mat cover. The sand or curing mats shall not be kept so wet as to allow water to drain from them and stain other concrete. The sand or curing mats shall be removed after the expiry of the curing period.

All concrete surfaces shall be treated as specified to prevent loss of moisture from the concrete until the required curing period elapsed or until immediately prior to placement of other concrete or back fill against those surfaces. Only sufficient time to prepare construction joint surfaces and to bring them to a surface dry condition shall be allowed between discontinuance of curing and placement of adjacent concrete.

Forms shall be removed within 24 hours after the concrete has hardened sufficiently conforming to clause 10.3 of I.S. 456-1978, to prevent structural collapse or other damage by careful from removal. Where required, repair of all minor surface imperfections shall be made immediately after form removal and prior to curing. Minor surface repair shall be completed within 2 hours after from removal and shall be immediately followed by the initiation of curing by the applicable method specified herein. Concrete surfaces shall be kept continuously moist after from removal until initiation of curing.

b) **Materials:**

Concrete cured with water shall be kept wet for atleast 28 days from the time the concrete has obtained sufficient set to prevent detrimental effects to the concrete surfaces. The concrete surfaces to be cured shall be kept wet by covering them with water-saturated material by using a system of perforated pipes, mechanical sprinklers or porous-hose, or by other methods which will keep all surfaces

**Contractor**

**Commissioner, .  
Municipal Corporation, Kakinada. .**

continuously (not periodically) wet. All curing methods are subjected to approval of Engineer-in-Charge.

c) **Cost:**

The cost of furnishing all materials and performing all work for curing concrete shall be included in the price bid in bill of quantities for the concrete on which the particular curing methods are required.

**6.2.16. Repair of Concrete:**

a) **General:**

Concrete shall be repaired in accordance with clause 5.7 to I.S. 3873-1978. Imperfections and irregularities on concrete surface shall be corrected in accordance with paragraph 6.2.9 and clause 5.7. of I.S. 3873-1978.

b) **Types of Repair:**

All repairs shall be made with concrete. Repairs to concrete surfaces and addition were required shall be made by cutting regular opening into the concrete and placing fresh concrete to the required lines. The chipped openings shall be sharp and shall not be less than 70mm in depth. The fresh concrete shall be reinforced and chipped and trawled to the surface to the surface of the openings. The mortar shall be placed in layers not more than 20 mm in thickness after being compacted and each layer shall be compacted thoroughly. All exposed concrete surfaces shall be cleaned of impurities, lumps of mortar or grout and unsightly stains.

c) **Cost:**

The cost of furnishing all materials and performing all work required in the repair of concrete shall be borne by the Bidder.

**6.3. Measurement of Concrete:**

Measurement for payment of concrete required to be placed directly upon or against surfaces of excavation will be made to the lines for which payment for excavation is made.

Measurement for payment of all concrete will be made to the neat lines of the structures, unless otherwise specifically shown on the drawings prescribed in these specification. The unit of measurement will be cubic metre.

In measuring concrete for payment, the volume of all openings, embedded pipes and metal work, each of which is larger than 0.1 square metre in cross section will be deducted.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**6.4. Payment for Concrete:**

Payment for concrete in the various parts of the work will be made at the applicable, unit prices bid therefore in the schedule, which unit price shall include the cost of furnishing all materials and performing all works required for the concrete construction, except that payment for furnishing and placing reinforcing bars will be made at the respective unit prices bid therefore in the schedule.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## **DIVISION-7**

### **MATERIALS REQUIRED FOR PIPELINE WORKS**

#### **7.1 Pipes :**

The Pipes required to be supplied for the works shall conform to the following I.S. specifications depending upon the nature of material for pipe specified in the bid document.

I.S. 1592 of 1980 for A.C. Pressure Pipes.

I.S. 458 of 1988 for R.C.C. Spun Pipes.

I.S. 1536 of 1976 for C.I. Spun Pipes.

I.S. 7181 of 1986 for C.I. double flanged pipes.

I.S. 784-78 and 1343-80 for manufacture of P.S.C. pipes. The specification for M.S. specials for P.S.C. pipes shall confirm to IS-7322-74. The specification for steel cylindrical reinforced concrete pipes shall confirmed to I.S. 1961-63. The rubber ring for P.S.C. joints shall confirmed to I.S. 5382-85.

The pipes supplied shall be subjected to all the tests specified in the relevant I.S. specifications before delivering at site and the manufacturer's test certificate to this effect shall accompany each consignment delivered at site. In addition, the pipes shall be got tested by the Inspectorate of Director General of Supplies and Disposals at the manufacturer's factory site and the relevant test certificate shall also be produced along with each consignment. The charges for conducting the tests shall be borne by the bidder only and these charges are not reimbursable by the employer. For PSC pipes the test indicated in clause of I.S. 784-59, 458-88 and 3597-85 are to be followed.

A list of firms that are on the approved list of suppliers to the Department will be Supplied on request. The bidder is at liberty to procure the pipes from any of the firms in the approved list of suppliers but the responsibility for the pipes conforming to the relevant I.S. specifications shall solely rest with the bidder only.

The bidder's rates for relevant items shall include not only the cost of pipes and taxes thereon and testing charges but also the charges for transportation to site and all subsequent handling and other incidental charges.

#### **7.2. Cast-Iron-Specials:**

7.2.1. The C.I. specials to be supplied for use on the work shall conform to I.S. 1538 of 1976.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

- 7.2.2. The M.S. special required for use on P.S.C. pipes are to be manufactured as per IS: 1916-63 the material for manufacture of M.S. specials should continue to IS:226-75, 2062-80.
- 7.2.3. The caste-iron specials required on the job are indicated in the relevant plans contained in Vol-IV of bid documents. While sufficient care is taken by the Employer to furnish as accurately as possible the specials required, the bidder is advised to inspect the alignments and satisfy himself about the sufficiency or otherwise of the special indicated, before quoting for the work. Any additional specials required on the work not arising out of any changes made by the employer in terms of Section 2, CI. 28.1 of Vol.1 shall be provided by the bidder at no extra cost.
- 7.2.4. A list of firms which are on the approved list of suppliers to the Department will be issued on request. The bidder is at liberty to procure the specials from any of the firms in the approved list of suppliers but the responsibility for the specials conforming to the relevant I.S. specifications shall solely rest with the bidder only. The other conditions contained in paragraphs 7.1.4. above shall be applicable to the C.I. specials also.

**7.3. Sluice Valves:**

The C.I. sluice valves to be supplied for use on the work shall conform to I.S. 780 of 1969 and I.S. 2906 of 1969 and contain the I.S. certification mark. The valves shall be of non-rising inside screw type; provided with C.I. cap or wheel as the case may be and valve key rod.

The other conditions contained in paragraphs above shall be applicable to the sluice valves also.

**7.4. Air Valves:**

- 7.4.1. The air valves to be supplied for use on the work shall conform to the description of air valves maintained in Section B of Glenfied and Kennedy catalogue for water works purposes unless otherwise specified, only double air valves shall be supplied and installed on the pipelines. The size of valve to be used shall be related to the diameters of pipelines as indicated below:

Diameter of Pipe (in mm)	Size of D.A.V. to be use (in mm)
Upto 100	40
125 to 200	50
225 to 350	80

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada.**

400 to 500	100
600 to 900	150
1000 to 1200	200

7.4.2. The other conditions contained in paragraphs 7.1.4. shall be applicable to the air valves also.

**7.5. C.I. Detachable Joints:**

The C.I. detachable joins to be supplied for jointing A.C. – pressure pipes shall conform to I.S. 8794 of 1988.

A list of firms which are on the approved list of suppliers to the department is given in Appendix ‘C’. The bidder is at liberty to procure the C.I. detachable joints from any of the firms in the approved list of suppliers, but the responsibility for their conformity to the I.S. specifications and giving a water tight joint shall solely rest with the bidder only.

The other conditions contained in paragraphs 7.1.4. shall be applicable to the C.I. detachable joints also.

**7.6. Rubber Rings:**

The rubber rings to be used for the jointing of various types of pipes shall conform to the following I.S. specifications.

I.S. 5382 of 1969	:	For C.I. Pipes, R.C.C. Pies, A.C. Pipes with C.I.D. joints.
I.S. 10292 of 1986	:	For A.C. pipe with A.C. Couplings.
I.S. 5382 of 1969	:	For P.S.C. Pipes.

**7.7. Pig Lead:**

The Pig Lead to be used for jointing the C.I. Spun Pipes shall conform to I.S. 782 of 1978.

**7.8. Hemp Yarn:**

The Hemp Yarn to be used in jointing of various types of pipes shall conform to I.S. 6587 of 1966.

**7.9. Rubber Insertion:**

The Rubber Insertion to be used for jointing Cast - Iron double flanged pipes shall conform to I.S. 638 of 1955.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**7.10. Bolts and Nuts:**

The Bolts and Nuts to be used for jointing the C.I. double flanged pipes shall conform to I.S. 1363-1967.

**C.I. Surface Boxes :**

The C.I. Surface boxes to be used shall conform to I.S. 3950-1966.

**7.12. C.I. Manhole Framers and Covers:**

The C.I. Manhole frames and coves to be used shall conform to I.S. 1726 of 1974.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## **DIVISION-8**

### **LAYING AND JOINTING OF PIPELINES**

#### **8.1 Pipes :**

The contract envisages civil works namely excavation of earth, laying, jointing and testing of pipelines and construction of masonry pits including fixing of valves such as sluice valves, scour valves, double air valves and surface boxes and auxiliary specials required for different types of pipe viz., A.C. pressure pipes, concrete pipes with socket and spigot ends and C.I. spun pipes with socket and spigot ends of flanged ends of different dias.

#### **8.2. Materials:**

The materials used shall conform to the relevant specifications mentioned in Division-7.

The surplus materials if any, left over due to additional purchase against possible breakages etc. will not be takeover by the department and payment will be restricted to the materials actually used on work.

#### **8.3. Trench Work:**

The trenches shall be so dug that the pipes may be laid to the required alignment gradient and depth. The width of trench above pipeline level shall be as small as possible but provide sufficient space necessary for jointing pipes. The walls of trenches shall be cut according to the slopes mentioned in relevant I.S. specifications. The trenches shall be kept free from water while laying and jointing the pipes and specials.

The relevant clauses that govern the trench work and preparation of base for laying of various types of pipes are as detailed below:

1. A.C. Pressure pipe - Clause 4 of IS - 6530 of 1972.
2. R.C.C. pipes - Clause 9 of IS - 783 of 1959.

C.P. pipes and D.I. pipes.

P.S.C. pipes class - 3 of I.S. 783-85 and section 126 of A.P.S.S.

#### **8.4. Handling and Laying of Pipes:**

Reasonable care shall be exercised in Loading, Transporting and Unloading of pipes and specials. The pipes shall be lowered into the trench carefully and shall be laid true to alignment and gradient as specified and as per instructions of the Engineer-in-Charge.

The sections of the pipe shall be jointed together in such a manner that there shall be as little unevenness as possible a long inside of the pipes. Necessary precautions shall be taken

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**



while laying as per the relevant I.S. specifications for the type of pipes used, as mentioned below:

A.C. Pressure Pipes – Clause 5 of IS 6530 of 1972.

R.C.C. pipes – Clause 9 of IS 783 of 1959.

C.I. pipes & D.I. pipes – Clause 3 of IS 3114 of 1965.

PSC pipes Clause 9 of IS 783 of 85 section 126 of APSS.

#### 8.5. **Jointing:**

Before commencing jointing, the pipes shall be cleaned, the joints and the ends of the pipes shall be cleaned, preferably with a hard wire brush to remove loose particles. Where jointing is done using rubber ring, care should be taken to see that the rubber ring does not get twisted or deformed while pushing the ring into position. The jointing for various types of pipes shall conform to the requirements of the relevant I.S. specifications as detailed below:

1. A.C. Pressure Pipes : Clause 6 of I.S. 6530 of 1972.
2. R.C.C. Pipes : Clause 10 of I.S. 783 of 1959
3. C.I. pipes & D.I. pipes : Clause 5 of I.S. 3114 of 1965.
4. PSC Pipes : Clause 10 of I.S. of 1985.

#### 8.6. **Anchor and Thrust Blocks:**

Thrust blocks, suitably designed shall be provided wherever necessary to transmit hydraulic pressure as laid down in the relevant I.S. specification. Where the hydraulic thrust is in an upward direction, anchor blocks of sufficient weight shall be provided, to which the pipes shall be secured with steel strips.

#### 8.7. **Testing:**

After the pipes are laid and jointed as mentioned in 8.3. and 8.4. above, the pipe lines are to be subjected to hydrostatic pressure test. The procedure for conducting the hydrostatic pressure test is detailed in the relevant I.S. specifications for various types of pipes, as indicated below:

1. A.C. Pressure Pipes : Clause 11 of I.S. 5530 of 1972.
2. R.C.C. Pipes : Clause 11 of I.S. 783 of 1959
3. C.I. pipes & D.I. pipes : Clause 6 of I.S. 3114 of 1965.
4. PSC Pipes : Clause 11 of I.S. 783 of 1985.

In portions of the pipelines, where the pipes have developed cracks or sweating, such pipes shall be removed and re-laid with new pipes and the pipelines re-tested to the entire

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

satisfaction of the Engineer-in-Charge. No extra payment will be made on this account. The bidder has to make his own arrangement for procurement of the required testing apparatus. The pressure gauge used with the testing apparatus shall be subjected to such test as the Engineer-in-Charge deems fit to ensure the accuracy of the gauge.

**8.8. Appurtenant Works:**

All the valves should be checked before fixing in position to verify whether they are closing and opening freely or not. Masonry pits for enclosing the sluice valves, scour valve, and double air valves are to be constructed after fixing the valves in position at the locations shown in the drawings contained in Volume-IV of bid documents. The earth work excavation, laying of plain cement concrete, construction of brick masonry and plastering, laying R.C.C. cover slabs shall conform to the relevant specifications contained in this volume. Fixing of valves and the specials shall conform to I.S. 3114 of 1965 and as specified in the drawings appended. The pits should be cleaned and surroundings leveled with excavated earth and the bid price shall include cost of all these operations.

**8.9. Refilling:**

After the pipelines are laid, jointed and tested in conformity to the relevant I.S. specifications and to the satisfaction of Engineer-in-Charge the pipeline trenches should be refilled with excavated earth in layers of 6 inches. The colds should be broken, sufficiently watered and consolidated. The surface should be brought to the original condition by using the excavated material to the extent possible and using additional quantities of gravel and metal as the case may be. The extra earth after bringing back to the original condition should be disposed off as stipulated in paragraph 2.4.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## **DIVISION-12**

### **DESIGNING, CONSTRUCTING AND COMMISSIONING OF SWD SYSTEM USING RCC BOX DRAINS**

Standards and Specifications for the Design & Construction of Storm Water Drainage for Kakinada Municipal Corporation

#### **Scope**

The Scope of Work shall include:

- Detailed design, plans, L sections and construction drawings of storm water system;
- Submission of design calculations, plans and drawings for approval to the client;
- Construction of storm water network as per approved design and plans; and
- Integration with the Trunk infrastructure and existing village connectivity.

The contractor shall design and construct the storm water drainage system and shall furnish all required tools, plant, instruments, materials including water, electricity, labour, consumables, etc., any and everything necessary for construction of the works, whether or not such items are specifically stated elsewhere in this bid.

The contractor shall make his/their own arrangements for water and power required for the work and nothing extra will be paid for the same. This will be subject to the conditions that the water used by the contractor (s) shall be fit for construction purposes to the satisfaction of the Authorities Engineer-in-charge.

The primary objective of drainage design is to protect the area from flooding and efficient operation of systems during the design storm events. The drainage system is designed to collect storm water run-off from roadway surface and right-of-way along with runoff from LPS lots and convey it along and through the storm water network and discharge into a receiving body without causing adverse site impacts.

Storm water collection systems shall be designed to provide adequate surface drainage. Surface drainage is a function of transverse and longitudinal pavement roughness, inlet spacing and inlet capacity.

The discharge design facilities for storm water collection and conveyance systems include consideration of storm water quantity and quality. The general considerations in design of storm water drain shall be:

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

- Drains shall be design for appropriate design frequency/return period depending on importance of development and economic considerations.
- Drains shall be planned taking into consideration the ground levels, slope of the ground, valley and ridges and also the land uses planned for urban development.
- Drains shall be planned to get good longitudinal slope, considering the nature of soil and subsoil water level. Drainage of large area can be better achieved by subdividing it into small grids to avoid a long main drain. Aim should be to get a high velocity for the dominant flow.
- Efficiency in maintenance of drainage system is an important consideration in selecting the size, shape and the location. The specification of the drain shall also aim at preventing the possibility of ingress of other extraneous materials, debris, vegetation etc. where grating are provided on drains, they shall be so located as to attract attention of maintenance staff, easy to approach, inspect and clean it.

### **12.1 Catchments**

Catchments shall be divided based on the topography and road layout. The outfalls shall be proposed considering the topography and location of Trunk Drains /primary channels within the area.

### **12.2 Storm Frequency/ Return Period**

The components of proposed storm water drainage system shall be designed for the following design standards based on the national and international best practices:

- Once in 5year event flows for storm water drains;

The average intensity of rainfall for the above returns period (t) event will be calculated from rainfall data for the derived time of concentration of the catchment.

### **12.3 Rainfall Intensity**

Rainfall data shall be obtained from IMD. Hourly rainfall data for 47 years (1969 to 2015) is available from meteorological department. Rainfall intensity derived by analyzing the rainfall data with rainfall Intensity-Duration-Frequency (IDF) curves for once in 2-year, 5-year and 10-year criteria.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

Based on data/information, Intensity-Duration-Frequency (IDF) Curves for 2,5 and 10 years return period to estimate the design rainfall intensity of various durations shall be worked out.

## 12.4 Other Design Parameters

### 12.4.1. Minimum and maximum velocity within drains

To ensure self-cleaning of the drain, a minimum velocity of 0.6 m/ s may be desirable. (Ref: CPHEEO). The velocity of flow in a drain shall not be too great to cause excessive scouring or hydraulic jumps. Hence maximum velocities shall be limited to 3.0m/sec within concrete drains.

### 12.4.2 Inlet Spacing

The spacing of inlets depends on condition of road surface size and type of inlet and rainfall. They shall be provided at closer intervals near junctions and valley curves; however maximum spacing shall not be more than 20 m.

### 12.4.3 Freeboard

Freeboard refers to the depth from the top of the drain (cope/bank) to the top of the water surface in the drain at design flow condition. Sufficient freeboard shall be provided to prevent waves or fluctuation of the water surface from overflowing the cope/bank. Free board shall be as per IRC SP 50 as below:

**Table 2: Minimum Free Board**

S. No.	Drain Size	Free Board
1.	Beyond 300 mm bed width	10 cm
2.	Beyond 300 mm & upto 900 mm bed width	15 cm
3.	Beyond 900 mm & upto 1500 mm bed width	30 cm

The recommended design basis parameters for SW Drains are given below in Table 3.

**Table 3: Design Basis Parameters**

Parameter	Expert Committee Recommendation
Design Storm Frequency	1 in 5 year

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

Check for Extreme Storm	1 in 100 year (for Hazardous Index)
Bridges	1 in 100 year
Method	Rational
Time of Concentration	Overland Flow (IRC SP 42) + Time in Drain
Runoff Coefficient	Land Use Based (weighted)
Minimum Velocity	0.6 m/s
Maximum Velocity	3.0 m/s
Minimum slope	0.1% (Others-Min Velocity)
Minimum size	450mm for Box Drain
Minimum Freeboard	Varies with Width of Drain
Preferred type of Drain	Box 0.45 x 0.45 (minimum)

Maximum spacing of Manholes 20m

**12.5** Minimum Time 5 min

IDF curves Rainfall data and Using the CPHEEO step Method

Manning's As per industry standard

## Design Methodology

### 12.5.1 Rational Method

Storm runoff is that portion of the precipitation which drains over the ground surface. Estimation of such runoff is dependent on the intensity and duration of rainfall, characteristics of tributary area and the time required for such flow to reach the drain. The usual case for urban drainage system, the Rational method is widely used for estimating the peak runoff rates. The formula is:

$$Q = 0.278 CIA$$

Where:

Q = flow, m<sup>3</sup>/s

C = weighted runoff coefficient

I = rainfall intensity in mm/hr

A = drainage area in square kilometres

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada.**

## Assumptions

Assumptions inherent in the Rational Formula are that:

- Peak flow occurs when the entire watershed is contributing to the flow.
- Rainfall intensity is the same over the entire drainage area.
- The frequency of the computed peak flow is the same as that of the rainfall intensity,
- The coefficient of runoff is the same for all storms of all recurrence probabilities.

### 12.5.2 Time of concentration

The storm duration chosen for design is equal to the time of concentration. Maximum discharge in drainage system occurs when the entire catchment is contributing to the flow. The time of concentration, ( $t_c$ ) is the time required for a given drop of water from the most remote part of watershed to reach the point of interest.

The concentration time depends on the distance from the critical point to the inlet  $t_c$  and the time of travel in drain  $t_d$ .

### 12.5.3 Critical Intensity

The critical intensity for a catchment is that maximum intensity which can occur in a time interval equal to the concentration time  $t_c$  of the catchment during the severest storm (in the region) of a given frequency  $I_c$

Overland flow equations are to be considered to calculate the time of entry in to storm water drainage system inlets. The most popular equation used around the world for overland flow is Kerby equation. For Indian conditions, The IRC SP:42-2014 sheet flow equation as below is to be considered for the time of entry for the storm water designs.

$$T_{sf} = 0.092 * ((n * L)^{0.8} / ((P_2)^{0.5} * (S)^{0.4}))$$

Where,  $T_{sf}$  = Travel time in hours;  $n$  = Manning's roughness coefficient;  $L$  = Flow length in m;

$P_2$  = 2 year, 24-hour rainfall in mm/hr;  $S$  = Slope of catchment area (m/m)

### 12.5.4 Runoff Coefficient

The runoff coefficient,  $C$ , in Equation is a function of the ground cover and a host of other hydrologic abstractions. It relates the estimated peak discharge to a theoretical maximum of 100 percent runoff. Typical values for  $C$  are given in table below based on land use pattern. If the basin contains varying amounts of different land cover or other abstractions, a composite coefficient can be calculated through area weighing using Equation below:

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

$$\text{Weighted C} = \Sigma(C_x * A_x) / A_{\text{total}}$$

Zone	Land Use	I value	Runoff Coefficient
C1	MIXED USE ZONE	70	0.7
C2	GENERAL	74	0.74
C3	NEIGHBOURHOOD	78	0.78
C4	TOWN CENTRE	80	0.8
C5	REGIONAL	80	0.8
C6	CENTRAL	80	0.8
	CANALS	10	0.1
	DRAINS	10	0.1
	HILLS	10	0.1
I1	BUSINESS PARK	70	0.7
I2	LOGISTICS ZONE	80	0.8
I3	NON-POLLUTING	80	0.8
	OPEN LAND	15	0.15
P1	PASSIVE ZONE	20	0.2
P2	ACTIVE ZONE	20	0.2
P3	PROTECTED ZONE	10	0.1
P3-	PROTECTED ZONE	10	0.1
R1	VILLAGE	35	0.35
R2	LOW DENSITY	50	0.5
R3	MEDIUM TO HIGH	60	0.6
R4	HIGH DENSITY	75	0.75
	ROADS	90	0.9
S1	GOVERNMENT	60	0.6
S2	EDUCATION ZONE	60	0.6
S3	SPECIAL ZONE	60	0.6
	EXISTING	25	0.25
	STREAMS	10	0.1
U1	RESERVE ZONE	15	0.15
U2	ROAD RESERVE	90	0.9
	WATERBODIES	10	0.1
	UPSTREAM	10	0.1
	REST OF THE SUB-	15	0.15
	EXISTING	25	0.25

Where: x = subscript designating values for incremental areas with consistent land cover

**Table 4: Runoff Coefficients for Rational Formula**

#### 1.4.5 Hydraulics

The size of the drains shall be determined using Manning's formula. The Manning's equation is given below:

$$Q = (A R^{2/3} S^{1/2}) / n$$

Where,

Q = discharge capacity of the drain in m<sup>3</sup>/s

N = manning's roughness coefficient

A = flow area in m<sup>2</sup>

R = A/P = hydraulic radius in m

P = wetted perimeter in m

S = channel slope

#### 1.5 Network for Storm Water System

Collection Network shall be planned considering natural topography and planned grade levels. The network is designed on the assumption that although silting might occur at minimum flow, however it should be flushed out during peak flows.

The source controlled and volume restricted storm water from the roof and open area of developed residential, commercial, and industrial LPS plots gets into the system through downspouts and catch basins. The road drainage is catered through horizontal gratings at a specified interval along the road kerbs. The type of material for the inlet gratings decided considering the factors of vehicular loading, non-clogging, easy maintenance, and anti-theft.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada.**



The SWD measures should come into picture and detain/ intercept/ clean runoff and convey to the nearest storm drains. Topographic survey of site and proposed plot levelling plan shall be utilized for hydraulic gradient of storm drains, for fixing invert levels, HFL, drain top levels, etc. The storm drains run along the roads within a block collecting the storm water and conveys it to the tertiary collector storm drains running on all the major arterial/ sub-arterial roads. Tertiary network consisting of box drains eventually discharge in the vagu directly or through the secondary network of box drains.

The tertiary drains are to be box type and to withstand the expansive soil pressures, minimization of cover due to flat terrain and for easy maintenance regime later. The access for maintenance in to precast box drains shall be from short depth precast chambers and covers at a specified interval. The tertiary drains are in turn connected to box drains as secondary drains, and these drains shall outfall into primary channels i.e., vagus within the Capital city. Secondary and Tertiary storm water drainage network is to be designed using an industry standard storm water analysis design software (ex:SewerGEMS) with an in-built storm water design module to arrive at size, capacity, nodes/ junction points and outfall points etc., for each planning zone.

## 12.6 Access Inspection Manhole Covers

- As per IS-4111: 1986, the size of manhole covers should be such that there should be clear opening of not less than 560 mm diameter.
- Manhole cover and frame will be SFRC (Steel Fiber Reinforced Concrete) conforming to the IS 12592.

**Table 5: Access Manhole Cover Details as per IS 12592**

Manhole Type	Load withstanding capacity	Suitable Locations
L.D (Light Duty)	2.50 MT	Footpaths, Two wheelers
M.D (Medium Duty)	10.00 MT	Light four wheelers
H.D (Heavy Duty)	20.00 MT	Heavy vehicles
E.H.D (Extra Heavy Duty)	35.00 MT	Heavy traffic roads

## 12.7 List of Standards and Specifications

The design and Construction of storm water drainage network and the outfalls shall conform to design requirements and Construction specifications set out in the following Indian and International Standards.

- IS - 456 Code of practice for Plain & Reinforced concrete;

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

- IRC SP-50-1999 - Guidelines on Urban Drainage
- IS - 458 Pre-cast Concrete Pipes (with and without reinforcement);
- IS 783 -1985 Width and depth of trench for R.C.C. Pipes;
- IS 1726 Specification for Cast Iron Manhole Covers and Frames;
- IRC SP-42-1994 - Guidelines on Road Drainage
- IS 4985-2000 Un-plasticized PVC pipes for potable water supplies - specification;
- IS 12235- (Parts 1 to 19) Thermoplastics pipes and fittings - methods of test; and
- IS 12592 Pre-cast Concrete Manhole Covers and Frames – Specifications.
- Schedule of specifications of Govt. Of Andhra Pradesh and C.P.W.D. specifications (Govt. of India) 2009 with all latest amendments issued from time to time;
- CPHEEO Manual for Sewerage and Drainage -2014 - MoUD, GoI
- SP 35:1987 - Hand book of Water Supply and Drainage, Bureau of Indian Standards;
- Manual on artificial recharge of ground water by Central Groundwater Board Ministry of Water-Resources Government of India;
- Rain water harvesting and conservation Manual by consultancy services organization CPWD, New Delhi, India;
- Code of Practice on Surface Water Drainage by Public Utilities Board, Singapore; and
- Managing Urban Runoff Drainage Handbook by Public Utilities Board, Singapore.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**FINANCIAL BID**

**SECTION - 5**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**FINANCIAL BID**

	<b>DESCRIPTION</b>
<b>1</b>	<b>FORM OF TENDER</b>
<b>2</b>	<b>BILLING SCHEDULE FOR INTERIM PAYMENTS</b>
<b>3</b>	<b>UNIT RATES</b>
<b>4</b>	<b>PRICE BID (BREAK UP)</b>

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## **FORM OF TENDER**

**Name of Contract :** Kakinada Municipal Corporation - Providing Storm Water Drainage and Disposal under AMRUT Phase-II for the year 2016-2020 in Kakinada Municipal Corporation

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

To,  
The Commissioner,  
Municipal Corporation,  
Kakinada .

1. Having examined the Conditions of Contract, Specifications, Drawings and Addenda No.'s for the execution of the above named Works, we, the undersigned, offer to survey, design, execute and complete such Works and remedy any defects therein in conformity with the Conditions of Contract, Specifications, Drawings, Design Criteria, Scope of Work and Addenda for the sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) or such other sum as may be ascertained in accordance with the said Conditions.
2. We acknowledge that the Volume I, Volume II and Volume III form part of Tender.
3. We undertake, if our Tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works comprised in the contract within 18 months as stipulated in the Tender.
4. We agree to abide by this Tender for the period of 120 days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. The contract is not complete and binding between us Unless and until a formal Agreement is prepared and executed for this Tender, together with your written acceptance thereof.
6. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this .....day of.....2015

Signature .....in the capacity of .....

Duly authorized to sign tenders for and on behalf of .....

Address.....

Occupation. ....

**Contractor**

**Commissioner, .  
Municipal Corporation, Kakinada. .**

**ANNEXURE - I**  
**PAYMENT SCHEDULE**

**Name of work:** Kakinada Municipal Corporation - Providing Storm Water Drainage and Disposal under AMRUT Phase-II for the year 2016-2020 in Kakinada Municipal Corporation

**PAYMENTSCHEDULE**

<b>S.No</b>	<b>Description</b>	<b>% of IBM Value</b>
1	Investigation survey by total station, Hydraulic designs & drawings. Structural designs & drawings. Structural designs & drawings, detailed estimates/BOQs. Completion reports including executed drawings etc. complete as per directions of departmental authorities	0.51%
2	Construction of VRCC drain at Zone-1	20.06%
3	Construction of VRCC drain at Zone-2	18.51%
4	Construction of VRCC drain at Zone-3	8.14%
5	Construction of VRCC drain at Zone-4	18.17%
6	Construction of VRCC drain at Zone-6	12.53%
7	Construction of VRCC drain at Zone-8	20.04%
8	Replacement of rider mains and pipes for water supply house service connections with ISI mark GI pipes and fittings so as not to disturb the existing water supply connections	0.96%
9	Shifting of utilities like water lines, Electrical cables, electrical poles, drains etc	1.07%
	<b>Total</b>	<b>100%</b>

**Note:** The EPC Agency shall furnish the detailed estimates, BoQs based on approved drawings as per provisions of the Deliverables. The above payment schedule can be sub divided into various sub-components with appropriate percentage break up as per the estimate &BoQs approved by the Department authorities but within the overall percentage break up of each component as approved by EPC Committee-I.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada.**

## KEY PERFORMANCE INDICATORS & PENALTIES

The contractor/ EPC agency shall be subject to the following penalties for failure to carry out its operations as indicated below during execution. The Key Performance Indicators (KPIs) are as follows. The KPIs will be monitored through the department and accordingly the EPC agency will be penalized for not complying with the following KPIs.

S.No	Basis of Penalty	Benchmark	Penalty Value for each Parameter specified in the bid document
1	Blocked Drains due to obstructions created by foreign bodies	Clearing within 24 Hrs	No penalty
		>24 hrs& Up to 48 hrs	Rs.500/- per Complaint
		>48 hrs& up to 72 Hrs	Rs.1,000/- per Complaint
		>72 hrs	Rs.2,000/- per Complaint or Termination of the Contract
2	Important junctions flooded due to clogging of Grated Inlets/ Kerb Inlets due to improper execution methods.	Clearing within 24 Hrs.	No penalty
		>24 hrs& Up to 48 hrs	Rs.2,000/- per Complaint
		>48 hrs& up to 72 Hrs	Rs.4,000/- per Complaint
		> 72 hrs	Rs.8,000/- per Complaint or Termination of the Contract
3	Replacement of Water pipelines, House Service Connections, existing UGD/ Drainage system	Clearing within 24 Hrs	No penalty
		>24 hrs& Up to 48 hrs	Rs.1,000/- per Complaint
		>48 hrs& up to 72 Hrs	Rs.2,000/- per Complaint
		>72 hrs	Rs.4,000/- per Complaint or Termination of the Contract

Contractor

Commissioner,  
Municipal Corporation, Kakinada.



**ANNEXURE – II**

**Unit Rates :**

Sl. No.	Brief Description of Item with specifications	Unit	Rate	
			(In Figures)	(In Words)
	NIL			

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**VOLUME – IV**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**VOLUME – IV**

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>PAGE NOS.</b>
<b>6</b>	<b>MODEL FORMS</b>	
<b>7</b>	<b>Deleted</b>	
<b>8</b>	<b>DRAWINGS</b>	

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**SECTION – 6**  
**MODEL FORMS**

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

**Data Sheet to be filled by the Bidder. If need be additional sheets can be added.**

**DATA SHEET –1**

**Bidder's Appreciation of the Project**

This should also consist of a report on the Bidder's appreciation of the project, which should include a section on the site inspection carried out prior to bidding, and demonstrate awareness and understanding of all the principle technical and logistic aspects related to project construction.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## DATA SHEET –2

### Bidder's Organizational Setup for the Project

The bidder should provide the following information

A. Preliminary organization chart for

Overall project management

Surveys and detailed investigation

Design and engineering services

Execution of Civil works, sewere lines, storm water drainage, water supply pipe lines and road works.

Quality assurance system

Testing and commissioning

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

## **DATA SHEET –3**

### **Drawings to be submitted**

The bidder shall submit, descriptions of proposed project components, adhering to the basic parameters indicated in the bid document along with relevant drawings. The information should be submitted in sufficient details to allow an assessment of the general adequacy of the Bidder's proposals, Sketches, drawings and diagrams along with salient design details, where necessary should be included.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

## **DATA SHEET –4**

### **Management of Design and Engineering Services**

The bidder shall submit descriptions of proposed management of Surveys, Detailed investigation, Design and Engineering services and sequences to be used for the same. Key surveys, detailed investigation and soil exploration activities, key design and engineering activities, Key experts for the same and their deployment schedule should be identified and described. This information shall be given separately for water supply, sewerage and road works.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



## **DATA SHEET -5**

### **Construction Methodology of different structural components**

The bidder shall submit in brief descriptions of proposed methods, sequences, facilities and layouts to be used for execution of water supply, sewerage and road works. This should cover the following.

Working facilities

Infrastructure works

Civil works

Water supply

Sewerage

Road work

The information submitted should be such as to allow an assessment of the general adequacy of the Bidder's proposal. The information shall include number and classification of manpower, equipment and materials proposed to be deployed for each of the branch activities.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**DATA SHEET –6****Proposed Deployment of Key Personnel**

For specific positions essential to contract implementation, the bidder should provide the proposed deployment of key personnel (for Surveys, Detailed Investigation, Soil Exploration, Design and Engineering, Civil construction, Hydro-mechanical works, E & M works). Bio-Data of each of the personnel proposed to be deployed for various activities shall be included in separate sheets for each candidate.

**Contractor****Commissioner,  
Municipal Corporation, Kakinada. .**

**DATA SHEET -7****Proposed Deployment Construction Equipment**

Name of Tenderer

The bidder should list out all major equipment, which he proposes to use for construction works. This should include their numbers, capacities and whether equipment proposed is to be purchased new or existing equipment is to be used. In respect of existing equipment, year of manufacture and current ownership is to be stated. Numbers of above equipment to be deployed during various periods of construction as necessary considering the construction programme shall also be included.

The following format shall be used for this purpose:

Activity
Description of equipment (type, model, make)
Capacity / performance factor
No. of each equipment
Year of manufacture
Period of deployment
Source *

\* Indicate availability e.g. owned, leased or to be purchased new.

**Contractor**

**Commissioner,**  
**Municipal Corporation, Kakinada. .**

**DATA SHEET –8****Proposed Sub-contractors**

The bidder shall list out the proposed subcontractors. The information shall be submitted in the following format. The subcontractors (s) proposed to be associated for respective category of work, must have experience of planning and construction of similar type of work at least in one project costing not less than 50% of the proposed value of work proposed to be sublet.

Section of works

Name (s) address (es) of subcontractors

Description & location of similar works previously executed\*

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**DATA SHEET -9**

**Proposed Sourcing of Key Engineering Materials**

The bidder shall submit, in outline, descriptions of proposed sourcing of key materials.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**DATA SHEET –10****Proposed Construction Schedule for the Project**

The bidder shall submit a construction program in bar chart from – together with corresponding critical path network, which starts at the date of commencement and shows in details all the key activities.

**Contractor****Commissioner,  
Municipal Corporation, Kakinada. .**

**DATA SHEET –11**

**Quality Control and Quality Assurance System**

The bidder shall submit, in outline, description of proposed quality control and quality assurance system for the implementation of the project. This shall also include the proposed testing laboratories with the testing equipment, key personnel for filed quality control and

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

PROFORMA FOR BANK GUARANTEES

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



**PROFORMA**  
**BANK GUARANTEE FOR EARNEST MONEY DEPOSIT**

In accordance with the provisions and conditions of Bid Notice for the work of “\_\_\_\_\_”, Sri. \_\_\_\_\_ (name & Address of the Contractor) shall deposit with the Superintending Engineer, ( a bank guarantee to guarantee his proper and faithful Performance under the said contract an amount of (Amount of Guarantee) (in words)\_\_\_\_\_

We, the \_\_\_\_\_ (Bank or Financial Institution) as requested by the contractor, agree unconditionally and irrevocably to guarantee as primary obligatory and as surety merely, the payment to the Superintending Engineer, (PH), Kakinada on his demand without what so ever right of objection on our part and without his first claim to the Executive Engineer, ..... Division, ..... for recovery of the whole or part of the E.M.D from the contractor under the contract.

We further agree to change add to or other modifications of the forms of the contract or of works to be performed there under or of any of the contract document which may be made between the Superintending Engineer, (PH) Kakinada and the contractor shall in any way release us from any liability under this guarantee and we here by waive notice of any such change, addition or modification.

THE CONDITIONS of this obligation are:-

If after Bid opening the Bidder withdraws or modifies his Bid during the period of bid validity specified in the Form of Bid.

If the Bidder having been notified of the acceptance of his bid by the Department during the period of validity.

Fails or refuses to execute the Form of Contract in accordance with the Instructions to Bidders, if required; or

fails or refuses to furnish the balance EMD and additional performance Security in accordance with the instructions of Bidders.

We undertake to pay to the Department up to the above amount upon receipt of his first written demand, without the Department having to substantiate his demand, provided that in his demand the Department will note the amount claimed by him is due to him owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date\*\* ..... after the dead line for submission of Tenders as such deadline is stated in the Instructions to Tenders or as it may be extended by the Department, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

Yours truly,

Signature & Seal  
(Name of the Bank)

WITNESS..... SEAL.....

-----  
(Signature, Name and Address)

-----  
\* The Tenderer should insert the amount of the EMD in words and figures denominated in Indian Rupee. This figure should be the same as shown in the NIT.

\*\* 6 months from the deadline date for submission of Tender [As specified in NIT].

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

**PROFORMA**

**BANK GUARANTEE FOR BALANCE “E.M.D.”**

Superintending Engineer, ..... Circle ..... (Name address of Department)

WHEREAS \_\_\_\_\_

\_\_\_\_\_ (name and address of Contractor) (hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. \_\_\_\_\_ dated: \_\_\_\_\_ to execute the work of \_\_\_\_\_ [name of work]

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a Schedule bank for the sum specified therein as balance EMD / EMD for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of \_\_\_\_\_ [amount of guarantee] \_\_\_\_\_ [in words], such sum being payable and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_ [amount of guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid upto .....i.e., until 28 days from the date of expiry of the Defects Liability period.

Signature & seal of the Guarantor \_\_\_\_\_

Name of Bank \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_

**Contractor**

**Commissioner, .  
Municipal Corporation, Kakinada. .**

**PROFORMA**

**BANK GUARANTEE FOR ADDITIONAL FURTHER SECURITY**

Superintending Engineer, ..... Circle ..... (name and address of Department)

WHEREAS \_\_\_\_\_ (name and address of Contractor ) (hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. \_\_\_\_\_ dated: \_\_\_\_\_ to execute \_\_\_\_\_ [name of Contract and brief description of works] (hereinafter called “the Contractor”);

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a Schedule bank for the sum specified therein as Additional further security bank guarantee for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Rs. \_\_\_\_\_ [amount of guarantee] \_\_\_\_\_ [in words], such sum being payable and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_ [amount of guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid upto and until 28 days from the date completion.

Signature & seal of the Guarantor \_\_\_\_\_

Name of Bank \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_

**Contractor**

**Commissioner, .  
Municipal Corporation, Kakinada. .**

*PROFORMA***BANK GUARANTEE FOR MOBILISATION ADVANCE**

To  
 Superintending Engineer,  
 \_\_\_\_\_ Circle,  
 \_\_\_\_\_

(name & Address of Contract Authority)

Sub:- \_\_\_\_\_ (name of the work)

Gentlemen:

In accordance with the provisions of the Conditions of Contract, Mobilisation advance for the above-mentioned Contract, \_\_\_\_\_ [name and address of Contractor] (hereinafter called "the Contractor") shall deposit with \_\_\_\_\_ [name of Department] a bank guarantee to guarantee his proper and faithful performance under the said Contract for an amount of Rs. \_\_\_\_\_ [amount of guarantee]<sup>1</sup> \_\_\_\_\_ (in words).

We, the \_\_\_\_\_ [bank], as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to \_\_\_\_\_ [name of Department] on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, for the amount not exceeding \_\_\_\_\_ (amount of guarantee)<sup>3</sup> \_\_\_\_\_ (in words).

We further agree that no change or addition to or other modification of the terms of the Contract or of works to be performed there under or of any of the Contractor documents which may be made between \_\_\_\_\_ [name of Department] and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until \_\_\_\_\_ [name of Department] receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and seal: \_\_\_\_\_  
 Name of Bank/Financial Institution: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Date: \_\_\_\_\_

<sup>1</sup> An amount shall be inserted by the bank representing the amount of the Advance Payment, and denominated in Indian Rupees.

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .

**AFFIDAVIT**

I/We have submitted a bank guarantee for the work.....(name of work.)

Agreement

No.....dated.....

.....from.....(Name of the Bank with full address).

To the Superintending Engineer, Public Health, -----.....(Name of Division) with a view seek exemption from payment of security deposit/performance guarantee in cash. This bank guarantee expires on.....

I/We undertake to keep the validity of the bank guarantee intact by getting it extended for time to time at my/our own initiative upto a period of .....months after the recorded date of completion of the work or as directed by the Employer.

I/We also indemnify the Government against any losses arising out of non-encashment of bank guarantee, if any.

**Deponent**

**Signature of Contractor**

Note: The affidavit is to be given by the Executant before a first class Magistrate.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**CHECK SLIP TO ACCOMPANY THE TENDER (TO BE FILLED IN AND SUBMITTED BY THE TENDER IN COVER 'A')**

Sl. No.	Description	Submitted in Cover 'A' strike out which ever is not applicable	Proof there of (See Note below)
1	2	3	4
1.	Enclose of Contractors Registration under appropriate class with Govt. of A.P.	Yes/No	
2.	Enclosed copy of Latest Income tax clearance	Yes/No	
3.	Enclosed copies of Sales Tax, Registration and Commercial Tax Clearance certificate (GST)	Yes/No	
4.	Enclosed the required E.M.D online payment or B.G. in the stipulated format for the required period.	Yes/No	
5.	Furnish the total value of Civil Engineering Construction works performed in the last 10 financial Years in the Tenderer's name along with required Certificate statement-I.	Yes/No	
6.	Furnished the details of work performed as Prime Contractor (in the same name) during the last five financial Years with supporting certificates in Statement-II.	Yes/No	
7.	Furnished the information on bid capacity in Statement-III.	Yes/No	
8.	Furnished the information on bid capacity in Statement-IV with Supporting Certificates.	Yes/No	
9.	Furnished the availability of critical equipment, Quality Control Lab& key personnel in Statement-V	Yes/No	
10.	Furnished the information on litigation history in Statement-VI.	Yes/No	
11.	Enclosed Proof of liquid assets in the shape of Solvency certificates etc., for the required amount.	Yes/No	
12.	CDR / SDR Certificate by the Chartered Accountant	Yes/No	
13.	Certificate of the Annual Turnover for the last three financial years issued by the Chartered Accountant.	Yes/No	
14.	Statement Showing the Work Done with supporting certificates issued by the Executing Agency	Yes/No	

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**DECLARATION**

I/WE \_\_\_\_\_ have gone through carefully all the above and enclosed the necessary Documents as indicated in Column(4).

I/WE \_\_\_\_\_ also solemnly declare that I/WE will abide by the conditions contained in the tender schedules for having not produced or produced incorrect/false certificates and shall not claim for any relief/relaxation thereafter.

\_\_\_\_\_  
Name and Signature.

Note :

In proof of the Statement made under Column(3), Copies of the certificates duly attested by a Gazetted Officer, and enclosed to the Technical bid shall contain serial numbers on the right corner of each certificate, which will be indicated in column(4) against each item. It may also be noted that the certificate shall be in formats mentioned in the relevant statements and they shall be issued by the authority mentioned therein.

**Contractor**

**Commissioner, .  
Municipal Corporation, Kakinada. .**

**TECHNICAL BID**

## (i) QUALIFICATION INFORMATION

The information shall be filled in by the Tenderer in the check slip and statements I to VI and enclosed to the Technical bid/Tender schedules which will be used for the purposes of verification of adequacy of information as well as evaluating the tenderer's Compliance to the qualification criteria as provided in the Tender in the Tender Schedule. All the Statement and check-slip shall be submitted by the tenderer in scaled cover 'A'.

## (ii) STATUS OF BIDDER

1. Individual/Partnership Firm :
2. Place of Registration :
3. Principal Place of Business :
4. Registration particulars with Government of A.P. :
5. Authorised signatory to sign the Tender document in case the firm is the Tenderer (enclose copy of such authorization) :
6. Check-slip duly filled in : Enclosed / Not enclosed

Signature of the Tenderer.

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**



**STATEMENT – I.**

**Maximum value of Civil Engineering works executed in any one year during the last (10) Financial years by the Tenderer.**

<b>Sl.No.</b>	<b>Financial Year</b>	<b>Value in Rs. Up date to the Price level 2017-18</b>
1)	2007-2008	
2)	2008-2009	
3)	2009-2010	
4)	2010-2011	
5)	2011-2012	
6)	2012-2013	
7)	2013-14	
8)	2014-2015	
9)	2015-2016	
10)	2016-2017	

**Attach certificate from Chartered Accountant Along with Annual Balance Sheet.**

**Signature of the Tenderer.**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**STATEMENT – II**

Details of similar works completed in the Name of the Tenderer during the last ten financial years.

Sl. No	Name of the work	Address of agreement concluding authority	Agreement number and date	Value of contract				
1	2	3	4	5				
Stipulated period of completion	Actual date of completion	Value of workdone year wise during the last 'ten' years.						
		1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year	6 <sup>th</sup> Year	7 <sup>th</sup> Year
6	7	8	9	10	11	12	13	14
Value of workdone year wise during the last 'ten' years.			Total value of work done.					
8 <sup>th</sup> Year	9 <sup>th</sup> Year	10 <sup>th</sup> Year						
15	16	17	18					

Attach certificates issued by the Executive Engineer concerned and countersigned by the Superintending Engineer showing work wise / year wise value of work done and date of completion.

**Signature of the Tenderer**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**STATEMENT – III**

Physical quantities executed by the Tenderer in the last ten financial years. [work wise / year wise].

Sl. No.	Financial year	Name of work	Agt. No	Quantities executed / Year wise				Any Other items
				5	6	7	8	
1	2	3	4	5	6	7	8	9
1)	2007-2008							
2)	2008-2009							
3)	2009-2010							
4)	2010-2011							
5)	2011-2012							
6)	2012-2013							
7)	2013-14							
8)	2014-2015							
9)	2015-2016							
10)	2016-2017							

Attach certificates in support of the above quantities issued by the Executive Engineer concerned and countersigned by the Superintending Engineer duly showing the quantities executed year wise.

**Signature of the Tenderer**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**STATEMENT – IV**  
**Details of existing commitments.**

Details of works on hand and, yet to be completed as on the date of submission of the Tender and works for which Tenders have been submitted are to be furnished.

**A) Existing Commitments on ongoing works:**

Sl. No	Name of work	Address of Agt. concluding authority	Agt No & date	Value of contract	Stipulated period of completion	Value of work done so far.	Balance value of works to be completed	Anticipated date of completion	Updated value of balance work
1	2	3	4	5	6	7	8	9	10

Attach certificates issued by the Executive Engineer concerned and countersigned by Superintending Engineer, indicating the balance work to be done, and likely period of completion.

**Signature of the Tenderer**

**B) Details of works for which Tenders are submitted [awarded / likely to be awarded]**

Sl. No	Name of work	Address of Agt. Concluding authority	Estimated value of work	Stipulated period of completion	Date on which tender was submitted	Present stage of Tender.
1	2	3	4	5	6	7

**Signature of the Tenderer**

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada.**

**STATEMENT - V****Availability of Critical Equipment**

The tenderer should furnish the information required below, regarding the availability of the equipment, required for construction / quality control.

Sl. No	Details of Equipment	Number required	Number		
			Owned	Leased	To be procured
1	2	3	4	5	6

**Signature of the Tenderer**

A declaration regarding the equipment owned shall be produced by the Tenderer on a **non-judicial stamp paper of Rs: 100/-** as below:

**DECLARATION**

**“I ..... do hereby solemnly affirm and declare that I / We own the following equipment for using on the subject work and also declare that I / We will abide by any action such as disqualification or determination of Contract or blacklisting or any action deemed fit, if the department detects at any stage that I/we do not possess the equipment listed below.**

Sl. No	Details of each Equipment	Year of purchase	Regn. Number	Capacity	Any other data.	Is it in working condition
1	2	3	4	5	6	7

**Contractor**

**Commissioner,  
Municipal Corporation, Kakinada. .**

**STATEMENT – VI.****Availability of Key Personnel**

Qualification and experience of Key Personnel proposed to be deployed for execution of the Contract.

Sl. No	Name	Designation	Qualification	Total Experience	Working with the Tenderer since.
1	2	3	4	5	6

Signature of the Tenderer

**STATEMENT - VII**

Information on litigation history in which Tenderer is the Petitioner.

S. No	Case No. / Year	Court where filed.	Subject Matter / Prayer in the case.	Respondents i.e., SE / CE	Present Stage.
1	2	3	4	5	6

Signature of the Tenderer

Contractor

Commissioner,  
Municipal Corporation, Kakinada. .

**SECTION – VIII**  
**DRAWINGS**

**Contractor**

**Commissioner,** .  
**Municipal Corporation, Kakinada.** .