

# **INTERNAL DEVELOPMENT WORKS**

## **DESIGN AND COST ESTIMATES**

### **FOR**

**PROPOSED ADDITION OF TOWER 11 (APROX. AREA  
1.0 ACRES) IN EXISTING GROUP HOUSING COLONY  
MEASURING 13.344 ACRES (LICENSE NO. 53 OF 2011,  
DATED 10.06.2011) SECTOR 67, GURGAON MANESAR  
URBAN COMPLEX BEING DEVELOPED BY  
CONSOLIDATE REALTORS PVT. LTD.**

### **OWNER**

**M/S CONSOLIDATE REALTORS PVT. LTD.**



**PROPOSED ADDITION OF TOWER 11 (APROX. AREA 1.0 ACRE) IN  
EXISTING GROUP HOUSING COLONY MEASURING 13.344 ACRES  
(LICENSE NO. 53 OF 2011, DATED 10.06.2011) SECTOR 67, GURGAON  
MANESAR URBAN COMPLEX BEING DEVELOPED BY CONSOLIDATE  
REALTORS PVT. LTD.**

**REPORT**

The proposed Residential Tower No. 11 (approx. area 1.0 Acres) is part of 13.344 acre land parcel located in Sector 67, Gurgaon. Internal development Services Scheme and cost estimate of major part of this land parcel has already been submitted and approved. This report and cost estimate is for the balance area proposed to develop along with Residential Tower No 11. Adequate service provisions like sewage treatment plant, underground water storage tanks, pumps etc. are made in the already approved part of the development considering the requirement of the proposed Residential Tower 11. Therefore, storm drain, fire system, water supply and sewerage will be connected to the existing development.

**WATER SUPPLY**

Source of water supply of residential tower 11 is from the existing underground water tank. Provision is already made at site to connect the underground water tank from the HUDA water line. Water will be pumped to the O.H tank proposed on the roof of the proposed building. Flushing and irrigation water demand will be met from the treated effluent of existing sewage treatment plant.

**DESIGN**

The scheme has been designed for population as given in attached sheets.

**PUMPING EQUIPMENTS**

It has been proposed to connect this residential tower no. 11 to the existing pumping system.

**SEWERAGE SCHEME**

This scheme is designed for sewer connecting existing sewerage system leading to the sewage treatment plant. The sewerage system has been marked on respective plans.

The sewer lines have been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 80% of the domestic water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft/sec self-cleaning velocity. Necessary provision for laying S.W pipe sewer line, construction of required number of manholes etc., have been made in the estimate.



Design statement for sewerage system of residential tower 11 has been prepared and attached with the estimate.

### **STORM WATER DRAINAGE**

Rainwater precipitation of the proposed development will be collected through a series of catch basin /channels and piping and will be connected to the proposed Rainwater Harvesting System. Surplus water will be disposed off to the existing Storm Drain of the previous development. Intensity of rainfall has been taken as ¼” per hour.

### **SPECIFICATIONS**

Development work will be carried out in accordance with the standard specifications of P.H as laid down by the Haryana Govt./HUDA.

#### **Roads:**

Cost of road has been taken in the estimate.

#### **Street Lighting**

Provision for external lighting has been made.

#### **Horticulture**

Estimates and details of plantation, landscaping, signage, etc., has been included.

#### **Rates**

The estimate has been based on the present market rates.

#### **Cost:**

Total cost of the internal development scheme, including cost of all services, works out to be Rs. 86.11 Lakhs including 3% contingencies @ 49% departmental charges.

**Note: Cost per Acre @ 86.11 Lakhs approx.**

**Authorized Signatory**



## 1. DESIGN CALCULATION (BASED ON NBC OF INDIA 2016):

| Sl. No.  | Description                                                    | Multi-dwelling unit or Area in Sqm. | Population /Unit or per Sqm. | Total Population | Water Demand in LPCD | Total Water Demand in LPD | Domestic Water @ 90 LPCD for Resi. And other area 35% of Total Water Demand in LPD | Flushing Water @ 45 LPCD for Resi. And other area 65% of Total Water Demand in LPD | Sewage Flow            |                         |                   |
|----------|----------------------------------------------------------------|-------------------------------------|------------------------------|------------------|----------------------|---------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------|-------------------------|-------------------|
|          |                                                                |                                     |                              |                  |                      |                           |                                                                                    |                                                                                    | 80% of Domestic in LPD | 100% of Flushing in LPD | Total Flow in LPD |
| <b>1</b> | <b>Existing Residential Tower</b>                              |                                     |                              |                  |                      |                           |                                                                                    |                                                                                    |                        |                         |                   |
| I.       | Flats                                                          | 509                                 | 5                            | 2545             | 135                  | 343575                    | 229050                                                                             | 114525                                                                             | 183240                 | 114525                  | 297765            |
| II.      | EWS                                                            | 90                                  | 5                            | 450              | 135                  | 60750                     | 40500                                                                              | 20250                                                                              | 32400                  | 20250                   | 52650             |
| III.     | Service Personal                                               | 51                                  | 2                            | 102              | 135                  | 13770                     | 9180                                                                               | 4590                                                                               | 7344                   | 4590                    | 11934             |
|          | Club & Facilities @ 15% of Total Population                    |                                     |                              | 465              | 45                   | 20925                     | 7323.75                                                                            | 13601.25                                                                           | 5859                   | 13601                   | 19460             |
|          | Workers/Support Staff (Assumed)                                |                                     |                              | 100              | 45                   | 4500                      | 1575                                                                               | 2925                                                                               | 1260                   | 2925                    | 4185              |
|          | Evaporation Losses Make-up for Water Bodies/Swimming Pool etc. | L.S                                 |                              |                  |                      | 15000                     | 15000                                                                              |                                                                                    |                        |                         |                   |
|          | Nursery School                                                 | L.S                                 |                              |                  |                      | 10000                     | 3500                                                                               | 6500                                                                               | 2800                   | 6500                    | 9300              |
|          | Garden irrigation @ 15% of Total Plot Area (Assumed)           | 8175                                |                              |                  | 5                    | 40875                     |                                                                                    | 40875                                                                              |                        |                         |                   |
|          | Filter Backwash                                                |                                     |                              |                  |                      | 12000                     | 12000                                                                              |                                                                                    |                        |                         | 12000             |
|          | Soft Water Requirement for DG cooling tower                    |                                     |                              |                  |                      | 30000                     |                                                                                    | 30000                                                                              |                        |                         |                   |
|          | Convenient Shopping @ 15% of Plot Area                         | 283                                 | 3                            | 94               |                      |                           |                                                                                    |                                                                                    |                        |                         |                   |
|          | Fixed Population @ 10% of Total Population                     |                                     |                              | 9                | 45                   | 425                       | 149                                                                                | 276                                                                                | 119                    | 276                     | 395               |
|          | Floating Population @ 90% of Total Population                  |                                     |                              | 85               | 15                   | 1274                      | 446                                                                                | 828                                                                                | 357                    | 828                     | 1184              |
|          |                                                                |                                     |                              |                  |                      |                           |                                                                                    |                                                                                    |                        |                         |                   |

|          |                                             |     |   |             |     |               |               |               |               |               |               |
|----------|---------------------------------------------|-----|---|-------------|-----|---------------|---------------|---------------|---------------|---------------|---------------|
|          | <b>Total (A)</b>                            |     |   | <b>3851</b> |     | <b>553093</b> | <b>318723</b> | <b>234370</b> | <b>233378</b> | <b>163495</b> | <b>408873</b> |
|          |                                             |     |   |             |     |               |               |               |               |               |               |
| <b>2</b> | <b>Proposed Residential Tower</b>           |     |   |             |     |               |               |               |               |               |               |
| I.       | Flats                                       | 120 | 5 | 600         | 135 | 81000         | 54000         | 27000         | 43200         | 27000         | 70200         |
| II.      | EWS                                         | 20  | 5 | 100         | 135 | 13500         | 9000          | 4500          | 7200          | 4500          | 11700         |
| III.     | Service Personal                            | 12  | 2 | 24          | 135 | 3240          | 2160          | 1080          | 1728          | 1080          | 2808          |
|          | Club & Facilities @ 15% of Total Population |     |   | 109         | 45  | 4905          | 1716.75       | 3188.25       | 1373          | 3188          | 4562          |
|          | Workers/Support Staff (Assumed)             |     |   | 7           | 45  | 315           | 110.25        | 204.75        | 88            | 205           | 293           |
|          |                                             |     |   |             |     |               |               |               |               |               |               |
|          | <b>Total (B)</b>                            |     |   |             |     | <b>102960</b> | <b>66987</b>  | <b>35973</b>  | <b>53590</b>  | <b>35973</b>  | <b>89563</b>  |
|          |                                             |     |   |             |     |               |               |               |               |               |               |
|          | <b>Grand Total (A+B)</b>                    |     |   |             |     | <b>656053</b> | <b>385710</b> | <b>270343</b> |               |               | <b>498436</b> |

- Underground Fire Water Storage Tank**

As per NBC-2016 UG Tank Capacity of 200 KL for 1<sup>st</sup> 100 hydrants and additional 200 KL for Hydrants above 100 Nos., therefore, Tank Capacity

$$2 \times 200 = 400 \text{ KL}$$



Water Curtain water demand = 98 KL  
(NBC 2016 recommends one  
hour water curtain demand)

|                                |   |               |
|--------------------------------|---|---------------|
| <b>Total Fire Water Demand</b> | = | <b>498 KL</b> |
| <b>Proposed Tank Capacity</b>  | = | <b>498 KL</b> |

Capacity of the existing underground fire water tank = 400 KLD

Proposed capacity of additional fire water tank = 98 KLD



IV. UNDER GROUND WATER TANKS

|                                    |           |
|------------------------------------|-----------|
| a) Total Domestic water demand     | 386 KLD   |
| Half day's requirement for (386/2) | 193 KLD   |
| b) Total Flushing water demand     | 271 KLD   |
| Half day's requirement for (271/2) | 135.5 KLD |

**Capacity of existing underground water tanks**

Underground domestic tank of capacity 470 KL (treated water 300 KL & raw water for domestic 170 KL), one fire water tank of 400 KL capacity and 332 KL capacity tanks for Flushing, soft & Irrigation water demand is already constructed at Site based on the previous scheme.

**Total Capacity of existing water tanks - 1202 KL.**

**Capacity of proposed water tanks**

One additional fire water tank of 98 KL Capacity

**Therefore total capacity of underground water tanks- 1300 KL**

V. EXISTING BOOSTING MACHINERY**A. Domestic Supply System**

|                                            |                         |
|--------------------------------------------|-------------------------|
| - Daily Domestic demand                    | 388 KLD                 |
| - Discharge per hour @ 8 hr. pumping / day | 49.6 KL / hr.           |
| - No. of Pump                              | 2 Nos. (2W+1S)          |
| - Flow of working pumps (2 Nos.)           | 49.6 KLH                |
| - Pump Flow (each pump)                    | 24.8 KLH                |
|                                            | 413.34 LPM              |
|                                            | 415 LPM                 |
| Gross Working Head                         |                         |
| - Suction lift – positive suction          | 0.0 Mtr.                |
| - Friction Loss in Mains & Specials        | 15.0 Mtr.               |
| - Clear Head required (Pump Room to OHT)   | 120.0 Mtr.              |
| <b>TOTAL</b>                               | <b>135 SAY 150 Mtr.</b> |

Tentative,

|                                                               |                |
|---------------------------------------------------------------|----------------|
| Pump – HP = $\frac{415 \times 150}{60 \times 75 \times 0.65}$ | 21.28 HP       |
|                                                               | Say 25 HP Each |

It is proposed to provide 3 Nos. of pumps of 415 lpm discharge each at 150 mtr. Head, (two pumps working and one standby) for domestic purpose.



**B. Flushing Water Supply System**

|                                                               |                         |
|---------------------------------------------------------------|-------------------------|
| - Daily Flushing water demand                                 | 271 KLD                 |
| - Discharge per hour @ 6 hr. pumping / day                    | 45.17 KL / hr.          |
| - No. of Pump                                                 | 2 Nos. (2W+1S)          |
| - Flow of working pumps (2 Nos.)                              | 45.17 KLH               |
| - Pump Flow (each Pump)                                       | 22.58 KLH               |
|                                                               | 376.34 LPM              |
|                                                               | 380 LPM                 |
|                                                               | 415 LPM Each            |
|                                                               | SAY                     |
| Proposed Pump Capacity                                        | 415 LPM Each            |
| Gross Working Head                                            |                         |
| - Suction lift – positive suction                             | 0.0 Mtr.                |
| - Friction Loss in Mains & Specials                           | 15.0 Mtr.               |
| - Clear Head required (Pump Room to OHT)                      | 125.0 Mtr.              |
| <b>TOTAL</b>                                                  | <b>140 SAY 150 Mtr.</b> |
| Tentative,                                                    |                         |
| Pump – HP = $\frac{415 \times 150}{60 \times 75 \times 0.65}$ | 21.28 HP                |
|                                                               | Say 25 HP Each          |

It is proposed to provide 3 Nos. of pumps of 415 lpm discharge at 150 mtr. Head, (two pumps working and one standby) for Flushing purpose.



**ESTIMATE FOR PROVIDING INTERNAL DEVELOPMENT WORKS  
FOR PROPOSED ADDITION OF TOWER 11 (APROX. AREA 1.0 ACRE) IN  
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**FINAL ABSTRACT OF COST**

**Amount in Rs. Lacs**

|                 |                                       |              |
|-----------------|---------------------------------------|--------------|
| SUB WORK NO. I  | WATER SUPPLY SCHEME                   | 22.39        |
|                 |                                       |              |
| SUB WORK NO. II | SEWERAGE SCHEME                       | 4.12         |
|                 |                                       |              |
| SUB WORK NO.III | STORM WATER DRINAGE                   | 6.90         |
|                 |                                       |              |
| SUB WORK NO.IV  | ROADS WORK                            | 26.13        |
|                 |                                       |              |
| SUB WORK NO.V   | STREET LIGHTING                       | 1.94         |
|                 |                                       |              |
| SUB WORK NO. VI | HORTICULTURE                          | 1.73         |
|                 |                                       |              |
| SUB WORK NO. VI | MTC CHARGE AND<br>RESURFACING OF ROAD | 22.90        |
|                 | <b>TOTAL</b>                          | <b>86.11</b> |

**(Rs. EIGHTY SIX LACS AND ELEVEN THOUSAND ONLY)**

For

AUTHORISED SIGNATORY



**ESTIMATE FOR PROVIDING INTERNAL DEVELOPMENT WORKS  
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SUB WORK No. 1

Water Supply

|    |                  |                                      |                                |
|----|------------------|--------------------------------------|--------------------------------|
| 1. | Sub Head No. 01  | Head Works                           | 4,92,000.00                    |
|    |                  |                                      |                                |
| 2. | Sub Head No. 02  | Pumping Machinery                    | 1,00,000.00                    |
|    |                  |                                      |                                |
| 3. | Sub Head No. 03  | Rising Main                          | Existing (Already<br>Approved) |
|    |                  |                                      |                                |
| 4. | Sub Head No. 04  | Distribution System for New<br>Tower | 4,17,100.00                    |
|    |                  |                                      |                                |
| 5. | Sub Head No. 05  | Fire Fighting Main for New<br>Tower  | 3,07,000.00                    |
|    |                  |                                      |                                |
| 6. | Sub Head No. 060 | Irrigation System Near New<br>Tower  | 1,42,900.00                    |
|    |                  |                                      |                                |
|    |                  | <b>TOTAL</b>                         | <b>14,59,000.00</b>            |
|    |                  | Add 3% contingencies &<br>PH Charges | 43,770.00                      |
|    |                  | <b>TOTAL</b>                         | <b>15,02,770.00</b>            |
|    |                  | Add 49% Departmental<br>charges      | <b>7,36,357.30</b>             |
|    |                  |                                      |                                |
|    |                  | <b>TOTAL</b>                         | <b>22,39,127.30</b>            |

Say 22.39 Lakhs.



Sub Work No. 1  
Sub Head No. 01

Water Supply  
Head Works  
Amount in Rs.

- |                                                                            |                 |
|----------------------------------------------------------------------------|-----------------|
| 1. Construction of additional U.G fire water tank of 98 KL<br>@Rs. 4000/KL | Rs. 3,92,000.00 |
| 2. Provision for unforeseen items / carriage of materials                  | Rs. 1,00,000.00 |

|                                      |                        |
|--------------------------------------|------------------------|
| <b>TOTAL</b>                         | <b>Rs. 4,92,000.00</b> |
| (Total C/F to Summery of Sub Work 1) |                        |



Sub Work No. 1  
Sub Head No. 02

Water Supply  
Pumping Machinery  
Amount in Rs.

|                                                                                                                        |                        |
|------------------------------------------------------------------------------------------------------------------------|------------------------|
| 1. Provision of making connection in existing pumping machinery for feeding Tower 11:<br>- 1 Sets. @ Rs. 50,000/- each | Rs. 50,000.00          |
| 2. Provision for carriage of material and other unforeseen Items etc. L/S                                              | Rs. 50,000.00          |
| <b>TOTAL</b>                                                                                                           | <b>Rs. 1,00,000.00</b> |

Note:

Main pumping machinery already considered in approved estimate of main scheme, above item is additional requirement for Tower 11.

### Sub Head No. 03 Rising Main from HUDA

Already considered in approved estimate of main scheme



Sub Work No. 1  
**Sub-Head No. 04**

Water supply  
**Distribution System**

Amount in Rs.

|                                                                                                                                                                                                                                                                                     |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| 1. Providing , Laying , jointing from existing line and testing G.I pipe line from existing pump header to over head water tanks of building including Fittings, valves, etc. complete in all respect.<br>Domestic Water Supply for Tower 11 –<br>G.I Pipe 65 mm, 232 M @ Rs. 950/- | Rs. 2,20,400.00              |
| 2. Providing , Laying , jointing from existing line and testing G.I pipe line from existing pump header to over head water tanks of building including Fittings, valves, etc. complete in all respect.<br>Flushing Water Supply –<br>G.I Pipe 50 mm, 231 M @ Rs. 700/-              | Rs. 1,61,700.00              |
| 3. Provision for carriage of materials and other unforeseen items                                                                                                                                                                                                                   | Rs. 25,000.00                |
| 4. Providing and fixing valve:<br>- 65 mm dia 1 No. @ Rs. 5500/ - each<br>- 50 mm dia 1 No. @ Rs. 4500/ - each                                                                                                                                                                      | Rs. 5,500.00<br>Rs. 4,500.00 |
| <b>Total</b>                                                                                                                                                                                                                                                                        | <b>Rs. 4,17,100.00</b>       |

(Total C/F to Summery of Sub Work 1)



| Sl. No.                                    | Node   | Pipe Length in Mtr. |        | Valve  |        |
|--------------------------------------------|--------|---------------------|--------|--------|--------|
|                                            |        | 65 dia              | 40 dia | 65 dia | 40 dia |
| Domestic Water Supply - Material Statement |        |                     |        |        |        |
| 1                                          | UGT-C1 | 232                 |        | 1      |        |
|                                            |        |                     |        |        |        |
|                                            | TOTAL  | 232                 |        | 1      |        |

| Sl. No.                                    | Node   | Pipe Length in Mtr. |        | Valve  |        |
|--------------------------------------------|--------|---------------------|--------|--------|--------|
|                                            |        | 65 dia              | 50 dia | 65 dia | 50 dia |
| Flushing Water Supply - Material Statement |        |                     |        |        |        |
| 1                                          | STP-F1 |                     | 231    |        | 1      |
|                                            | TOTAL  |                     | 231    |        | 1      |



**Hydraulic Calculation – Domestic Water Supply**

| Hydraulic Design Calculation for Domestic Water Supply |        |                                |                           |                     |                        |                         |                          |                          |                     |             |           |               |                       |                     |
|--------------------------------------------------------|--------|--------------------------------|---------------------------|---------------------|------------------------|-------------------------|--------------------------|--------------------------|---------------------|-------------|-----------|---------------|-----------------------|---------------------|
| Sl. No.                                                | Node   | Total Dom. Water Demand in LPD | Hours of Pumping @ 8 Hrs. | Water Demand in LPM | Length of Pipe in Mtr. | Head Loss in Mtr./ Mtr. | Total Head Loss in Mtrs. | Ground Level at Starting | Ground Level at End | HL at Start | HL at End | Residual Head | Velocity in Mtr./Sec. | Size of Riser in MM |
|                                                        |        |                                |                           |                     |                        |                         |                          |                          |                     |             |           |               |                       |                     |
| 1                                                      | UGT-C1 | 66987                          | 8373.375                  | 139.5563            | 232                    | 0.017                   | 3.931                    | 0.600                    | 0.500               | 150.60      | 146.67    | 146.17        | 0.70                  | 65                  |

**Hydraulic Calculation –Flushing Water Supply**

| Hydraulic Design Calculation for Flushing Water Supply |         |                                |                           |                     |                        |                         |                          |                          |                     |             |           |               |                       |                     |
|--------------------------------------------------------|---------|--------------------------------|---------------------------|---------------------|------------------------|-------------------------|--------------------------|--------------------------|---------------------|-------------|-----------|---------------|-----------------------|---------------------|
| Sl. No.                                                | Node    | Total Flu. Water Demand in LPD | Hours of Pumping @ 8 Hrs. | Water Demand in LPM | Length of Pipe in Mtr. | Head Loss in Mtr./ Mtr. | Total Head Loss in Mtrs. | Ground Level at Starting | Ground Level at End | HL at Start | HL at End | Residual Head | Velocity in Mtr./Sec. | Size of Riser in MM |
|                                                        |         |                                |                           |                     |                        |                         |                          |                          |                     |             |           |               |                       |                     |
| 1                                                      | STP-FL1 | 36685                          | 4496.625                  | 74.94375            | 231                    | 0.019                   | 4.442                    | 0.600                    | 0.500               | 150.60      | 146.16    | 145.66        | 0.6                   | 50                  |

Sub Work No. 1  
Sub-Head No. 05

Fire Raising Main

Amount in Rs.

1. Providing, Laying, jointing & testing proposed development Tower No. 11 with existing fire ring M.S. pipes lines for fire rising main including cost of fittings, connection etc. Complete in all respect.
  - (i) 150 mm m.s. pipe line 100 m @ Rs. 1500/- per Mtr. = Rs. 1,50,000.00
  - (ii) 80mm i/d 20 m @ Rs. 1200/ m = Rs. 24,000.00
3. Providing & fixing control valve
  - (i) 150 mm dia 1 Nos. @ Rs. 15000/- each = Rs. 15,000.00
  - (ii) 80 mm dia 4 Nos. @ Rs. 7000/- each = Rs. 28,000.00
4. Providing and fixing external fire Hydrant 4 Nos. @ Rs. 10000/- = Rs. 40,000.00
4. Providing for carriage of material (L.S.) = Rs. 50,000.00

|              |                        |
|--------------|------------------------|
| <b>Total</b> | <b>Rs. 3,07,000.00</b> |
|--------------|------------------------|

(Total C/F to Summery of Sub Work 1)

**Material Statement - Fire Hydrant**

| S.NO.        | LINE NAME | LENGTH OF PIPE<br>IN METRE |             |            | VALVE    |          | FIRE<br>HYDRANT |
|--------------|-----------|----------------------------|-------------|------------|----------|----------|-----------------|
|              |           | 150<br>Dia.                | 100<br>Dia. | 80<br>Dia. | 150      | 80       |                 |
| 1            | F1 – F2   | 94.5                       |             | 15         | 1        | 4        | 4               |
|              |           |                            |             |            |          |          |                 |
| <b>TOTAL</b> |           | <b>94.5</b>                |             | <b>15</b>  | <b>1</b> | <b>4</b> | <b>4</b>        |
| <b>SAY</b>   |           | <b>100</b>                 |             | <b>20</b>  | <b>1</b> | <b>4</b> | <b>4</b>        |



Sub Work No. 1  
Sub-Head No. 06

Water supply  
Irrigation

1. Providing , Laying, Jointing and testing proposed development with existing supply pipe line Conforming to IS 4985 including cost of excavation etc. complete in all respect.
    - a) 25 mm OD 15 metre @ Rs. 250/- M = Rs. 3,750.00
    - b) 75mm OD 191 metre @ Rs. 650/- M = Rs. 12,4150.00
  2. Providing and fixing 20 mm dia. irrigation hydrant Valve complete in all respect.  
5 Nos. @ Rs. 2000/ each = Rs. 10,000.00
  3. Provision for carriage of Material and other as foreseen Items. = Rs. 5,000.00
- 
- TOTAL** = Rs. 1,42,900.00
- 

(Total C/F to Summery of Sub Work 1)



**Material Statement – Irrigation system**

| Sl. No. | Node Name    | LENGTH OF PIPE IN<br>METRE |              |              |
|---------|--------------|----------------------------|--------------|--------------|
|         |              | 25 od<br>dia               | 63 od<br>dia | 75 od<br>dia |
| 1       | G1 – G2      | 2                          |              | 33           |
| 2       | G2 – G3      | 3                          |              | 42           |
| 3       | G3 – G4      | 3                          |              | 30           |
| 4       | G4 – G5      | 4                          |              | 37           |
| 5       | G5 – G6      | 3                          |              | 37           |
| 6       | G5 – G7      | 3                          |              | 12           |
|         | <b>TOTAL</b> | <b>15</b>                  |              | <b>191</b>   |

Irrigation Hydrant – 5 Nos



## Sub-Work No. II

## Sewerage Scheme

Amount in Rs.

1. Providing , jointing, cutting and testing SW pipe class “SP-1” and lowering into trenches with external sewerage system including cost of Excavation, bed concrete, cost of manholes etc. Complete.

- a) SW pipe 200 mm i/d avg. depth 0-2.5 M  
175 M @ Rs. 1250/M

Rs. 2,18,750.00

- b) Provision for cartage of material

Rs. 25,000.00

- c) Provision for lighting and watching

Rs. 25,000.00

TOTAL

Rs. 2,68,750.00

Add 3% contingencies &amp; PH charges

Rs. 8,062.50

TOTAL

Rs. 2,76,812.50

Add 49% Departmental charges

Rs. 1,35,638.15

**Total****Rs. 412450.65**

(Total C/F to Summery of Sub Work II)

**SAY Rs. 4.12 Lakhs**

**SEWERAGE SYSTEM**

Material statement of pipe

| SL NO | NODE NO. |    | Pipe Length in Mtr. |
|-------|----------|----|---------------------|
|       | FROM     | TO | 200 mm dia pipe     |
| 1     | S1       | S2 | 160                 |
|       |          |    |                     |
| 2     | S3       | S4 | 11                  |
|       |          |    |                     |
|       | TOTAL    |    | 171                 |
|       | SAY      |    | 175 Mtr.            |



| S.No | LINE NO |               | Total Water Demand in<br>LPD | Sewage<br>Generation<br>@80% of<br>Total Water<br>Demand<br>(LPD) | Peak Flow<br>in LPS                   | Peak Flow in (cum/s) |          |                | Size of Pipe | Velocity   | Design Discharge (Q <sub>d</sub> ) | Length of Line | Slope | FALL  | Ground Level at Start | Ground Level at End | Invert Level Start | Invert Level End | Remark                                  |
|------|---------|---------------|------------------------------|-------------------------------------------------------------------|---------------------------------------|----------------------|----------|----------------|--------------|------------|------------------------------------|----------------|-------|-------|-----------------------|---------------------|--------------------|------------------|-----------------------------------------|
|      |         |               |                              | A                                                                 | $B = (A \times 3) / (24 \times 3600)$ | Self                 | previous | Total<br>(q a) | mm           | meter/ sec |                                    | Meter          |       |       |                       |                     |                    |                  |                                         |
|      |         |               |                              |                                                                   |                                       |                      |          |                |              |            | (in m <sup>3</sup> /s)             |                |       | MTR   | MTR                   | MTR                 | MTR                | MTR              |                                         |
|      |         |               |                              |                                                                   |                                       |                      |          |                |              |            |                                    |                |       |       |                       |                     |                    |                  |                                         |
| 1    | S1      | S2<br>(Ex.MH) | 104055                       | 83244.0                                                           | 2.8904                                | 0.003                | 0.000    | 0.003          | 200          | 0.757      | 0.012                              | 160            | 190.0 | 0.842 | 0.50                  | 0.50                | -0.70              | -1.54            |                                         |
| 2    | S2      | S3<br>(Ex.MH) | 104055                       | 83244.0                                                           | 2.8904                                | 0.003                | 0.000    | 0.003          | 200          | 0.757      | 0.012                              | 11             | 190.0 | 0.058 | 0.50                  | 0.50                | -1.54              | -1.60            | Connection<br>to existing<br>sewer line |



## Sub-Work No. III

Storm Water Scheme  
Amount in Rs.

1. Providing, laying and connected to existing storm drain of R.C.C. pipe drain class NP-3 With required number of manholes, Excavation, etc complete
  - A. 400 mm dia. 170m @ Rs. 1800/m Rs. 3,06,300.00
2. Provision for Road gully & pipe connection L.S Rs. 20,000.00
3. Providing , Laying , jointing and testing G.I pipe line including Fittings, valves, cost of excavation etc. complete in all respect.  
Sump Riser Pipe –  
G.I Pipe 80 mm, 15 M @ Rs. 900/- Rs. 13,500.00
4. Provision for rain water harvesting arrangement @ Rs. 100,000/- per acre Rs, 1,00,000.00
5. Provision for unforeseen items Rs, 10,000.00

|                                         |                      |
|-----------------------------------------|----------------------|
| Total                                   | Rs. 4,49,800.00      |
| Add 3% for contingencies and PH charges | Rs. 1,3494.00        |
|                                         | Rs. 4,63,294.00      |
| Add 49% Departmental charges            | Rs. 2,27,014.06      |
| <b>TOTAL</b>                            | <b>Rs. 690308.06</b> |

(Total C/F to Summery of Sub Work III)

Say Rs.6.90 Lakhs



**STORM WATER DRAINAGE SYSTEM**

Material statement of pipe

| SL NO | NODE NO. |              | Pipe Length in Meter |
|-------|----------|--------------|----------------------|
|       | FROM     | TO           | 400MM Dia            |
| 1     | D1       | D2           | 135                  |
| 2     | D2       | D3           | 28                   |
| 3     | D3       | Outfall      | 7                    |
|       |          | <b>Total</b> | <b>170</b>           |



**Subject :- Storm Water Hydraulic Design Chart**

| SL NO | NODE NO. |         | LENGTH | SELF AREA TO BE DRAINED IN | AREA IN HACTARES |        |       | DISCHARGE IN CUM/SEC RAIN INTENSITY =6.25mm | DISCHARGE | Pipe Dia | SLOPE | VELOCITY | DISCHARGE CAPACITY | GROUND LEVEL AT START | GROUND LEVEL AT END | FALL  | INVERT LEVEL AT START | INVERT LEVEL AT END |
|-------|----------|---------|--------|----------------------------|------------------|--------|-------|---------------------------------------------|-----------|----------|-------|----------|--------------------|-----------------------|---------------------|-------|-----------------------|---------------------|
|       | FROM     | TO      | MTR    | SQM                        | SELF             | BRANCH | TOTAL | M3/HR                                       | IN M3/SEC | MM       | 1 IN  | M/SEC    | IN M3/SEC          | MTR                   | MTR                 | MTR   | MTR.                  | MTR                 |
| 1     | D1       | D2      | 135    | 3925.9                     | 0.39             |        | 0.39  | 24.537                                      | 0.0068    | 400      | 500   | 0.642    | 0.08               | 0.500                 | 0.500               | 0.270 | -0.400                | -0.670              |
| 2     | D2       | D3      | 28     | 538                        | 0.05             |        | 0.05  | 3.363                                       | 0.0009    | 400      | 500   | 0.642    | 0.08               | 0.500                 | 0.500               | 0.055 | -0.600                | -0.655              |
| 3     | D3       | Outfall | 7      | 0                          | 0.00             | 0.45   | 0.45  | 27.899                                      | 0.0077    | 400      | 500   | 0.642    | 0.08               | 0.500                 |                     | 0.013 | -0.655                | -0.642              |
|       |          |         |        |                            |                  |        |       |                                             |           |          |       |          |                    |                       |                     |       |                       |                     |



**Sub-Work No. IV****Road Work  
of proposed tower - 11**

| Width in Meter | Length in Meter | Metalled Portion   | Area in Sq.m.    |
|----------------|-----------------|--------------------|------------------|
| 6              | 200             | 5.00               | 1000             |
|                |                 | Add 10% for curves | 100.0            |
|                |                 | <b>TOTAL AREA</b>  | <b>1100</b>      |
|                |                 | Car Parking Area   | 140              |
|                |                 | <b>TOTAL</b>       | <b>1240 Sq.m</b> |

Amount in Rs.

|                                                                                                                                                 |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| 1. Provision for levelling & earth filling as per site conditions. Approx. 1.00 acres land of tower 11 @ Rs. 1,00,000/-                         | Rs. 1,00,000.00         |
| 2. i. Soling coat 100 mm thick (63-45) mm gauge compacted to 75 mm thick WBM conforming to MOT specification (Table 400-6, Grading No. 2).      |                         |
| ii) Wearing coat ( Top coat) 100mm thick(53-22.4)mm gauge compacted to 75mm thick conforming to MOT specifications (Table 400-6, Grading No. 3) |                         |
| iii) 25 mm thick pre-mix carpet with seal coat 1240 @ Rs. 800/S.qm.                                                                             | Rs. 9,92,000.00         |
| 3. Provision for kerbs & channels of CC 1:2.5:5, 200m @Rs. 800 / m (200)                                                                        | Rs. 1,60,800.00         |
| 4. Provision for making approach and pavement to building                                                                                       | Rs. 1,50,000.00         |
| 5. Provision for parking arrangement (L.S)                                                                                                      | Rs. 2,00,000.00         |
| 6. Provision for carriage of material                                                                                                           | Rs. 1,00,000.00         |
| <b>TOTAL</b>                                                                                                                                    | <b>Rs. 17,02,800.00</b> |
| Add 3% contingency & P.E. charges                                                                                                               | Rs. 51,084.00           |
|                                                                                                                                                 | <b>Rs. 17,53,884.00</b> |
| Add 49% depts. Charges                                                                                                                          | Rs. 8,69,403.20         |
|                                                                                                                                                 | Rs. 26,13,287.20        |

(Total C/F to Summary of Sub Work IV)

**Say****Rs. 26.13 Lakhs**

Road Work

| S. No.       | Road Marked | 6 M          | 12M      |
|--------------|-------------|--------------|----------|
| 1.           | A           | 50.00        | -        |
| 2.           | B           | 40.30        | -        |
| 3.           | C           | 50.00        | -        |
| 4.           | D           | 40.30        | -        |
| <b>TOTAL</b> |             | <b>180.6</b> | <b>-</b> |
| <b>SAY</b>   |             | <b>200</b>   | <b>-</b> |

Surface Parking Area:

No. of Cars on surface = 11 Nos.

Area = 5 x 2.5 x 11 = 137.5 Sq.m.

Say 140 Sqm.



## Sub Work No. V

Street Lighting  
Amount in Rs.

Providing external lighting as per standard specifications of  
HVPN Approx. 1.00 acres land of tower 11  
@ Rs. 1,00,000 / acres.

1,00,000.00

Add 3% contingencies & P.E. charges

30,000.00

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 1,30,000.00

Add 49% Departmental charges  
63700.00

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**TOTAL**


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**193700.00**

(Total C/F to Summery of Sub Work V)

**Say :****1.94 Lakhs**

## Sub Work No. VI

Plantation & Road Side trees  
Amount in Rs.

## 1. Development of Lawn Areas:

- a) Trenching of ordinary soil upto depth of 60 cm i/c removal & stacking of serviceable material & disposing by spreading and levelling within a lead of 50 M and making up the trench area for proper levels by filling with earth or earth mixed with manure before and after flooding trench with water i/c cost of imported earth and manure
- b) Rough dressing of turfed area.
- c) Grassing with "DOOB GRASS" i/c watering and maintenance of lawns for 30 days till the grass forms a thick lawn, free from weeds and fit for mowing in row 7.5 cm part in either direction.

Organised green of the approx. 1 Acre land of tower 11  
development @ Rs. 1,00,000 / acres

Rs. 1,00,000.00

## 2. Providing and planting trees along

One side of 6 m wide road @ 12m interval

Total Road length 200 (6 Mtr. Wide Road)

No. of trees (1\*200/12) = 16.67  
say 17

## Cost Details:

Excavation = 50

Manure = 50

Tree Plant = 50

Tree Guard = 600

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TOTAL Rs. 750

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17 Trees @ Rs. 750/- each Rs. 12,750.00

TOTAL Rs. 1,12,750.00

Add 3% contingencies & P.H. charges Rs. 3,382.50

Total Rs. 1,16,132.50

Add 49% departmental charges Rs. 56,904.95

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Total Rs. 1,73,037.45

(Total C/F to Summery of Sub Work VI)

Say

Rs. 1.73 Lakhs



## Sub Work No. VII

MTC Charge and Resurfacing of Road  
Amount in Rs.

|                                     |                                                                                                                                                                                                                                                                                         |                     |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1.                                  | Provision for maintenance charge for<br>Water supply, sewerage, storm water,<br>Drainage, roads, street light, Hort. Etc.<br>Complete including operation &<br>Establishment charges as per HUDA<br>Norms after completion.<br>Area Approx. 1.00 Acre land of tower 11 @ Rs. 5,00,000/- | 5,00,000.00         |
| 2.                                  | Provision for resurfacing of roads after<br>First five year of maintenance.<br>Total Road area 1240 Sqmt.@ Rs. 600/-                                                                                                                                                                    | 7,44,000.00         |
| 3.                                  | Provision for resurfacing of roads after 10<br>Years of MTC.<br>Total Road area 1240 Sqmt. @ Rs. 200/-                                                                                                                                                                                  | 2,48,000.00         |
| <b>Total</b>                        |                                                                                                                                                                                                                                                                                         | <b>14,92,000.00</b> |
| Add 3% contingencies & P.E. charges |                                                                                                                                                                                                                                                                                         | 44,760.00           |
|                                     |                                                                                                                                                                                                                                                                                         | 15,36,760.00        |
| Add 49% depts. Charges              |                                                                                                                                                                                                                                                                                         | 7,53,012.40         |
| <b>TOTAL</b>                        |                                                                                                                                                                                                                                                                                         | <b>22,89,772.40</b> |

(Total C/F to Summary of Sub Work VII)

Say : 22.90 Lakhs

