LC-3804

SERVICE ESTIMATE, DESIGN REPORT AND CALCULATION OF INTERNAL DEVELOPMENT WORKS

FOR

REVISED LAYOUT OF "AFFORDABLE PLOTTED COLONY (UNDER DEEN DAYAL JAN AWAS YOJNA - 2016)" FOR LAND AREA MEASURING 12.41875 ACRES (LICENSE NO. 23 OF 2019 DATED 20.02.2019) IN REVENUE ESTATE OF SECTOR - 35, SOHNA, DISTT. – GURUGRAM BELONGING TO LION INFRADEVELOPERS LLP, VALLABHAM BUILDCON PVT. LTD. AND VIBHOR HOME DEVELOPERS PVT. LTD. IN COLLABORATION WITH M/S LION INFRADEVELOPERS LLP.

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1023, JMD MEGAPOLIS, SECTOR 48, GURUGRAM-122001

MEP CONSULTANT: PRIFACTOR ENGINEERS,
109, ANSAL LAXMIDEEP TOWER, LAXMI NAGAR, DELHI-110092

SERVICE ESTIMATE, DESIGN REPORT AND CALCULATIONS OF INTERNAL DEVELOPMENT WORKS FOR PROPOSED "AFFORDABLE PLOTTED COLONY (UNDER DEEN DAYAL JAN AWAS YOJNA - 2016) LAND AREA MEASURING 12.41875 ACRES (LICENSE NO. 23 OF 2019 DATED 20.02.2019) IN SECTOR 35, SOHNA, DISTT. GURUGRAM BELONGING TO LION INFRADEVEOPERS LLP, VALLABHAM BUILDCON PVT.LTD. AND VIBHOR HOME DEVELOPERS PVT. LTD. IN COLLABORATION WITH M/S LION INFRADEVELOPERS LLP

Sohna town of Haryana State situated on NH 248-a road at a distance of 54 Km from Delhi. Being in the national capital region, the town has developing tendency and potential. Further, it has also started sharing the growing residential, commercial and Industrial load of Delhi. In order to review the growing pressure of population in National Capital of Delhi, it has been decided by the Haryana Government to develop various infrastructure facilities in Sohna, Distt. - Gurugram Urban Complex. This report is for a part of service estimate for proposed "Affordable Plotted Colony" (under Deen Dayal Jan Awas Yojna - 2016) measuring 12.41875 acres (License No. 23 of 2019 dated 20.02.2019) in Sector 35, Sohna Distt. Gurugram being belonging to Lion Infradevelopers LLP, Vallabham Buildcon Pvt. Ltd. and Vibhor Home Developers Pvt. Ltd. in collaboration with M/s Lion Infradevelopers Llp has been prepared with the following provisions which are as under: -

1. WATER SUPPLY

The source of water supply in this area is by HSVP Mains. It has been proposed to construct underground tanks of capacity as per attached details (Annexure-I: Water requirement chart and water storage capacity) and to location for domestic purpose and for fire protection. The underground tanks will be fed from the HSVP based supply, which will feed O.H. tanks on the roof of the Building and has been designed as per the Hazen Williams formula. Presently there is proposed HSVP W/S in this area. However the provision of tube well have been taken due to non availability of water but after getting the approval from the competent authority through tube wells /tankers / any other approved source till HSVP W/S will made available. The proposed tube wells shall be 510mm bore drilled with reverse rotary rig and installed with 100mm i/d housing pipe and 80mm i/d slotted tube as strainer, hence the provision of Two Nos Tube Wells have been taken in this estimate.

DESIGN

The scheme has been designed for population of ~~4160~~ 3962 persons considering @ ~~5~~ 13.5 persons/~~apartment~~ plots for Affordable Plotted Colony and other provision etc. The combined quantum of water supply (domestic + flushing) per head / day has been taken as 135 Liters per head per day as per design calculation and in relevance to the national building codes of 2016.

PUMPING EQUIPMENTS

It has been proposed to install pumping set as described with standby of equal capacity. The provision for standby generating set has also been provided in case of any time electricity failure. Generator will be provided separately or added to the capacity of main generator.

2. SEWERAGE

The scheme is designed for sewer connecting to the STP and bypass connection to HSVP sewer scheme. The sewer lines have designed for three times average D.W.F. in relation to water supply demand. It has assumed that about 80% of the domestic and flushing water supply shall find its way into the proposed sewer. Sewer lines shall be running by gravity and discharge to STP proposed. Treated water will be used for Irrigation & Flushing purpose (through recycling) under the pipeline system. ~~R.C.C Np2 class pipes~~ S.W. pipes have been used for the sewage system.

3. STORM WATER DRAINAGE

It has been proposed to lay RCC NP3 and NP2 pipes with required number of manholes for disposal of storm water, which will be connected to the HSVP drain. The intensity of rain fall has been taken as 25mm per hour. A minimum size of ~~250mm~~ 450mm/450mm/600mm i/d R.C.C. Np3 pipes for storm water drain will be provided and designed as per manning's formula. Necessary provision of rainwater harvesting arrangement has also been taken in this estimate.

4. ROADS

Road Parking and Pavement have been provided to above areas and estimates prepared as revised specifications adopted by HSVP.

5. STREET LIGHTING AND ELECTRIFICATION

Provision for external lighting and electrification of proposed area has been made.

6. HORTICULTURE

Estimate and details of plantation, landscaping, signage etc. have been included.

7. FIRE FIGHING

Provision of Fire Fighting system has been made.

8. Provision for **Electric Panel or ESS** provision has also been made in this estimate

9. SPECIFICATIONS

The work will be carried out in accordance with the standard specifications of PH as laid down by the Haryana Government / HSVP.

10. RATES

The estimate has been used the present market rates

11. COST

1084.10

The Total cost of scheme including cost of all services works out to Rs. ~~1034.37~~ Lacs (Rupees Ten Crores Thirty Four Lacs and Thirty Seven Thousand Only) including 3% contingencies and 49% departmental charges + Price escalation and cost per acre comes out to Rs. ~~83.29 Lacs~~.

87.30 Lacs

FOR LION INFRADEVELOPERS LLP

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Fire water will be replenished from the domestic and raw water tanks.

III.

Garden Irrigation Requirement (For Total Area)	25.00 =~~15.67~~ **KLD**

IV. Total Water Requirement for UGT

~~Raw Water Tanks~~	~~= 2 x 100 KLD~~
Domestic Water Tanks	= ~~2 x 75 KLD~~ 2X100 KLD
Flushing Water Tanks	= ~~1 x 125 KLD~~ 1X100 KLD

V. Tube Well

Tube Well	**For UGT**
a) Yield	= 15 K.L. / Hr.
b) Working Hour per day	= 16 Hr. / per day
c) Total water demand	= ~~484.6~~ 340 M3 / day
d) Number of tube well required (water Demand / Discharge / Hr. working Per day)	= ~~2.01~~ 1.42 Nos
Say	= 2 Nos

(Water to the proposed development is to be supplied by HSVP. However, consider 2.00 Nos TW's to install for proposed requirement of water for augmentation / standby purposes and provision has also been taken in the estimates due to non-availability of water but after getting the approval from the competent authority.

I. Pumping Machinery for Tube wells

a) Gross Working Head	= 80 Mtr

b) Average fall in S.L	= 2 Mtr
c) Depression Head	= 6 Mtr
d) Friction loss in main	= 10 mtr
Total	= 98 Mtr
e) Discharge	= 15000 LPH (Or 4.17 LPS Say 4.50 LPS)
f) Horse Power	= 9.80 HP
HP = (4.50 X 98) / (75 x 0.60)	Say = 10.00 H.P.

It is proposed to provide ~~2~~ 01 No pumping set of 4.50 LPS discharge at 98 Mtr head (2W)

II. Boosting Machinery for domestic water for UGT

Total Water Requirement	= ~~**314.7 KLD**~~ 338
Pumping per hour @ 8 hr. pumping / day	= ~~314.7/8~~ 338 KL / hr.
	=~~39.33~~ 42.25 KL / hr.
	= ~~655.25~~ 704.16 lpm = ~~10.93~~ 11.74 lps
	Say 2 No. 6.00 lps each
Gross working head	For UGT
Suction lift	= 5.00 mts.
Frictional loss in mains & Specials	= 10.00 mts.
Clear Head required	= 30.00 mts.
Total	= 45.00 mts
Say	= 45.00 mts
Pump HP	= (6.00 x 45) / (75 x 0.60)
	= 6.00 H.P.
Say	= 6.00 H.P.

It is proposed to provide 3 No of pumping set of 6.00 lps discharge at 45 mts Head each (2W + 1S) for UGT.

III. Boosting Machinery for flushing water at STP

Total Water Requirement	= ~~169.9~~ 167 **KLD**
Pumping per hour @ 8 hr. pumping / day	= ~~169.9/8~~ 167 KL / hr.
	=~~21.23~~ 20.88 KL / hr.
	= ~~5.9~~ 5.80 lps
	Say 2 No. 6.00 lps each
Gross working head	
Suction lift	= 5.00 mts.
Frictional loss in mains & Specials	= 10.00 mts.
Clear Head required	= 30.00 mts.
Total	= 45.00 mts
Say	= 45.00 mts
Pump HP	= (6.00 x 45) / (75 x 0.60)
	= 6.00 H.P.
Say	= 6.00 H.P.

It is proposed to provide 2 Nos of pumping set of 6.00 lps discharge at 45 mts Head each (1W + 1S).

IV. Boosting Machinery for Irrigation water

Total Water Requirement	25.00 = ~~15.00~~ KLD
Pumping per hour @ 5 hr. pumping / day	25/5 = ~~15/2~~ KL / hr.
	5.00 = ~~7.50~~ KL / hr.
	83.33 138 = ~~125.00~~ lpm = ~~2.08~~ lps
	2.00 Say = ~~2.20~~ lps each
Gross working head	
Suction lift	= 5.00 mts.
Frictional loss in mains & Specials	= 3.00 mts.
Clear Head required	= 15.00 mts.
Total	= 21.00 mts
Say	= 21.00 mts
Pump HP	2.00 = (~~2.20~~ x 21) / (75 x 0.60)
	0.93 = ~~1.03~~ H.P.
Say	2.00 = ~~1.05~~ H.P.

It is proposed to provide 2 No. of pumping set of 2.2 lps discharge at 21 mts Head each (1W+1S).

FLOW TO SEWAGE TREATMENT PLANT

Total Water Requirement = 505 ~~314.7 KLD for domestic & 169.9 KLD for flushing~~

I. ~~85% of total Domestic Water Demand = 85% of 314.7 KLD = 267.495 KLD~~
II. ~~100% of total Flushing Water Demand = 100% of 169.9 KLD = 169.90 KLD~~

~~Total = 437.395 KLD~~
~~Say 440 KLD~~
~~Proposed STP Capacity = 440 KLD Or 0.44 MLD~~

Take up 80% to STP = 404 KLD
Add 5% marginal factor = 20 KLD
424 KLD

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Proposed = 440 KLD
STP

FINAL ABSTRACT OF COST

SR. NO.	SUB WORK	DESCRIPTION	Amount (Rs. in Lacs)
1.	SUB WORK NO. I	WATER SUPPLY SCHEME	~~165.51~~ 195.35
2.	SUB WORK NO. II	SEWERAGE SCHEME	~~148.97~~ 150.90
3.	SUB WORK NO.III	STORM WATER DRAINAGE	~~99.86~~ 117.77
4.	SUB WORK NO.IV	ROADS & FOOT PATHS	~~240.24~~ 240.26
5.	SUB WORK NO.V	STREET LIGHTING	~~47.64~~ 47.65
6.	SUB WORK NO. VI	HORTICULTURE (PLANTATION & ROAD SIDE TREES)	~~7.16~~ 7.17
7.	SUB WORK NO. VII	MTC CHARGES INCL RESURFACING OF ROADS AFTER 1st 5 YEARS AND 2nd YEAR OF MTC AS/HUDA	~~324.99~~ 325.00
		TOTAL	~~1034.37~~ 1054.10
	TOTAL : ~~(Rupees Ten Crores Thirty Four Lacs and Thirty Seven Thousand Only)/-~~		

1054.10 87.30

Cost Per Acre = Rs.~~1034.37~~ Lacs / 12.41875 = ~~83.29~~ Lacs Per Acre.

FOR LION INFRADEVELOPERS LLP

AUTHORISED SIGNATORY

Executive Engineer
HSVP Division No. VI
Gurugram

Checked subject to comments in forwarding letter No. 45182 Dt. 12/03/2021 and notes attached with the estimate

Superintending Engineer,
HSVP Circle-II, Gurugram

Director Town & Country Planning Haryana Chandigarh

Superintending Engineer (HQ)
for Chief Engineer 1 HSVP
Panchkula

SUB WORK No. 1
(Abstract of Cost)

WATER SUPPLY SCHEME

SR. NO.	SUB WORK	DESCRIPTION	AMOUNT (Rs. In Lacs)	
1	Sub Head No. 01	Head Works	~~41.12~~	54.13
2	Sub Head No. 02	Plumbing Machinery	~~11.00~~	15.25
3	Sub Head No. 03	Water Supply Distribution (Domestic, Flushing & Rising Main pipe)	~~52.61~~	55.17
4	Sub Head No. 04	Irrigation	~~3.12~~	2.73
		TOTAL	~~107.85~~	127.28
		Add 3% contingencies & PH Charges	~~3.2355~~	3.82
		TOTAL	~~111.08~~	131.10
		Add 49% Departmental charges + Price escalation	~~54.43~~	64.24
		G. TOTAL	~~165.51~~	195.34
		Say in Lacs	~~165.51~~	

(C.O. to Final Abstract of Cost)

Say Rs = 195.35 Lacs

Sub Work No. 1 **Water Supply**
Sub Head No. 01 **Head Works**

Sr. No.	Description	Amount in Rs.
1	Construction of U.G. Tanks including pipes, valve & Specials. 350 KLD @ Rs. 3000/- per KLD	~~10,50,000~~/- 2250,000/-
	500 4500	
2	Provision of Construction of Boosting Station 1 Nos @ Rs. ~~200000~~/- each	~~2~~,00,000/-
	300000/-	
3	Boring and installing tube well with reverse rotary rig complete with pipe and strainer to a depth of about 120 Mtr complete in all respect . 1 Nos @ Rs. 1000000/- each	10,00,000/-
4	Provision of Construction of Tube well Chambers of Size 1.50m x 1.50m complete in all respect. 1 Nos @ Rs. 100000/- each. (Housing T.W)	1,00,000/-
5	Provision for Carriage of material & other unforeseen items L.S	50,000/-
6	Provision of rising main for tube well upto UGT L.S to by pass arrangement 100mm dia 170m @Rs.1250/-	212500/- ~~2,12~~,000/-
7	Provision for footpath, lawn, hedges at T.W boundary wall, boosting station (L.S)	5,00,000/-
8	Provision for staff office for maintenance Staff (L.S)	10,00,000/-
	Total	~~41,12,000~~/- 5412500
	Say in Lacs	~~41.12 Lacs~~ 54.13

(C.O. to Abstract of cost of Sub Work No. I)

Sub Work No. 1 **Water Supply**

Sub Head No. 02 **Pumping Machinery**

Sr. No.	Description	Amount in Rs.
1	Providing and installing transfer pumping set of following capacities for domestic water Supply with specials.	4,50,000/-
	6.00 lps at 45 mts head 3 No. (2W+1SB) - @ Rs. 150,000/- each Set (6 00HP)	~~1,50,000/-~~
2	Providing and installing pumping set of following capacities for Flushing water supply. 150000	3,00,000/-
	6.00 lps at 45 mts head – 2 No. (1W + 1SB) @ Rs ~~1,00,000~~/- 1 Set (6 HP each)	~~1,00,000/-~~
3	Providing and installing Submersible pump for tube wells with specials. Complete in all respects (1) 125000/-	1250000/-
	4.50 lps at 98 mts head - ~~2~~ No. (2W) @ Rs ~~2,00,000~~/- 1 Set (10 HP each)	~~2,00,000~~/-
4	Provision for making foundations & erection of pumping machinery.	~~1,50,000/-~~ 1,00,000/-
5	Provision for pipes. valves & specials inside boosting chamber.	1,00,000/-
6	Provision for electric services connection including electric fittings for boosting chambers and pump chamber etc.	2,50,000/-
7	Provision for carriage of materials and other unforeseen items L.S.	~~1,50,000/-~~ 1,00,000/-
	~~Total~~	~~11,00,000/-~~
	~~Say in Lacs~~	~~11.00 Lacs~~

(~~C.O. to Abstract of cost of Sub Work No. I~~)

(8) Prov. & Installing of Pumping set for Irrigation. 1,00,000/-

2 LPS at 21.00 M Head, 2 HP

2 Nos (1W + 1S) @ Rs 50,000/- 1525000/-

Say Rs 15.25 Lakh.

Sub-Work No. 1 **Water Supply**

Sub Head No. 03 **Water Supply Distribution & Rising Main Pipe**

Sr. No.	Description	Amount in Rs.
1	Providing, laying, jointing & testing pipe lines including cost of excavation etc complete in all respects.	
i)	80mm dia D.I. Pipe 767 Mtr @ Rs. 1750/- per Mtr	~~13,42,250/-~~ 1612000/-
ii)	100mm i/d D.I. Pipes - 787 Mtr @ Rs. 2250/- per Mtr	~~17,70,750/-~~ 850,000/-
iii)	150mm i/d D.I. Pipes 520 Mtr @ Rs. 2750/- per Mtr	~~14,30,000~~/- 819000/-
2	Providing and fixing sluice valve including cost of surface box and masonry chamber etc. complete in all respect.	
	a) 80mm i/d 18 No. @ Rs. ~~7500/-~~ each	~~1,35,000/-~~ 180,000/-
	b) 100mm i/d 9 No. @ Rs. ~~10000~~/- each	~~90,000/-~~ 108000/-
	c) 150mm i/d 1 No. @ Rs. 15000/- each	15,000/-
3	Providing and fixing indicating plates for sluice valve 28 No @ Rs. 1000/-	28,000/-
4	Provision for carriage of materials and other unforeseen items.	1,00,000/-
5	Provision for making connection with HUDA Pipe on master road	2,00,000/-
6	Provision for cutting the road and making good the same.	1,50,000/-
	~~Total~~	~~52,61,000/-~~
	~~Say in Lacs~~	~~52.61 Lac~~

(C.O. to Abstract of cost of Sub Work No. I)

(7) Prov. & fixing of fire hydrants with accessories 555000/-

37 Nos @ Rs 15000/-

(8) D.G. Pump 2850 LPM, 45 M Head, 48 HP, 60 KVA 900,000/-

5517000/-

Say Rs 55.17 Lakh.

Sub-Work No. 1 **Water Supply**

Sub Head No. 04 **Irrigation**

Sr. No.	Description	Amount in Rs.
1	Providing. Laying, jointing and testing UPVC Pipe lines suitable for 6 kg pressure including cost of fittings, valves, connection etc. complete in all respect. 300/-	60,000/-
a)	25mm dia - 200 M @ Rs. ~~500~~/- Per Mtr.	~~1,00,000~~/-
2	Providing and fixing 25mm dia irrigation hydrant valve complete in all respect. 25 Nos @ Rs. 3500/- each.	87,500/-
3	Provision for carriage of materials and other unforeseen items L.S.	1,00,000/-
4	Provision for indicating plate with safety box etc. complete in all respect. 25 Nos @ Rs. 1000/- each.	25,000/-
		272500/-
	Total	~~3,12,500~~/-
	Say in Lacs	~~3.12 lac~~ 2.73 2 lakh

(C/O To Abstract of Cost for Sub work No.1)

Sub-Work No. II **SEWERAGE SCHEME**

Sr. No.	Description	Amount in Rs.	
1	Sewer Pipes - Providing and laying ~~non pressure NP2 class (medium duty) R.C.C. pipes conforming to IS 458 with collars~~ jointed with stiff mixture cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc. complete. (all round and upto haunching shall be paid separately) testing of S.W. pipe grade 'A' 1250		
	a) 200 mm Diameter i/d 1700 M @ Rs. ~~1400~~/- per Mtr 1500	~~2380000.00~~/-	2125000/-
	b) 250 mm Diameter i/d 163 M @ Rs. ~~2000~~/- per Mtr	~~326000.00~~/-	244500/-
	c) 300 mm Diameter i/d 10 M @ Rs. ~~2600~~/- per Mtr 2250	~~26000.00~~/-	22500/-
2	Provision of lighting and watching etc (L.S)	1,00,000/-	
(3)	Provision for carriage of Material & unforeseen items	2,00,000/-	
(4)	Provision for construction of Sewerage Treatment Plant (STP) including the cost of tertiary treatment level with recycling storage tank and machinery with all arrangement etc. complete in all respect ~~4.40~~ KLD or (0.~~44~~ MLD) Capacity ~~L.S.~~ @ 16000/- Per KLD	~~68,75,000.00~~/- 70,40,000/-	
(5)	Provision for makeup connections with existing/ proposed sewer line.	1,00,000/-	
	~~Total~~	~~9707000.00~~/-	9832000/-
	Add 3% contingency & P.H. Services	~~291210~~/-	294960/-
	Total	~~9998210~~/-	10126960/-
	Add 49% Department charges + Price Escalation	4899122.9/-	4962210/-
	G. Total	~~14897332.9~~/-	15089170/-
	Say in Lacs	~~148.97~~ Lacs	
			150.90

(C/O to Final Abstract of Cost)

Sub-Work No. III **STORM WATER DRAINAGE SCHEME**

Sr. No.	Description	Amount in Rs.
1	Storm Water Pipes - Providing and laying non pressure ~~NP2~~ NP3 class (medium duty) R.C.C. pipes conforming to IS 458 with collars jointed with stiff mixture cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc. complete. (all round and upto haunching shall be paid separately)	
	~~a) 150 mm Diameter i/d = 150 M @ Rs. 650/- per Mtr~~	~~97,500.00/-~~
	~~b) 200 mm Diameter i/d = 1500 M @ Rs. 850/- per Mtr~~	~~12,75,000.00/-~~
	~~c) 250 mm Diameter i/d = 298 M @ Rs. 1020/- per Mtr~~	~~3,03,960.00/-~~
(a)	~~d) 300 mm Diameter i/d = 424 M @ Rs. 1250/- per Mtr~~	~~5,30,000.00/-~~ 1805000/-
(b)	~~e) 450 mm Diameter i/d = 286 M @ Rs. 1850/- per Mtr~~	~~5,29,100.00/-~~ 757900/-
(c)	~~f) 600 mm Diameter i/d = 189 M @ Rs. 3500/- per Mtr~~	~~6,61,500.00/-~~ 850500/-
2	Provision for Rain Water Harvesting arrangement including the cost of screening chamber and pit with all type of pipes and other material etc. complete in all respect as per standard drawing and bore upto requirement of site etc. ~~9~~ 10 Nos RWH @ Rs. ~~1,50,000~~/- each.	2500000/- ~~13,50,000.00/-~~ 250000/-
3	Provision for road gulley & pipe with connection 300mm dia (L.S)	3,00,000.00/-
4	Provision for lighting and watching (L.S)	80,000.00/-
5	Provision for timbering and shoring (L.S)	80,000.00/-
6	Provision for cartage of material and other unforeseen item	1,00,000.00/-
7	Provision for making connection with HSVP storm water drain (L.S)	1,00,000.00/-
8	Provision for temporary disposal arrangement	10,00,000.00/-
9	Provision for cutting of road and making road to its original condition	1,00,000.00/-
	Total	~~65,07,060.00~~/- 7673400
	Add 3% contingency & P.H. Services	~~1,95,211.80~~/- 230202
	Total	~~67,02,271.80~~/- 7903602
	Add 49% Department charges + Price Escalation, unforeseen, addendum	~~32,84,113.18~~/- 3872765
	G. Total	~~99,86,384.98~~/- 11776367
	Say in Lacs	~~99.86 Lacs~~ 117.77

(C/O to Final Abstract of Cost)

Sub Work No. IV **ROAD AND FOOTPATH**

S. No.	Description	Unit	Qty.	Rate (In Rs.)	Amount (In Rs.)
1	Provision for leveling & earth filling as per site conditions	Per Acre	12.4187	150000	18,62,805.00
2	i) Providing and laying 100 mm thick PCC under pavement, cement concrete of specified grade 1:4:8 and 150 mm thick RMC grade M-40 ii) Providing and laying Bituminous road (200mm GSB, 250mm WMM, 50mm ~~BM~~ DBM, ~~25mm MSS~~) 25 mm BC.	Sqm	8787	1200	1,05,44,400.00
3	Provision for kerbs and channels of C.C. 1.2:4	Meter	1440.93	600	8,64,558.00
4	Provision for arrangement of guide map and indicating board etc.	LS			2,00,000.00
5	Provision for Traffic light control	LS			1,00,000.00
6	Provision for foothpath with 100mm thick PCC under pavement cement concrete of specified grade 1:4:8 and 150mm thick RMC Grade M-40 ~~or Bituminous road with 250 mm GSB, 300mm WMM, 50mm thick DBM & 40mm thick BC etc as per requirement of site for surface car parking & approach to Tower / Block etc.~~	Sqm	2161.39	600	12,96,834.00
7	Provision for carriage of material & other unforseen	LS			2,00,000.00
8	Provision for pavement in ~~common~~ commercial area i.e. 50% of the area ~~1952.47~~ 1893.96 i.e. ~~1952.47~~ 1893.96/2 =~~976.235~~ 946.98 Sqm	Sqm	~~976~~ 947	600	~~5,85,600.00~~ 586200
	Sub Total			15654797	~~1,56,54,197.00~~
	Add 3% contingencies & PH services			469644	~~4,69,625.91~~
	Sub Total			16124441	~~1,61,23,822.91~~
	Add 49% Departmental Charges + Price Escalation			7900976	~~79,00,673.23~~
	Total			24025417/-	~~2,40,24,496.14~~
	Say Rs. in Lacs			240.26 Lakh.	~~240.24~~

(C.O. to Final Abstract of cost)

Sub Work No. V **STREET LIGHTING**

S. No.	Description	Unit	Qty.	Rate (In Rs.)	Amount (In Rs.)
1	Provision for Street Lighting at surrounding area as per standard specifications of HVPN etc. complete with CFL	Acre	12.4187	250000	31,04,675.00
	Add 3% contingencies & PH services				93,140.25
	Total				**31,97,815.25**
	Add 49% Departmental Charges + Price Escalation and unforseen, addendum				15,66,929.47
	Total				**47,64,744.72**
	Say Rs. in Lacs				~~47.64~~ 47.65

(C.O. to Final Abstract of cost)

Sub Work No. VI **HORTICULTURE**

S. No.	Description	Unit	Qty.	Rate (In Rs.)	Amount (In Rs.)
1	Development of Lawn Areas				
a	Trenching of ordinay soil upto depth of 60cm i/c removal & stacking of serviceable material & disposing by spreading and levelling with in a lead of 50M and making up the trench aea 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 with all fitting and valve etc. complete				
b	Rough dressing of turfed area				
c	Grassing with "Cynadon dactylon" i/c watering and maintenance of lawns for 30 days till the grass forms a thick lawn, free from weeds and fit for moving in row 7.5cm part in eighter direction				
d	Organized green 3830.63 Sqm or 0.94 acres (As per detail given in green park area calculation)	Acre	0.9466	150000	1,41,990.00
2	Providing and planting trees along boundary @12m interval (Length appx. x 1440M) = 1440/12 = 120 , 120 x 2 = 240 Say No. of trees = 250 NOS Cost details : Excavation = Rs. 60 Manure = Rs. 90 Tree Plant + Tree guared = Rs. 1150 Total Rs. = Rs. 1300				
		Each	250	1300	3,25,000.00
	Total				**4,66,990.00**
	Add 3% contingencies & PH services				14,009.70
	Total				**4,80,999.70**
	Add 49% Departmental Charges + Price Escalation, unforseen, addendum				2,35,689.85
	Total				**7,16,689.55**
	Say Rs. in Lacs				~~7.16~~ 7.17

(C.O. to Final Abstract of cost)

Sub Work No. VII **Mtc. of services and Resurfacing of Roads**

S. No.	Description	Unit	Qty.	Rate (In Rs.)	Amount (In Rs.)
1	Mtc of water supply, sewer, storm water drain, roads, street light, hort, etc. for period of 10 years including operation charges full establishment etc. complete in all respects @ Rs. 7.5 lacs per acre	Acre	12.4187	7,50,000.00	93,14,025.00
2	Provision for resurfacing of roads after 5 years of 1st phase with provision of 50mm thick BM including leveling coarse and 25mm BC as per crust design whichever is safer	Sqm	8787	600	52,72,200.00
3	2nd phase after next five years of 1st phase (50mm DBM & 25mm BC or as per crust design whichever is safer	Sqm	8787	750	65,90,250.00
	Sub Total				**2,11,76,475.00**
	Add 3% contingencies & PH services				6,35,294.25
	Sub Total				**2,18,11,769.25**
	Add 49% Departmental Charges + Price Escalation and unforseen, addendum				1,06,87,766.93
	Total				**3,24,99,536.18**
	Say Rs. in Lacs				~~**324.99**~~ 325.00 Lakh

(C.O. to Final Abstract of cost)

SUMMARY OF DESIGN REQUIREMENT

Sr. No.	Description	Qty	Unit
1	Total Population	3962 ~~4160~~	Persons
2	Total Water Requirement (Domestic)	338 ~~314.7~~	KLD
3	Total Water Requirement (Flushing)	167 ~~154.23~~	KLD
4	Total Water Requirement (Horticulture)	25.0 ~~15.67~~	KLD
5	U. G. Tank (Domestic)	2	No.
6	~~U. G. Tank (Raw)~~	~~2~~	~~No.~~
7	No. of Domestic WS pumps UGT	2+1	Set
8	No. Flushing pumps	1+1	No.
9	No. of submersible pumps	2	No.
10	STP (440 KLD)	1	No.

Material Summary : Water Supply (Domestic & Flushing) and Rising Main

Sr. No.	Pipe Size (in mm)	Qty (in Mtr)		
		Water Supply (Domestic)	Water Supply (Flushing)	Rising Main
1	20		1200	
2	25	1200		
3	50		423	
4	65	423	43	
5	80	43	680	
6	100	680		
7	150			520

Grand Total

	Domestic		Flushing		Total
80mm —	466	+	1146	=	1612 Mtr
100 mm —	680		—	=	680 Mtr
150mm	520		—	=	520 Mtr

Material Summary (Water Supply : Domestic)

S. No.	Node		Pipe Size / Length		
	From	To	~~65 mm~~	80 mm	100 mm
1	1	2	~~115~~	115	
2	3	4		43	
3	4	5		—	115
4	4	6		—	101
5	7	8		—	115
6	9	10	~~157~~	157	
7	11	12	~~33~~	33	
8	13	14		—	20
9	15	16		—	174
10	17	18		—	155
11	19	20	~~30~~	30	
12	21	22	~~88~~	88	
Total Quantity			~~423~~	~~43~~ 466	680

~~Branch Pipe for Domestic (25mm) = 1200 Mtr~~

80mm = 466 Mtr

100mm = 680 Mtr

Material Summary (Water Supply : Flushing)

S. No.	Node		Pipe Size / Length		
	From	To	~~50 mm~~	~~65 mm~~	80 mm
1	1	2	~~115~~		115
2	3	4		~~43~~	43
3	4	5			115
4	4	6			101
5	7	8			115
6	9	10	~~157~~		157
7	11	12	~~33~~		33
8	13	14			20
9	15	16			174
10	17	18			155
11	19	20	~~30~~		30
12	21	22	~~88~~		~~88~~
Total Quantity			~~423~~	~~43~~	~~680~~ 1146 Mtr

Branch Pipe for Flushing (20mm) = 1200 Mtr

Rising Main

S. No.	Name of Line		Size	Length (in Mtr)	
	From	To	mm	100	150
1	TW	UGT	150		170
2	Government Line	UGT	150		350
Total				0	520

MATERIAL STATEMENT OF SEWERAGE SCHEME

Node no (Sewer)	Length in mtr.	Design
		Pipe size (R.C.C NP2 PIPE) S.W Pipes
1	0	200
1-2	97	200
3	0	200
3-2	24	200
2-8	84	200
7	0	200
7-8	101	200
9	0	200
9-8	60	200
8-6	88	250
4	0	200
4-5	78	200
5-6	38	200
6-12	24	250
16	0	200
16-17	58	200
15	0	200
15-17	29	200
17-14	62	200
13	0	200
13-14	129	200
14-11	53	200
10	0	200
10-11	103	200
11-12	51	250
12-STP	10	300
	1089 Mtr	

200 mm i/d Pipe Length	= 916 Mtr + 784 = 1700 Mtr
250 mm i/d Pipe Length	= 163 Mtr
300 mm i/d Pipe Length	= 10 Mtr

MATERIAL STATEMENT OF STORM WATER DRAINAGE SCHEME

Node no (Storm Water)	Length in mtr.	Design Pipe size (R.C.C. NP2)
1-2	88	~~250~~ 4w
3-2	16	~~250~~ 4w
2-4	84	~~300~~ 4w
5-5A	31	~~300~~ 4w
6-5A	21	~~300~~ 4w
5A-4	43	~~300~~ 4w
4-7	82	450
8-7	29	~~250~~ 4w
7-9	89	450
10-12	130	~~300~~ 4w
11-12	93	~~250~~ 4w
12-09	74	450
09-13	41	450
14-13	115	~~300~~ 4w
13-16	21	600
15-16	36	~~250~~ 4w
16-18	40	600
17-18	36	~~250~~ 4w
18-19	128	600

1197

~~250 mm i/d Pipe Length = 298 Mtr~~
300 mm i/d Pipe Length = ~~424 Mtr~~ 722 mts.
450 mm i/d Pipe Length = 286 Mtr
600 mm i/d Pipe Length = 189 Mtr

Material statement of Road work

SR. NO.	ROAD NO.	ROAD WIDTH	LENGTH	WIDTH	AREA	
1	1	9	82.377	6	494.262	Sqm.
2	2	9	94.94	6	569.64	Sqm.
3	3	9	174.122	6	1044.732	Sqm.
4	4	9	34.233	6	205.398	Sqm.
5	5	9	154.934	6	929.604	Sqm.
6	6	9	114.968	6	689.808	Sqm.
7	7	9	148.968	6	893.808	Sqm.
8	8	9	86.696	6	520.176	Sqm.
9	9	9	61.736	6	370.416	Sqm.
10	10	9	33.944	6	203.664	Sqm.
11	11	9	86.699	6	520.194	Sqm.
12	12	9	120.7	6	724.2	Sqm.
13	13	12	44	6	264	Sqm.
14	14	24	67	2x7	938	Sqm.
	G. TOTAL				**8367.902**	Sqm.
	Add 5% extra for curves				418.3951	Sqm.
	Total				**8786.2971**	Sqm.
				say	8787	Sqm.

1 **Kerbs and channels**

(i)	9 mtr. wide road	(1 x 1194.317)	1194.317 mtr
(ii)	12 mtr. wide road	(1 x 44)	44 mtr
(iii)	24 mtr. wide road	(2 x 67)	134 mtr
		Total	**1372.317** mtr
		Add 5% extra for curves	68.62 mtr
		G. TOTAL	**1440.93** mtr

2 **Foothpath**

(i)	9M & 12M wide road	1238.317 x 1.5	1857.4755 mtr
(ii)	24 mtr. wide road	67 x 2 x 1.5	201 mtr
		Total	**2058.4755** mtr
		Add 5% extra for curves	102.923775 mtr
		G. TOTAL	**2161.399275** mtr

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RAINWATER HARVESTING AND REUSE POTENTIAL

RAINWATER HARVESTING CALCULATION

S.NO.	DESCRIPTION	AREA (SQ. MTR.)	RUNOFF COEFFICIENT	AVERAGE ANNUAL RAINFALL (MM)	TOTAL VOLUME AVAILABLE FROM RAINFALL (CUM/YEAR)	DESIGN HOURLY INTENSITY OF RAINFALL (MM/HR.)	RAINWATER HARVESTING POTENTIAL (CUM/HR.)
1	ROOF TOP WATER	28704	0.85	389	9498.30	25.0	610.71
2	PAVED SURFACES, ROADS AND OTHER BUILT UP AREAS	10746	0.6	389	2510.06	25.0	161.39
3	LAWNS, GARDEN AND OTHER GREEN SPACES	2343	0.35	389	319.24	25.0	20.53
	TOTAL	**41793**			**12327.60**		**792.63**

DETENTION TIME PLANNED (MIN)		20.00
TOTAL VOLUME OF HARVESTING PIT REQUIRED (CUM)		264.21
SURFACE AREA REQUIRED (CONSIDERING WATER DEPTH OF 3 MTR.) IN SQ. MTR.		88.07
NO. OF PIT PLANNED		9.00
SURFACE AREA FOR EACH PIT		9.79
DIAMETER OF CIRCULAR CONVENTIONAL PIT		**3.53**
MODULAR HARVESTING PIT	**LENGTH (M)**	**2.55**
	WIDTH (M)	**3.83**

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WATER REQUIREMENT CHART

Sr. No.	DESCRIPTION	AREA/REMARK	OCCUPANCY	WATER REQUIREMENT				WATER REQUIREMENT				FLOW TO SEWER				GROSS FLOW TO SEWER
				RE-CYCLED TREATED	FRESH WATER			RE-CYCLED TREATED	FRESH WATER			RE-CYCLED TREATED	FRESH WATER			
		SQ. MTR.	NO.	LPCD	DOMESTIC	HOT	DRINKING	LPD	DOMESTIC	HOT	DRINKING	100%	DOMESTIC	HOT	DRINKING	LPD
					LPCD				LPD				85%	75%	50%	
1	APARTMENTS	832 FAMILIES OF 5 PERSON EACH	4160	45	70	15	5	187200	291200	62400	20800	187200	247520	46800	10400	491920
2	MAINTENANCE STAFF	ASSUMED	10	20	20	0	5	200	200	0	50	200	170	0	25	395
3	FILTERATION BACKWASH	5% OF THE TOTAL DEMAND						9370	14570	3120	1043	9370	14570	3120	1043	28103
4	EXTERNAL IRRIGATION - 4000 SQ. MTR. APPROX. (DEMAND TO BE VERIFIED FROM THE LANDSCAPE CONSULTANT)	JANUARY TO APRIL - 5 LIT./SQ. MTR. MAY - JUNE - 6 LIT./SQ. MTR. JULY - SEPTEMBER - 2 LIT./SQ. MTR. OCTOBER - DECEMBER - 3 LIT./SQ. MTR.						15667								
TOTAL								212437	305970	65520	21893	196770	262260	49920	11468	520418
TOTAL (CONSIDERING REDUCTION IN DEMAND @ 20% BY USING LOW FLOW FIXTURES)								169949	244776	52416	17514	157416	209808	39936	9174	442355

TOTAL RECYCLED TREATED WATER DEMAND	169.9	KLD	UNDERGROUND STORAGE CAPACITY		
TOTAL FRESH WATER DEMAND	314.7	KLD	RAW WATER TANK (60% OF 1 DAY REQ.)	189	KL
FLOW TO SEWER/SEWAGE TREATMENT PLANT	442.4	KLD	TREATED FRESH WATER TANK (40% OF 1 DAY REQ.)	126	KL

SOURCE SIZING		
MUNICIPAL CONNECTION	169.01	MM DIAMETER
BOREWELL FLOW RATE REQ.	39.34	CUM/HR.

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DOMESTIC WATER TREATMENT STATION			
	GROSS DOMESTIC WATER REQUIREMENT	315	KLD
Sr. No.	Description	Value	Unit
A	**Filter Feed Pump**		
1	**Capacity Calculation**		
1.1	Operational Hours	14	Hrs.
1.2	Flow Rate	22.5	m3/hr
		374.7	Lit./min.
		6.2	Lit./sec.
1.3	Safety Factor @ 10%	0.6	Lit./sec.
1.4	Calculated Flow Rate	6.9	Lit./sec.
1.5	**Selected Flow Rate (1W+1S)**	**7.0**	**Lit./sec.**
2	**Head Loss Calculation**		
2.1	Length of Horizontal Pipes	10.0	mtr.
2.2	Static Head	1.5	mtr.
2.3	Total Length of pipes	11.5	mtr.
2.4	Residual head required	15	mtr.
2.5	Discharge through pipe	0.0070	cum/sec
2.6	Diameter of pipe	77.1	mm
2.7	No. of Bends and fittings in pipe	5	No.
2.8	Coefficient of roughness	1.0	
2.9	Resistance Coefficient of valves and fitting	6.0	
2.10	Gravitational acceleration	9.8	m/sec^2
2.11	Velocity of flow	1.5	m/sec
2.12	Major Head Loss (Modified Hazen williams)	0.3	mtr.
2.13	Minor Head Loss	0.7	mtr.
2.14	Total Head Loss	1.0	mtr.
2.15	Head of Pump Required	17.5	mtr.
2.16	Adding 10% Safety Factor	1.8	mtr.
2.17	Head of Pump	19.3	mtr.
2.18	**Head of Pump Selected**	**25.0**	**mtr.**
B	**Domestic Water Transfer Pump**		
1	**Capacity Calculation**		
1.1	Operational Hours	6	Hrs.
1.2	Flow Rate	52.5	m3/hr
		874.2	Lit./min.
		14.6	Lit./sec.
1.3	Safety Factor @ 10%	1.5	Lit./sec.
1.4	Calculated Flow Rate	16.0	Lit./sec.
1.5	**Selected Flow Rate (2W+1S)**	**8.0**	**Lit./sec.**
2	**Head Loss Calculation**		
2.1	Length of Horizontal Pipes	1000.0	mtr.
2.2	Static Head	25.0	mtr.
2.3	Total Length of pipes	1025.0	mtr.
2.4	Residual head required	10	mtr.
2.5	Discharge through pipe	0.0080	cum/sec
2.6	Diameter of pipe	82.4	mm
2.7	No. of Bends and fittings in pipe	15	No.
2.8	Coefficient of roughness	1.0	
2.9	Resistance Coefficient of valves and fitting	6.0	
2.10	Gravitational acceleration	9.8	m/sec^2
2.11	Velocity of flow	1.5	m/sec
2.12	Major Head Loss (Modified Hazen williams)	27.0	mtr.
2.13	Minor Head Loss	0.7	mtr.
2.14	Total Head Loss	27.7	mtr.
2.15	Head of Pump Required	62.7	mtr.
2.16	Adding 10% Safety Factor	6.3	mtr.
2.17	Head of Pump	69.0	mtr.
2.18	**Head of Pump Selected**	**70.0**	**mtr.**
E	**Multigrade Filter**		
1.1	Flow of Filtration system	25.2	m3/hr
1.2	Total no. of filters	2	No.
1.3	Design flow of each filter	12.6	m3/hr.
1.4	Filtration Rate	14	m3/m2/hr.
1.5	Therefore surface area required	0.90	m2

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DOMESTIC WATER TREATMENT STATION			
GROSS DOMESTIC WATER REQUIREMENT		315	KLD
Sr. No.	Description	Value	Unit
1.6	Diameter of filter	1070	mm
1.7	**Diameter of filter selected**	**1000**	**mm**
F	**Activated Carbon Filter**		
1.1	Flow of Filtration system	25.2	m3/hr
1.2	Total no. of filters	2	No.
1.3	Design flow of each filter	12.6	m3/hr.
1.4	Filtration Rate	14	m3/m2/hr.
1.5	Therefore surface area required	0.90	m2
1.6	Diameter of filter	1070	mm
1.7	**Diameter of filter selected**	**1000**	**mm**

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MANNING'S CALCULATION - SEWER

Node no	Length in mtr.	Peak Discharge(LPS)					Mannings constant	Design					Fall in metre	Level at start		Level at end	
		Self(LPM)	Self	infiltration @ 10%	Add.	Total		Slope 1 in	Pipe size	Velocity in m/s	Discharge in lps(full flow)	Discharge in lps(half flow)		G.L.	I.L.	G.L.	I.L.
1	0	11.3	0.19	0.02	0.00	0.21	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
1-2	97	135.6	2.26	0.23	0.21	2.69	0.01	150	150	0.91	16.17	8.09	0.65	0.00	0.90	0.00	1.55
3	0	5.65	0.09	0.01	0.00	0.10	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
3-2	24	5.65	0.09	0.01	0.10	0.21	0.01	150	150	0.91	16.17	8.09	0.16	0.00	0.90	0.00	1.06
2-8	84	50.85	0.85	0.08	2.90	3.83	0.01	150	150	0.91	16.17	8.09	0.56	0.00	1.55	0.00	2.11
7	0	11.3	0.19	0.02	0.00	0.21	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
7-8	101	79.1	1.32	0.13	0.21	1.66	0.01	150	150	0.91	16.17	8.09	0.67	0.00	0.90	0.00	1.57
9	0	11.3	0.19	0.02	0.00	0.21	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
9-8	60	79.1	1.32	0.13	0.21	1.66	0.01	150	150	0.91	16.17	8.09	0.40	0.00	0.90	0.00	1.30
8-6	88	107.35	1.79	0.18	7.15	9.12	0.01	225	250	1.05	51.56	25.78	0.39	0.00	2.11	0.00	2.50
4	0	22.6	0.38	0.04	0.00	0.41	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
4-5	78	113	1.88	0.19	0.41	2.49	0.01	150	150	0.91	16.17	8.09	0.52	0.00	0.90	0.00	1.42
5-6	38	28.25	0.47	0.05	2.49	3.00	0.01	150	150	0.91	16.17	8.09	0.25	0.00	1.42	0.00	1.67
6-12	24	28.25	0.47	0.05	12.12	12.64	0.01	225	250	1.05	51.56	25.78	0.11	0.00	2.50	0.00	2.60
16	0	5.65	0.09	0.01	0.00	0.10	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
16-17	58	45.2	0.75	0.08	0.10	0.93	0.01	150	150	0.91	16.17	8.09	0.39	0.00	0.90	0.00	1.29
15	0	11.3	0.19	0.02	0.00	0.21	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
15-17	29	33.9	0.57	0.06	0.21	0.83	0.01	150	150	0.91	16.17	8.09	0.19	0.00	0.90	0.00	1.09
17-14	62	62.15	1.04	0.10	1.76	2.90	0.01	150	150	0.91	16.17	8.09	0.41	0.00	1.29	0.00	1.70
13	0	22.6	0.38	0.04	0.00	0.41	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
13-14	129	158.2	2.64	0.26	0.41	3.31	0.01	150	150	0.91	16.17	8.09	0.86	0.00	0.90	0.00	1.76
14-11	53	33.9	0.57	0.06	6.22	6.84	0.01	150	150	0.91	16.17	8.09	0.35	0.00	1.76	0.00	2.11
10	0	11.3	0.19	0.02	0.00	0.21	0.01	150	150	0.91	16.17	8.09	0.00	0.00	0.90	0.00	0.90
10-11	103	73.45	1.22	0.12	0.21	1.55	0.01	150	150	0.91	16.17	8.09	0.69	0.00	0.90	0.00	1.59
11-12	51	28.25	0.47	0.05	8.39	8.91	0.01	225	250	1.05	51.56	25.78	0.23	0.00	2.11	0.00	2.34
12-STP	10	0	0.00	0.00	21.03	21.03	0.01	275	300	1.07	75.83	37.92	0.04	0.00	2.60	0.00	2.64

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MANNING'S CALCULATION - STORM WATER PIPES

Node no	Length in mtr.	Area (sq.mtr.)	Catchment Area (Hectare)			Discharge in LPS	Manning's constant	Design				Fall in metre	Level at start		Level at end	
			Self	Add.	Total			Slope 1 in	Pipe size	Velocity in m/s	Discharge in lps(full flow)		G.L.	I.L.	G.L.	I.L.
1-2	88	4115	0.41	0.00	0.41	51.44	0.01	225	250	1.05	51.56	0.39	0.00	-0.80	0.00	-1.19
3-2	16	650	0.07	0.00	0.07	8.13	0.01	225	250	1.05	51.56	0.07	0.00	-0.80	0.00	-0.87
2-4	84	1924	0.19	0.24	0.43	53.83	0.01	250	300	1.12	79.54	0.34	0.00	-1.19	0.00	-1.53
5-5A	31	1546	0.15	0.00	0.15	19.33	0.01	250	300	1.12	79.54	0.12	0.00	-0.80	0.00	-0.92
6-5A	21	723	0.07	0.00	0.07	9.04	0.01	250	300	1.12	79.54	0.08	0.00	-0.80	0.00	-0.88
5A-4	43	797	0.08	0.23	0.31	38.33	0.01	250	300	1.12	79.54	0.17	0.00	-0.92	0.00	-1.10
4-7	82	3022	0.30	0.44	0.74	93.07	0.01	400	450	1.17	185.39	0.21	0.00	-1.53	0.00	-1.73
8-7	29	773	0.08	0.00	0.08	9.66	0.01	225	250	1.05	51.56	0.13	0.00	-0.80	0.00	-0.93
7-9	89	2379	0.24	0.52	0.76	95.24	0.01	400	450	1.17	185.39	0.22	0.00	-1.73	0.00	-1.95
10-12	130	4895	0.49	0.00	0.49	61.19	0.01	275	300	1.07	75.83	0.47	0.00	-0.80	0.00	-1.27
11-12	93	2987	0.30	0.00	0.30	37.34	0.01	225	250	1.05	51.56	0.41	0.00	-0.80	0.00	-1.21
12-09	74	1892	0.19	0.59	0.78	97.70	0.01	400	450	1.17	185.39	0.19	0.00	-1.27	0.00	-1.46
09-13	41	935	0.09	1.08	1.18	146.99	0.01	400	450	1.17	185.39	0.10	0.00	-1.95	0.00	-2.06
14-13	115	4665	0.47	0.00	0.47	58.31	0.01	275	300	1.07	75.83	0.42	0.00	-0.80	0.00	-1.22
13-16	21	684	0.07	1.55	1.62	202.19	0.01	500	600	1.26	357.10	0.04	0.00	-2.06	0.00	-2.10
15-16	36	838	0.08	0.00	0.08	10.48	0.01	225	250	1.05	51.56	0.16	0.00	-0.80	0.00	-0.96
16-18	40	1045	0.10	1.70	1.81	225.73	0.01	500	600	1.26	357.10	0.08	0.00	-2.10	0.00	-2.18
17-18	36	1553	0.16	0.00	0.16	19.41	0.01	225	250	1.05	51.56	0.16	0.00	-0.80	0.00	-0.96
18-19	128	2188	0.22	1.96	2.18	272.49	0.01	500	600	1.26	357.10	0.26	0.00	-2.18	0.00	-2.44