

**M/S SPITI PROJECTS LLP; DDJAY PLOTTING IN
SECTOR - 3, FARUKHNAGAR, GURUGRAM, HARYANA.**

EXTERNAL SERVICE ESTIMATE

ARCHITECT

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PROJECTS

M/S SPITI PROJECTS LLP. Affordable Plotted Colony Under Deen Dayal Jan Awas Yojna-2016 (Licence No. 154 of 2023 dated 25 / 07 / 2023 area measuring 16.55625 Acres at Sector - 3, Farrukhnagar, Distt – Gurugram, Haryana

SUBJECTS

PROJECT REPORT / ESTIMATES FOR PROVIDING EXTERNAL SERVICES (WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE, GARDEN HYDRANT & STREET LIGHTING)

Farrukhnagar is a small town and municipality in farrukhnagar tehsil of gurugram district in the indian state of haryana. It is situated 21 kilometres (13 mi) from gurgaon and shares its border with jhajjar district. It is part of the ahirwal region.

It was established in 1732 by faujdar khan, the first nawab of farrukhnagar and a governor of the mughal emperor farrukhsiyar. Farrukhnagar flourished due to its salt trade until the late 19th century, and was abandoned in the early 20th century, during the british raj. Today monuments such as sheesh mahal, baoli and jama masjid built by faujdar khan are popular visitor attractions. The town is connected to garhi harsaru, south of gurugram, by the railway line. The sultanpur national park is situated in farrukhnagar tehsil on the road to gurgaon. Pataudi palace, 12 kilometres (7.5 mi) from the town, is the nearest palace.

Farrukhnagar became a municipality in 1967. Efforts to revive the salt mining by the government failed, after a massive flood in 1978 brought down the saline level in the wells.

The area saw steep rise in land prices starting from the 1990s onwards due to rapid urbanisation and industrialisation in the Gurgaon district, as a result small section large landowners amassed great wealth in short period, which also encouraged public splurging. The population of Farrukhnagar municipality and town was 13,513 in As of 2011 census. The population of the entire Farrukhnagar tehsil was 113,493 in As of 2011 census.

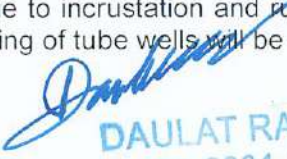
Water Supply

1. Source

The source of water supply in this area is tube well as underground water is sweet and fit for human consumption, moreover, the water is available at reasonable depth, and the average yield of Tube wells, with approximate 60 to 80-meter depth will be about 15 KL per hour. 3 No. Tube wells are required to meet with the daily requirement of water till to city supply made available.

2. Tube wells

The proposed tube wells shall be 510 mm bore drilled with reverse rotary rig and installed with 80 mm i/d housing pipe and 50 mm i/d slotted tube as strainer. The provision taken in the estimate under the sub-head tube well includes the cost of pea gravel packing. The lift of tube well is limited due to incrustation and rusting of strainer. Therefore, out of these tube wells the drilling of tube wells will be done


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for 3 Nos. tube wells and further tube wells will be drilled as the demand develops till the scheme is handed over the department.

3. **Pump Chambers and Pumping Machinery**

It is proposed to occupy each tube well with an electricity driven pumping set-submersible pump capable of delivering about 15000 Liters per hour. It has been proposed to install pumping set as described with standby of equal capacity.

4. **Under Ground Storage**

Underground tank 60% storage of one day storage of total daily demand of water supply have been proposed at one location in the scheme. The same shall be fed by Tube well at present and shall be later augmented through HSVP mains canal supply at later date.

6. **Distribution System**

The distribution system for this development is has been designed for 172.5 Liters per person per day @3.0 times the average rate of flow on "Hazen Williams" formula with C-100. Necessary provision for laying D.I. pipes only conforming to relevant IS standards along with valves and specials has been made in this Estimate.

7. **Rising Main**

Rising mains from HSVP water main on sector road to water works have also been designed and provision for D.I. pipe line has been made in this estimate

8. **Sewerage**

The internal sewer lines have also been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 90 % of the domestic water supply shall find its way into the proposed sewer. All the SW pipes, sewer has been designed to run half/full/three fourth full.

Necessary design statement for entire internal sewerage system has been prepared and attached with estimate.

Necessary provision for laying SW pipes sewer lines and manholes etc. has been made in this estimate.

9. **Storm water drainage**

It has been proposed to lay underground RCC-NP3 pipe drains on the road widths 9.0 M. to lay underground drains. The intensity of rain fall has been taken as ¼th inch per hour. The internal storm water drains will be jointed into external storm water drainage to be laid by HSVP on sector dividing roads. Necessary provision for curves and channels has been made in the estimate. The estimate for these closed drains has been included as sub work no. III A minimum size of 400 mm RCC storm water line will be provided.

10. **Specifications**


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

11. **Roads**

Cost of road has been taken in the estimate

12. **Street Lighting**

Provision for street lighting on surrounding area has been made.

13. **Horticulture**

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

14. **Specifications**

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

15. **Rates**

The estimate has been based on the present market rates and probable escalation in prices.

16. **Cost**

The total cost of the Scheme including cost of all services works out to **Rs. 990.69 lakhs** including 3% contingencies and 49% departmental charges, unfrozen, price escalation and admin charges.

1673-78

-:-


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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT: FINAL ABSTRACT OF COST

		Amount in Rs. Lacs
SUB WORK NO. I	WATER SUPPLY SCHEME	265.53 324.70
SUB WORK NO. II	SEWERAGE SCHEME	179.70 242.42
SUB WORK NO. III	STORM WATER DRAINAGE	101.60 208.45
SUB WORK NO. IV	ROADS & FOOT PATHS	287.32 371.92
SUB WORK NO. V	STREET LIGHTING	63.52 ✓
SUB WORK NO. VI	HORTICULTURE (PLANTATION & ROAD SIDE TREES)	7.49 12.23
SUB WORK NO. VII	MTC CHARGES INCL RESURFACING OF ROADS AFTER 1st 5 YEARS AND 2nd YEAR OF MTC AS/HUDA	118.93 450.54 las
	TOTAL	1024.10 1673.78 las

TOTAL : ~~(Rupees Ten Crores Twenty Four Lacs and Ten Thousand Only)/-~~Cost Per Acre = ~~1024.10~~ Lakh / 16.55625 acres = ~~61.9~~ Lakh per gross acre.

1673.78

\$ 101.10 las

AUTHORISED SIGNATORY


Executive Engineer
HSVP Division No. IV
Gurugram


Superintending Engineer,
HSVP Circle, Gurugram

Checked subject to Comments
In forwarding letter No. 196/45
Dt. 12/09/2023 and notes
attached with the estimate


Superintending Engineer (HQ)
for Chief Engineer-I
HSVP, Chandigarh

In Eaw-2

Director General
Town & Country Planning
& Haryana, Chandigarh


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SUB WORK No. 1 (Abstract of Cost)		Water Supply & Fire Fighting	
1	Sub Head No. 01	Head Works	Rs. 77,03,750 101.34
2	Sub Head No. 02	Pumping Machinery	Rs. 19,80,000 41.50
3	Sub Head No. 03	Rising Main	Rs. 5,94,250 7.80
4	Sub Head No. 04	Distribution System	Rs. 70,23,875 60.93
		TOTAL	Rs. 1,73,01,875 211.57
		Add 3% contingencies & PH Charges	Rs. 5,19,056.25 6.35
		TOTAL	Rs. 1,78,20,931 217.92
		Add 49% Departmental charges + Price escalation	Rs. 87,32,256.31 106.78
		TOTAL	Rs. 2,65,53,188 324.70 lacs
		Say in lacs	265.53

e.o. to final abstract of cost

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Sub Work No. 1
Sub Head No. 01

Water Supply
Head Works

Amount in Rs.

1. Boring and installing tube well with reverse Rotary Rig Complete with pipe and strainer to a depth of about 120 meter in all respect 3 Nos. for For overall 16.55625 Acre Site Area Total - 3 ² No. @ Rs. 10,00,000/- ⁵ each.	Rs. 30,00,000.00
2. Provision for rising mains, connecting tube wells with UGT Tanks including Valve & NRV a) 100 mm dia - 95 m @ Rs. 1250/- ^{1460/-} b) 150 mm dia 10m @ 2044/- ^{1460/-}	Rs. 1,18,750.00 ^{1.39 lacs} Rs. 0.20 lacs
3. Providing Tube well Submersible Pumps : Capacity 15000 LPH at 88 M head, 2 ² Nos. @ Rs. 200,000/- each	Rs. 4,00,000.00
4. Construction of UG Tanks 510 ⁴⁵⁰ KL @ Rs. 3500/KL ^{incl. 100 KL cap. for fire} recently ord. 200 KL cap. for F. Water Farm near SRP 650 KL @ Rs. 5500/-	Rs. 17,85,000.00 ^{35.75 lacs}
5. Provision of Construction of Tube well Chambers of Size 1.5X1.5X1.5 m tube well - 2 ² Nos @ Rs. 100000 each	Rs. 2,00,000.00
6. Provision for Carriage of material & other unforeseen items	Rs. 3,00,000.00
7. Provision for footpath, lawn, boundary wall around tubewell & waterworks (L.S)	Rs. 5,00,000.00
8. Construction of boosting chamber (L.S.)	Rs. 5,00,000.00
9. Provision for staff offices & for maintenance staff ^(2 Nos)	Rs. 10,00,000.00
TOTAL	Rs. 77,03,750.00 ^{101.34 lacs}
(C/O To Abstract of Cost for Sub work No.1)	


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Sub Work No. 1
Sub Head No. 02

Water Supply
Pumping Machinery

Amount in Rs.

1A. Providing and installing electricity driven Domestic Transfer pumping Set capable of delivering about 500 LPM of water against a total Head of 45 M complete with motor and other accessories including Valve (6.00 HP) & NRV. 3 Nos. @ 250000/- Each (2+1)	7.50 12.50 6.00 7.50 lacs	Rs. 3,30,000.00
1B. Providing and installing electricity driven Flushing & Garden pumping Set capable of delivering about 320 LPM of water against a total Head of 45 M complete with motor and other accessories including Valve (4.20 HP) & NRV. 3 Nos. @ 150000/- Each (2+1)	7.50 4.20	Rs. 4,50,000.00 ✓
2. Provision for making foundations and erection of Pumping Machinery: - Lump Sum		Rs. 4,00,000.00
3. Provision for electric service connection including electrical Fittings for tube-well and boosting chamber etc. - Lump Sum		Rs. 3,50,000.00
4. Provision for pipes, valves and specials inside boosting chamber. (L.S)		Rs. 4,00,000.00
5. Provision for carriage of material & other unprovided items chlorination	5.00 lacs	Rs. 50,000.00
6. Provision for formation of plant etc		Rs. 1,00,000.00
7. Provision for diesel engine generator set each for stand by arrangement for tubewell is boosting pump craft etc. (25kVA) 80	12.00 lacs	Rs. 5,00,000.00
TOTAL (C/O To Abstract of Cost for Sub work No.1)		Rs. 19,80,000.00 41.50 lacs

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Sub-Work No. 1
Sub Head No. 03

Water Supply
Rising Main from HSVP

Amount in Rs.

1. Providing , laying , jointing and testing pipe lines including
Cost of excavation etc. complete in all respects.

100 mm dia. ~~D.I.~~ Pipe 285 m @ Rs. 1250/M-

4.16 lak
~~Rs. 3,56,250.00~~

2. Providing and fixing sluice valve including cost of surface box
and masonry chamber etc. complete in all respects.

100 mm i/d 1 No. @ Rs. 12000/-

Rs. 12,000.00

3. Providing and fixing indicating plates for sluice valve and air
Valves. - 1 @ Rs. 1000/- each

Rs. 1,000.00

4. Provision for carriage for materials (Lump Sum)

0.50
~~Rs. 25,000.00~~

5. Making Water Supply Connection, including road cut with HSVP master line.

Rs. 1,00,000.00

6. Provision for roads cut and make up good condition

Rs. 1,00,000.00

7.80 lak
TOTAL Rs. 5,94,250.00


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Sub Work No. 1

Water Supply

Sub-Head No. 04

Water Distribution System (Domestic
And Flushing)

Amount in Rs.

1. Providing , Laying , jointing and testing D.I pipe line including
Fittings, valves, cost of excavation etc, complete in all respect.

D.I Pipe 100 mm ^{28m} 5070 M @ Rs. ^{1469/-} 1250/- per meter

D.I Pipe 150 mm ⁶²⁵ M @ Rs. ^{2040/-} 1575/- per meter

^{40.88}
Rs. ~~63,37,500.00~~

^{12.75}
Rs. ~~39,375.00~~

2. Providing and fixing 20 mm dia. irrigation hydrant Valve, Chamber & Cover Etc.
complete in all respect. 22 Nos. @ Rs. ^{500/-} 3500/- each

^{1.10}
Rs. ~~77,000~~

3. Provision for carriage of materials (Lump Sum)

Rs. 2,00,000.00

4. Provision for cutting of road and making its good condition

Rs. 1,00,000.00

5. Provision for air valve 4 No. and sluice valve complete with
masonry chamber (L.S)

Rs. 2,00,000.00

6. Providing & Fixing indicating plates for sluice valve, air valve (L.S)

Rs. 20,000

7. Providing & Fixing fire hydrant complete with masonry chamber (L.S)

^{1.00}
Rs. ~~50,000~~

TotalRs. ~~70,23,875.00~~

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

^{60.93 lacs}

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Sub-Work No. II

SEWERAGE SCHEME

Amount in Rs.

1. Providing, jointing, cutting and testing SW pipe class "A" and lowering into trenches including cost of Excavation, bed concrete, cost of manholes etc. complete in all respect

a) SW pipe 200 to 250 mm i/d avg. depth 1.60 - 2.70 M

1203 1638 M @ Rs. 1500/M 1700/-
250 mm dia S.W. PIPE 435 m @ Rs. 2000/- m

20.45
Rs. 24,57,000
8.70 lacs

2. Rising main from STP to MH

a) 200 mm dia 215 m @ Rs. 2150/m

5.81 lacs
Rs. 4,62,250

3. STP Cap. 630 KLD upto tertiary level (L.S) Complete in all respects
@ Rs. 16000/- lacs

Rs. 81,90,000
104.00 lacs

4. Provision for making HSVP Connection on main line (L.S)

Rs. 2,00,000

5. Provision for watering & lighting

Rs. 3,00,000

6. Provision for vent pipe as per P.H. req. at suitable places

10.0
Rs. 2,00,000

7. Provision for cutting of roads and making good condition

Rs. 2,00,000

8. Provision for timbering & shoring (L.S)

Rs. 2,00,000

Total

Add 3% contingencies & PH charges

157.96 lacs
Rs. 1,47,09,250

Rs. 3,51,278 4.74 lacs

Total

Add 49% Price Escalation, Departmental charges

Rs. 1,20,60,528 162.70

Rs. 59,09,658 79.32

TOTAL

Rs. 1,79,70,186 242.42 lacs

SAY IN LACS

179.70

(Cost to Final abstract of cost)


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Sub-Work No. III

STORM WATER SCHEME

Amount in Rs.

1. Providing and laying R.C.C. pipe drain class NP-3

With cement joint, Catch Basins & Road Gullies, manholes excavation etc complete in all respect.

a) 400 mm dia. ¹⁵¹⁰~~1735~~ M @ Rs. ²⁰⁰⁰~~2000~~/m^{500 mm dia 225 m @ Rs 2700/m}

b). Providing Rain Harvesting arrangements

11 Nos @ Rs ³~~350~~,000^{complete in all 2000000}
(if applicable)37.75 lacs
Rs. ~~34,70,000~~

6.08 lacs

38.50 lacs
Rs. ~~16,50,000~~

2. Provision for Carriage of Material (L.S)

(L.S)

15.00
Rs. ~~8,00,000~~

3. Provision for watering & timbering and unforeseen (L.S)

(L.S)

Rs. ~~4,00,000~~

4. Provision for connection with HSVP line

(L.S)

Rs. ~~50,000~~

5. Provision for Road gullies and cement (L.S)

(L.S)

Rs. ~~2,00,000~~

6. Provision for watering & lighting

Rs. ~~2,00,000~~

7. Provision for temporary disposal arrangements till HSVP services are provided.

Rs. ~~5,50,000~~8. ^{Provision for road cutting and making good to its in original (L.S)}
TotalRs. ~~66,20,000~~

Add 3% for contingencies and PH charges

Rs. ~~1,98,600~~

Total

Rs. ~~68,18,600~~

Add 49% Departmental charges

Rs. ~~33,41,114~~

TOTAL

Rs. ~~1,01,59,714~~

(Cost to Final abstract of cost)

SAY IN LACS

~~101.60~~DAULAT RAM GARG
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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT: WATER DEMAND CALCULATIONS

S. No.	Unit Type	Category as per latest NBC	Total No. of Plots	Total Area (in Sqm)	Persons considered per plot as per HSP norms	Total Population	LPCD Factor for Potable Water Req.	LPCD Factor for Flushing Water Req.	Potable Water Requirement (LPD)	Flushing Water Requirement (LPD)	Total Water Requirement (LPD)
I. DOMESTIC WATER DEMAND											
1	Plots	Residential	302		13.5	4077	115.57	56.93	471178.9	232103.6	7,03,283
2	Commercial Block	Business		1347.15 or 0.33289 ac		32000 Ltr./ Acre			7137.2	3515.3	10,652
4	Common Facilities			6700.10 or 1.65563 ac		25000 Ltr./ Acre			27731.8	13658.9	41,391
				Total					506047.9	249277.9	755326
				Grand Total					5,06,048	249278	7,55,326
	Say in Cum/day								506	249	755
II. HORTICULTURAL WATER DEMAND 1.3533											
For approx. 20% of Total site area approx. 16.55625 Acre @ 25000 litre/ Acre(say)											
m)	Total Say (in Cum. per day) Area under Roads and of 16.55625 Acre = 2.70 Acre @ 25000 Ltr./ Acre.										
TOTAL WATER REQUIREMENTS FOR ALL PURPOSES											
755 + 50 = 805 Kc say 50 Kc											
III. TUBE WELLS											
(a)	Yield									15	KL/Hr
(b)	Working Hours per Day									16	Hours per Day
(c)	Discharge per Tube well									240	m ³ /day
	Total Fresh water demand									506	m ³ /day
(d)	Number of Tube wells required.									2.11	
	(Water Demand/Discharge/Hours working per day)										
(e)	Add 10 as standby									8.22	
										444	
										2.24	Nos.
										2.32	Nos.
										3.00	Nos.
										8.22	
(Water to the proposed development is to be supplied by HSPV and it is proposed to install the tube-wells for augmentation/standby purposes).											

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IV. PUMPING MACHINERY FOR TUBEWELLS			
(a)	Gross Working Head	60	Meters
(b)	Average fall in S.L	2	Meters
(c)	Depression Head	6	Meters
(d)	Friction loss in main	10	Meters
	Total	78	Meters
(e)	Discharge	15000	LPH
(f)	Horse Power	7.22	HP
	HP = $(15000 \times 78 \times 1) / (60 \times 60 \times 75 \times 0.6)$		
	Say	10.00	HP
V. UNDER GROUND TANK			
(a)	Total water demand (Daily for Domestic purposes)	506	m ³ /day
(b)	Capacity of U.G. tank @60 % 506		
(b)	Proposed capacity of underground tanks (Raw + Domestic) for domestic use, (25+33%) = 58% (SAY 60%) storage of (One day Storage) = $0.6 \times 506 = 303.7$	303.66	m ³
(C)	Proposed capacity of underground static tank for fire = $100X \text{ sqroot of } 4077/1000 = 201.9 \text{ KL}$	205.11	m ³
	D. Flushing water UGT. 250 KL @ 60% = 150 KL	403.66	m ³ /day
	403.66	514	m ³ /day
	450		
	TOTAL		
	506		
	205.11		
	205.11		
VI. (A) BOOSTING MACHINERY (Water Supply Pumps)			
(a)	Daily Domestic Water Demand	506	m ³ /day
(b)	Discharge per hour @ 6 hr. pumping / day	84.35	m ³ /hour
	Say	1410.0	LPM
(c)	No. of Working pump (2 working + one standby)	2	
(d)	Proposed Pump discharge (Working)	702.91	LPM
	Say	500.00	LPM
		705	
	Gross Working Head		
(a)	Suction lift - positive suction	6	Meters
(b)	Frictional Loss in Mains & Specials	9	Meters
(c)	Max Clear Head required	30	Meters
	Total	45	Meters
	705 x 45 = 31725		
	60 x 75 x 0.6 = 2700		
	31725 - 2700 = 29025		
(g)	H.P. of each pump required	5.98	HP
	Pump H.P.	12.50	HP
	Say	14.00	HP

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VI(B) BOOSTING MACHINERY (Flushing & Garden Supply Pumps from STP)

VL(B)	BOOSTING MACHINERY (Flushing & Garden Supply Pumps from STP)		
(a)	Daily Flushing & Horticultural Water Demand.		m ³ /day
(b)	Discharge per hour @ 6 hr. pumping / day	249+50 = 299 KL Say 300	m ³ /Hour
(c)	No. of Working pump	50.0 55.35-	LPM
(d)	Proposed Pump discharge (Working)	833.33 2	LPM
		416.66 310.00	LPM
		320.00	LPM
		420.0	
	Gross Working Head		

(e)	Suction lift - positive suction	6	Meters
(f)	Frictional Loss in Mains & Specials	9	Meters
(g)	Max Clear Head required	20	Meters
	Total	45	Meters

(h)	H.P. of each pump required (Pump H.P.)	445-	HP
		420-	HP
		7.50	

VII.	GENERATING SETS		
1	HP of Tube well pump	20.0	1000
2	HP of Domestic water supply Pump	25.0	18.40
3	HP of Flushing water supply Pump	15.0	12.60
4	Add for lighting	10.0	10.00
	Total	70.0	50.60
	in KVA	36.67	KVA
	SAY	78.33	KVA
		80	

VIII.	STP CAPACITY		
1	Total water required Domestic + Flushing		KL
2	Water go to STP @ 75%	604.0	566.55
3	Add for 25% for margin	30.20	56.655
	TOTAL	634.20	623.205
	SAY	630.00	KL

630 KL

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PROJECT: PROJECT: M/S SPTI PROJECTS LLP, PLOTTING SERVICES

SUBJECT: SEWIRAGE SYSTEM DESIGN SHEET

S. No.	Sewer Line	No. of Plots	Population /PLOT	Total Population	Water Supply	Total Water Requirement	Sewage Discharge (LPD)			Average Sewage Discharge		Peak Sewage Discharge		Size of Pipe	Velocity		Design Discharge	Length of Line	Slope	Fall in Meters		Ground Level		Invert Level		Depth of MH		Average depth of pipe
							Self	Branch	Total	LPS	LPS	LPS	Cu sec		feet/sec	M/S				As per slope	As Per Gradient	Start	End	Start	End	Start	End	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1	1	1	26	13.5	351		43.111	0.526	1.58	0.06	200	2.42			200	0.40												
2	2	3	16	13.5	216		27.045	0.523	0.97	0.03	200	2.42			200	0.385	0.00	0.00	0.00	0.00	-1.05	-1.34	1.05	1.34	1.30			
3	3	5	6	13.5	136.7		10.479	0.970	2.91	0.10	250	2.51	0.77	0.66	43	250	0.172	0.00	0.00	0.00	-1.54	-1.71	1.34	1.71	1.63			
4	4	5	20	13.5	270		34.931	1.435	4.37	0.15	300	2.42	0.74	0.41	76	300	0.380	0.00	0.00	0.00	-1.05	-1.43	1.05	1.43	1.34			
5	5	9	4	13.5	54		6.986	1.435	4.37	0.15	250	2.51	0.77	0.66	29	250	0.116	0.00	0.00	0.00	-1.71	-1.83	1.71	1.83	1.77			
6	6	8	4	13.5	54		6.986	0.881	0.24	0.01	200	2.42	0.74	0.41	23	200	0.115	0.00	0.00	0.00	-1.05	-1.17	1.05	1.17	1.11			
7	7	8	3	13.5	40.5		5.240	0.661	0.18	0.01	200	2.42	0.74	0.41	12	200	0.060	0.00	0.00	0.00	-1.05	-1.11	1.05	1.11	1.08			
8	8	9	20	13.5	270		34.931	1.64	0.06	0.20	300	2.42	0.74	0.41	82	300	0.410	0.00	0.00	0.00	-1.05	-1.48	1.37	1.58	1.37			
9	9	13	6	13.5	81		10.479	2.123	6.37	0.22	250	2.51	0.77	0.66	52	250	0.208	0.00	0.00	0.00	-1.83	-2.04	1.83	2.04	1.93			
10	10	12	5	13.5	67.5		8.733	0.101	0.30	0.01	200	2.42	0.74	0.41	24	200	0.120	0.00	0.00	0.00	-1.05	-1.17	1.05	1.17	1.11			
11	11	12	3	13.5	40.5		5.240	0.661	0.18	0.01	200	2.42	0.74	0.41	12	200	0.060	0.00	0.00	0.00	-1.05	-1.17	1.05	1.17	1.11			
12	12	13	22	13.5	297		38.424	3.240	2.43	0.08	300	2.42	0.74	0.41	12	300	0.200	0.00	0.00	0.00	-1.05	-1.49	1.05	1.49	1.32			
13	13	15	6	13.5	81		52.397	52.397	1.82	0.06	300	2.42	0.74	0.41	87	200	0.435	0.00	0.00	0.00	-1.17	-1.61	1.37	1.61	1.39			
14	14	15	26	13.5	351		10.479	2.46265	8.35	0.30	250	2.51	0.77	0.66	47	230	0.188	0.00	0.00	0.00	-2.04	-2.29	2.04	2.29	2.13			
15	15	22	4	13.5	34		6.986	2.98662	10.37	0.36	250	2.51	0.77	0.66	42	250	0.168	0.00	0.00	0.00	-1.05	-1.49	1.05	1.49	1.32			
16	16	22	40	13.5	540		69.863	0.849	2.43	0.08	300	2.42	0.74	0.41	139	200	0.795	0.00	0.00	0.00	-1.05	-1.85	1.05	1.85	1.43			
17	17	21	6	13.5	81		10.479	0.121	0.36	0.01	200	2.42	0.74	0.41	24	200	0.120	0.00	0.00	0.00	-1.05	-1.17	1.05	1.17	1.11			
18	18	19	6	13.5	81		10.479	0.121	0.36	0.01	200	2.42	0.74	0.41	40	200	0.280	0.00	0.00	0.00	-1.05	-1.25	1.05	1.25	1.15			
19	19	21	10	13.5	135		17.466	0.202	0.61	0.02	200	2.42	0.74	0.41	42	200	0.210	0.00	0.00	0.00	-1.05	-1.36	1.05	1.36	1.16			
20	20	21	6	13.5	81		38.424	48.904	1.70	0.06	200	2.42	0.74	0.41	37	200	0.185	0.00	0.00	0.00	-1.26	-1.45	1.26	1.45	1.23			
21	21	22	26	13.5	351		48.904	1.062	3.27	0.11	250	2.51	0.77	0.66	154	250	0.616	0.00	0.00	0.00	-1.45	-2.06	1.45	2.06	1.25			
22	22	31	0	13.5	0		4.62859	3.537	0.607	0.56	250	2.51	0.77	0.66	30	250	0.120	0.00	0.00	0.00	-2.39	-2.51	2.39	2.51	2.45			
23	23	24	26	13.5	202.5		26.198	0.515	0.91	0.03	200	2.42	0.74	0.41	67	200	0.335	0.00	0.00	0.00	-1.05	-1.39	1.05	1.39	1.22			
24	24	25	COMMUNITY FACILITY	13.5	0		0.000	0.000	0.000	0.00	200	2.42	0.74	0.41	47	200	0.235	0.00	0.00	0.00	-1.05	-1.29	1.05	1.29	1.17			
25	25	26	COMMUNITY FACILITY	13.5	0		0.000	0.000	0.000	0.00	200	2.42	0.74	0.41	14	200	0.070	0.00	0.00	0.00	-1.05	-1.12	1.05	1.12	1.09			
26	26	28	1	13.5	13.5		1.747	0.273	0.07	0.03	200	2.42	0.74	0.41	19	200	0.065	0.00	0.00	0.00	-1.39	-1.48	1.39	1.48	1.43			
27	27	28	17	13.5	229.5		29.692	0.344	1.03	0.04	200	2.42	0.74	0.41	70	200	0.350	0.00	0.00	0.00	-1.48	-1.83	1.48	1.83	1.66			
28	28	30	3	13.5	67.5		37.637	0.667	2.00	0.07	200	2.42	0.74	0.41	48	200	0.340	0.00	0.00	0.00	-1.83	-2.07	1.83	2.07	1.95			
29	29	30	5	13.5	67.5		8.733	0.101	0.30	0.01	200	2.42	0.74	0.41	36	200	0.180	0.00	0.00	0.00	-1.05	-1.23	1.05	1.23	1.14			
30	30	31	0	13.5	0		60.348	0.668	2.30	0.08	200	2.42	0.74	0.41	21	200	0.105	0.00	0.00	0.00	-2.07	-2.18	2.07	2.18	2.12			
31	31	32	0	13.5	0		5.29208	6.125	18.38	0.64	250	2.51	0.77	0.66	13	250	0.052	0.00	0.00	0.00	-2.51	-2.56	2.51	2.56	2.34			
32	32	51P	0	13.5	0		5.29208	6.125	18.38	0.64	250	2.51	0.77	0.66	25	250	0.100	0.00	0.00	0.00	-2.56	-2.66	2.56	2.66	2.61			


DAULAT RAM GARG
CA 2001 / 28034

PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT : SEWERAGE SYSTEM SHEET

S.No.	Sewer Line		Size of Pipe	Length of Line
	From	To	MM	Meters
1	1	3	200	98
2	2	3	200	77
3	3	5	250	43
4	4	5	200	76
5	5	9	250	29
6	6	8	200	23
7	7	8	200	12
8	8	9	200	82
9	9	13	250	52
10	10	12	200	24
11	11	12	200	12
12	12	13	200	87
13	13	15	250	47
14	14	15	200	88
15	15	22	250	42
16	16	22	200	159
17	20	21	200	24
18	17	19	200	40
19	18	19	200	42
20	19	21	200	37
21	21	22	250	154
22	22	31	250	30
23	24	26	200	67
24	23	26	200	47
25	25	26	200	14
26	26	28	200	19
27	27	28	200	70
28	28	30	200	48
29	29	30	200	36
30	30	31	200	21
31	31	32	250	13
32	32	STP	250	25
Total 200 Dia Pipe (Avg depth 1.20 - 2.70 M)				1203
Total 250 Dia Pipe (Avg depth 1.20 - 2.70 M)				435
Total				1638

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DAULAT RAM GARG
 CA 2001 / 28031

PROJECT: PROJECT: M/S SPITI PROJECTS LLP, PLOTTING SERVICES

SUBJECT : DRAINAGE SYSTEM DESIGN SHEET

S. No.	LINE NO.		Self Area (m2)	Self Area (Acre)	Branch Area (Acre)	Total Area (Acre)	Total Area (Hectare)	Rain Fall mm/hr	Discharge @17.36 LPS/Hectare	Length in m	Pipe dia in mm	Slope 1 in	Velocity m/sec.	Cap of pipe in lps	Fall in line m	Ground Level		Invert Level		Depth	
	FROM	TO														Start	End	Start	End	Start	Average
1	1	3	1809.94	0.45		0.45	0.18	6.25	3.14	61.00	400	500	0.64	80.75	0.12	0.00	0.00	-1.20	-1.32	1.20	1.32
2	2	3	296.71	0.07		0.07	0.03	6.25	0.52	10.00	400	500	0.64	80.75	0.02	0.00	0.00	-1.20	-1.22	1.20	1.22
3	3	5	1127.50	0.28	0.52	0.80	0.32	6.25	5.61	38.00	400	500	0.64	80.75	0.08	0.00	0.00	-1.32	-1.40	1.32	1.40
4	4	5	1898.95	0.47		0.47	0.19	6.25	3.30	64.00	400	500	0.64	80.75	0.13	0.00	0.00	-1.20	-1.33	1.20	1.33
5	5	7	1216.51	0.30	1.27	1.57	0.63	6.25	11.02	41.00	400	500	0.64	80.75	0.08	0.00	0.00	-1.40	-1.48	1.40	1.48
6	6	7	1958.29	0.48		0.48	0.20	6.25	3.40	66.00	400	500	0.64	80.75	0.13	0.00	0.00	-1.20	-1.33	1.20	1.33
7	7	9	1602.24	0.40	2.05	2.45	0.99	6.25	17.20	54.00	400	500	0.64	80.75	0.11	0.00	0.00	-1.48	-1.59	1.48	1.59
8	8	9	741.78	0.18		0.18	0.07	6.25	1.29	25.00	400	500	0.64	80.75	0.05	0.00	0.00	-1.20	-1.25	1.20	1.25
9	9	21	5103.43	1.26	2.63	3.89	1.58	6.25	27.35	172.00	400	500	0.64	80.75	0.34	0.00	0.00	-1.59	-1.93	1.59	1.93
10	10	12	5578.16	1.38		1.38	0.56	6.25	9.68	188.00	400	500	0.64	80.75	0.38	0.00	0.00	-1.20	-1.58	1.20	1.58
11	11	12	2581.38	0.64		0.64	0.26	6.25	4.48	87.00	400	500	0.64	80.75	0.17	0.00	0.00	-1.20	-1.37	1.20	1.37
12	12	14	1542.90	0.38	2.02	2.40	0.97	6.25	16.84	52.00	400	500	0.64	80.75	0.10	0.00	0.00	-1.58	-1.68	1.58	1.68
13	13	14	3441.85	0.85		0.85	0.34	6.25	5.98	116.00	400	500	0.64	80.75	0.23	0.00	0.00	-1.20	-1.43	1.20	1.43
14	14	18	1068.16	0.26	3.25	3.51	1.42	6.25	24.67	36.00	400	500	0.64	80.75	0.07	0.00	0.00	-1.68	-1.75	1.68	1.75
15	15	17	3916.58	0.97		0.97	0.39	6.25	6.80	132.00	400	500	0.64	80.75	0.26	0.00	0.00	-1.20	-1.46	1.20	1.46
16	16	17	652.76	0.16		0.16	0.07	6.25	1.13	22.00	400	500	0.64	80.75	0.04	0.00	0.00	-1.20	-1.24	1.20	1.24
17	17	18	1987.96	0.49	1.13	1.62	0.66	6.25	11.38	67.00	400	500	0.64	80.75	0.13	0.00	0.00	-1.46	-1.60	1.46	1.60
18	18	20	1335.20	0.33	5.13	5.46	2.21	6.25	38.37	45.00	400	500	0.64	80.75	0.09	0.00	0.00	-1.75	-1.84	1.75	1.84
19	19	20	4510.00	1.11		1.11	0.45	6.25	7.83	152.00	400	500	0.64	80.75	0.30	0.00	0.00	-1.20	-1.50	1.20	1.50
20	20	21	1542.90	0.38	6.58	6.96	2.82	6.25	48.88	52.00	400	500	0.64	80.75	0.10	0.00	0.00	-1.84	-1.95	1.84	1.95
21	21	23	1127.50	0.28	10.85	11.13	4.50	6.25	78.19	38.00	500	500	0.64	80.75	0.08	0.00	0.00	-1.93	-2.01	1.93	2.01
22	22	23	890.13	0.22		0.22	0.09	6.25	1.55	30.00	400	500	0.64	80.75	0.06	0.00	0.00	-2.01	-2.07	2.01	2.07
23	23	24	4747.37	1.17	11.35	12.53	5.07	6.25	87.98	160.00	500	500	0.64	80.75	0.32	0.00	0.00	-2.07	-2.39	2.07	2.39
24	24	Disposal	741.78	0.18	12.53	12.71	5.14	6.25	89.27	25.00	500	500	0.64	80.75	0.05	0.00	0.00	-2.39	-2.44	2.39	2.44
														159.59							


DAULAT RAM GARG
CA 2001 / 28031

**PROJECT: PROJECT: M/S SPITI PROJECTS LLP.
PLOTING SERVICES**

SUBJECT : DRAINAGE SYSTEM SHEET

S. No.	Line No.		Pipe dia.	Length
	From	To	mm	Meters
1	1	3	400	61.00
2	2	3	400	10.00
3	3	5	400	38.00
4	4	5	400	64.00
5	5	7	400	41.00
6	6	7	400	66.00
7	7	9	400	54.00
8	8	9	400	25.00
9	9	21	400	172.00
10	10	12	400	188.00
11	11	12	400	87.00
12	12	14	400	52.00
13	13	14	400	116.00
14	14	18	400	36.00
15	16	17	400	132.00
16	15	17	400	22.00
17	17	18	400	67.00
18	18	20	400	45.00
19	19	20	400	152.00
20	20	21	400	52.00
21	21	23	400	38.00
22	22	23	400	30.00
23	23	24	400	160.00
24	24	Disposal	400	25.00
Total 400 Dia Pipe				1733 1510 mh
SAY				1735

Sum mm d = 223 mh say 225 mh

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DAULAT RAM GARG
CA 2001 / 28031

PROJECT: PROJECT: M/S SPITI PROJECTS LLP, PLOTTING SERVICES

SUBJECT: DOMESTIC WATER SUPPLY DESIGN SHEET

S. No.	Line Designation		No. of Plot	Water Requirements (in KLD)	Self Water requirement (in KLD)	Branch Water requirement (in KLD)	Total Water Requirements (in KLD)	Discharge per Hour considering 8 Hours Pumping	Size of Pipe Provided	Velocity in ft/sec.	Velocity in m/sec.	Head Loss per 1000m	Loss of head as per pipe length	Ground Level		Hydraulic Level		Terminal Head
	FROM	TO												Start	End	Start	End	
1	WTP	1		0.00	0	464	464	58.004	150	3.00	0.91	10	0.256	100.00	100.00	135.000	134.744	34.744
2	1	2		0.00	0	397	397	49.616	100	5.77	1.76	55	0.386	100.00	100.00	135.000	134.614	34.614
3	2	3	14	21.85	22	2731	22	2.731	100	0.32	0.10	0	0.023	100.00	100.00	135.000	134.977	34.977
4	1	4	12	18.73	19	27	45	5.657	100	0.66	0.20	1	0.087	100.00	100.00	135.000	134.913	34.913
5	4	5		0.00	0	27	27	3.316	100	0.39	0.12	0	0.003	100.00	100.00	135.000	134.997	34.997
6	5	7	5	7.80	8	19	27	3.316	100	0.39	0.12	0	0.011	100.00	100.00	135.000	134.989	34.989
7	7	8		0.00	0	19	19	2.341	100	0.27	0.08	0	0.001	100.00	100.00	135.000	134.999	34.999
8	7	13	4	6.24	6	9	6	0.780	100	0.09	0.03	0	0.001	100.00	100.00	135.000	134.999	34.999
9	8	9		0.00	0	9	9	1.170	100	0.14	0.04	0	0.000	100.00	100.00	135.000	135.000	35.000
10	9	14	2	3.12	3	3	3	0.390	100	0.05	0.01	0	0.000	100.00	100.00	135.000	135.000	35.000
11	8	10	6	9.36	9	9	9	1.170	100	0.14	0.04	0	0.002	100.00	100.00	135.000	134.998	34.998
12	9	11	4	6.24	6	6	6	0.780	100	0.09	0.03	0	0.001	100.00	100.00	135.000	134.999	34.999
13	10	11		0.00	0	0	0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
14	5	6	8	12.48	12	12	12	1.561	100	0.18	0.06	0	0.004	100.00	100.00	135.000	134.996	34.996
15	2	15		0.00	0	397	397	49.616	100	5.77	1.76	55	2.482	100.00	100.00	135.000	132.518	32.518
16	15	16		0.00	0	307	307	38.430	100	4.47	1.36	34	0.241	100.00	100.00	135.000	134.759	34.759
17	16	17		0.00	0	253	253	31.602	100	3.68	1.12	24	0.168	100.00	100.00	135.000	134.832	34.832
18	17	18	18	28.09	28	31	28	3.316	100	0.41	0.12	0	0.045	100.00	100.00	135.000	134.955	34.955
19	16	19	17	26.53	27	39	27	3.316	100	0.39	0.12	0	0.041	100.00	100.00	135.000	134.959	34.959
20	18	19		0.00	0	0	0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
21	17	20	4	6.24	6	253	253	31.602	100	3.68	1.12	24	1.173	100.00	100.00	133.827	133.827	33.827
22	20	25	7	10.92	11	200	211	26.335	100	3.06	0.93	17	0.889	100.00	100.00	135.000	134.111	34.111
23	20	21	2	3.12	3	39	42	5.267	100	0.61	0.19	1	0.011	100.00	100.00	135.000	134.989	34.989
24	21	22		0.00	0	0	0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
25	21	24	12	18.73	19	19	19	2.341	100	0.27	0.08	0	0.015	100.00	100.00	135.000	134.985	34.985
26	22	23	13	20.29	20	20	20	2.536	100	0.29	0.09	0	0.017	100.00	100.00	135.000	135.000	35.000
27	23	24		0.00	0	0	0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
28	25	26	2	3.12	3	62	62	8.193	100	0.95	0.29	2	0.024	100.00	100.00	135.000	134.976	34.976
29	26	27		0.00	0	62	62	7.803	100	0.91	0.28	2	0.013	100.00	100.00	135.000	134.987	34.987
30	26	29	10	15.61	16	16	16	1.951	100	0.23	0.07	0	0.008	100.00	100.00	135.000	134.992	34.992
31	27	28	10	15.61	16	31	47	5.852	100	0.68	0.21	1	0.060	100.00	100.00	135.000	134.940	34.940
32	28	29		0.00	0	31	31	3.902	100	0.45	0.14	0	0.003	100.00	100.00	135.000	134.997	34.997
33	29	30		0.00	0	31	31	3.902	100	0.45	0.14	0	0.006	100.00	100.00	135.000	134.994	34.994
34	30	31	12	18.73	19	19	19	2.341	100	0.27	0.08	0	0.015	100.00	100.00	135.000	134.985	34.985
35	30	32	8	12.48	12	12	12	1.561	100	0.18	0.06	0	0.004	100.00	100.00	135.000	134.996	34.996
36	25	32	6	9.36	9	125	134	16.776	100	1.95	0.59	7	0.371	100.00	100.00	135.000	134.629	34.629
37	32	33		0.00	0	31	31	3.902	100	0.45	0.14	0	0.006	100.00	100.00	135.000	134.994	34.994
38	33	34		0.00	0	0	0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
39	33	36	10	15.61	16	16	16	1.951	100	0.23	0.07	0	0.008	100.00	100.00	135.000	134.992	34.992

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CA 2001 / 28031

S. No.	Line Designation		No. of Plot	Water Requirements (in KLD)	Self Water requirement (in KLD)	Branch Water requirement (in KLD)	Total Water Requirements (in KLD)	Discharge per Hour considering 8 Hours Pumping	Size of Pipe Provided	Velocity in M/sec.	Velocity in m/sec.	Head Loss per 1000m	Loss of head as per pipe length	Ground Level		Hydraulic Level		Terminal Head
	FROM	TO												Start	End	Start	End	
40	34	35	10	15.61	16		16	1.951	100	0.23	0.07	0	0.008	100.00	100.00	135.000	134.992	34.992
41	35	36		0.00	0		0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
42	32	37	6	9.36	9	94	94	11.705	100	1.36	0.42	4	0.172	100.00	100.00	135.000	134.828	34.828
43	37	38		0.00	0	31	31	3.902	100	0.45	0.14	0	0.006	100.00	100.00	135.000	134.994	34.994
44	38	39		0.00	0		0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
45	38	41	10	15.61	16		16	1.951	100	0.23	0.07	0	0.008	100.00	100.00	135.000	134.992	34.992
46	39	40	10	15.61	16		16	1.951	100	0.23	0.07	0	0.008	100.00	100.00	135.000	134.992	34.992
47	40	41		0.00	0		0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
48	37	42	6	9.36	9	62	62	7.803	100	0.91	0.28	2	0.081	100.00	100.00	135.000	134.919	34.919
49	42	43		0.00	0	25	25	3.121	100	0.36	0.11	0	0.004	100.00	100.00	135.000	134.996	34.996
50	43	44		0.00	0	25	25	3.121	100	0.36	0.11	0	0.004	100.00	100.00	135.000	134.996	34.996
51	44	45		0.00	0		0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
52	45	46	10	15.61	16		16	1.951	100	0.23	0.07	0	0.008	100.00	100.00	135.000	134.992	34.992
53	41	47	6	9.36	9		9	1.170	100	0.14	0.04	0	0.003	100.00	100.00	135.000	134.997	34.997
54	46	47		0.00	0		0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
55	42	49	12	18.73	19		19	2.341	100	0.27	0.08	0	0.015	100.00	100.00	135.000	134.985	34.985
56	43	48	12	18.73	19		19	2.341	100	0.27	0.08	0	0.015	100.00	100.00	135.000	134.985	34.985
57	49	48		0.00	0		0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
58	15	50		0.00	0	89	89	11.186	100	1.30	0.40	4	0.175	100.00	100.00	135.000	134.825	34.825
59	50	51	5	7.80	8		8	0.975	100	0.11	0.03	0	0.001	100.00	100.00	135.000	134.999	34.999
60	50	52		0.00	0	82	82	10.211	100	1.19	0.36	3	0.148	100.00	100.00	135.000	134.852	34.852
61	52	53	7	10.92	11		11	1.366	100	0.16	0.05	0	0.004	100.00	100.00	135.000	134.996	34.996
62	52	55		0.00	0	71	71	8.845	100	1.03	0.31	2	0.027	100.00	100.00	135.000	134.973	34.973
63	55	54	9	14.05	14		14	1.756	100	0.20	0.06	0	0.008	100.00	100.00	135.000	134.992	34.992
64	55	56	2	3.12	3	57	57	7.090	100	0.82	0.25	2	0.027	100.00	100.00	135.000	134.973	34.973
65	56	57		0.00	0	44	44	5.529	100	0.64	0.20	1	0.010	100.00	100.00	135.000	134.990	34.990
66	57	61	Common Facilities	27.73	28		28	3.466	100	0.40	0.12	0	0.006	100.00	100.00	135.000	134.994	34.994
67	56	58	8	12.48	12		12	1.561	100	0.18	0.06	0	0.006	100.00	100.00	135.000	134.994	34.994
68	57	59	6	9.36	9		9	1.170	100	0.14	0.04	0	0.003	100.00	100.00	135.000	134.997	34.997
69	58	59		0.00	0		0	0.000	100	0.00	0.00	0	0.000	100.00	100.00	135.000	135.000	35.000
70	57	60	Commercial	7.14	7		7	0.892	100	0.10	0.03	0	0.001	100.00	100.00	135.000	134.999	34.999


DAULAT RAM GARG
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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT : DOMESTIC WATER SUPPLY SHEET

S. No.	Line Designation		Size of Pipe Provided	Length of pipe
			mm	metres
1	WTP	1	150	25
2	1	2	100	7
3	2	3	100	88
4	1	4	100	88
5	4	5	100	9
6	5	7	100	31
7	7	8	100	7
8	7	12	100	20
9	8	9	100	7
10	9	14	100	43
11	8	10	100	33
12	9	11	100	33
13	10	11	100	7
14	5	6	100	41
15	2	15 ✓	100	45
16	15	16	100	7
17	16	17	100	7
18	17	18	100	110
19	16	19	100	110
20	18	19	100	7
21	17	20	150	49
22	20	25	150	52
23	20	21	100	13
24	21	22	100	7
25	21	24	100	75
26	22	23	100	75
27	23	24	100	7
28	25	26	100	12
29	26	27	100	7
30	26	29	100	57
31	27	28	150	57
32	28	29	100	7
33	29	30	100	13
34	30	31	100	75
35	30	62	100	41
36	31	33	100	50
37	32	33	100	12
38	33	34	100	7
39	33	36	100	57
40	34	35	100	57
41	35	36	100	7
42	33	37	100	45
43	37	38	100	12
44	38	39	100	7
45	38	41	100	57
46	39	40	100	57
47	40	41	100	7
48	37	42	100	45
49	42	43	100	12
50	43	44	100	5

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S. No.	Line Designation		Size of Pipe Provided	Length of pipe
			mm	metres
51	44	45	100	7
52	45	46	100	57
53	44	47	100	57
54	46	47	100	7
55	42	49	100	79
56	43	48	100	79
57	49	48	100	7
58	15	50	150	50
59	50	51	150	23
60	50	52	100	50
61	52	53	100	59
62	52	55	100	42
63	55	54	100	68
64	55	56	100	18
65	56	57	100	10
66	57	61	100	15
67	56	58	100	65
68	57	59	100	58
69	58	59	100	7
70	57	60	100	38
TOTAL FOR 100 DIA				2450 1092
TOTAL FOR 150 DIA				325
TOTAL PIPING				2475
SAY				2475
MUNICIPAL LINE				
1	1a -- UGT		100	282
	TOTAL PIPE 100 DIA (SAY)			285
TUBEWELL LINE				
1		TW1-1	100	25
2		TW1-2	100	23 70
3		TW1-3 UGT	100 150	42 10 m
	TOTAL PIPE 100 DIA (SAY)			95

100 mm = 95 m
150 mm = 10 m

Say 1100 m²

G.Total = 1100 + 1700 = 2800 m²

150 mm = 325 + 300 = 625 m²

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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES
SUBJECT : FLUSHING & GARDEN WATER SUPPLY DESIGN SHEET

S. No.	Node No.		No. of Plot	Flushing Water Requirement In KLD	Branch Water	Total KLD	Discharge per Hour considering 8 Hours Pumping	Size of Pipe Provided	Velocity		Head Loss per 1000 m	Loss of head as per pipe length	Length of pipe (in meters)	Ground level		Hydraulic Level		Terminal Head
	From	To							in ft/sec.	in m/s				Start in m	End in m	Start in m	End in m	
1	STP	1		0	228	228	28.456	100	3.31	1.01	21	0.519	25	94.00	100.00	129.00	128.48	28.48
2	1	2		0	185	185	23.141	100	2.69	0.82	14	0.288	21	101.30	101.30	136.30	136.01	34.71
3	2	3		0	146	146	18.244	100	2.12	0.65	9	0.128	15	101.30	101.30	136.30	136.17	34.87
4	3	4	1	1	25	25	3.169	100	0.37	0.11	0	0.005	18	101.30	101.30	136.30	136.30	35.00
5	4	5		0	25	25	3.169	100	0.37	0.11	0	0.002	7	101.30	101.30	136.30	136.30	35.00
6	4	6	17	13		13	1.632	100	0.19	0.06	0	0.007	106	101.30	101.30	136.30	136.29	34.99
7	5	7	16	12		12	1.536	100	0.18	0.05	0	0.006	106	101.30	101.30	136.30	136.29	34.99
8	6	7		0	0	0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
9	3	8	3	2	118	121	15.075	100	1.75	0.53	6	0.221	38	101.30	101.30	136.30	136.08	34.78
10	8	9		0	118	118	14.787	100	1.72	0.52	6	0.039	7	101.30	101.30	136.30	136.26	34.96
11	8	10	14	11		11	1.344	100	0.16	0.05	0	0.004	89	101.30	101.30	136.30	136.30	35.00
12	9	11	13	10		10	1.248	100	0.15	0.04	0	0.004	89	101.30	101.30	136.30	136.30	35.00
13	10	11		0	0	0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
14	9	12	7	5	92	98	12.194	100	1.42	0.43	4	0.172	45	101.30	101.30	136.30	136.13	34.83
15	12	13	2	2	15	17	2.112	100	0.25	0.07	0	0.001	11	101.30	101.30	136.30	136.30	35.00
16	13	14		0	15	15	1.920	100	0.22	0.07	0	0.001	7	101.30	101.30	136.30	136.30	35.00
17	13	16	10	8	8	8	0.960	100	0.11	0.03	0	0.001	60	101.30	101.30	136.30	136.30	35.00
18	14	15	10	8	8	8	0.960	100	0.11	0.03	0	0.001	60	101.30	101.30	136.30	136.30	35.00
19	16	15		0	0	0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
20	16	35		0	15	15	1.920	100	0.22	0.07	0	0.001	10	101.30	101.30	136.30	136.30	35.00
21	35	37	7	5	5	5	0.672	100	0.08	0.02	0	0.000	41	101.30	101.30	136.30	136.30	35.00
22	35	36	13	10		10	1.248	100	0.15	0.04	0	0.003	75	101.30	101.30	136.30	136.30	35.00
23	12	17	5	4	71	75	9.410	100	1.09	0.33	2	0.098	43	101.30	101.30	136.30	136.20	34.90
24	17	18		0	15	15	1.920	100	0.22	0.07	0	0.001	9	101.30	101.30	136.30	136.30	35.00
25	18	19		0	15	15	1.920	100	0.22	0.07	0	0.001	7	101.30	101.30	136.30	136.30	35.00
26	18	21	10	8	8	8	0.960	100	0.11	0.03	0	0.001	62	101.30	101.30	136.30	136.30	35.00
27	19	20	10	8	8	8	0.960	100	0.11	0.03	0	0.001	62	101.30	101.30	136.30	136.30	35.00
28	20	21		0	0	0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
29	17	22	6	5	51	56	7.009	100	0.82	0.25	1	0.057	45	101.30	101.30	136.30	136.24	34.94
30	22	23		0	15	15	1.920	100	0.22	0.07	0	0.001	9	101.30	101.30	136.30	136.30	35.00
31	23	24		0	0	0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
32	23	25	10	8	8	8	0.960	100	0.11	0.03	0	0.001	63	101.30	101.30	136.30	136.30	35.00
33	24	26	10	8	8	8	0.960	100	0.11	0.03	0	0.001	63	101.30	101.30	136.30	136.30	35.00
34	25	26		0	0	0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
35	22	27	7	5	31	36	4.513	100	0.52	0.16	1	0.023	45	101.30	101.30	136.30	136.28	34.98
36	27	28		0	12	12	1.536	100	0.18	0.05	0	0.000	7	101.30	101.30	136.30	136.30	35.00
37	28	30	3	2	10	12	1.536	100	0.18	0.05	0	0.001	23	101.30	101.30	136.30	136.30	35.00

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S. No.	Node No.		No. of Plot	Flushing Water Requirement In KLD	Branch Water	Total KLD	Discharge per Hour considering 8 Hours Pumping	Size of Pipe Provided	Velocity		Head Loss per 1000 m	Loss of head as per pipe length	Length of pipe (in meters)	Ground level		Hydraulic Level		Terminal Head
	From	To							in ft/sec.	in m/s				Start	End	Start	End	
38	30	29		0	10	10	1.248	100	0.15	0.04	0	0.000	7	101.30	101.30	136.30	136.30	35.00
39	30	31	7	5	5	5	0.672	100	0.08	0.02	0	0.000	41	101.30	101.30	136.30	136.30	35.00
40	29	32	6	5	5	5	0.576	100	0.07	0.02	0	0.000	41	101.30	101.30	136.30	136.30	35.00
41	31	32		0		0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
42	27	33	12	9	9	9	1.152	100	0.13	0.04	0	0.003	86	101.30	101.30	136.30	136.30	35.00
43	28	34	12	9	9	9	1.152	100	0.13	0.04	0	0.003	86	101.30	101.30	136.30	136.30	35.00
44	33	34		0		0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
45	2	38		0	39	39	4.897	100	0.57	0.17	1	0.025	41	101.30	101.30	136.30	136.27	34.97
46	38	39		0	39	39	4.897	100	0.57	0.17	1	0.004	7	101.30	101.30	136.30	136.30	35.00
47	39	40		0		0	0.000	100	0.00	0.00	0	0.000	12	101.30	101.30	136.30	136.30	35.00
48	38	41	14	9	19	30	3.745	100	0.44	0.13	0	0.032	89	101.30	101.30	136.30	136.27	34.97
49	39	42	12	9	19	9	1.152	100	0.13	0.04	0	0.003	89	101.30	101.30	136.30	136.30	35.00
50	41	42		0	19	19	2.400	100	0.28	0.09	0	0.001	7	101.30	101.30	136.30	136.30	35.00
51	41	43		0	19	19	2.400	100	0.28	0.09	0	0.002	11	101.30	101.30	136.30	136.30	35.00
52	43	44	5	4	4	4	0.480	100	0.06	0.02	0	0.000	33	101.30	101.30	136.30	136.30	35.00
53	43	45	7	5	10	15	1.920	100	0.22	0.07	0	0.004	45	101.30	101.30	136.30	136.30	35.00
54	45	46	3	2	2	2	0.288	100	0.03	0.01	0	0.000	12	101.30	101.30	136.30	136.30	35.00
55	45	47		0	8	8	0.960	100	0.11	0.03	0	0.000	11	101.30	101.30	136.30	136.30	35.00
56	47	51		0	8	8	0.960	100	0.11	0.03	0	0.000	7	101.30	101.30	136.30	136.30	35.00
57	47	49	4	3	3	3	0.384	100	0.04	0.01	0	0.000	29	101.30	101.30	136.30	136.30	35.00
58	51	50	6	5	5	5	0.576	100	0.07	0.02	0	0.000	29	101.30	101.30	136.30	136.30	35.00
59	50	49		0		0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
60	47	48	2	2		2	0.192	100	0.02	0.01	0	0.000	119	101.30	101.30	136.30	136.30	35.00
61	1	52		0	43	43	5.315	100	0.62	0.19	1	0.021	29	101.30	101.30	136.30	136.28	34.98
62	52	53	1	1	1	1	0.096	100	0.01	0.00	0	0.000	23	101.30	101.30	136.30	136.30	35.00
63	52	54		0	42	42	5.219	100	0.61	0.19	1	0.035	50	101.30	101.30	136.30	136.27	34.97
64	54	55	7	5	5	5	0.672	100	0.08	0.02	0	0.001	62	101.30	101.30	136.30	136.30	35.00
65	55	56		0		0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
66	54	57		0	36	36	4.547	100	0.53	0.16	1	0.006	12	101.30	101.30	136.30	136.29	34.99
67	57	56	10	8	8	8	0.960	100	0.11	0.03	0	0.002	71	101.30	101.30	136.30	136.30	35.00
68	57	58		0	29	29	3.587	100	0.42	0.13	0	0.004	11	101.30	101.30	136.30	136.30	35.00
69	58	59		0	29	29	3.587	100	0.42	0.13	0	0.003	10	101.30	101.30	136.30	136.30	35.00
70	58	60		0	15	15	1.880	100	0.22	0.07	0	0.001	7	101.30	101.30	136.30	136.30	35.00
71	60	61	9	7	7	7	0.864	100	0.10	0.03	0	0.001	68	101.30	101.30	136.30	136.30	35.00
72	61	62		0		0	0.000	100	0.00	0.00	0	0.000	7	101.30	101.30	136.30	136.30	35.00
73	60	63		0	8	8	1.016	100	0.12	0.04	0	0.000	10	101.30	101.30	136.30	136.30	35.00
74	63	62	6	5	5	5	0.576	100	0.07	0.02	0	0.001	61	101.30	101.30	136.30	136.30	35.00
75	63	64	Commercial	4	4	4	0.439	100	0.05	0.02	0	0.000	38	101.30	101.30	136.30	136.30	35.00
76	59	65	Common Facilities	14		14	1.707	100	0.20	0.06	0	0.002	21	101.30	101.30	136.30	136.30	35.00



DAULAT RAM GARG
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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT : FLUSHING & GARDEN WATER SUPPLY SHEET

S. No.	Line Designation		Size of Pipe Provided	Length of pipe
			mm Dia	
1	STP	1	100	25
2	1	2	100	21
3	2	3	100	15
4	3	4	100	18
5	4	5	100	7
6	4	6	100	106
7	5	7	100	106
8	6	7	100	7
9	3	8	100	38
10	8	9	100	7
11	8	10	100	89
12	9	11	100	89
13	10	11	100	7
14	9	12	100	45
15	12	13	100	11
16	13	14	100	7
17	13	16	100	60
18	14	15	100	60
19	16	15	100	7
20	16	35	100	10
21	35	37	100	41
22	35	36	100	75
23	12	17	100	43
24	17	18	100	9
25	18	19	100	7
26	18	21	100	62
27	19	20	100	62
28	20	21	100	7
29	17	22	100	45
30	22	23	100	9
31	23	24	100	7
32	23	25	100	63
33	24	26	100	63
34	25	26	100	7
35	22	27	100	45
36	27	28	100	7
37	28	30	100	23
38	30	29	100	7
39	30	31	100	41
40	29	32	100	41
41	31	32	100	7
42	27	33	100	86
43	28	34	100	86
44	33	34	100	7
45	2	38	100	41
46	38	39	100	7
47	39	40	100	12
48	38	41	100	89
49	39	42	100	89

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S. No.	Line Designation		Size of Pipe Provided	Length of pipe
			mm Dia	
50	41	42	100	7
51	41	43	100	11
52	43	44	100	33
53	43	45	100	45
54	45	46	100	12
55	45	47	100	11
56	47	51	100	7
57	47	49	100	29
58	51	50	100	29
59	50	49	100	7
60	47	48	100	119
61	1	52	100	29
62	52	53	100	23
63	52	54	100	50
64	54	55	100	62
65	55	56	100	7
66	54	57	100	12
67	57	56	100	71
68	57	58	100	11
69	58	59	100	10
70	58	60	100	7
71	60	61	100	68
72	61	62	100	7
73	60	63	2	10
74	63	62	100	61
75	63	64	100	38
76	59	65	100	21
TOTAL PIPE OF 100 DIA				2620 1675
TOTAL PIPE				2620 say 1760
Say				2620

150mm = 300mm

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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT : ROAD WORKS

S. No.	Description	Unit	Qty	Rate (in Rs.)	Amount (in Rs.)
1	Provision for leveling & earth filling as per site conditions	Acre.	16.55625	1.50,000.00 1.75 /as	24,83,437.50 28.97 /as
2	Construction of Roads 200mm granular surface, 250mm water mix macadam, 50mm DBM, 25mm BC.	Sqm	11,080.00 10875	1,200.00 1500	1,32,96,000.00 162.75 /as
3	Provision for Kerbs & channels of CC 1:2, 5:5.complets in all respect	Metre	3,730.00 3920	600.00	22,38,000.00 23.52
4	Provision for Pavement in commercial area and pavements. (50% OF AREA)	Sqm	673.58	1500.00	4,04,145.00 10.10
5	Provision for Parking ^{Traffic Light} arrangement	LS			2,00,000.00 2
6	Provision for carriage of materials, Guid map Plot indecater etc.	LS			2,00,000.00 15.00
	Sub Total				1,87,21,582.50 248.34 /as
	Add 3% contingencies & PH charges				5,61,647.48 7.23
	Sub Total				1,92,83,229.98 249.61
	Add 49% Departmental Charges , Price escalation, unforeseen & Admin. Charges				94,48,782.69 122.31
	Total				2,87,32,012.66 371.92 /as
	Say Rs in Lakhs (C/O to Final abstract of cost)				287.32

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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT : ROAD AREA

S. NO	ROAD NO	ROAD LENGTH IN M	ROAD WIDTH (CARPETED) IN M	AREA N SQM
1	1 - 2	131.00	5.50	720.5
2	2 - 3	12.00	5.50	66.0
3	2 - 4	40.00	5.50	220.0
4	4 - 5	39.00	5.50	214.5
5	4 - 6	38.00	5.50	209.0
6	6 - 7	45.00	5.50	247.5
7	7 - 8	45.00	5.50	247.5
8	8 - 9	43.00	5.50	236.5
9	9 - 10	45.00	5.50	247.5
10	10 - 11	34.00	5.50	187.0
11	6 - 12	100.00	5.50	550.0
12	12 - 13	42.00	8.00	336.0
13	13 - 14	12.00	5.50	66.0
14	7 - 14	127.00	5.50	698.5
15	14 - 15	45.00	5.50	247.5
16	15 - 17	52.00	5.50	286.0
17	15 - 16	89.00	5.50	489.5
18	17 - 8	74.00	5.50	407.0
19	17 - 18	43.00	5.50	236.5
20	18 - 9	74.00	5.50	407.0
21	18 - 19	45.00	5.50	247.5
22	19 - 10	74.00	5.50	407.0
23	19 - 20	45.00	5.50	247.5
24	20 - 29	71.00	5.50	390.5
25	20 - 21	86.00	5.50	473.0
26	13 - 22	45.00	41.00 7.0	495.0 315
27	22 - 23	33.00	5.50	181.5
28	22 - 24	55.00	8.00 5.50	440.0 302.50
29	24 - 25	75.00	5.50	412.5
30	24 - 26	19.00	8.00 5.50	152.0 104.50
31	26 - 27	73.00	5.50	401.5
32	26 - 28	114.00	8.00 5.50	912.0 627
33	TOTAL	1865.00		11080.0

Add 5% for curves

LENGTH OF KERB STONE

3730

RM

93.25

1958.25 x 2

3916.50

say 3920 RM

10841.25

10850 RM

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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT: EXTERNAL LIGHTING

S.No.	Discription	UM	Qty.	Rate	Amount
1	Providing and installing street light on roads as for standard specification of DHVPN with LED	Acre	16.55625	250000	4139062.5
2	Contigency and Frieght Charges @ 3%				124171.875
	TOTAL				4263234.375
3	ADD 49% Deptt charges, price escalation unforeseen & dmin charges				2088984.844
4	TOTAL				6352219.219
	Say Rs in Lakhs (C/O to Final abstract of cost)			₹	63.52 1.93

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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES					
SUBJECT: PLANTATION & ROAD SIDE TRESS					
S.No.	Description	Unit	Qty	Rate (in Rs.)	Amount (in Rs.)
1	Development of organised lawn green area.	Acre	1.35335	1,50,000.00	2,03,335.00 2.03 lacs
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.				
2	Providing and planting trees along boundary @ 12 m interval = $(1865/12) \times 2$	Nos.	311 330	1,150.00 1800	3,57,458.33 5.94 lacs
	Cost Detail				
	Excavation	50.00			
	Manure	100.00			
	Tree Plant	100.00			
	Tree Guard	900.00			
	Total	1150.00			
	Sub Total				4,92,793.33 7.97 lacs
	Add 3% contingencies & PH charges			0.24	14,283.60
	Sub Total			8.81	5,07,577.13
	Add 49% Departmental charges			4.42	2,41,468.73
	Total			18.23	7,49,045.87
	Say Rs in Lakhs (C/O to Final abstract of cost)				7.49

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PROJECT: PROJECT: M/S SPITI PROJECTS LLP. PLOTTING SERVICES

SUBJECT : SERVICES & RESURFACING OF ROADS

S.No.	Description	Unit	Qty	Rate (in Rs.)	Amount (in Rs.)
1	Provision of MTC charges for W/S, SWD & Sewerage, Roads, Street Lighting, Horticulture etc.				
a.	Complete in all aspect, including operational and establishment charges as per HSVP norms for 10 years completion.	Acre	16.55625	8,00,000	132.45 16,55,625.00
2	Provision of resurfacing of roads MTC one layer of 100 mm thick WBM compacted to 75 mm thick with 25mm thick premix carpet with seal coat.				
a	Resurfacing of road after 5 years of MTC.	Sqm	11,080.00 10850	225 6601	71.61 la 24,93,000.00
b	Resurfacing of road after 10 years of MTC.	Sqm	11,080.00 10850	825 8051	89.51 la 36,01,000.00
	Sub Total				77,49,625.00
	Add 3% contingencies & PH charges				2,32,488.75
	Sub Total				79,82,113.75
	Add 49% Departmental charges				39,11,235.74
	Total				1,18,93,349.49
	Say Rs in Lakhs (C/O to Final abstract of cost)				118.93

293.57 la
8.81 la
302.38 la
148.16 la
450.54 la

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