DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
Dharampur Village

Porbandar District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
Vara Nirav N.	Civil Engineering	181383106030
Vaja Prashant D.	Civil Engineering	181383106028

DRVRGCET

NODAL OFFICERS: -

ASST.PROF.YASH DASANI

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda,Ahmedabad– 382424 Gujarat

DETAIL PROJECT REPORT

ON

Vishwakarma Yojana: Phase VIII

AN APPROACH TOWARDS RURBANISATION

Dharampur Village
Porbandar District

Prepared By

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
Vara Nirav N.	Civil Engineering	181383106030
Vaja Prashant D.	Civil Engineering	181383106028

DRVRGCET

NODAL OFFICER: -
ASST.PROF.YASH DASANI.

Year: 2020-21

Gujarat Technological University,
Chandkheda, Ahmedabad – 382424 Gujarat

CERTIFICATE

This is to certify that the following students of Degree/Diploma Engineering successfully submitted

Detail Project Report for, Dharampur Village Porbandar District

Under

VishwakarmaYojana: Phase-VIII

In partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

During the academic year2020-21.

This project work has been carried out by them under our supervision and guidance.

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
Vara Nirav N.	Civil Engineering	181383106030
Vaja Prashant D.	Civil Engineering	181383106028

Date of Report Submission:	
Principal Name and Signature:	**Dr. Sanjay Agal**
VY-Nodal Officer Name and Signature:	**Asst. Prof. Yash Dasani**

Internal(Evaluator) Guide Name and Signature:	**Asst. Prof. Yash Dasani**
College Name:	**Dr. V.R.Godhaniya Collage of engineering & Technology**
College Stamp:	

ABSTRACT

Vishwakarma Yojana project and How you do your vision project:-

The government of Gujarat has launched vishwakarma yojna (scheme) for development of Villages by identifying the requirements of villages. Under this scheme, the villages are surveyed and this project was identified and selected for implementation. Reurbanization is to bring peace of mind to the villagers by providing them the basic amenities required and still keeping the Village soul intact. It is about finding out what the basic facilities are present and what can be provided to betterment of the village. The present resources are made to such a use that it gives Its cent percentage usability with sustainability.

About your village description:-

Our village **Dharampur** is located at 09km away from Porbandar district. It is located on national Highway 27. Pin code of village is 360560. Language spoken are Gujarati & Hindi. Elevation/altitude: 37 meter above sea level.

About existing village condition:-

The village's condition is enough good. The village has facilities of Milk Co-operative Society, Primary school. But the other side the problem of narrow roads in village, poor conditions of Panchayat building, Pond and village has not Community hall.

About your proposed designs your view for village development:-

The community hall should be built in village because in some function village people cannot afford the private venue for the function. The physical structure like public toilet is must needed
Component in village. And Public library, recreational zone are also needed and post office and bus stand require for enlargement.

About future scope of the village development:-

To application of service and maintenance of some structure. And some sustainable structure should made in village. This factors affecting on the development of village.

Key Words:-Good facility of post office, Public Toilet, Community Hall, Public Garden, Panchayat building.

ACKNOWLEDGEMENT

We are highly indented to **Gujarat Technological University**, Ahmedabad for providing us such opportunity to work under Vishwakarma Yojana to get real work experience and applying our technical knowledge in the development of Villages.

We wish to express our deep sense of gratitude to **Prof. (Dr.) Navin Sheth**, **Hon'ble Vice Chancellor, Gujarat Technological University-Ahmedabad**, for his encouragement and giving us the wonderful project.

We also express our gratitude to **Dr. K.N.Kher**, **Registrar, Gujarat Technological University- Ahmedabad** for giving us complete support.

We express our sincere thanks to **Commissioner ate of Technical Education, Gujarat State** for appreciating and acknowledging our work.

We express our sincere thanks to **DDO, TDO, Sarpanch, Talati and staff members of Porbandar** District for providing us with requisite data whenever we approached them. Especially our thanks are to all villagers and stake holders for their support during Survey.

We are also thankful to our **Dr.S.Agal Principal**, faculties of our colleges for their encouragement and support to complete this project work.

An act of gratitude is expressed to our internal guide / Evaluator / Nodal Officer,

Nodal officer Asst. Prof. Yash Dasani for their invaluable guidance, constant inspiration and active involvement in our project work.

We are also thankful to all the experts who provided us their valuable guidance during the work. We express our sincere thanks to, **Dr. Jayesh Deshkar, Hon'ble Director of Vishwakarma Yojana project and Principal, V.V.P Engineering College and Core Committee member of Vishwakarma Yojana projectProf(Dr.)JigarSevalia**, Professor, SCET, Surat, **Prof. K. L. Timani,** Associate Professor,VGEC, **Prof.RenaShukla**, Associate Professor, LD Engineering College, **Prof.Y.B.Bhavsar,**Associate Professor,VGEC,**Prof.Jagruti Shah**, Assistant Professor, BVM Engineering Collegefor providing us technical knowledge of this project work.

We are also thankful to our all faculty of Civil Engineering Department for all support during our work. We therefore, take this opportunity for this Project work expressing our deep gratitude and sincere thanks for her cooperation to produce this project work in the present form.

Above all we would like to thank our Parents, family members and Friends for their encouragement and support rendered in completion of the present this work.

CONTENT

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
PHC	Public health Centre
TDO	Taluka Developer Officer
DDO	District Developer Officer
PPP	Public Private Partnership
NGO	Non-government organization
PURA	Provision of Urban Amenities in Rural
DRDA	District Rural Development Agency
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
PMGSY	PradhanMantri Gram Sadak Yojana
NRUM	National Rurban Mission
WBM	Water bound macadam
CDHO	Chief District Health Officer
MoRTH	Ministry of Road Transport and Highways
RTO	Road Transport Offices

Summary of Project Village

Village Features	Ideal Village	Smart Village	Allocated Village
Village	Ranavav	Ranavav	Dharampur
District	Porbandar	Porbandar	Porbandar
Taluka	Ranavav	Ranavav	Porbandar
Sarpanch	-	-	Geetaben Manojbhai Sida
Distance(km)	16	16	09
Population(as per 2011)	46,018	46,018	7704
Pin code	360550	360550	360560
Surveys	Techno-economic survey	Smart village survey	Techno-economic survey
Facilities/ key features	Education, Road networks, Gram Panchayat,Hospital,Bank, Water supply system.	Primary secondary and higher secondary school, overhead water tank,panchayat office, aaganwadi etc.	Post office, primary school, primary health & child care Centre, panchayat office, overhead water tank, aaganwadi etc.

Chapter: 1

1. Ideal Village Visit of Ranavav (Porbadar, Gujarat)

1.1 Background & Study Area Location:

Vishwakarma Yojana is one of the approaches towards Rurbanization to solve issues of rural area. Vishwakarma Yojana is government project for developing various villages. In this project various details of villages like demographical details, geographical details, occupational details, physical infrastructure facilities, social infrastructure facilities etc. various data are collected. And efforts are made to develop facilities as possible as best in village area. The main purpose is to make village as model or ideal village with maximum facilities.

The basic need of rural development program have been alleviation of poverty and unemployment through creation of basic social and economic infrastructure, provision of training to rural unemployed youth and providing employment to marginal Farmers/Laborers to discourage seasonal and permanent migration to urban areas.

Study Area Location.

On 14 October, 2020 we visited a village named Ranavav. Ranavav is the village located in Porbandar district in Gujarat. It is called the Jambuvant's caves near Ranavav railway station. [Legend: This is cave where Jambuvan, warrior of Ramayana age was residing. He was born in Satya Yuga and seen Treta Yuga and Dvapara Yuga waiting for Krishna. He found a diamond which he gave to his daughter Jambuvati. Many facilities like hospitals, schools, college, post office, banks, bus station, railway station etc. are developed in this village.

Elevation: 40 m

Population: 46,018 (2011)

Weather: 37 °C, Wind NE at 14 km/h, 36% Humidity

Fig 1.0: Map Location of Ranavav

1.2 Concept: Ideal Village.

An ideal Indian village will be so constructed as to lend itself to perfect sanitation. It will have cottages with sufficient light and ventilation built of a material obtainable within a radius of five miles of it. The cottages will have courtyards enabling householders to plant vegetables for domestic use and to house their cattle.

The village lanes and streets will be free of all avoidable dust. It will have wells according to its needs and accessible to all. It will have houses of worship for all, also a common meeting place, a village common for grazing its cattle, a co-operative dairy, primary and secondary schools in which industrial education will be the central fact, and it will have Panchayats for settling disputes. It will produce its own grains, vegetables and fruit, and its own Khadi.

The very first problem the village worker will solve is its sanitation. It is the most neglected of all the problems that baffle workers and that undermine physical well-being and breed disease.

1.2.1 Objectives.

An ideal village project has the following important objectives:

- Provide awareness about government schemes & policies to farmers.
- Provide urban amenities to improve the quality of life in rural areas.
- Provide advanced agricultural equipment & educate farmers about climate smart agriculture practices.
- Provide a help in setting up good roads infrastructure & transportation.
- Empowerment of rural areas with latest digital technology.
- Prevent distress migration from rural to urban areas
- Create and sustain a culture of cooperative living.

1.2.2 Example/Live Case study of any other state ideal village: Punsari, Sabarkantha, Gujarat

- In a case study of other state village we have selected Punsari village of Sabarkantha district of Gujarat state.
- The Sarpanch Mr. Himanshu Patel is a major part of the development of the village.
- Mr. Himanshu Patel the Sarpanch of the Punsari village is utilized various Government Schemes for the purpose of village welfare. He serves as a good coordinator for various development activities in his village.
- He is able to communicate with other villagers effectively Because of his efforts, his village is having all required basic amenities. He has done significant work in health care aspects. His work in solid waste management is also important. He could create awareness among villagers regarding solid waste management and healthcare.

Fig 1.2.2 Village Gate of Gram panchayat

Backdrop

Punsari village is birth place of Mr. Himanshu Patel. This village is located in Sabarkantha district, Gujarat, India. He was raised there. Once, elementary education was completed, he had to pursue higher education. For this purpose, his family started living in a town near to his village. During vacations, Himanshu used to visit his village. Hence, he could distinguish between facilities available at village and town. This made him feel the need to contribute towards the betterment of the village and the people living there.

Fig 1.2.2.1 Health care facilities

Fig1.2.2.2 Gram panchayat & Nandghar

➢ Objectives:

Providing basic amenities to Punsari village through various Govt. Schemes.

1. Improving healthcare system of Punsari village
2. Improving collection and management of solid waste
3. Creating awareness about various Government Schemes

➢ Implementation process:

1. The IMR (Infant Mortality Rate) and MMR (Mother Mortality Rate) came down to zero after the village introduced its own transport facility. Health has considerably improved and crimes have gone down to zero.
2. In rural areas, there is perennial shortage of physicians. Due to financial constrains hospitals in rural areas are less as compare to urban areas. Care companies do not have interest in rural market. Over the years, there is more integration of health care Institutions and health care professionals with system. This is related to health care finance also. Rural health care system changed a bit due to all this development. Government has implemented various rural health care programs. In context of rural health care, primary care medical professionals may play significant role.
3. Mr. Himanshu Patel encouraged villagers to learn about waste collection and management. For solid waste management, technology may be selected based on certain criteria i.e. within village area, there should be a common space, water supply sources/pattern for public as well as individual, manpower availability, housing pattern, financial status of villagers etc.
4. There are various Wastewater treatment technologies concerning liquid waste management i.e. Soil Bio technology, Waste stabilization pond system, sequencing batch reactor system, Duckweed pond system, Extended aeration system, constructed wetland, package aeration system, up flow anaerobic sludge blanket etc

Fig1.2.2.3 a mini bus used for milk transportation to village Milkbank by villagers

Fig1.2.2.4 School of Punsari

- **Impact:**

  - Wi-Fi is available to the villagers. CCTV cameras are installed in the village. Punsari is developed as a clean and green village to prevent diseases. There is a renewable power station in the village. Vaccination in village is hundred percent. Approximately 6000 villagers have been benefitted by efforts of Mr. Himanshu Patel. Sixty persons are actively involved in various initiatives by Mr.Himanshu Patel.

1.2.3 The Idea of a model / Smart village.

- India is a country of villages, where more the 68% of the total population reside in over 5.97 lakhs of villages.
- As said, India lives in its villages Mahatma or India's soul is in villages, which is the backbone of Indian culture.
- The references of the villages as "Sabha" is found in the time of Rig-Veda, which was the grass root level governing system.
- Agriculture is practice in the country from antiquity (from Harappa Civilization) where, communication settled and civilized structure of villages evolved.
- The social, economic and scientific development in these communities helped in the growth of such villages and also has become the building block of civilization.
- However, even after the collapse of such progressed civilization, villages continued to exist and flourish through rich heritage and traditional practices.

1.2.4 Ancient History Civil concept about Indian Village/Foreign Countries Perspective and its Development

The village in India holds a unique place, both in the social and economic spheres. There were 212.6million people living in rural areas in 1901,in 2001 rural population has increased to 721.1 million naturally the density of population has increased, land under agriculture has diminished, affected the forests and exodus to urban areas accelerated agricultural labor continued to be exploited. The phenomenon of Rural Development is becoming more and more complex despite technological advancement and availability of resources as well as continued efforts from the pre independence period. Rural Development has a long history in India.

Chhotkei village in Angul district of Odisha has emerged as the first smart micro grid implementing village in India. The village gets a supply of 30kWp (kilowatt, peak) Solar- power. The village has installed a Smart Nano grid to meet the energy demands of 140 households, 20 street lights, temple, and three community centers. After usage the village saves around 10 kWp which they set aside for day-time use in irrigation pumps and microenterprises to improve agricultural output, to enable value-addition to agriculture, and generate employment.

1.3. Detail of Ideal village / Smart Village with photograph study

1.3.1 Smart Village & Ideal village: Ranavav

- **Physical & Demographical Growth:**

As of 2011 India census, Ranavav had a population of 46,018. Males constitute 51% of the population and females 49%. Ranavav has an average literacy rate of 83%, higher than the national average of 59.5%: male literacy is 70%, and female literacy is 55%. In Ranavav, 15% of the population is under 6 years of age.

- **Economic profile**

The major crops produced in Porbander district are cotton, groundnut, bajra, gram, wheat, tal and jowar. Out of total population, 17,175 were engaged in work or business activity. Of this 13,351 were males while 3,824 were females. In census survey, worker is defined as person who does business, job, service, and cultivator and labor activity. Of total 17175 working population, 93.76 % were engaged in Main Work while 6.24 % of total workers were engaged in Marginal Work.

- **Infrastructure Facilities (all type):**

Fig 1.3: Hospital

Fig 1.3.1: Hostel

Fig 1.3.2: Schools in Ranavav

Fig 1.3.3: Railway Station in Ranavav

Fig 1.3.4: Bus Stop in Ranavav

Fig 1.3.5: Street Road of Ranavav

Fig 1.3.6: Main Road of Ranavav

Fig 1.3.7: Temple in Ranavav

Fig 1.3.8: Farm in Ranavav

Fig 1.3.9: Bank in Ranavav

Fig 1.3.10: ATM in Ranavav

Geographical Details of Ranavav:

Sr. No	Description	Information/Details
1	Area of Villages (Approx.) (In Hector)	31.28 Ha.
2	Forest Area	-
3	Agricultural Land (In Hector)	
4	Residential Area	-
5	Other Area (In Hector)	
6	Nearest Railway Station (In Km)	
7	Nearest Town With Distance	
8	Nearest Bus Station	
9	Road Connectivity	Yes Village Connected to all Road

Table 1.3.Geographical Details

Demographical Details of Ranavav:

Sr No	Census	Population	Male (In Nos)	Female(In Nos)	Total No of house Holds
1	2011	46,018	23,550	22,468	9,635

Table 1.3.1 Demographical Details

Occupational Details of Ranavav:

Name of the Major Occupation Groups in Villages	❖ Service Work, Private Business
	❖ Farming
	❖ Laborers

Table 1.3.2 Occupational Details

Infrastructure Facilities Details:

Village Details of Ranavav	Facilities Available In Ranavav
Education	
Anganwadi	3
Schools	6
College	1
Tech. Training institute	1
Agriculture Research Centre	0

Medical Facility	
Gov./Panchayat Dispensary or Sub PHC or Health Centre	1
PHC & CHC	1
Child Welfare and Maternity Home	1
Hospital	Private yes
Transportation	
Pucca village Approach road	Yes
Bus/auto stand Provision	Yes
Drinking Water	
Water Facilities	Yes
Over Head Tank	-
U/G Sump	-
Public Latrines	Yes
Cremation Ground	-
Post Office	Yes
APMC	0
Gram Panchayat Building	1
Fire Station	0
Police Station	1
Community Hall	1
Super Market	Yes
Bank	1

Table 1.3.3Infrastructure Details

1.4. SWOT Analysis of ideal village and Smart village:

Strength

Water Supply, Transport, Sewage, Telecommunication, Health facilities, Education, Community hall, Recreational facilities, Quality, Mass transport facilities, Public transport facilities, Street lighting, Post office, Police station, Banking facilities, Temples

Weaknesses

Storm water network, Open drainage, Library

Opportunity

To making Wi-Fi free zone, Use modern technology, C.C.T.V. camera

1.5. Future prospects of Ranavav Village

For future prospect, the village Ranavav can use more advance technology for agricultural prospect and for other requirements also. They can make the village Wi-Fi zone and can improve the computer labs in the schools. For safety purpose Ranavav village can provide CCTV cameras in the village. There is open ditch drainage in Ranavav therefore they can convert the open ditch drainage to the closed drainage system.

1.6. Benefits of the visits of Ideal village/Smart Village

By this visit of Ranavav, it improved our communication skills and we knew how to interact with the different peoples. And also how to get Information from unknown persons. By the visit of the village Ranavav, we got an idea about an ideal village. We had seen much kind of new technologies which can be used in village that are being used in the urban area.

1.7 Electrical / Civil aspects required in Ideal village / Smart Village

- There is good facility of school and also there are 6 private schools in Ranavav and 1 college also.
- It includes primary schools, secondary schools and higher secondary also.
- In the Ranavav post office, police station, railway station, bus station and banks etc. basic facilities are available.
- 70% peoples are connected with the business facility.
- In Ranavav Jambuvant's caves is located which is connected with historical story so its helps in economic growth of Ranavav.

Chapter: 2

2. Literature review (Civil concept)

2.1 Introduction: Urban Area & Rural Area.

Urban area:- An urban area is the region surrounding a city. Most inhabitants of urban areas have nonagricultural jobs. Urban areas are very developed, meaning there is a density of human structures such as houses, commercial buildings, roads, bridges, and railways. "Urban area" can refer to towns, cities, and suburbs.

Rural area: - All the areas which are not characterized as urban area is called rural area. In which the population is very low compared to urban areas. Mainly they depend on agricultural activities. According to census 2011, there are 6, 40,867 villages in India. The area where more than 75% of male population is associated with agricultural activity is known as rural area

Trends supporting urbanization in India

Here are some key points regarding urbanization and planning in India:

- Private cities are now expanding due to the support of private companies. Private developers are building private housing projects that will exponentially grow in the years to come.
- The Delhi-Mumbai Corridor is an infrastructure program set to develop 'Smart Cities' and combine next-generation technology with infrastructural development.
- The transport and logistics sector of India underlines the importance of interconnecting the different modes of transportation: road, rail, sea and air. An efficient multi-modal system is relevant in the development and successful growth of the infrastructural systems.
- Special Economic Zones dot the landscape of India. Each of these zones is focused on a particular sector such as IT, apparel and fashion, or petroleum and petrochemical industries.
- Industrial townships are built to house employees close to the factories and manufacturing plants at which they work. After the success of the pioneering industrial township – Tata's Steel Town – the government is planning on developing more like it.
- India's expected economic growth opens up expansion prospects for Indian airports. Domestic and international passengers are inevitably predicted to double in number in the years to come

2.2 Importance of Rural Development.

The aim objectives composed by the government in the sixth five-year plan for rural development are.

- To improve productivity and the wages of rural people.
- To guarantee increased and quick employment possibilities.
- To demolish unemployment and a notable decline in underemployment.
- To guarantee to increase the standard of living of the underprivileged population.
- To provide the basic needs – e.g. elementary education, health care, clean drinking water, and, rural roads, etc.

2.3 Ancient village/different definitions of rural area village.

In ancient time villages were a usual form of community for societies that practice subsistence agriculture, and also for some non-agricultural societies. A village is a clustered human settlement or community, larger than a hamlet but smaller than a town, with a population ranging from a few hundred to a few thousand. Although many patterns of village life have existed, the typical village is often small, consisting of perhaps 5 to 30 families. rural area settlements are based more on natural resources and events.

2.4 Scenario: Rural/Urban India: Gujarat as per Census 2011 and latest population.

- As per details from Census 2011, Gujarat has population of 6.04 Crores, an increase from figure of 5.07 Crore in 2001 census. Total population of Gujarat as per 2011 census is 60,439,692 of which male and female are 31,491,260 and 28,948,432 respectively.
- In 2001, total population was 50,671,017 in which males were 26,385,577 while females were 24,285,440. The total population growth in this decade was 19.28 percent while in previous decade it was 22.48 percent.
- The population of Gujarat forms 4.99 percent of India in 2011. In 2001, the figure was 4.93 percent. Recently as per Gujarat census data, 83.92% houses are owned while 13.54% were rented. In all, 65.95% couples in Gujarat lived in single family. In 2011, 57.87% of Uttar Pradesh population had access to Banking and Non-Banking Finance Corporation.
- Only 3.13% of Uttar Pradesh population had internet facility which is likely to improve in 2021 due to Jio. 6.10% of family in Uttar Pradesh owned car while 34.14% owned two wheeler. In few months we will also get details of election data for Gujarat

❖ Gujarat population as per census

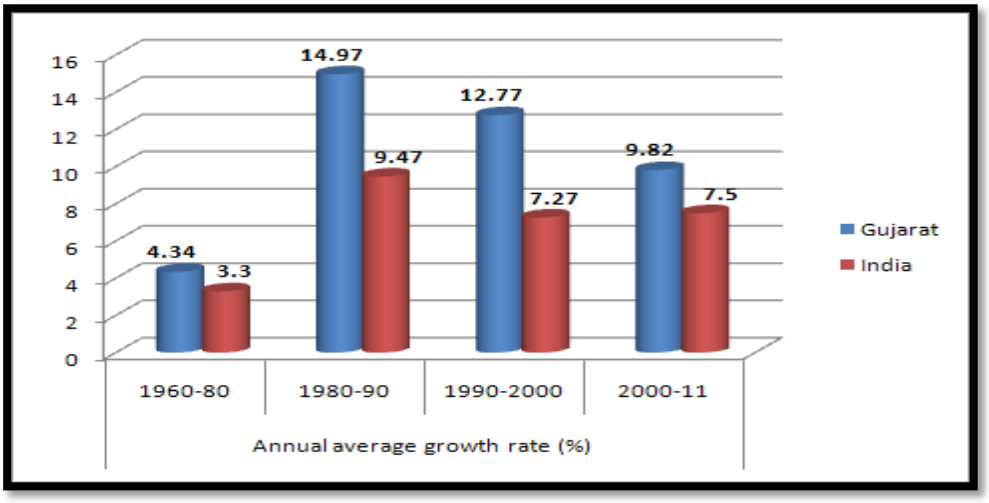


Fig 2.4: Rural and Urban Population Growth in Gujarat

Description	2011	2001
Approximate Population	6.04 Crores	5.07 Crore
Actual Population	60,439,692	50,671,017
Male	31,491,260	26,385,577
Female	28,948,432	24,285,440
Population Growth	19.28%	22.48%
Percantage of total Population	4.99%	4.93%
Sex Ratio	919	920
Child Sex Ratio	890	883

Fig 2.4.1: Gujarat population as per census

Year		Rural			Urban	
	Female	Male	Total	Female	Male	Total
1951	4.87	19.02	12.1	22.33	45.6	34.59
1961	10.1	34.3	22.5	22.5	66	54.4
1971	15.5	48.6	27.9	48.8	69.8	60.2
1981	21.7	48.6	36	56.3	76.7	67.2
1991	30.17	56.96	36	64.05	81.09	67.2
2001	46.7	71.4	59.4	73.2	86.7	80.3
2011	59.73	77.15	66.77	79.11	88.76	84.11
% increase in	**24%**	**8%**	**12%**	**8%**	**2%**	**5%**

Table 2.4: Percentage increase in literacy rate

- **Literacy** rate in **Gujarat** has seen upward trend and is 78.03 percent as per **2011 population census**. Of that, male **literacy** stands at 85.75 percent while female **literacy** is at 69.68 percent

2.5 Rural Issues & Concerns.

1. Illiteracy percentage:

In India the percentage of illiteracy is alarming. Every five persons among ten in India are illiterate.

2. Basic Hygiene:

Sanitation is yet another problem, but one of the biggest, in India village (rural area).

- **Healthcare system:**

The healthcare facility is very poor in India village due to some corrupted gov. and overburden of work on healthcare supply employ.

3. Poverty:

Due to bad policy by gov. and some corrupted people due to this reason Indian village people are get poor and now India has 3rd. largest country which population of 31 % people live in international poverty line.

4. Infrastructure:

India needs to works wiftlyon its infrastructure towards better roads and services like water, sanitation etc.

5. Production Price:

The price the farmers get for their produces less than in relation to the work they put in.

2.6 Various infrastructure & amp: Guidelines / Norms for villages for the provision of different infrastructure facilities.

Facilities	Planning Commission Norms	Required as per Norms
Education		
Anganwadi	**Each village**	1
Primary School	**Each Village**	1
Secondary School	**Per 7,500 Population**	2
Higher Secondary school	**Per 15,000 Population**	0
College	**Per 125,000 Population**	0
Tech. Training institute	**Per 100,000**	0

	Population	
Agriculture Research Centre	**Per 100,000 Population**	0
Medical Facility		
Gov./Panchayat Dispensary or Sub PHC or Health Centre	Each village	1
PHC & CHC	Per 20,000 Population	0
Child Welfare and Maternity Home	Per 10,000 Population	1
Hospital	Per 100,000 Population	1
Transportation		
Pucca village Approach road	Each village	0
Bus/auto stand Provision	All Villages connected by	1
Drinking Water		
Water Facilities		
Over Head Tank	1/3 of Total Demand	1.6 lac cap
U/G Sump	2/3 of Total Demand	3.2 lac cap
Public Latrines	Each Village	0
Cremation Ground	Per 20,000 Population	0
Post Office	Per 10,000 Population	0
Gram Panchayat Building	Each individual/group	0
APMC	Per 100,000 Population	0
Fire Station	Per 100,000 Population	0
Police Station	Per 15,000 Population	0
Community Hall	Per 10,000 Population	0

Table 2.6: Various guidelines and norms for infrastructure

2.7 Project/Schemes by Privet Sectors:

Following are the projects/schemes running by the private sector:

- Non-Governmental Organizations (NGOs)
- Provision of Urban Amenities in Rural Areas (PURA)

2.8 OTHER PROJECTS OR SCHEMES:

Public-Private-Partnership - The Concept:

Public-Private-Partnership or PPP is a mode of implementing government program/schemes in partnership with the private sector. The term private in PPP encompasses all non-government agencies such as the corporate sector, voluntary organizations, self-help groups, partnership firms, individuals and community based organizations, PPP, moreover, subsumes all the objectives of the service being provided earlier by the government, and is not intended to compromise on them. Essentially, the shift in emphasis is from delivering services directly, to service management and coordination. The roles and responsibilities of the partners may vary from sector to sector. While in some schemes/projects, the private provider may have significant involvement in regard to all aspects of implementation; in others s/he may have only minor role.
The potential benefits expected from PPP could be mentioned as below:

- Cost-effectiveness- since selection of the developer/ service provider depends on competition or some bench marking, the project is generally more cost effective than before.
- Higher Productivity- by linking payments to performance, productivity gains may be expected within the program/project.
- Accelerated Delivery – since the contracts generally have incentive and penalty clauses vise-a-vise implementation of capital projects/program this leads to accelerated delivery of projects.
- Clear Customer Focus - the shift in focus from service inputs to outputs create the scope for innovation in service delivery and enhances customer satisfaction.
- Enhanced Social Service- social services to the mentally ill, disabled children and delinquents etc. require a great deal of commitment than sheer professionalism. In such cases it is Community/Voluntary Organizations (VOs) with dedicated volunteers who alone can provide the requisite relief.
- Recovery of User Charges- Innovative decisions can be taken with greater flexibility on account of decentralization. Wherever possibilities of recovering user charges exist, these can be imposed in harmony with local conditions.

2.9 Other Projects and Schemes.

Following are the schemes that are running or on board for the rural development by Indian Government:

- Deen Dayal Upadhyay Grameen Kaushal Yojana
- PradhanMantri Gram Sadak Yojana (PMGSY)
- Indira AwasYojana
- PradhanMantriAdarsh Gram Yojana
- Mahatma Gandhi National Employment Guarantee Act. (MGNREGA)

- National Rural Livelihood Mission
- Training to Rural Youth for Self-Employment (TRYSEM)
- National Rural Health Mission

Deen Dayal Upadhyay Grameen Kaushal Yojana:

- This is a placement linked skill development scheme for rural poor youth.
  It was launched by on 25 September 2014 by Union Ministers NitinGadkari and Venkaiah Naidu on the occasion of 98th birth anniversary of Pandit Deendayal Upadhyaya.
- It aims to target youth, under the age group of 15–35 years.
  A total of 52000 candidates have been skilled under this programme till 2014-15

Pradhan Mantri Gram Sadak Yojana (PMGSY):

- Initially it was 100% centrally funded scheme, launched on the December 25, 2000.
- After the recommendation of 14th finance commission report now expenditure will be shared by the centre and state at ratio of 60:40.
- The main aim of this scheme is to provide all weather road connectivity to the rural areas whose population is more than 500 persons and in terms of hilly areas it is 250 persons.
- This scheme is launched by the Ministry of Rural Development

Indira Awas Yojana:

- The government in 1985 under the leadership on Rajiv Gandhi introduced a public housing scheme that is popularly known as the Indira Awas Yojana.
- This programme happened to fall under a larger scheme called RLEGP which was the official acronym Rural Landless Employment Guarantee Programme.
- This scheme was run under the Ministry of Rural Development where the primary objective was to provide housing for the roofless. This programme particularly targeted the free bonded laborers under the below poverty line
  (BPL) and the population falling in the Scheduled Castes and Scheduled tribes categories where it intended to address the housing issues and eventually construct residences.
- The year 1996 saw the Indira Awas Yojana, become and independent scheme that fell under the Ministry of Rural Development.
- Through the central idea of the scheme was to provide housing for all, it also aimed at eradication of rural poverty along with the alleviation of the general living standards of the rural population by providing them with various development programs.

The benefits of the Indira Awas Yojana are as follows:

- The Indira Awas Yojana aims to provide assistance and support in the construction of the houses in rural locations.
- It seeks to support the construction of the houses with the required supplies including workplaces within the house.
- The houses under the scheme are to be designed based on the requirement of the residence.

Pradhan Mantri Adarsh Gram Yojana:

- PradhanMantri Adarsh Gram Yojana (PMAGY) is a rural development programme launched by the central government in India in the financial year 2009-10 for the development of villages having a higher ratio (over 50%) of people belonging to the scheduled castes through convergence of central and state scheme and allocating financial on a per village basis.
- The plan aims to build an "Adarsh Gram" (model village) which has adequate physical and institutional infrastructure, in which minimum needs of all sections of the society are fully met. The village which is progressive and dynamic and its residents live in harmony.
- All the facilities necessary for dignified living should be available and the residents are enabled to utilize their potential to the fullest.
- The plan is considered ambitious as it aimed to bring a number of development programs to the village. Some of these programs are Bharat Nirman, PradhanMantri Gram Sadak Yojana (PMGSY) for rural, water supply, housing, electrification and other big-ticket schemes like Sarva Shiksha Abhiyan, Mahatma Gandhi National Rural Employment Guarantee Act, Integrated Child development Services, Sanitation.
- This program would be applicable to around 44,000 villages which had a scheduled castes population above 50% and so qualified for PMAGY.

Mahatma Gandhi National Rural Employment Guarantee Act. (MGNREGA)

- National Rural Employment Guarantee Act 2005, was launched on the 2nd Feb.2006. Now the new name of this scheme is "Mahatma Gandhi National Rural Employment Guarantee Act" (or, MGNREGA).
- This scheme is an Indian labour law and social security measure that aims to provide 'right to work' to the people falling Below Poverty Line.
- It guarantees 100 days employment in a year to the village people. Fifty percent workers should be women.
- Its 90% funding is borne by the central government and 10% by the state government.

National Rural Livelihood Mission:

- This scheme was restructured from the SwarnJayanti Gram SwarojgarYojna in 2011.
- National Rural Livelihoods Mission (Aajeevika) is aimed to empower the women's self-help group model across the country.
- Under this scheme govt. provides loan up to 3 lakh rupee at the rate of 7% which could be lowered to 4% on the timely repayment.

Fig 2.7 National Rural Livelihoods Mission

Training to Rural Youth for Self-Employment (TRYSEM):

- This centrally sponsored programmed was started on august 15, 1979.
- The main target of this scheme was to provide technical and business expertise to rural BPL people who are in the age group of 18-35.
- This programme has been merged with SwarnJayanti Gram SwarojgarYojna on April1, 1999.

National Rural Health Mission:

- The National Rural Health Mission (NRHM), now under National Health Mission is initiated on 12 April, 2005.
- Main aim of this plan is to provide accessible, affordable and accountable quality health services even to the poorest households in the remotest rural regions.
- Accredited social health activists (ASHA) scheme is also operational under this scheme.
- It is run by the ministry of health and family welfare.

Fig 2.7.1 National Rural Health Mission

Objectives:

The objective of providing and organizing this yojanas and schemes for people of villages and small towns is to enhance their vision towards the future and rurbanization. Education, housing, daily needs are the most important aspects of life which shows our standard of living. So, these schemes are just a start to the way of good standards of living which enhances the future of the rural people.

Chapter: 3

3. Smart Village & Cities concept

3.1 Introduction:

➢ Concept:

- Over 68 percent of India's population lives in rural areas. There has been a gradual increase in migration from villages to cities primarily for livelihood opportunities, better education, and healthcare facilities, among others. The rising burden on urban cities due to migration emphasizes the need to transform villages so that they can meet the critical as well as aspirational needs of the villagers. This can be done using innovative technologies and transforming the service delivery models for villages. Transformed villages are called Smart Villages.
- While the phrase 'Smart Village' has become a buzzword in policy and rural development discussion, there is no universal definition of such villages. Two things that are common to all Smart Villages are the extensive use of technology and integration of several key interventions in infrastructure and service delivery.
- It's an integrated approach of delivering access to skills and quality basic services including education, e-health, 24x7 power, safe food, among others.

S	Social, Skilled and Simple	Zero Tolerance for Caste and Creed or better no caste & creed and no discrimination on Gender and Religion Everyone is Literate and skilled Simple living and high thinking
M	Moral, Methodical and Modern	Moral values of Gandhiji, Swami Vivekananda etc Methodical using Total Literacy and latest techniques Modern like cities
A	Aware, Adaptive and Adjusting	Highest level of awareness on global social & economic issues Adaptive and adjusting to fast changing environments
R	Responsive and Ready	Responsive to collective wisdom, cooperative movement & larger social issues Ready to generate own resources for self-sufficiency and self-reliance
T	Techno-Savvy and Transparent	Techno-savvy for IT and Mobile usage Transparent in harmonic relations and delivery of services

➢ Definitions (Civil):

- Civil engineering plays vital role in development of smart city. Construction of new infrastructure and maintenance of existing structure, construction of bridges, road network, drainage network, water distribution, high rise building, traffic management and everywhere it requires.
- A deeper review, of approximately 100 definitions, combining all three sources17 shows that the majority of them posit ICT as the prime aspect, explicitly or implicitly (refer to Figure 2). However, the importance of the integration of systems and compatibility of frameworks on which a city functionally operates, are largely missing. This shows a lack of clarity in balancing sustainability constraints with a city's aspirational goals. Also, equity as an outcome of a sustainable city fails to get mentioned and is often represented through the idea of 'people' in general. This partially indicates a lack of conscious effort to leverage the capabilities of smart attributes to include the marginalized and disadvantaged within a city's development plans18. Overall, there is a sense of confusion, between the end and the means.

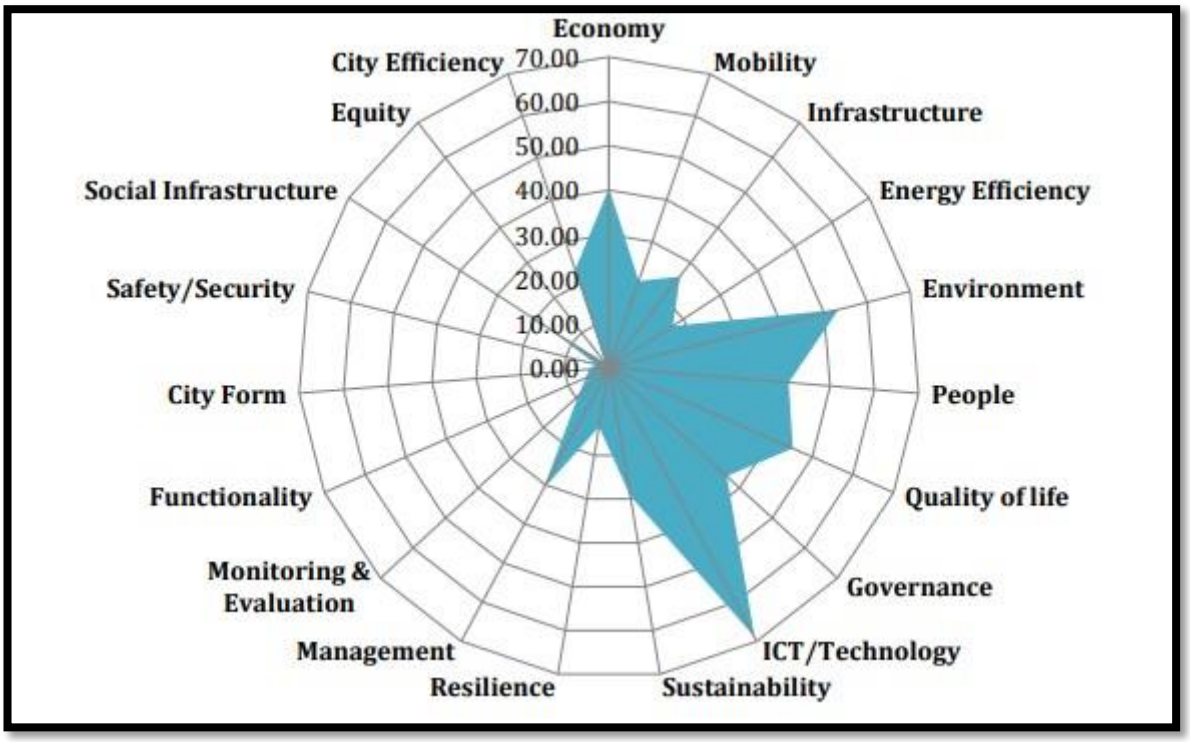


Fig: - 3.0 Definitions of Smart City in Literature as a Combination of Various Aspects

➢ Practices(Civil):

It has already been noted that the implementation of smart concepts into regional, both rural and urban contexts has to be adapted to socio-cultural and environmental circumstances. Thus, in the cities, different issues need to be tackled than in rural areas, where the main challenge is to bridge the distances among relatively small number of people. In the context of digital transformation that is at the forefront of our interest, this means that also digitalization requires adapted concepts, business models and solutions that have to strive to generally improve the well-being of the rural population. Need a following practices:

3.2 Vision-Goals, Standards and Performance Measurement Indicators

Some of the bench marks which shows the detailed needs of smart city as below:

- Smart traffic management
- Smart meters
- Building automation and control solutions (security, fire safety, alarms, lighting, gas and smoke detection).
- Smart energy management (Smart grid, smart water meters, smart solar energy solutions, smart electricity meters).
- Free public Wi-Fi network.
- GHG emissions tracking
- Applying smart solutions to infrastructure and service in area-based development.

➢ Smart Cities Standards:

Standardized indicators within standards benefit smart cities in the following ways:

- Effective governance and efficient delivery of services.
- International and Local targets, benchmarking and planning.
- Informed decision making and policy formulation.
- Leverage for funding and recognition International entities.
- Transparency and open data for investment attractiveness.
- A reliable foundation for use of big data and the information explosion to assist cities in building core knowledge for city decision-making and enable comparative insight.

Fig 3.2 Animated image of Smart technology implementation in village

3.3 Technological Options

- Smart energy
- Smart mobility
- Smart infrastructure
- Smart public services
- Smart care

3.4 Road Map and Safe Guard

Smart Maps capture abroad range of detailed data, such as roads (with details including lanes, speed limits, and turn restrictions), shops, (types, user ratings),and other information(bike and transit routes, building shapes, etc.)Smart Maps are designed so that users can quickly and intuitively interact with
them despite having virtually no training, ensuring that information reaches the widest possible audience. Smart Maps are built to update quickly and correctly as cities change and evolve.

For example, Lusail City in Qatar,Masdar City in the UAE,and Songdo in SouthKorea are all making digital technology,networks, and appsa central part of how they operate and interact with citizens. By contrast, existing or brownfield metropolitan areas face clear challenges in moving up the ICT

Maturity ladder, as they need to modernize their existing infrastructure with embedded sensors and control systems and retrofit old buildings a complicated and expensive process.

3.5 Issues and challenges:

1. **Retrofitting existing legacy city infrastructure to make it smart:** There are a number of latent issues to consider when reviewing a smart city strategy. The most important is to determine the existing city's weak areas that need utmost consideration, e.g. 100-per-cent distribution of water supply and sanitation. The integration of formerly isolated legacy systems to achieve citywide efficiencies can be a significant challenge.

2. **Financing smart cities:** The High Power Expert Committee (HPEC) on Investment Estimates in Urban Infrastructure has assessed a per-capita investment cost (PCIC) of Rs 43,386 for a 20-year period. Using an average figure of 1 million people in each of the 100 smart cities, the total estimate of investment requirements for the smart city comes to Rs 7 lakh crore over 20 years (with an annual escalation of 10 per cent from 2009-20 to 2014-15). This translates into an annual requirement of Rs 35,000 crore. One needs to see how these projects will be financed as the majority of project need would move through complete private investment or through PPPs (public-private partnership).

3. **Availability of master plan or city development plan:** Most of our cities don't have master plans or a city development plan, which is the key to smart city planning and implementation and encapsulates all a city needs to improve and provide better opportunities to its citizens. Unfortunately 70-80 per cent of Indian cities don't have one.

4. **Financial sustainability of ULBs:** Most ULBs are not financially self-sustainable and tariff levels fixed by the ULBs for providing services often do not mirror the cost of supplying the same. Even if additional investments are recovered in a phased manner, inadequate cost recovery will lead to continued financial losses.

5. **Technical constraints of ULBs:** Most ULBs have limited technical capacity to ensure timely and cost-effective implementation and subsequent operations and maintenance owing to limited recruitment over a number of years along with inability of the ULBs to attract best of talent at market competitive compensation rates.

6. **Three-tier governance:** Successful implementation of smart city solutions needs effective horizontal and vertical coordination between various institutions providing various municipal amenities as well as effective coordination between central government (MoUD), state government and local government agencies on various issues related to financing and sharing of best practices and service delivery processes.

7. **Providing clearances in a timely manner:** For timely completion of the project, all clearances should use online processes and be cleared in a time-bound manner. A regulatory body should be set up for all utility services so that a level playing field is made available to the private sector and tariffs are set in a manner that balances financial sustainability with quality.

8. **Dealing with a multivendor environment:** Another major challenge in the Indian smart city space is that (usually) software infrastructure in cities contains components supplied by different vendors. Hence, the ability to handle complex combinations of smart city solutions developed by multiple technology vendors becomes very significant.

9. **Capacity building programme:** Building capacity for 100 smart cities is not an easy task and most ambitious projects are delayed owing to lack of quality manpower, both at the centre and state levels. In terms of funds, only around 5 per cent of the central allocation may be allocated for capacity building programs that focus on training, contextual research, knowledge exchange and a rich database. Investments in capacity building programs have a multiplier effect as they help in time- bound completion of projects and in designing programs, developing faculty, building databases as well as designing tool kits and decision support systems. As all these have a lag time, capacity building needs to be strengthened right at the beginning.

10. **Reliability of utility services:** For any smart city in the world, the focus is on reliability of utility services, whether it is electricity, water, telephone or broadband services. Smart cities should have universal access to electricity 24×7; this is not possible with the existing supply and distribution system. Cities need to shift towards renewable sources and focus on green buildings and green transport to reduce the need for electricity.

3.6 Smart Infrastructure:

Responds intelligently to changes in its environment, with the ability to influence and direct its own delivery, use, maintenance and support. Smart Information and Communications Technology (smart ICT) has the potential to transform the way we plan and manage infrastructure. New developments in computer hardware, new applications and software are changing the face of the infrastructure sector, and society more generally; driving greater efficiency, increasing productivity, and greatly simplifying construction processes and life-of-asset maintenance.

The core infrastructure elements in a smart city would include:

- Adequate Water Supply
- Assured Electricity Supply
- Sanitation, including Solid Waste Management
- Efficient Urban Mobility and Public Transport
- Affordable housing, especially for the poor
- Robust IT connectivity and digitalization
- Good governance, especially e-Governance and citizen participation
- Sustainable environment
- Safety and security of citizens, particularly women, children and the elderly, and
- Health and Education

3.7 Cyber Security:

Smart cities and communities aim to increase economic competitiveness, strengthen sustainability efforts, and improve the quality of life of its people. The components of a smart city or community are designed to increase convenience and open the door to new services and communications in an ever-increasing mobile society.

As urban hubs become increasingly connected, many economic, environmental, and quality-of-life benefits are realized. However, with cyber everywhere, this connectivity comes with unique privacy and cybersecurity risks.

In a converging physical and digital world, relying on perimeter cyber defense is not enough. City and community leaders should, therefore, embrace a broader future-minded approach to grow anywhere, safely.

3.8 Retrofitting- Redevelopment- Greenfield Development District Cooling:

- **Retrofitting** will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and livable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens.
- **Redevelopment** will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens.
- **Greenfield** development will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordable housing, especially for the poor. Greenfield developments are required around cities in order to address the needs of the expanding population.

3.9 Strategic Options for Fast Development

Following strategic option for fast development of smart city:

- It starts with having a realistic plan.
- Smart cities require extensive experimentation.
- A smart city vision should energize the private sector.
- Smart cities demand smart data.
- Get creative when rethinking transportation.
- Don’t downplay digital security.
- Smart city initiatives should complement low-techinitiatives.

3.10 India's Urban Water and Sanitation Challenges and Role of Indigenous Technologies:

Urban water supply: status and challenges

- As per Census 2011, over 71.2% of India’s urban house hold shad access to drinking water within their premises; up from 65.4% during Census 2001. Another 20.7% households had a water source within 100 m of their premises. Over 8% of India’s urban households need to move beyond 100 m from their premises to access drinking water; this has come down only marginally from the levels of 9.4% of households during Census 2001 and is a cause for concern.
- Even as basic access eludes about 8% of urban population, a bigger challenge has been in making access to urban water supply consistent, equitable and sustainable. The HPEC report points out that inadequate coverage, intermittent supplies, low pressure, and poor quality are Prominent features of water supply in the cities of India. A vicious circle is at play; high commercial and physical losses in the distribution network com- pounded by unwillingness to charge and collect user fees, often results in water utilities unable to improve service levels.

  Water utilities in India typically recover only a third of their operations and maintenance (O&M) cost, which is lower than peer Asian city counterparts.
- It is in this context that some of the cases showcased in this Compendium hold promise. They reinforce the view that with sharp institutional focus and commitment, urban water supply systems can indeed be transformed in a relatively shorter period of time. Nagpur is attempting to scale up positive results from delivering 24x7 supply in a demonstration zone, to the entire city. The efforts of Bangalore, Pimpri-Chinchwad and Surat towards improvements in efficiency and information management are a welcome shift from asset creation towards a greater focus on service delivery improved efficiencies.

Urban sanitation: status and challenges

- A City Sanitation Ranking study (2010) conducted by MoUD found that none of 423 cities covered were found to be 'healthy' and 'clean'. While Chandigarh, Mysore, Surat and New Delhi were the only four ULBs that fared relatively better, nearly 190 cities were rated to be in a state of emergency with respect to public health and the environment.
- Urban India has still not been able to eliminate the scourge of open defecation;at Census 2011,over 12.6% of urban households resorted to open defecation. While this is a sharp reduction from the 18% at Census 2001, concerted efforts on a war-footing are required to eliminate open defecation all-together. Asarticulated in the National Urban Sanitation Policy (NUSP), achieving totally sanitised cities requires going beyond building toilets towards adopting holistic city-wide and community-led approaches. The relative successes of Trichy and Nanded in combating open def- ecation through city-wide community-led efforts reaffirm this philosophy and hold insights for rest of urbanIndia.
- Less than a third of the domestic waste-water undergoes any form of treatment. Pollution impacts and loss of freshwater owing to pollution is an area of serious concern. The NUSP reit- erates the need for a combination of city-level sewerage systems complemented with onsite systems and effective septageman- agement in smaller cities and in unserved areas to effectively address this situation.
- In recent years, capital funding from Government of India's Jawaharlal Nehru National Urban Renewal Mission (JnNURM), State-level initiatives and funding from multi-lateral / bi-lat- eral programs have helped a number of cities to expand their sewerage systems. However, the inability to deal with financing O&M has raised serious questions over long-term sustainability of some of these projects. The use of connection deposits, loans, taxear marking anduser charges in Tirunelveli's sewerage system (an approach adopted initially in Alandur in the mid-1990s and replicated in over 25 ULBs in Tamil Nadu) suggests that with policy commitment, effective project appraisals and citizen in-volvement, long-term sustainability of sewerage systems can be achieved.

Recent Initiatives in Urban Water and Sanitation

Jawaharlal Nehru National Urban Renewal Mission (JnNURM): In 2005, the Government of India launched the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) and its allied Programme, the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) to provide reform-linked grants for urban infrastructure with an outlay of Rs. 54,000 crore. As of March 2014, over 319 water and sewerage projects were sanctioned under JnNURM with anoutlay of Rs.39078croreand another 753 water and sewerage projects were sanctioned under UIDSSMT with anoutlay of Rs.22662crore.Achieving 100% O&M cost recovery in water and sewerage services and transfer of water management function to local bodies are mandatory reforms to be implemented by participating cities under the mission program.

- **Service Level Benchmarking:** The Ministry of Urban Development (MoUD), Government of India has launched the Service Level Benchmarking (SLB) initiative covering water, sanitation, solid waste management and storm water drainage. A Handbook on Service Level Benchmarking has been released by MoUD to identify aminimum set of standard performance parameters, to define a common minimum framework for monitoring and reporting and to set out guide- lines on how to operationalize this framework in a phased manner. To encourage and facilitate adoption of the SLB framework outlined in the Handbook, the MoUD launched an SLB Pilot Initiative in February2009 in 28 pilot cities. As a follow up to the Workshop, cities developed Plans, which identified specific actions to be taken along with targets for expected service levels consequent to their implementation. Since then a number of states and cities have adopted these SLB framework to facilitate a planned approach to undertake improvements in performance and service delivery.

- **National Urban Sanitation Policy:** In 2008, Ministry of Urban Development, Government of India (MoUD) launched the National Urban Sanitation Policy (NUSP) with anaspirational vision for Indian cities – 'All Indian cities and towns become totally sanitized, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and afford- able sanitation facilities for the urban poor and women'. To support implementation of this vision, the NUSP envisaged formulation of City Sanitation Plan (CSP) at a city level as a comprehensive document that would detail short, medium and long term plans for governance, technical, financial, capacity building, awareness and pro-poor actions to ensure 100% access to safe sanitation. As a follow up to the NUSP, the Government of India initiated a periodic rating of cities by independent agencies on a range of sanitation indicators. A National Annual Award has also been instituted on the basis of this rating.

3.11 Initiatives in village development by local self-government:

In the past "government as provider" approach, the priorities were to secure budget allocations and develop projects. The Housing Policy and the NCU statement implicitly give higher priority to two other requirements: first, the reform of policies and regulations that now inhibit development initiatives by the people; and second, more efficient resource management and the building of institutional capacity. Resource Management and Institutional Development. As discussed in Section 5, India's urban institutions do not have the capacity to provide adequate services at present, let alone address the requirements of accelerated urban growth in the future. Proposals relate to three types of institutions.

He primes public sector actors in the urban development process; call for clearer allocations of responsibility and authority to them; and recognize the need for new organizational relationships between local governments and development authorities and State governments that would avoid overlaps and facilitate coordinated programming. Improved personnel incentives will be needed to permit the recruitment and retention of qualified staff as will skills training programs. Resource constraints, however, preclude simply expanding local government under current practices in proportion to urban growth. In many areas, the very nature of the way work is conducted will have to be redesigned to permit much higher levels of productivity. The NCU recognizes reforms of internal management as vital. This is likely to entail implementing more systematic and efficient approaches in many areas: for example, budgeting and financial management; project management and control; billing and collections; infrastructure systems maintenance; and personnel management.

Financial Systems. Constraints on government budgets and the rigidities of the present system of intergovernmental transfers prevent an adequate response of traditional arrangements to the challenge of urbanization. A new and more decentralized system of public and private financial intermediaries will be required. The establishment of the NHB represents an important step: an apex institution that will stimulate the creation of a network of mortgage financing. The NCU also calls for the creation of Urban Infrastructure Development banks to permit local governments to borrow for infrastructure.

Non-Governmental Organizations. Given the size of the job and the difficulty governmental agencies have in dealing directly in some aspects of the development of urban areas (e.g. stimulating informal sector enterprise and provision of shelter) there is a recognition of the need for new and expanded NGOs to assist in facilitating the urbanization process.

3.12 Smart Initiatives by District Municipal Corporation:

City bus service users will now be able to get information on the movement of their buses with the implementation of **Integrated Transport Management System** (ITMS). The system will also lead to a series of other improvements in the city bus service. ITMS was launched in 75 city buses by the **Vadodara Municipal Corporation** (VMC) as a Smart City initiative. In the second phase of the programmed, it will be launched in the remaining 75 buses.

As a part of the ITMS, the city buses are also being equipped with CCTVs, **Passenger Information System** (PIS) displays, panic buttons, driver display units and GPS tracking

The CCTVs and panic buttons will ensure better passenger safety. Apart from live tracking of buses on VMC's official mobile application and website, the estimated time of arrival of buses will also be seen on displays at bus stands soon. Officials said that if the bus diverts from its route or skips the bus stop, those monitoring the service will get an alert. The system will also ensure that the bus drivers do not over speed and drive safely.

3.13 Any Projects contributed working by Government / NGO / Other Digital Country concept:

1. **Digi Locker**

   The service was launched as an important facility to store crucial documents like Voter ID Card, Pan Card, BPL Card, Driving License, education certificates, etc. in the cloud.

Fig 3.13.1: Digi Locker

2. My Gov. in

The portal works as an online platform to engage citizens in governance through a “Discuss”, “Do” and “Disseminate” approach.

Fig 3.13.2 My Government

3. E-Sign Frame work

This initiative would enable users to digitally sign a document online using Aadhaar authentication

Fig 3.13.3 E-Sign Frame Work

4. Swatch Bharat Mission Mobile App

The app will enable organizations and citizens to access information regarding the cleanliness drive and achieve the goals of the mission.

5. E-Hospital

Online Registration System under this initiative enables people to avail services like online registration, payment of fees and appointment, online diagnostic reports, checking on the availability of blood online, etc.

Fig 3.13.5 E-Hospital

6. Digitize India Platform

This initiative will involve digitization of data and records on a large scale in the country to make easy and quick access to them possible.

Fig 3.13.6 Digital India

7. Centre of Excellence on Internet Of Things (IOT)

In partnership with NASSCOM, Deity and ERNET in Bangalore, Centre of Excellence will enable rapid adoption of IOT technology and encourage a new growth strategy. IOT will help the citizens in services like transport system, parking, electricity, waste management, water management and women's safety to create smart cities, smart health services, smart manufacturing and smart agriculture, etc.

Fig 3.13.7 IOT

8. Electronic Development Fund

The fund will be set up to support the manufacturing of electronics products that would help create new jobs and reduce import. The funds will promote innovation, research and product development to create a resource pool within the country.

3.14 How to Implement Other Countries Smart Villages Projects in Indian Village Context

1. Promoting mixed land use in area-based developments

Planning for 'unplanned areas' containing a range of compatible activities and land uses close to one another in order to make land use more efficient. The states will enable some flexibility in land use and building bye-laws to adapt to change.

2. Housing and inclusiveness

Expand housing opportunities for all.

3. Creating walkable localities

Reduce congestion, air pollution and resource depletion, boost local economy, promote interactions and ensure security. The road network is created or refurbished not only for vehicles and public transport, but also for pedestrians and cyclists, and necessary administrative services are offered within walking or cycling distance.

4. Preserving and developing open spaces

Parks, playgrounds, and recreational spaces in order to enhance the quality of life of citizens, reduce the urban heat effects in areas and generally promote eco-balance.

5. Promoting a variety of transport options

Transit oriented development (TOD), public transport and last mile para-transport connectivity.

6. Making governance citizen

Friendly and cost effective-increasingly rely on online services to bring about accountability and transparency, especially using mobiles to reduce cost of services and providing services without having to go to municipal offices. For minge-groups to listen to people and obtain feedback and use online monitoring of programs and activities with the aid of cyber tour of worksites.

Chapter: 4

4. Introduction about Dharampur village

4.1.1 Introduction:

Dharampur is located at 21.66°N 69.67°E. It has an average elevation of 37 meters. Dharampur town is almost 7 km far away from the Airport. Dharampur is around 14km away from its district center.

Dharampur is connected via roads. It has no train, water or airport connectivity except its nearest district center, Porbandar.

4.1.2 Study justification/ need of the study:

About 70% of India's population live in villages. More than 85% of these villages are in the plains or on the Deccan plateau. The average village has 200-250 households, and occupies an area of 5 sq. km. Villages are thus spaced 2-3 km apart, and spread out in all directions from the market towns. The market centers are typically spaced 30-40 km apart. Each such center serves a catchment of around 250-300 villages in a radius of about 15 km. As the population and the economy grow, several large villages are continually morphing into towns and market centers. The Next Two Billion People will live in cities and town; So We Need To Plan Now. Almost all future population growth in the next 40 years will be absorbed by cities of the developing world, which are unprepared for such rapid expansion. Planning needs to begin now to take advantage of the many benefits cities can offer.

Around 65% of the State's population is living in rural areas. People in rural areas should have the same quality of life as is enjoyed by people living in sub urban and urban areas. Further there are cascading effects of poverty, unemployment, poor and inadequate infrastructure in rural areas on urban centers causing slums and consequential social and economic tensions manifesting in economic deprivation and urban poverty. Hence Rural Development which is concerned with economic growth and social justice, improvement in the living standard of the rural people by providing adequate and quality social services and minimum basic needs becomes essential. The present Project deals with the same.

4.1.2 Study area (broadly define):

Gujarat

Gujarat is a state in the North-West of India. It is known nearby as Jewel of the West. It has an area of 196,204 km2 (75,755 sq mi) with a coastline of 1,600 km (990 mi). The state is bordered by Rajasthan to the north, Maharashtra to the south, Madhya Pradesh to the east, and the Arabian Sea as well as the Pakistani region of Sindh on the west. Its capital city is Gandhinagar, while its biggest city is Ahmedabad. Gujarat is home to the Gujarati speaking people of India.

Study area location

- Name: Dharampur
- District: Porbandar
- Taluka: Porbandar
- Pin code: 360560
- Language: Gujarati, Hindi, English
- Time zone: IST (GMT+5:30)

- Elevation/Altitude : 37 meter Above sea level
- Telephone code/std code: 02801

Fig 4.1.3 Map of Gujarat

Fig 4.1.3.1 Agricultural Map of Gujarat

4.1.3 Objectives of the study:

- We will provide the creation of infrastructure-connectivity, civic & social infrastructure along with provision of different economy generation is the key pillars that the concept hinges on.
- Basic physical infrastructure- water supply, transport, sewage and solid waste management should be the main concern focus and be provided.
- Basic social infrastructure- health and infrastructure facilities should be provided and ensure proper delivery of facilities to village dwellers.
- Promote integrated development of rural areas with provision of quality housing, better connectivity, employment opportunities and supporting physical and social infrastructures.
- Reduce migration from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas.
- Internal road within village settlement, efficient mass transportation systems to improve connectivity between urban and rural areas, public transportation facilities that need to be developed like bus stops transport depot etc.
- Identification of sanitation facilities that need improvement-sewage and drainage line for household connection, door to door solid waste collection and dumping facilities.
- Electricity connections like street lighting that is energy efficient and eco-friendly.
- To analyze all feasibility parameters and relevant factors for sustainable development of villages.
- To evolve strategic planning proposal in the form of Physical, Social and Renewable infrastructure facilities for the development of villages, channelizing urban growth and to sustain future.

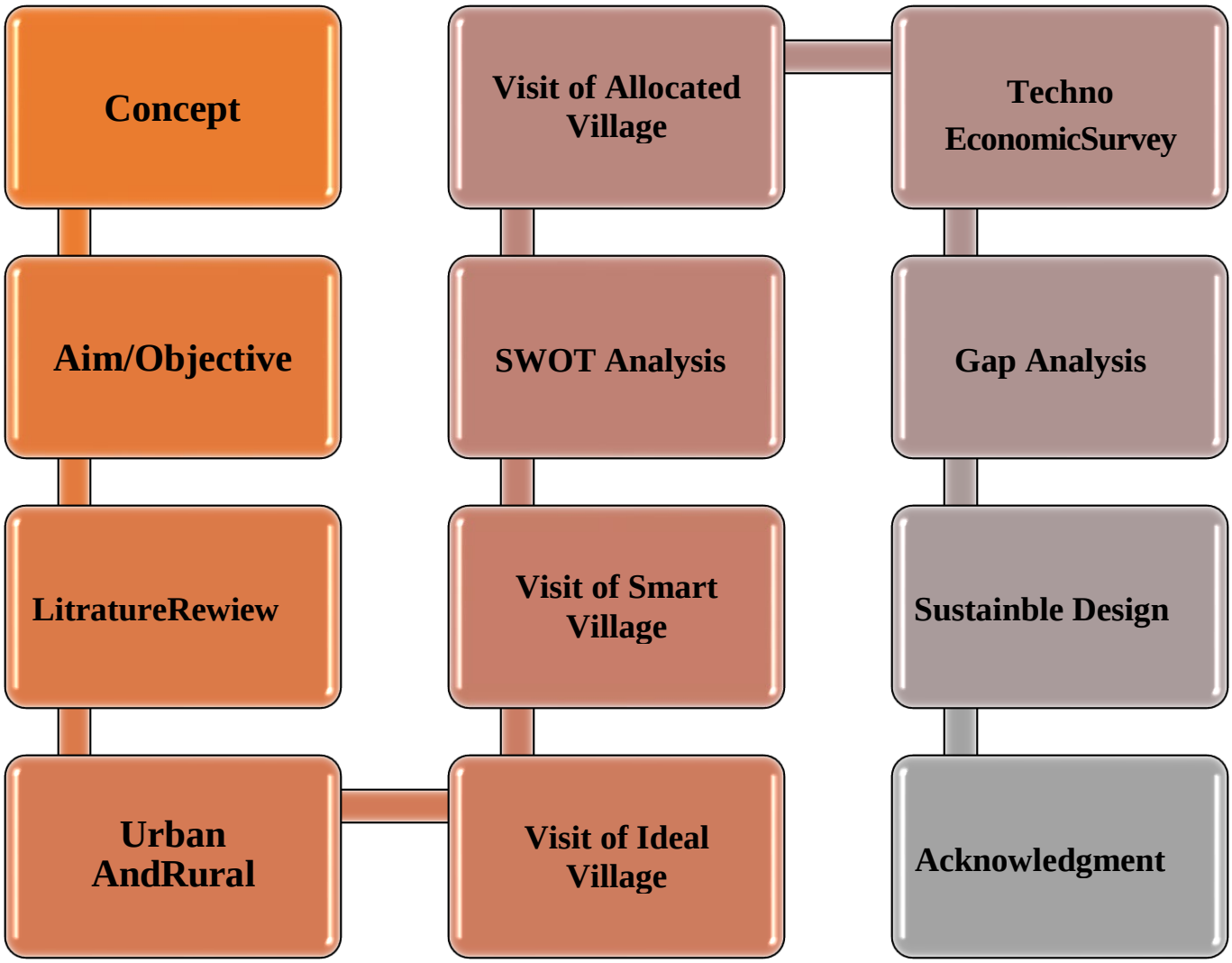
4.1.4 Scope of the Study

Various scopes are following for the sustainable developments of village.

- Benefits for the civil engineering students for getting new experiences in field.
- To provide green ecofriendly environment in the village.
- To reduce the migration from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas.
- To provide basic facilities as per urban areas for village development.

4.1.5 Methodology/ Study Frame Work

- Gujarat is experiencing changing characteristic of villages with growing population and pointed out that people are migrating from rural areas to urban areas not only for employment opportunities but also for good standard of living and better facilities to reduce this pressure Vishwakarma Yojana is finest approach.



4.1.6 Available Methodology for development of related to Civil

Following objects are available related civil:

- Data of ideal village & smart village
- SWOT Analysis of ideal village
- Outline MAP of Dharampur village
- GOV. guideline regarding village development
- SWACH BHARAT ABHIYAN Guidelines by gov.
- GAP Analysis of village

4.2 Study Area Profile

4.2.1 Study Area Location with brief History land use details

Dharampur village is located in the ranavav tehsil of Porbandar district of Gujarat state. Nearest town from Dharampur village is Porbandar which is 3 km away from Dharampur.

Dharampur is located at 21.66°N 69.67°E. It has an average elevation of 37 meters. Dharampur town is spread over almost a 7 km range to the airport. Dharampur is around 12 km away from its district center, Porbandar.

Dharampur is connected via roads. It has no train, water or airport connectivity except its nearest district center, Porbandar.

4.2.2 Base Location map, Land Map, Gram Tal Map

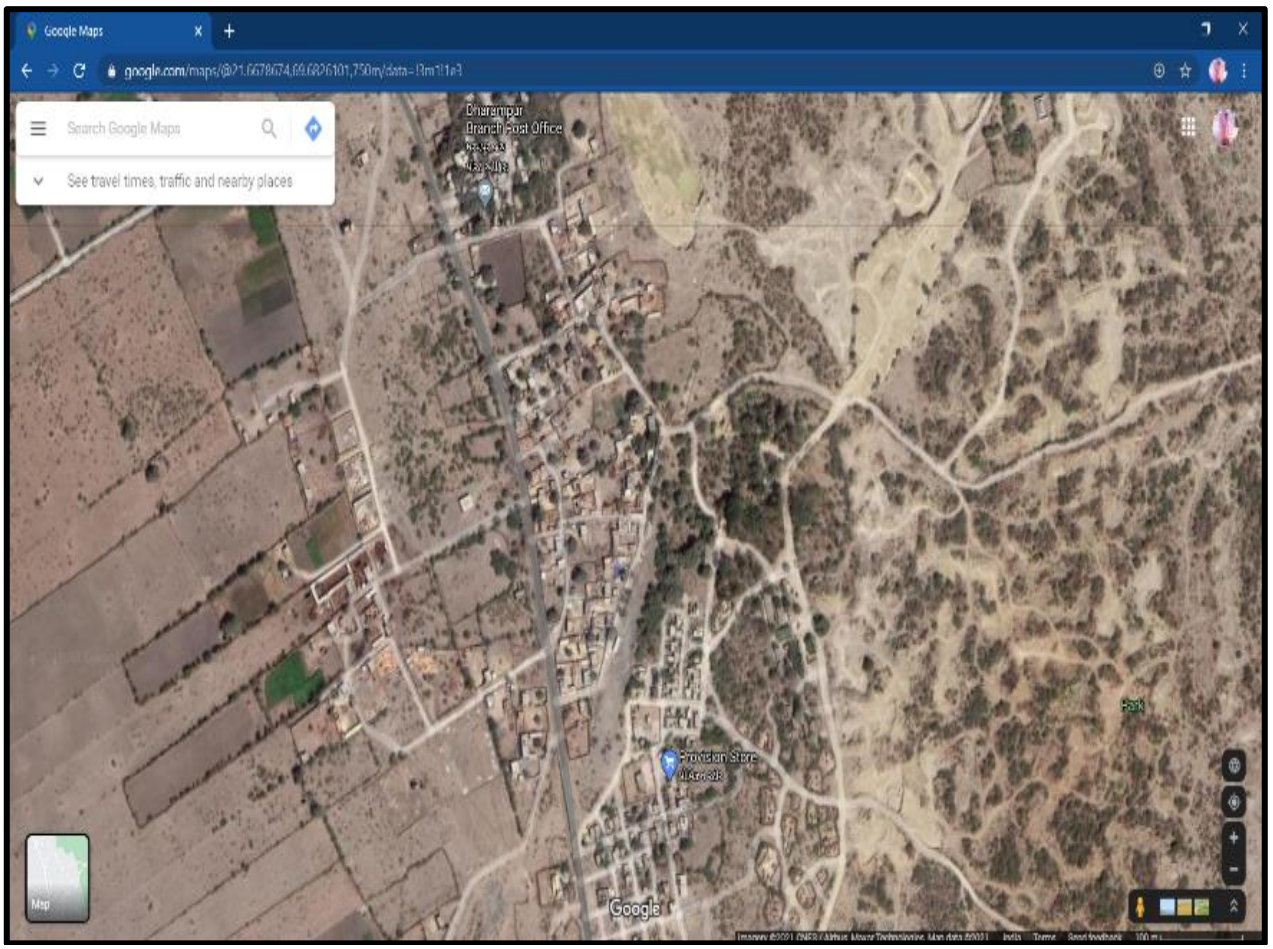


Fig 4.2.2: Base Location Map

4.2.3 Physical And Demographical Growth

As of 2001 India census, Dharampur had a population of 7704. Males constitute 51% of the population and females 49%.In Dharampur, 12.07% of the population is under 6 years of age.

Geographical Details of Dharampur Village

Sr. No	Description	Information/Details
1	Area of Villages (Approx) (In Hector)	1840.4 Ha
2	Forest Area	-
3	Agricultural Land (In Hector)	30 Ha
4	Residential Area	-
5	Other Area (In Hector)	26.03 Ha
6	Nearest Railway Station (In Km)	Porbandar railway station 10
7	Nearest Town With Distance	Porbandar 9km
8	Nearest Bus Station	Porbandar Bus Stop
9	Road Connectivity	Yes Village Connected to all Road

4.2.4 Economic profile /Banks

Name of three Major Occupation groups in village:

Agricultural: 85%

Business: 10%

Govt. Services: 5%

The major crops produced in Dharampur are cotton, groundnut, bajra, gram, wheat, tal and jowar

4.2.5 Actual Problem faced by Villagers and smart solution

Dharamour village has no facilities of public toilet, biogas plant, community hall, solar street light facility, bus station, sewage water drainage problem, rain water harvesting etc.

4.2.6 Social scenario/ Preservation of traditions, Festivals, Cuisine

Dharampur has an average literacy rate of 71.4%, higher than the national average of 59.5%: male literacy is 38.7%, and female literacy is 32.7%

2011	Literacy Percentage (%)
Male	38.7%
Female	32.7%

Table 4.2.6 Literacy Percentage

4.2.7 To know the reasons of migration / trends of migration / problems and potentials of migrants

Following reason of people are migrant in urban area

1. Employment – Lack of Employment Leads to Migration of villages people
2. Marriage – Marriage Leads to movement of Family to cities for Living Standards And facilities
3. Education
4. Hospitals other Public Facilities

4.3 Data Collection Dharampur (Photograph/Graphs/Charts/Table)

4.3.1 Describe Methods for data collection

Base line survey is a standard for any intervention during and post application of any development programmed. A complete base line survey was undertaken which involved household census survey, Bio-physical survey and Village level data collection from Sarpanch. This gave in the details of the demographic profile of the village, the literacy percentage, SC/ST population, cattle population and net consumption rate in the village, average milk production of the cattle and various schemes running and their benefits Bio-physical survey was undertaken to identify various natural resources available in the village. It included the soil typology, well in the area, crop taken in the field, cropping pattern, fertilizer used and various sources of irrigation in the field.

4.3.2 Primary Details of Survey

Primary Details of Survey Include the raw data required like

- Land Map
- Census Details
- Infrastructure Details
- Geographical Details
- Need of villagers

4.3.3 Material Available locally in the village and Materials Out Sourced by Villagers

The construction of the houses is made of Stone block, Sand, cement, Concrete. In this village there were more pucca house then katchcha house. In village concrete house and renovation of old house are done on wider scales.

4.3.4 Geographical Detail

Description	Gujarat
Village	Dharampur
District	Porbandar
Tehsil	Porbandar
Area (hectare)	1840.4
Government	Panchayat
Population	7704
Pin code	360560

Table 4.3.6: Geographical Details Chart

4.3.5 Demographical Details

Sr No	Census	Population	Male (In Nos)	Female(In Nos)	Total No of house Holds
1	2011	7704	3961	3743	1722

Table 4.3.7: Demographical Details Chart

4.3.6 Occupational Details /4.3.9 Agricultural Details

Name of the Major Occupation Groups in Villages	❖ **Agriculture**
	❖ **Service Work, Private Business**
	❖ **Laborers**
Name of the Major Crop Grown in the Village	❖ **Wheat**
	❖ **Jowar**
	❖ **Bajra**

Table 4.3.8 Occupational Details Chart

4.3.7 Manufacturing HUB/ Ware houses

The Village is connected to highway and Area of nearby village is surrounded by various small as well as big manufacturing industries like (Hathi Cement pvt.ltd, Orient pvt.ltd., Birla Cement Factory.)

4.3.8 Tourism development

No tourism in this village.

4.4 Infrastructure Details (With Exiting Photograph)

4.4.1. Drinking Facilities / Water Management Facilities in the Village

For drinking Purpose one Over Head water tank and Sump is available. Some people also use hand pump for water purpose. But condition is, only 60000 lit elevated water tank available and current need is not fulfilled by that and there is also Lack of hand Pump. While Interacting Villagers we get to know they are getting water once in 2 to 3 days.

Fig 4.4.1: Water Tank

Fig 4.4.1.1 Overhead Water tank

4.4.2. Drainage Network& Sanitation

In the village there is not proper drainage facilities available

4.4.3. Transportation& Road Network

All the roads in the village are in Ok condition. There is good approach road available. The Village is connected with Highway Road i.e. National Highway which is located in less then 2 km from village.

Fig 4.4.3: Main Road

Fig 4.4.3.1 Road of Dharampur

4.4.4. House Condition

The Houses in Dharampur Village are made of Stone Blocks, Sand, Cement, Concrete .The number of Pucca houses are more than the Kutchcha houses. Most of houses are in good conditions.
Some houses are even Double storey and well-constructed.


Fig 4.4.4 RCC House (Pucca House & Kuchha House)

4.4.5 Social Infrastructure Facilities, Health, Education, Community Hall, Library

Health Facilities:
There is one PHC Centre available in Dharampur village.

Education system:
There is 1 Aanganwadi in the and 1 primary school. For the higher study like collage, engineering collage are available near the village, it is Approximately 5 km away from this village.


Fig 4.4.5: Public Health Care Centre

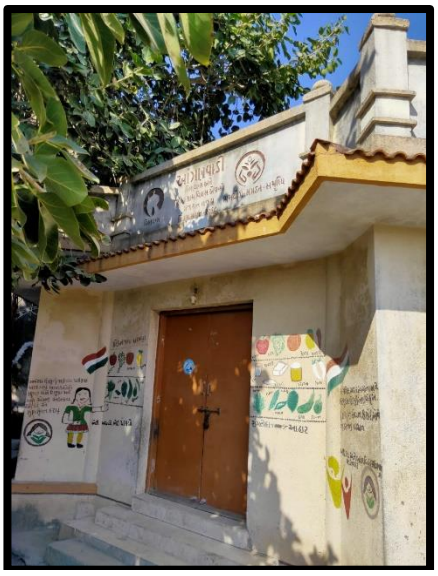


Fig 4.4.5.1 Anganwadi

Fig 4.4.5.2: Primary School

4.4.6. Existing Condition of Public Buildings & Maintenance of existing Public Infrastructures.

In village existing public building like panchayat building, school, PHC are in good condition and they don't required maintenance. Anganwadi required maintenance as well as Post Office branch required maintenance

Fig 4.4.6: Bust Station

Fig 4.4.6.1 Post Office

4.4.7. Sport Activity as Gram Panchayat

No activity of sports is conducted by gram panchayat but School Conduct Sport Activities.

4.4.8. Socio-Cultural Facilities, Public Garden /Park/Playground /Pond/ Other Recreation Facilities

- Public Library: There is no Public Library in the village.
- Public Garden: There is no Public Garden in the village.
- Village Pond: There is one pond or lake in the village.
- Community Hall: There is no community Hall in the village.
- Irrigation Canal : Water Canal is Not Available for Agricultural Purpose
- Temples: In village at Present 1 temple is available.

Fig 4.4.9: Temple

Fig 4.4.9.1 Pond or Lake

4.4.9 Other Facilities /4.4.11 Any other Details

- There is one Panchayat Building in the village.
- There is no Bank in the village.
- There is no Milk Co-operative Society in the village.
- There is no any medical shop in the village.

Fig 4.4.10 Sarpanch Office

4.5 Existing Institution like - Village Administration – Detail Profile

4.5.1 Bachat Mandali

Village has no bachat mandali. So required a small scale bachat mandli in village.

4.5.2 Dudh Mandali

Village do not have dudh mandala.

4.5.3 Plantation for the Air Pollution

4.5.4 Rain Water Harvesting

No facility of rain water harvesting in a village.

4.5.5 Agricultural Development

The agriculture activities are supported by Pond.

Chapter: 5

5. Technical Options with Case Studies

Case Study on Central Bus-station, Porbandar, Gujarat

Fig 5.1: Site view of central bus station

➢ About The City:

Altitude: Sea Level
Temperature: Winter Max 24- Min 10 degree Celsius
Best time to visit: October to March
Nearest airport: Porbandar
Nearest Railway Station: Porbandar
Highways: National Highway 8B connects Porbandar to Rajkot
PIN Code: 360575
STD Code: 0286
Time Zone: IST
Spoken Language: Gujrati, Hindi, English

➢ Site & Surroundings:

Porbandar bust station is placed near the sea of porbadar.bus station has 2 floor ground and first floor.

The terminal has 2 accesses: 1st is bus entry, 2nd is bus exit. Railway station is located just near the bus station (0.5km) and airport is 3km away from the bus terminus and also Bhavshinghji hospital is near from the bus terminus.

➢ Site plans & floor plans:

The Bus Terminus have:

- 09 platforms
- Parking area for 14 buses & ticket counters
- Inquiry counter
- 3 shops and
- Tourist information cabin
- Parcel office
- Water body in semi open area
- Administrative department
- Toilets for male & female
- GSRTC office

➢ Service analysis:

- Inquiry help
- Snaks Shop
- News in LED TV
- Drinking Water Facility
- Sitting Facilities

➢ Material & structural analysis:

- Good Stair Facility
- Simple and perfect atmosphere
- Parking facility

➢ Conclusion:

- ❖ Central Bus station of Porbandar is newly immigrated about an year ago well managed by GSRTC.
- ❖ Good Facilities for traveler.
- ❖ The bus station constructed by new designs.

➢ Positive aspects:

- ❖ The building is friendly for physical challenged people.
- ❖ There are fire extinguishers and sprinklers at several points for firefighting.
- ❖ Bus entry, exit and public entry are separate to control traffic as well as crowd.
- ❖ The total new concept and design of the project will make this place a “City Icon” and would surely become pride for the city.

➢ Negative aspects:

- ❖ The building is near the sea of porbandar so corrosion will more.
- ❖ Sometimes irregularity of services.
- ❖ Hard to maintenance of building.

5.1 Concept:

5.1.1 Advanced sustainable construction techniques/practices and quantity surveying.

As there is no any renewable / sustainable infrastructure facility, it is very important to provide Sustainable Infrastructure in the village. It will be economical, eco-friendly and efficient also. We can provide Sustainable Infrastructure like Solar street lights, Biogas plant, Rain Water Harvesting System etc.

We can provide Solar Street Lights which uses solar energy to generate electricity. It is the most efficient system for the street lights. Street lights gets sun heat through-out the day and can store solar energy which can be used at night.

The other design we can provide is Biogas plant. It can be used for cooking purposes and can be used as natural gas. This method is also very efficient and eco-friendly and economic also.

Rain Water Harvesting can be provided for any particular Public Building to store the rain water.

5 Techniques for Sustainable Building Construction

For contractors, a strategy for saving time and materials can lead to higher profitability and the good feeling of not creating unnecessary waste. Here's a look at five techniques that are having the greatest impact on sustainable building construction.

1. Prefabricating Materials in Controlled Environments

Constructing as much of a structure in a controlled environment as possible has improved the quality of buildings and resulted in less trash, says Spencer Finseth, principal of Minneapolis-based Greiner Construction.

Being able to cut materials precisely decreases waste and creates buildings that are strong enough to allow contractors to use wood framing as high as five stories, he says.

Mechanical contractors use Building Information Management (BIM) systems to cut sheet metal for duct work in a controlled environment instead of outside to avoid the shape-changing problems caused by cold or hot weather, according to Mike Smoczyk, director of professional development for Minneapolis-based Kraus-Anderson. That same duct work is delivered to a project "wrapped and sealed tightly and kept out of the elements" to avoid damage, he says. He estimates that prefabrication probably accounts for 15% of any project and likely more for hotels.

Roseville-based McGough Construction is prefabricating forms for use in creating the concrete superstructure of the $39 million, 57,000-sq.-ft. addition for the Ordway Center for Performing Arts addition in downtown St. Paul, according to Dan Brenteson, McGough's lean enterprise system director. McGough first creates 3D models then pre-builds forms at its White Bear Lake warehouse, a much better environment than being outside at a work site exposed to the elements and "in a constrained environment," he says.

The resulting forms are then transported — in this case to the Ordway site — where concrete is poured into them and the pieces are assembled in an Erector Set-style fashion. It's a common practice for McGough that saves time and improves quality because the planning and assembly of formwork were done in a warehouse with access to equipment not readily available on tight jobsites, such as the Ordway, Brenteson states.

2. Construction Waste Management

Reducing waste is becoming more achievable for contractors as haulers have grown more sophisticated in recent years. Where jobsites once had trash bins for different types of waste, they now need just one, in many cases, because haulers use pickers to separate materials.

"Through haulers, we can achieve 75% landfill avoidance through their process and we don't need to separate materials to do it," says Dale Forsberg, president of St. Louis Park-based Watson-Forsberg. "On a couple of sites, we've hit 95%."

For inner city projects with small footprints, having haulers handle materials in a single container makes all the difference because space is at a premium, Forsberg says. Some materials are recyclable on site — in particular, concrete that can be crushed and used for foundations or as aggregate beneath parking lots.

The three largest construction projects underway in the Twin Cities all have a recycling rate of more than 90%, according to Zachary Hansen, environmental health director, St. Paul-Ramsey County Public Health department, speaking at a recent conference sponsored by the Minneapolis-based Environmental Initiative. The projects include the Vikings Stadium in Minneapolis, the St. Paul Saints Ballpark and the Ford plant in St. Paul.

3. Managing the Site for Improved Environment

Stormwater pollution prevention has become a "big deal" to municipalities and the state and federal government, says Smoczyk at Kraus-Anderson. "Municipalities do not want a [construction] development that dumps a bunch of bad water into the storm sewer system and overflows it," he says.
Runoff is now contained by silt fencing surrounding an area. A number of "best practice" approaches can be used to treat water on site and avoid having it flow into the local sewer system, Smoczyk says. Kraus-Anderson is now making plans to avoid runoff during construction of its new office building in downtown Minneapolis.

Forsberg says worker safety has led to restrictions and the institution of simple ways to reduce pollution. There's no smoking on the site, for example. When workers enter a building, they travel over "walk-off mats" that remove dirt, lead and other potentially dangerous chemicals from their shoes. Contractors also bring recycling containers for food to decrease organic waste.

4. Lean Manufacturing to Reduce Energy

McGough'sBrenteson says his company encourages rethinking construction approaches through lean thinking. "It's finding the wasteful activities we're doing and eliminating them," he explains.
One success involved a McGough employee who modified a brush that works in conjunction with snow blowers to reduce the amount of time required to clean metal floor decks in winter. The process begins with a brush-mounte1d snow blower — again, modified a bit by McGough — that takes off the majority of the snow. Then, workers used brushes mounted on broom handles to remove snow caught in the grooves of the metal decks.

Although a snow-shoveling brush might not seem like a big deal, it has made life easier for McGough's staff. "It saved a substantial amount of time and manpower and that's important when talking about waste and sustainability," says Brenteson.

McGough also uses tool sheds — all designed by tradespeople — that are organized the same way regardless of the work site. The system eliminates wasted time searching for the right drill bit or wrench. Fewer tools are lost and have to be replaced using the system, and contractors work more efficiently since they can find what they need, says Brenteson. The company was so proud of both approaches it made YouTube videos — one on the snow brush and the other on tool sheds — to showcase them.

LEED doesn't give contractors points for lean construction techniques, but many contractors use them anyway. Ted Beckman of RJM Construction in Minneapolis, says his company sits down with foremen from various subcontractors to share schedules so "everyone knows what they're responsible for."
The materials are delivered "just in time" to avoid having rebar and other materials sitting outside well before installation. The just-in-time system brings supplies on or around the day they are needed, Beckman says.
"It saves time, eliminates theft on the jobsite, eliminates damage, eliminates wasted time moving things," he adds. "Those are lean practices but they are sustainable things, too, in a sense."

5. Material Selection

Architects and clients seeking LEED can achieve many points by selecting materials manufactured from recycled products and from local sources. The materials can be anything, from renewable

products such as bamboo for floors, to wood from vendors approved by the Minneapolis-based Forest Stewardship Council.

LEED points are also available for installing water-saving dual-flush toilets and low-flow faucets and other features, says Smoczyk. Water reduction has become a major issue, even in the Land of 10,000 Lakes, he notes.

As buildings become greener, so do construction sites. Off-site fabrication, improved on-site maintenance, lean practices, landfill avoidance and green materials acquisition have begun to fundamentally, albeit slowly, transform the way buildings are constructed today.

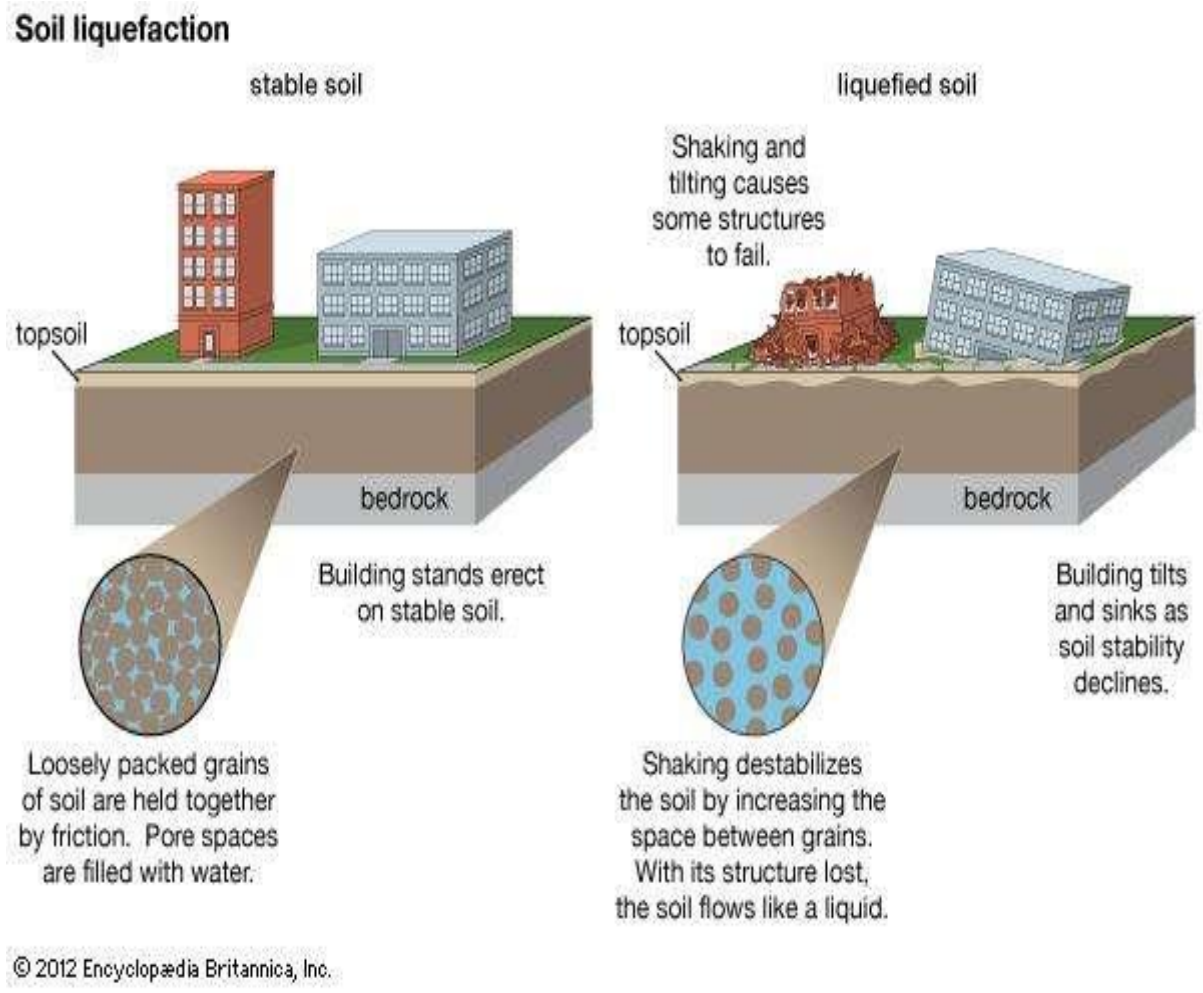
5.1.2 Soil Liquefaction

- **Definition**

  "A Phenomenon whereby a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress, usually earthquake shaking or other sudden change in stress condition, causing it to behave like a liquid" is called **Soil Liquefaction** (Hazen,1918).

- **How does Soil Liquefaction Work**

  The soil is a mixture of soil particles that stay connected together. These particles naturally rest upon each other due to gravity and form grids based on its properties. Each particle produces its own contact force by the surrounding particle. These contact forces together hold all the individual soil particles in their place. Soil liquefaction occurs due to sudden and rapid load on the soil particle. The sudden water pressure leads to soil losing its cohesive strength. Once the soil loses its cohesion, it gets softened, weak and loses its solid properties that are converted to liquid properties.



- **Importance of soil liquefaction**
  Earthquakes or seismic events cause number of disturbances in the ground which can harm or damage the structural stability which could turn fatal. Liquefaction causes a sudden movement shift that is out of sync with the rest of the structure. This might cause several structural damages to the property leading to casualties. Liquefaction in saturated soils generates a quicksand effect. This phenomenon occurs during liquefaction when the building or the foundation gets pulled into the diluted soil causing it to lean and eventually collapse. Construction of buildings near water bodies use retaining walls which are heavily dependent on the strength and stiffness of the soil. Once the soil gets liquefied, the retaining wall collapses which could cause landslides.

5.1.3 Sustainable sanitization

Sustainable sanitation is a sanitation system designed to meet certain criteria and to work well over the long-term. Sustainable sanitation systems consider the entire "sanitation value chain", from the experience of the user, excreta and wastewater collection methods, transportation or conveyance of waste, treatment, and reuse or disposal.[2] The Sustainable Sanitation Alliance (SuSanA) includes five features (or criteria) in its definition of "sustainable sanitation": Systems need to be economically and socially acceptable, technically and institutionally appropriate and protect the environment and natural resources.[3]

The purpose of sustainable sanitation is the same as sanitation in general: to protect human health. However, "sustainable sanitation" attends to all processes of the system: This includes methods of collecting, transporting, treating and the disposal (or reuse) of waste.

5.1.4 Transport Infrastructure/System

His study assessed the effects of the quantity, quality, and structural aspects of transport infrastructure endowment upgrading on economic growth. Additionally, the study explored the possibility of a relationship between government development strategies and the growth impact from transport infrastructure. Since the 1990s, the World Bank has repeatedly emphasized that policymakers should not exclusively focus on the quantity of infrastructure investments and that improving the quality of infrastructure services is also vital. Moreover, the World Bank has found that in the past, low operating efficiency, inadequate maintenance, and insufficient attention to users' needs have all contributed to reducing the development impact of these investments. Therefore, it is considered essential to improve the effectiveness of infrastructure investments as well as the efficiency of infrastructure service provision. After analyzing and summarizing lessons learned from experiences worldwide, the World Bank noted that infrastructure investment alone does not guarantee growth and that when the overall economic policy conditions are unfavorable, the returns from infrastructure investment decline . In summary, the World Bank's research has provided valuable guidance for countries to develop infrastructure according to their own unique characteristics.

5.1.5 Vertical Farming

Vertical farming is the practice of producing food on vertically inclined surfaces. Instead of farming vegetables and other foods on a single level, such as in a field or a greenhouse, this method produces foods in vertically stacked layers commonly integrated into other structures like a skyscraper, shipping container or repurposed warehouse.

Using Controlled Environment Agriculture (CEA) technology, this modern idea uses indoor farming techniques. The artificial control of temperature, light, humidity, and gases makes producing foods and medicine indoor possible. In many ways, vertical farming is similar to greenhouses where metal reflectors and artificial lighting augment natural sunlight. The primary goal of vertical farming is maximizing crops output in a limited space.

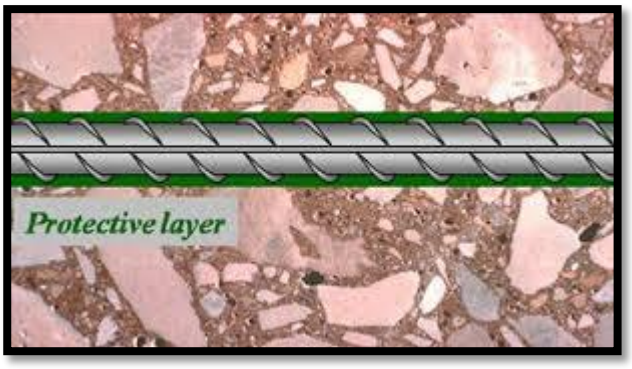
5.1.6 Corrosion mechanism prevention & repair measures of r.c.c structure

The aim is to study about RCC, main reason for its corrosion and eliminate the damages by maintenance, protection and repair. As in different cases the climatic conditions, bearing capacity of soil, capital for the construction varies we mainly focus in finding out the most common and cheapest way for the protection of RCC. The different methods include alternative reinforcement and slab design, barrier methods, electrochemical methods, and corrosion inhibitors.

The durability of concrete structures is influenced by various factors, for example, ecological presentation, electrochemical responses, mechanical stacking, affect harm and others. Of all of these, consumption of the fortification is likely the primary driver for the disintegration of steel strengthen cement (RC) structures. Consumption administration is ending up progressively important because of the developing number of maturing foundation resources (e.g. spans, burrows and so on.) and the expanded prerequisite for impromptu upkeep with a specific end goal to keep these structures operational all through their outline life (and usually, past).

The primary RC repair, restoration and recovery approaches by and large utilized can be extensively arranged under an) ordinary, b) surface medications, c) electrochemical medicines and d) outline arrangements. The overall point of this examination was to recognize the key consumption administration strategies and embrace exact examinations concentrated on full-scale RC structures to explore their long haul execution.

Additional measures to mitigate corrosion of steel reinforcement in concrete include the use of corrosion inhibiting admixtures, coating of reinforcement (for example, with an epoxy resin), and use of sealers and membranes on the concrete surface. Sealers and membranes, if used, have to be periodically reapplied.



5.1.7 Sewage Treatment

Essentially, a sewage treatment plant operates by circulating air to encourage the growth of bacteria to break down sewage. The goal being to deliver much cleaner, more environmentally friendly effluent. It involves a similar process to a typical septic tank but has some key differences.

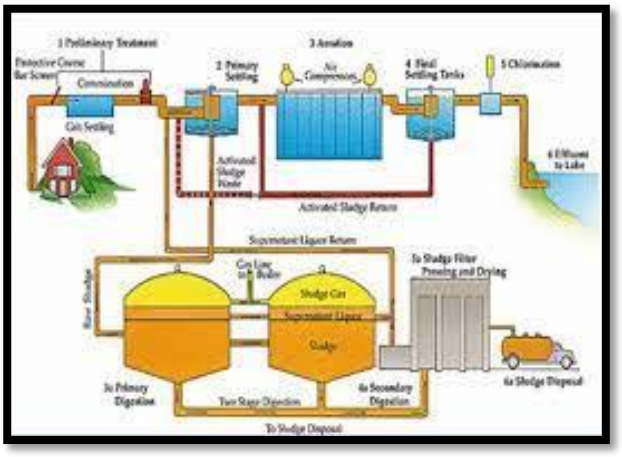
There are three main stages of the wastewater treatment process, aptly known as primary, secondary and tertiary water treatment.

The general construction of a sewage treatment plant doesn't differ too drastically from that of a septic tank. Just as with a septic tank, sewage flows from the property being serviced into the first chamber of the sewage treatment plant. Here, the water sits until grease, oil and scum have floated to the top and solids have settled on the bottom of the tank.

Once the process of separation has taken place, the liquid travels into a second chamber which is where sewage treatment plants differ from septic tanks. This chamber is fitted with an air pump that circulates air around the chamber to encourage the growth of aerobic bacteria. This bacteria helps to break down the contaminants in the water, effectively cleaning it.

The final stage of a sewage treatment plant is one last settlement tank. This final tank allows the very last solids that may remain to sink to the bottom of the tank before the effluent is discharged into a soak away or watercourse.

Once the treatment process has been completed and the wastewater has been treated as thoroughly as possible, it can be discharged into the environment. This is another key area where sewage treatment plants differ from sewage treatment plants. Whereas you must discharge effluent from a septic tank into a soak away for further treatment in the ground, subject to an Environment Agency Consent to Discharge, you can discharge your effluent into local water sources straight from your treatment plant. This is because of the vastly improved effluent quality that the treatment process produces.



Chapter: 6

6. Swatchh Bharat Abhiyan (Clean India)

6.1 Swatchhta needed in allocated village Existing Situation with photograph

In a village a need of swatchhta is more because unavailability of solid waste management like collection of waste collection dustbin and management of that waste. Due to this village people throw all waste around the village border**.** This is real issue of villagers the disposal of waste.

Fig 6.1: Existing Swatchhta Condition in Dharampur

6.2 Guidelines - Implementation in allocated village with Photograph

Fig 6.2 Guidelines for Swatch Bharat Abhiyan

"A clean India would be the best tribute India could pay to Mahatma Gandhi on his 150 birth anniversary in 2019," said Shri Narendra Modi as he launched the Swachh Bharat Mission at Rajpath in New Delhi. On 2nd October 2014, Swachh Bharat Mission was launched throughout length and breadth of the country as a national movement. While leading the mass movement for cleanliness, the Prime Minister exhorted people to fulfill Mahatma Gandhi's dream of a clean and hygienic India. Shri Narendra Modi himself initiated the cleanliness drive at Mandir Marg Police Station. Picking up the broom to clean the dirt, making Swachh Bharat Abhiyan a mass movement across the nation, the Prime Minister said people should neither litter, nor let others litter. He gave the mantra of 'Na gandagi karenge, Na karne denge.' Shri Narendra Modi also invited nine people to join the cleanliness drive and requested each of them to draw nine more into the initiative. By inviting people to participate in the drive, the Swachhta Abhiyan has turned into a National Movement. A sense of responsibility has been evoked among the people through the Clean India Movement. With citizens now becoming active participants in cleanliness activities across the nation, the dream of a 'Clean India' once seen by Mahatma Gandhi has begun to get a shape.

Fig 6.2.1 Swatchh Bharat Abhiyan

6.3 Guidelines for swatch village by government:

ENSURE	❖ **Identification of households without toilets for corrective action** ❖ **Toilet use and maintenance.** ❖ **Facilities for solid and liquid waste management.** ❖ **Water-use efficiency by rationalizing water use.** ❖ **Inclusion of water and sanitation Issues in Gram Panchayat Development Plan (GPDP).** ❖ **Compliance with environmental safeguards for all GPDP activities.**
PROMOTE	❖ **Hygiene education.** ❖ **Toilets for all households and institutions.** ❖ **Modern agriculture and water-use technologies to conserve water.** ❖ **Water-use rationalization by selecting appropriate cropping patterns.**
ESTABLISH	❖ **Local environmental safeguard measures.** ❖ **Surveillance of water bodies.** ❖ **Safeguards for water bodies.**
PLAN AND IMPLEMENT	❖ **Environmental management framework.** ❖ **Water supply schemes.**
FACILITATE	❖ **Appropriate irrigation methods** ❖ **Regulation of water extraction based on demand yield match.** ❖ **Participation of local communities in improving water and sanitation management.**

6.4 Activities Done by Students for allocated village with Photograph

6.4.1 We interacted with village people and tried to spread awareness regarding Swatch bharat abhiyan

6.4.2 We proposed Solid waste management design for the allocated village.

6.4.3 We also planned to carry out awareness campaign but due to Covid-19 we didn't get permission still we will conduct campaign in future

Chapter: 7

7. Village condition due to Covid-19

Coronavirus disease 2019 (**COVID-19**) is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first case was identified in Wuhan, China in December 2019.

Common symptoms of COVID-19 include fever, cough, fatigue, breathing difficulties, and loss of smell and taste. Symptoms begin one to fourteen days after exposure to the virus. While most people have mild symptoms, some people develop acute respiratory distress syndrome (ARDS). ARDS can be precipitated by cytokine storms,[9] multi-organ failure, septic shock, and blood clots. Longer-term damage to organs (in particular, the lungs and heart) has been observed. There is concern about a significant number of patients who have recovered from the acute phase of the disease but continue to experience a range of effects—known as long COVID—for months afterwards. These effects include severe fatigue, memory loss and other cognitive issues, low-grade fever, muscle weakness, and breathlessness.

COVID-19 spreads via a number of means, primarily involving saliva and other bodily fluids and excretions. These fluids can form small droplets and aerosols, which can spread as an infected person breathes, coughs, sneezes, sings, or speaks. The virus may also spread by direct contact and it is unknown how often it spreads via fomites (contaminated surfaces).[14][15] The exact route of transmission is rarely proven conclusively,[16] but infection mainly happens when people are near each other for long enough, which is known as "close contact".[a] It can spread as early as two days before infected persons show symptoms (presymptomatic), and from asymptomatic individuals. People remain infectious for up to ten days in moderate cases, and two weeks in severe cases. The standard diagnosis method is by real-time reverse transcription polymerase chain reaction (rRT-PCR) from a nasopharyngeal swab.

Preventive measures include social distancing, quarantining, ventilation of indoor spaces, covering coughs and sneezes, hand washing, and keeping unwashed hands away from the face. The use of face masks or coverings has been recommended in public settings to minimise the risk of transmissions.

Fig 7.0 Covid-19 WHO Guideline

Fig 7.1 Covid-19 WHO Guideline

WHO Guideline Fig 7.2 Covid-19

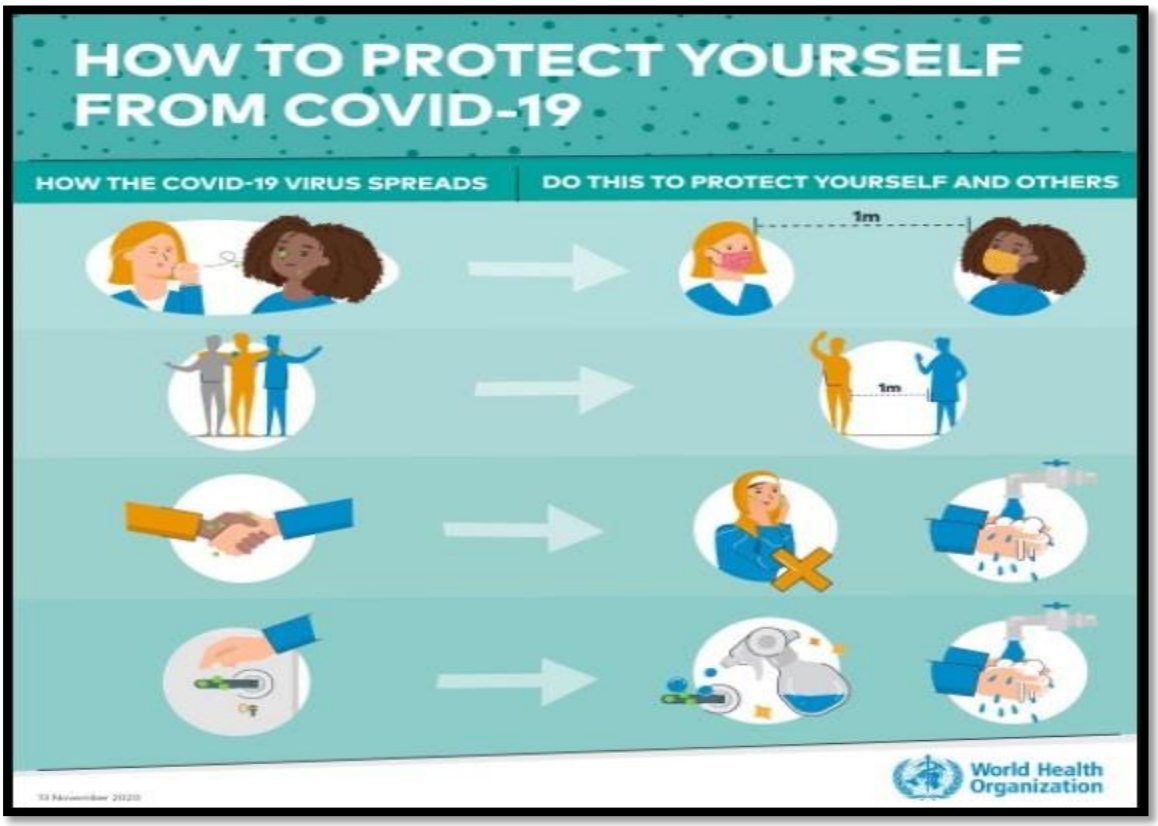


Fig 7.3 Covid-19 WHO Guideline

7.1 Taken steps in allocated village related to existing situation with photograph

- They Maintain social distance with people
- Use of nose mask and sanitizer
- Avoided travelling
- Drinking immunity booster

7.2 Activities Done by Students for allocated village with Photograph

Interaction with villagers and we explain them the severity of covid-19 & how dangerous it is. Villagers were not using mask and sanitizers so we distributed them sanitizers, mask and instructed them how to take precaution. Villagers still need to be made aware regarding pandemic situation and we get to know that in rural area people are still not taking this problem seriously. We told them though government has unlock the states and all activities are carried out in usual manners that doesn't mean the pandemic is over and we are virus free.

7.3 Any Other Steps taken by students/villagers

During interaction with sarpanch he told us that quarantine facility is implemented in village. And we give suggestions to maintain social distancing and we aware people about Covid-19.

Chapter: 8

8. Sustainable Design Planning Proposal (Prototype Design)- Part- I

8.1Design Proposals

1. Public Toilet
2. Community hall
3. Bus station
4. Gram Panchayat
5. Septic Tank
6. ATM

1 Sustainable Design: Elevated storage reservoir

Water tanks are used to store water to tide over daily requirements of water by localities, industries, towns etc.
Dharampur village already have one water tank but capacity of that water tank is not sufficient to meet the requirement of villagers. The existing water tank is of 60000 liters. We are proposing another water tank of 2.5lakh liters Capacity to meet the requirement of villagers.

2 Physical Design: Public Toilet

A public toilet is a room or small building with toilets available for use by the general public. Public toilets are commonly separated into male and female facilities. Increase in the public toilets are now been made for disabled people also.
Some public toilets are free of charge and some charge fees. Public toilets are typically found in government schools, government offices, roadsides, etc. Concept of portable and Bio-toilets is increasing.

3 Social Design: Bank

Bank is Essential need for any village or town. In dharampur there is no Bank facilities and we are proposing bank between three village we is in attach with dharampur village to solve the purpose.

4 Socio-Cultural: Smart-Centre

Smart-Centre is a social as well as smart initiative. Smart-Centre will have Wi-Fi and internet facilities .It can be use as cyber café will be accommodated with computers so that villagers can take benefits of the same.

5 Smart Design: Bio-Gas Plant

A biogas plant is where biogas is produced by fermenting biomass. The substrate used for the production of this methane-containing gas usually consists of energy crops such as corn, or waste materials such as manure or food waste. This also allows the biogas to rise more easily. Biogas plants rely on anaerobic digestion, a fermentation process in which waste is digested by microbes to produce methane gas (biogas).The waste can be converted into bio fertilizer and spread directly onto fields, or the biogas itself can be used interchangeably with natural gas as fuel 8 – 10 m^3 biogas plant produces 1.5-2 m^3 gas and 100 liters digested slurry per day using dung from 3-5 cattle or 8-12 pigs.
Biogas is a green energy source in form of electricity and heat for the local grid. Considerable environmental advantages less emission of the greenhouse gasses methane, CO2 and nitrous oxide. Environmentally friendly recirculation of organic waste from industry and households.

8.2Reason for Students Recommending this Design

- Water Tank - to provide desired quantity of water
- Public Toilet - to increase sanitation
- Bus Station - for access bus transportation
- Bank -to provide bank Facilities in village
- Bio Gas Plant- to provide a green energy source.
- Dust bin - to provide a sanitation facilities in village.

8.3 About designs Suggestions / Benefit of the villagers

1. **Water Tank:** Presently, they are using water from, tank of insufficient capacity .after interaction with villagers we get to know they get water once in 2 or 3 days thus, by introducing the water tank in the village, villagers will get the desired supply of water for domestic purposes without making additional efforts for that.
2. **Public toilet:** Some of the houses in the village do not have attached toilets. As a result they end up using the roads and the farms. Thus introducing a public toilet will help in avoiding the use of open areas which will increase hygiene and cleanliness in the village.
3. **Bus Station:** The condition if bus station is very bad in village. New bus station requires for waiting of bus.
4. **Bank:** Currently there is no bank in Dharampur village and villagers have to travel a long for bank. Thus we are proposing bank to reduce the travel time of villagers and to provide comfort and ease.
5. **Bio Gas Plant**: Biogas is a green energy source in form of electricity and heat for the local grid. Considerable environmental advantages - less emission of the greenhouse gasses methane, CO2 and nitrous oxide. Environmentally friendly recirculation of organic waste from industry and households.
6. **Dust bin:** Dharampur Village is not having any facilities for solid waste management. Thus this creates unhygienic condition in village therefore we are proposing a large permanent dustbin area for disposal of waste.

8.1 Public Toilet

Fig 8.3 Location for Public Toilet

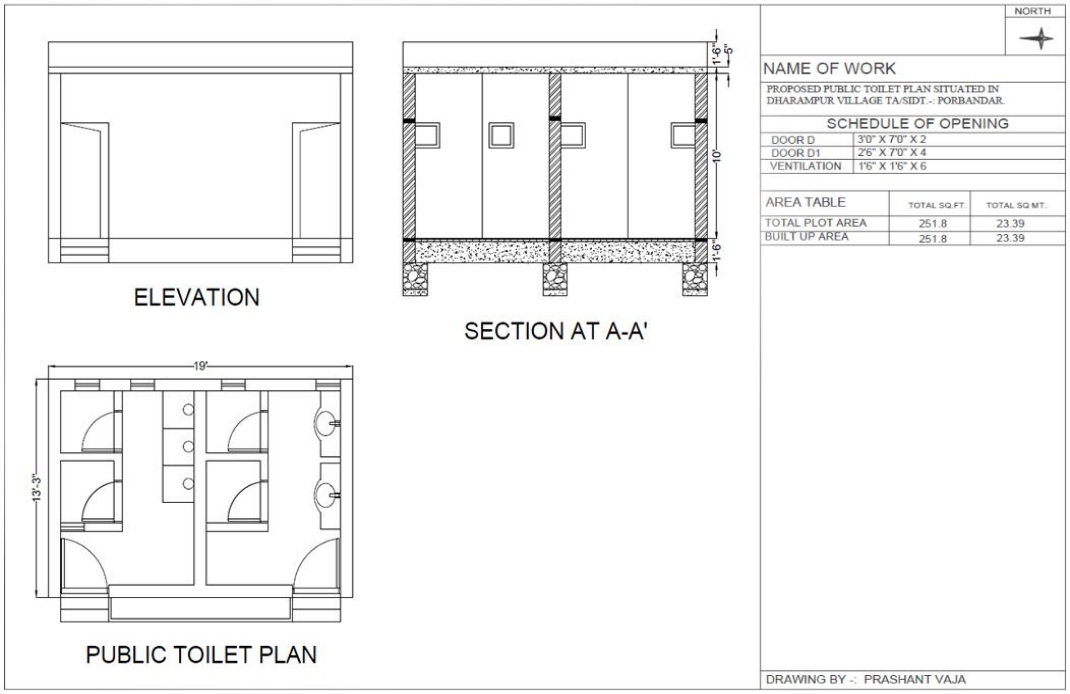


Fig 8.3.1 Design of Public Toilet

MEASUREMENT SHEET

SR	DISCRIPTION	NO	L	B	D	QTY.	T.QTY	UNIT
1	Excavation for foundation up to 1.5 m depth including sorting out and stacking of useful materials and Disposing of the excavated stuff up to 50 Meter lead.							
	Dense of hard soil							
		2	5.790	0.6	1	6.948		
		3	2.830	0.6	1	5.094		
						12.042	12.042	Cu. M
2	Providing and laying Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand broken stone aggregate 40 mm nominal size) and curing complete							

	Excluding cost of formwork.							
		2	5.790	0.6	0.15	1.042		
		3	2.830	0.6	0.15	0.764		
						1.806	1.806	Cu. M
3	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1-Cement :6 Coarse Sand) including levelling up etc.							
		2	5.790	0.6	1.35	9.380		
		3	2.830	0.6	1.35	6.877		
						16.257	16.257	Cu. M
4	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.							
		2	5.790	0.6	0.15	1.042		
		3	2.830	0.6	0.15	0.764		
						1.806	1.806	cu.m.
5	White stone Bela masonry block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints Etc. Complete.							
		2	5.790	0.23	3.05	8.123		
		3	3.580	0.23	3.05	7.534		
		2	2.100	0.1	3.05	1.281		
		4	1.140	0.1	3.05	1.391		
						18.329		
	DEDUCT FOR OPENINGS							
		2	0.91	0.23	2.1	0.879		
		4	0.76	0.23	2.1	1.468		
		6	0.45	0.23	0.45	0.279		

						2.627		
	NET QTY.					15.702	15.702	Cu. M
6	Filling in foundations and plinth with murmur or selected soil in layers of 20 cm thickness including consolidating each deposited layer by Ramming and watering.							
		2	2.51	3.58	0.6	10.783		
						10.783	10.783	Cu. M
7	Providing and fixing 35 mm thick shutter for door windows including black enameled ms. but hinges with necessary screws using kutcha wood fully paneled including two coats of oil paint kutcha wood frame of 10 x 7 cm. sized complete(market rate)							
		2	0.91		2.1	3.822		
		4	0.76		2.1	6.384		
		6	0.45		1.2	3.240		
						13.446	13.446	Sqm.
8	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 mm. nominal size) and finishing smooth with curing etc. complete including the cost of form work but excluding the cost of rein - for cement for R.C.C work							
		1	5.79	4.03	0.15	3.500		
						3.500		
	DEDUCT	0	0.000	0	0	0.000		
						0.000		
						3.500	3.5	Cu. M

9	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level							
		3.500						
		3.500	100	0.8	1	280.004	280.000	Kg
10	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto Floor two level.							
		3.5						
		3.5	100	0.2	1	70.001	70.000	Kg
11	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.							
	(i) Cement mortar 1:3 (1 cement : 3 sand)							
		2	5.56		3.05	33.916		
		4	3.58		3.05	43.676		
		4	2.1		2.1	17.640		
		8	1.14		2.100	19.152		
		2	2.51	3.58		17.972		
						132.356		
	DEDUCTION FOR DOOR & WINDOW							
	QTY AS PER IT NO. 5			1	2.627	2.627		
	NET QTY					129.729	129.729	Sq. M
12	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)							
		2	0.6			1.200		
						1.200	1.2	Rmt
13	Providing Indian type water closet in toilet block							
		4				4.000	4	Nos

14	Providing and fixing Vitreous tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.							
		2	2.51	3.58	---	17.972		
						17.972	17.972	Sqmt

ABSTRACT

QTY.	DISCRIPTION	RATE	PER	AMOUNT
	ITEM NO. 1			
12.042	Excavation for foundation upto 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated stuff upto 50 Meter lead.			
	Dense of hard soil			
		100	Cu. M	1204.200
	ITEM NO. 2			
1.806	Providing and laying Cement Concrete 1:4:8(1-Cement: 4 Coarse sand: 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding cost of formwork.			
		1200	Cu. M	2167.200
	ITEM NO. 3			
16.257	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.			
		1500	Cu. M	24385.500
	ITEM NO. 4			
1.806	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.			
		2000	cu.m.	3612.000

	ITEM NO. 5			
15.702	White stone Bela masonry block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc. Complete.			
		3000	Cu. M	47106.000
	ITEM NO. 6			
10.783	Filling in foundations and plinth with murmur or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and watering.			
		125	Cu. M	1347.875
	ITEM NO. 7			
13.446	Providing and fixing 35 mm thick shutter for door windows including black enameled m.s. but hinges with necessary screws using kutcha wood fully paneled including two coats of oil paint kutcha wood frame of 10 x 7 c.m. sized complete(market rate)			
		2500	Sqm.	33615.000
	ITEM NO. 8			
3.500	Providing and laying ordinary cement concret1:2:4 (1-cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finshing smooth with curing etc complete including the cost of form work but excluding the cost of rein -for cement for R.C.C work			
		2000	Cu. M	7000.000
	ITEM NO. 9			
280.000	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level			
		50	Kg	14000.000
	ITEM NO. 10			
70.000	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level.			
		50	Kg	3500.000
	ITEM NO. 11			
129.729	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.			
	(i) Cement mortar 1:3 (1 cement : 3 sand)	125	Sq. M	16216.125
	ITEM NO. 12			

1.200	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)								
							50	Rmt	60.000
	ITEM NO. 13								
4.000	Providing Indian type water closet in toilet block								
							1200	nos	4800.000
	ITEM NO. 14								
17.972	Providing and fixing Vitreous tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.								
							500	sqmt	8986.000
									167999.900
							TOTAL		**167999.900**
	ADD 5% OF PLUMBING & WATER SUPPLY								**8399.995**
									181439.892
						Say Rs.			**181500.000**
(RUPEES ONE LACS EIGHTY ONE THOUSAND AND FIVE HUNDRED ONLY.)									
DATE									
PLACE									

8.2 Bus Station

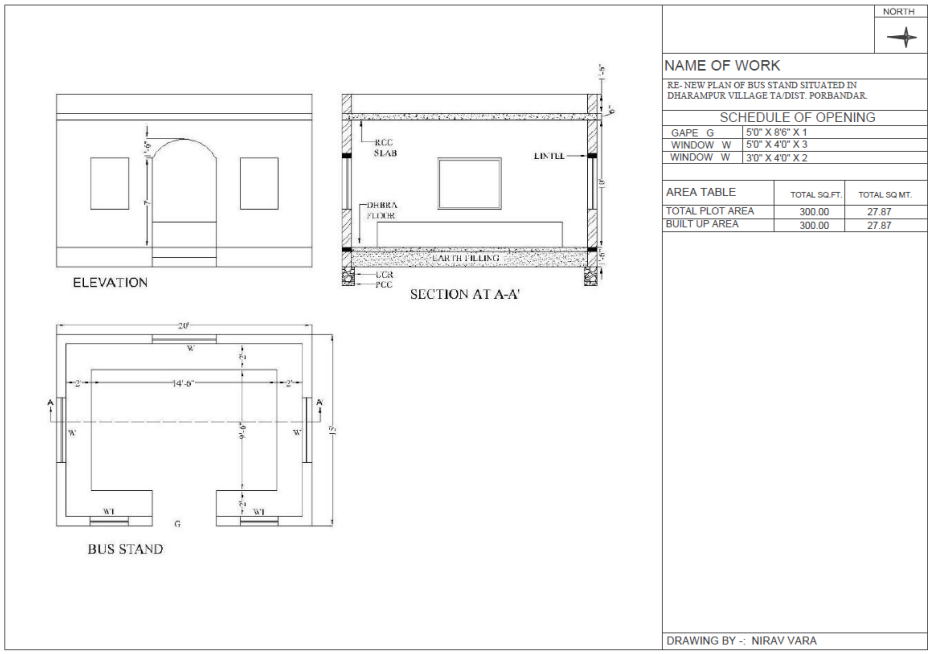


Fig 8.3.2 Design of Bus Station

MEASUREMENT SHEET

SR.	DISCRIPTION	NO	L	B	D	QTY.	T.QTY.	UNIT
1	Excavation for foundation upto 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated Stuff upto 50 Meter lead.							
	Dense of hard soil							
		2	6.100	0.6	1	7.320		
		2	3.380	0.6	1	4.056		
						11.376	11.376	Cu. M
2	Providing and laying Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding Cost of formwork.							
		2	6.100	0.6	0.15	1.098		
		2	3.380	0.6	0.15	0.608		
						1.706	1.706	Cu. M
3	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.							
		2	6.100	0.6	1.35	9.882		
		2	3.380	0.6	1.35	5.476		
						15.358	15.358	Cu. M
4	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.							
		2	6.100	0.6	0.15	1.098		
		2	3.380	0.6	0.15	0.608		
						1.706	1.706	cu.m.

5	White stone Bela masonry block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the Joints etc. Complete.							
		2	6.100	0.23	3.05	8.558		
		2	4.110	0.23	3.05	5.766		
						14.325		
	DEDUCT FOR OPENINGS							
		1	1.52	0.23	2.6	0.909		
		3	1.52	0.23	1.2	1.259		
		6	0.91	0.23	1.2	1.507		
						3.674		
	NET QTY.					10.650	10.65	Cu. M
6	Filling in foundations and plinth with murmur or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and Watering.							
		1	5.64	4.11	0.6	13.908		
						13.908	13.908	Cu. M
8	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finishing smooth with curing etc complete including the cost of form work but excluding the cost of rein -for cement for R.C.C work							
		2	6.1	4.57	0.15	8.363		
						8.363		
	DEDUCT	0	0.000	0	0	0.000		
						0.000		
						8.363	8.363	Cu. M

9	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level							
		8.363						
		8.363	100	0.8	1	669.048	669.048	Kg
10	Providing mild steel reinforcement for R.C.C. work including bending, binding and Placing in position complete upto floor two level.							
		8.363						
		8.363	100	0.2	1	167.262	167.262	Kg
11	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.							
	(i) Cement mortar 1:3 (1 cement : 3 sand)							
		4	5.64		3.05	68.808		
		4	4.11		3.05	50.142		
		1	5.64	4.11		23.180		
						142.130		
	DEDUCTION FOR DOOR & WINDOW							
	QTY AS PER IT NO. 6			1	3.674	3.674		
	NET QTY					138.456	138.456	Sq. M
13	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)							
		4	0.6			2.400		
						2.400	2.4	Rmt
17	Providing and laying cement concrete flooring 1:2:4 (1-cement:2-coarse sand:4-graded stone aggregate 20mm nominal size) laid in one layer finished with a floating coat of neat Cement. (A) 40mm thick.							
		1	5.64	4.11		23.180		
		NET				23.180	23.18	sqmt

ABSTRACT

QTY.	DISCRIPTION	RATE	PER	AMOUNT
	ITEM NO. 1			
11.376	Excavation for foundation upto 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated stuff upto 50 Meter lead.			
	Dense of hard soil			
		100	Cu. M	1137.600
	ITEM NO. 2			
1.706	Providing and laying Cement Concrete 1:4:8(1-Cement: 4 Coarse sand: 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding cost of formwork.			
		1200	Cu. M	2047.200
	ITEM NO. 3			
15.358	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.			
		1500	Cu. M	23037.000
	ITEM NO. 4			
1.706	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.			
		2000	cu.m.	3412.000
	ITEM NO. 5			
10.650	White stone Bela masonry block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement: 6 course sand) including racking the joints etc. Complete.			
		3000	Cu. M	31950.000

	ITEM NO. 6			
13.908	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and watering.			
		125	Cu. M	1738.500
	ITEM NO. 7			
8.363	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finishing smooth with curing etc complete including the cost of form work but excluding the cost of rein -for cement for R.C.C work			
		2000	Cu. M	16726.000
	ITEM NO. 8			
669.048	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level			
		50	Kg	33452.400
	ITEM NO. 9			
167.262	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level.			
		50	Kg	8363.100
	ITEM NO. 10			
138.456	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.			
	(i) Cement mortar 1:3 (1 cement : 3 sand)	125	Sq. M	17307.000
	ITEM NO. 11			
2.400	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)			
		50	Rmt	120.000

	ITEM NO. 12								
23.180	Providing and laying cement concrete flooring 1:2:4 (1-cement:2-coarse sand:4-graded stone aggregate 20mm nominal size) laid in one layer finished with a floating coat of neat cement.(A) 40mm thick.								
							200	sqmt	4636.000
									143926.800
							TOTAL		**143926.800**
						Say Rs.			**144000.000**
(RUPEES ONE LACS FOURTY FOUR THOUSAND ONLY.)									
DATE									
PLACE									

8.3 Community Hall

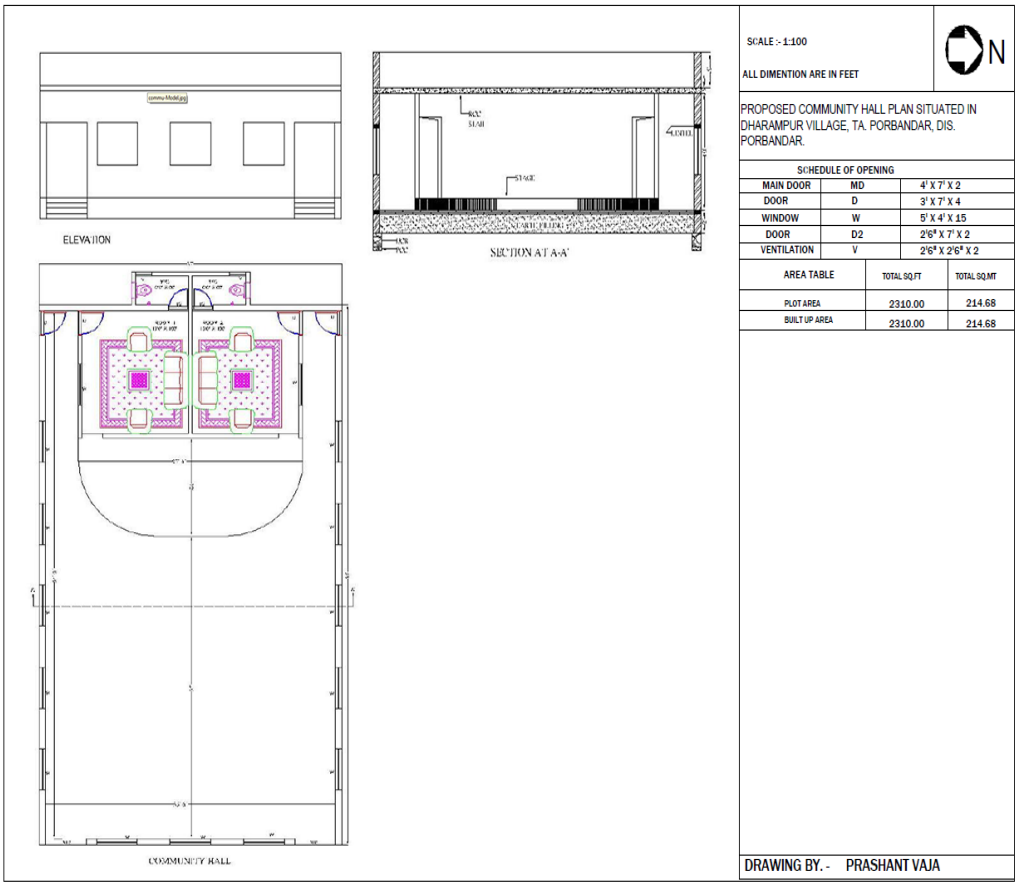


Fig 8.3.3 Design of Community Hall

MEASUREMENT SHEET

SR.	DISCRIPTION	NO	L	B	D	QTY.	T.QTY.	UNIT
1	Excavation for foundation upto 1.5 m depth including sorting out and stacking of usefulmaterials and disposing of the excavated stuffupto 50 Meter lead.							
	Dense of hard soil							
		2	20.420	0.6	1	24.504		
		2	10.670	0.6	1	12.804		
		1	4.400	0.6	1	2.640		
		3	0.910	0.6	1	1.638		
		3	5.150	0.6	1	9.270		
		1	8.000	0.6	1	4.800		
						55.656	55.66	Cu. M
2	Providing and laying Cement Concrete 1:4:8(1- Cement : 4 Coarse sand : 8 hand brokenstone aggregate 40 mm nominal Size) and curing complete excluding cost of formwork.							
		2	20.420	0.6	0.15	3.676		
		2	10.670	0.6	0.15	1.921		
		1	4.400	0.6	0.15	0.396		
		3	0.910	0.6	0.15	0.246		
		3	5.150	0.6	0.15	1.391		
		1	8.000	0.6	0.15	0.720		
						8.348	8.350	Cu. M
3	Uncoursed Rubble Masonry with hard stone ofapproved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.							
		2	20.420	0.6	1.35	33.080		
		2	10.670	0.6	1.35	17.285		
		1	4.400	0.6	1.35	3.564		
		3	0.910	0.6	1.35	2.211		
		3	5.150	0.6	1.35	12.515		
		1	8.000	0.6	1.35	6.480		
						75.136	75.14	Cu. M

4	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.							
		2	20.420	0.6	0.15	3.676		
		2	10.670	0.6	0.15	1.921		
		1	4.400	0.6	0.15	0.396		
		3	0.910	0.6	0.15	0.246		
		3	5.150	0.6	0.15	1.391		
		1	8.000	0.6	0.15	0.720		
						8.348	8.350	cu.m.
5	White stone bela masonary block in course in super- structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc.complete.							
		2	20.420	0.23	3.05	28.649		
		2	10.670	0.23	3.05	14.970		
		1	4.400	0.23	3.05	3.087		
		3	1.060	0.23	3.05	2.231		
		3	5.150	0.23	3.05	10.838		
		1	8.000	0.23	3.05	5.612		
						65.387		
	DEDUCT FOR OPENINGS							
		2	1.37	0.23	2.1	1.323		
		4	0.91	0.23	2.1	1.758		
		2	0.76	0.23	2.1	0.734		
		2	0.6	0.23	0.6	0.166		
		15	1.52	0.23	1.2	6.293		
						10.274		
	NET QTY.					55.113	55.11	Cu. M
6	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming And watering.							
		1	20.42	10.67	0.6	130.729		
		1	0.91	4.5	0.6	2.457		
						133.186	133.19	Cu. M

7	Providing and fixing 35 mm thick shutter for door windows including black enamelled m.s. but hinges with necessary screws using kutcha wood fully panelled including two coates of oilpaint kutcha							
	wood frame of 10 x 7 c.m. sizeetc complete(market rate)							
		2	1.37		2.1	5.754		
		4	0.91		2.1	7.644		
		2	0.76		2.1	3.192		
		2	0.6		0.6	0.720		
		15	1.52		1.2	27.360		
						44.670	44.68	Sqm.
8	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stoneaggregates 20 m.m. nominal size) and finshingsmooth with curing etc complete including the cost of form work but excluding the cost of rein - forcement for R.C.C work							
		1	20.42	10.67	0.15	32.682		
		1	0.91	4.5	0.15	0.614		
						33.296		
	DEDUCT	0	0.000	0	0	0.000		
						0.000		
						33.296	33.3	Cu. M
9	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level							
		33.296						
		33.296	100	0.8	1	2663.717	2664.000	Kg
10	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor Two level.							
		33.3						
		33.3	100	0.2	1	665.929	665.929	Kg

11	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.							
	(i) Cement mortar 1:3 (1 cement : 3 sand)							
		2	20.420		3.05	124.562		
		2	10.670		3.05	65.087		
		1	4.400		3.05	13.420		
		3	0.910		3.050	8.327		
		3	5.150		3.05	47.123		
		1	8.000		3.05	24.400		
		1	20.42	10.67		217.881		
		1	4.4	0.91		4.004		
						504.803		
	DEDUCTION FOR DOOR & WINDOW							
	QTY AS PER IT NO. 5			1	10.274	10.274		
	NET QTY					494.529	**494.530**	Sq. M
13	Providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)							
		12	0.6			7.200		
						7.200	**7.2**	Rmt
14	Providing indian type water closet in toilet block							
		2				2.000	**2**	nos
15	Providing and fixing Vitriuos tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.							
		1	20.42	10.67	---	217.881		
		1	4.4	0.9	---	3.960		
						221.841	**221.841**	sqmt

ABSTRACT

QTY.	DISCRIPTION	RATE	PER	AMOUNT
	ITEM NO. 1			
55.660	Excavation for foundation upto 1.5 m depth including sorting out and stacking of usefulmaterials and disposing of the Excavated stuffupto 50 Meter lead.			
	Dense of hard soil			
		100	Cu. M	5566.000
	ITEM NO. 2			
8.350	Providing and laying Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand brokenstone aggregate 40 mm nominal size) and curing complete excluding cost of Formwork.			
		1200	Cu. M	10020.000
	ITEM NO. 3			
75.140	Uncoursed Rubble Masonry with hard stone ofapproved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.			
		1500	Cu. M	112710.000
	ITEM NO. 4			
8.350	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.			
		2000	cu.m.	16700.000
	ITEM NO. 5			
55.110	White stone bela masonary block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc.complete.			
		3000	Cu. M	165330.000

133.190	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer By ramming and watering.			
		125	Cu. M	16648.750
	ITEM NO. 7			
44.680	Providing and fixing 35 mm thick shutter for door windows including black enamelled m.s. but hinges with necessary screws using kutcha wood fully panelled including two coates of oilpaint kutcha wood frame of 10 x 7 c.m. sizeetc complete(market rate)			
		2500	Sqm.	111700.000
	ITEM NO. 8			
33.300	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stoneaggregates 20 m.m. nominal size) and finshingsmooth with curing etc complete including the cost of form work but excluding the cost of rein -forcement for R.C.C work			
		2000	Cu. M	66600.000
	ITEM NO. 9			
2664.000	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level			
		50	Kg	133200.000
	ITEM NO. 10			
665.929	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing In position complete upto floor two level.			
		50	Kg	33296.450
	ITEM NO. 11			
494.530	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.			
	(i) Cement mortar 1:3 (1 cement : 3 sand)	125	Sq. M	61816.250

	ITEM NO. 12								
7.200	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)								
							50	Rmt	360.000
	ITEM NO. 13								
2.000	Providing indian type water closet in toilet block								
							1200	nos	2400.000
	ITEM NO. 14								
221.841	Providing and fixing Vitriuos tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.								
							500	sqmt	110920.500
									847267.950
							TOTAL		847267.950
	ADD 3% OF ELECTRIFICATION								25418.039
	ADD 5% OF PLUMBING & WATER SUPPLY								42363.398
									915049.386
						Say Rs.			915000.000
DATE									
PLACE									

8.4 ATM

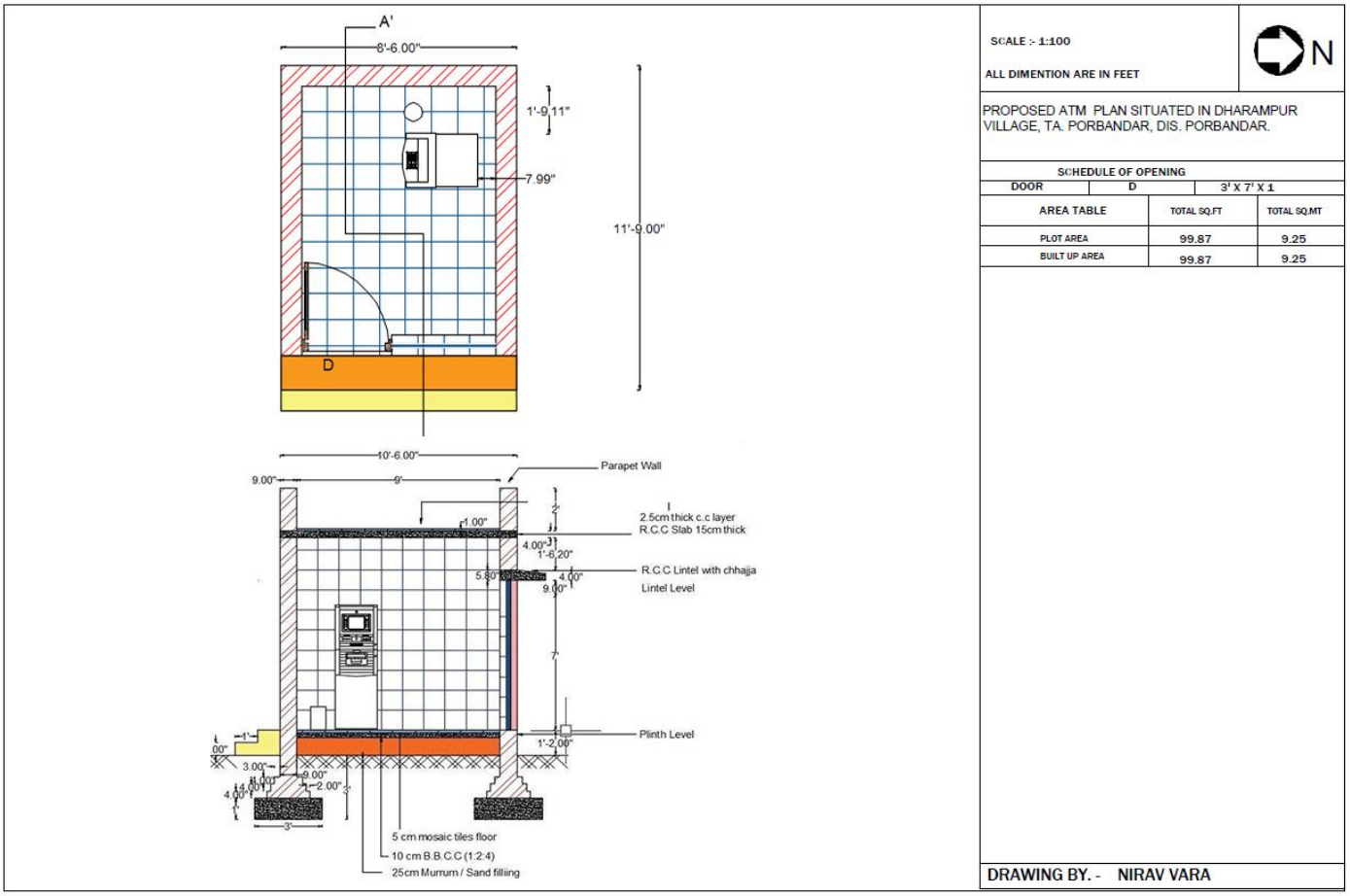


Fig 8.3.4 Design of ATM

MEASUREMENT SHEET						
		No.	Length	Breadth	Depth/	
Sr No.	Description of Item		(L)	(B)	Height (D/H)	Quantity
			(M)	(M)	(M)	(Cu.m)
1	Excavation in ordinary soil					
	L=(0.5+2+0.15) +					
	(0.15+3+0.15)=5.6					

	L=(5.6-1/2*0.9)	1	5.15	0.9	0.9	4.17
2	BBCC (1:2:4)	1	5.15	0.9	0.3	1.39
3	Brick masonary					
	up to plinth level					
	First	1	5.3	0.6	0.1	0.318
	Second	1	5.35	0.5	0.1	0.2675
	Third	1	5.4	0.4	0.1	0.216
	Fourth	1	5.45	0.3	0.8	1.38
	Steps					
	First	1	1	0.6	0.2	0.12
	Second	1	1	0.3	0.2	0.06
						2.36
4	Filling in trench & plinth	1				0.42
		1				1.5
5	Brick masonry in					
	super structure	1	5.45	0.3	3	4.9
	Deduction of door	1	1.4	0.3	2.1	0.882
	Lintel	1	1.7	0.3	0.15	0.0765
						3.94
6	Brick masonary in					
	parapet wall	1	5.45	0.3	0.5	0.8175
7	RCC Slab &	1	2.6	3.6	0.15	1.4
	lintel	1	1.7	0.3	0.15	0.0765
8	Smooth plaster					
	inside(12 mm)	1	2.6		3.5	9.1
		1	3.6		3.5	12.6
	Deduction of door	0-Jan	1.4		2.1	1.472
						12.53
9	Plasterwork outside	1	2.6		3.5	9.1
		1	3.6		3.5	12.6
	Deduction of door	0.5	1.4		2.1	1.47
						20.23
10	Painting Work	1	2		3	6
	Inside	1	3		3	9

	Deduction od door	0-Jan	1.4		2.1	147
						12.53
11	White Washing	1	2.6		3.5	9.1
	outside	1	3.6		3.5	12.6
	Deduction of door	0.5	1.4		2.1	1.47
						20.23
12	Tiles flooring					
	Area(2*3)					
	Tiles area (0.2*0.2)					150
	Add 10%					165
13	No. of doors require	1	1.4		2.1	2.94

ABSTRACT SHEET

Sr No.	Description of Item	Quantity (Cu.m)	Rs.	Total Cost In Rs.
1	Excavation in ordinary soil	8.17	220	1797.4
2	BBCC (1:2:4)	4.39	240	1053.6
3	Brick Masonry	7.117	240	1708.08
4	RCC Slab & lintel	1.4765	2000	2593
5	Plasterwork	20.23	300	6069
6	Painting Work	12.53	300	3759
7	White Washing	20.23	300	6069
8	Tiles flooring	165	40	6600
9	No. of doors	1	1000	1000
	Total			29048.4

8.5 Septic Tank

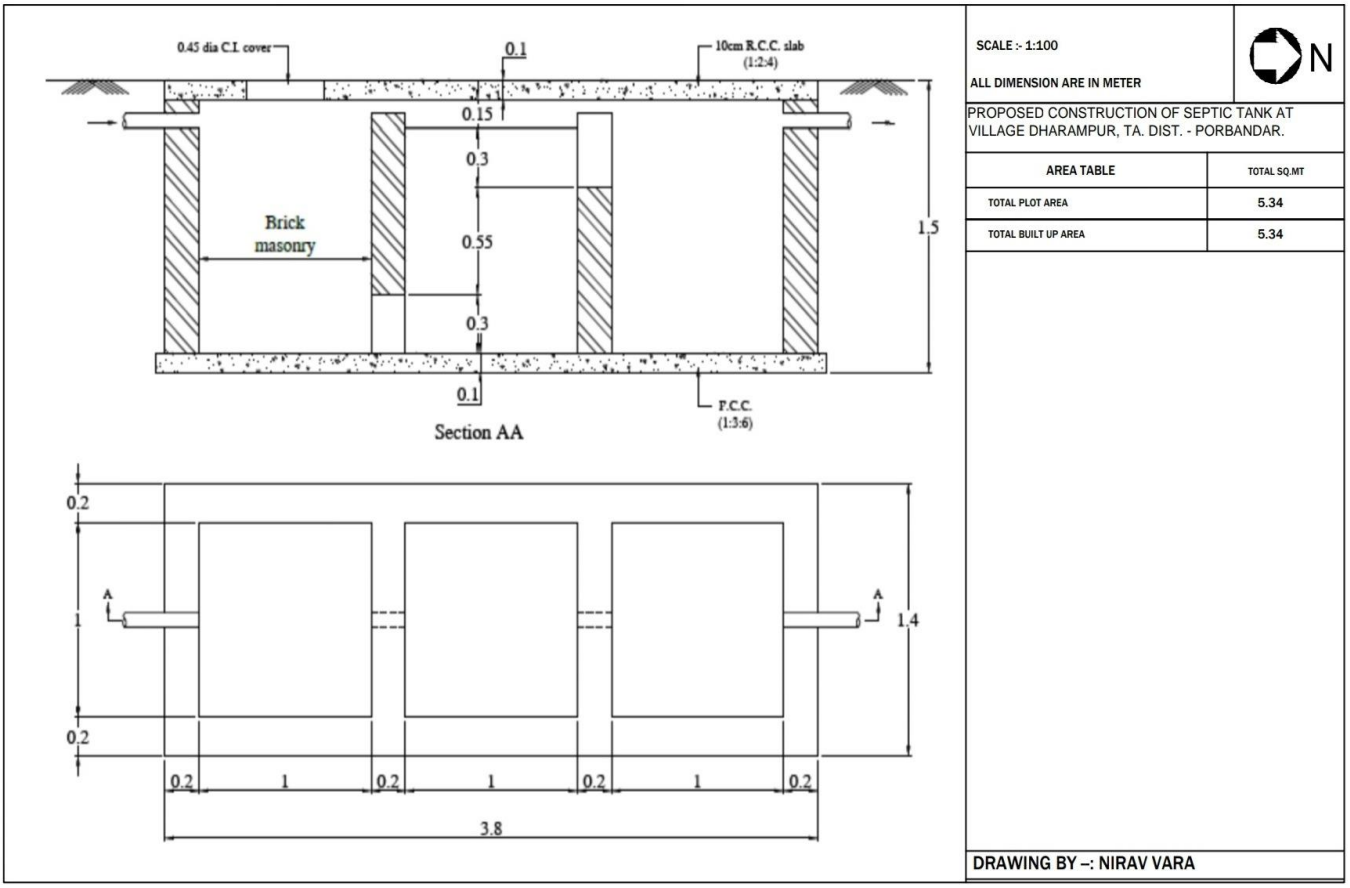


Fig 8.3.5 Design of Septic Tank

- **Recapitulation Sheet of Septic Tank:**

Recapitulation Sheet		
Sr.No.	**Description**	**Amount**
1	Septic tank	Rs.20000.00

MEASUREMENT SHEET							
Sr. No.	**Item**	**No.**	**L**	**B**	**H**	**Quantity**	**Total**
1	**Excavation work**	1	3.9	1.5	1.5	8.76	8.76 m^3
	L=(3*1)+(4*.2))+(2*.05) = 3.9m						
	B=1+(2*.2)+(2*.05) = .5m						
	D=.1+.15+.3+.55+.3+.1 = 1.5m						
2	**(1:3:6) cement concrete flooring**	1	3.9	1.5	0.1	0.59	0.59 m^3

3	**First class brick masonry in C.M. (1:6)**						
	Long walls, L=3.9-(2*.05) =3.8m	2	3.8	0.2	1.3	1.98	
	D=1.5-.2=1.3m						
	short walls	2	1	0.2	1.3	0.52	
	middle walls, D = 1.5-.1-.1-.15 = 1.15m	2	1	0.2	1.15	0.46	
							2.96 m^3
4	**R.C.C. slab in proportion (1:2:4)**						
	B=1+(2*.2) = 1.4m	1	3.8	1.4		5.32	5.32 m^2
5	**Weight of steel reinforcement in Slab**						
	1% steel is provided					41.76	41.76 kg
	volume of concrete of 10cm. slab = 0.532						
	volume of steel 1% of concrete volume = 0.00532						
	weight of steel = volume of steel * density of steel = 41.762						

ABSTRECT SHEET

Sr. No.	Item	Quantity	Per	Rate (Rs.)	Amount (Rs.)
1	**Excavation work**	8.78	m^3	130.00	1,141.40
2	**(1:3:6) cement concrete flooring**	0.59	m^3	2,010.00	1,185.90
3	**First class brick masonry in C.M. (1:6)**	2.96	m^3	3,500.00	10,360.00
4	**P.C.C. in proportion (1:2:4) for 10 cm. thick R.C.C slab**	0.53	m^3	6,058.00	3,210.74
5	**Steel reinforcement in slab**				
	20% mild steel	8.35	Kg	41.75	348.61
	80% HYSD steel	33.41	Kg	39.45	1,318.03
				Total	17,564.68
				Add 5% Contingencies	878.23
				Grand Total	18,442.91
				Say	**Rs. 20,000**

8.6 Gram Panchayat

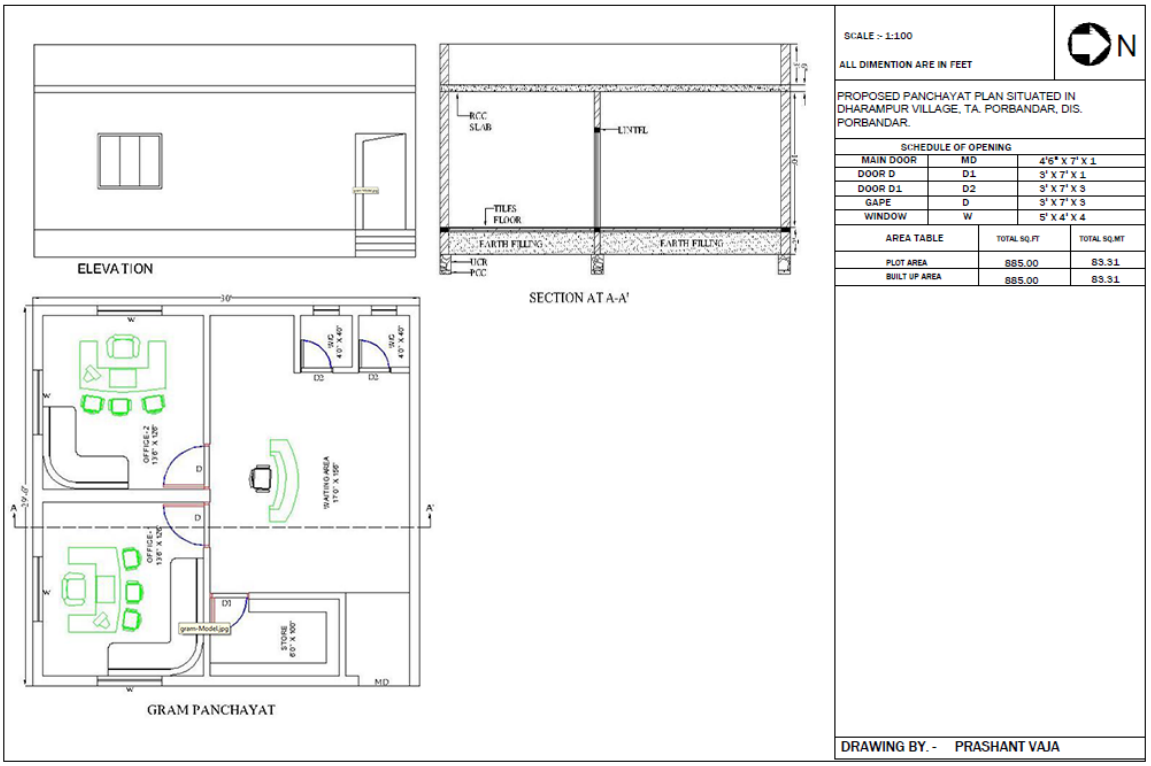


Fig 8.3.2 Design of Gram Panchayat

MEASUREMENT SHEET								
SR.	**DISCRIPTION**	**NO**	**L**	**B**	**D**	**QTY.**	**T.QTY.**	**UNIT**
1	Excavation for foundation upto 1.5 m depth including sorting out and stacking of usefulmaterials and disposing of the excavated stuffupto 50 Meter lead.							
	Dense of hard soil							
		2	9.140	0.6	1	10.968		
		3	7.800	0.6	1	14.040		
		1	2.610	0.6	1	1.566		
		1	2.450	0.6	1	1.470		
		1	0.620	0.6	1	0.372		

						28.416	28.146	Cu. M
2	Providing and laying Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand brokenstone aggregate 40 mm nominal size) and curing complete excluding cost of Formwork.							
		2	9.140	0.6	0.15	1.645		
		3	7.800	0.6	0.15	2.106		
		1	2.610	0.6	0.15	0.235		
		1	2.450	0.6	0.15	0.221		
		1	0.620	0.6	0.15	0.056		
						4.262	4.262	Cu. M
3	Uncoursed Rubble Masonry with hard stone ofapproved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.							
		2	9.140	0.6	1.35	14.807		
		3	7.800	0.6	1.35	18.954		
		1	2.610	0.6	1.35	2.114		
		1	2.450	0.6	1.35	1.985		
		1	0.620	0.6	1.35	0.502		
						38.362	38.362	Cu. M
4	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.							
		2	9.140	0.6	0.15	1.645		
		3	7.800	0.6	0.15	2.106		
		1	2.610	0.6	0.15	0.235		
		1	2.450	0.6	0.15	0.221		
		1	0.620	0.6	0.15	0.056		
						4.262	4.262	cu.m.
5	White stone bela masonary block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc.complete.							
		2	9.140	0.23	3.05	12.823		
		3	8.530	0.23	3.05	17.951		

		1	4.160	0.23	3.05	2.918		
		1	3.050	0.23	3.05	2.140		
		1	1.820	0.23	3.05	1.277		
		2	1.140	0.23	3.05	1.599		
		1	2.25	0.23	3.05	1.578		
						40.287		
	DEDUCT FOR OPENINGS							
		1	1.37	0.23	2.1	0.662		
		1	0.91	0.23	2.1	0.440		
		2	0.76	0.23	2.1	0.734		
		2	1.06	0.23	2.1	1.024		
		4	1.52	0.23	1.2	1.678		
						4.537		
	NET QTY.					35.750	35.75	Cu. M
6	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and watering.							
		1	9.14	9	0.6	49.356		
						49.356	49.356	Cu. M
7	Providing and fixing 35 mm thick shutter for door windows including black enamelled m.s. but hinges with necessary screws using kutcha wood fully panelled including two coates of oilpaint kutcha wood frame of 10 x 7 c.m. sizeetc complete(market rate)							
		1	1.37		2.1	2.877		
		1	0.91		2.1	1.911		
		2	0.76		2.1	3.192		
		2	1.06		2.1	4.452		
		4	1.52		1.2	7.296		
						19.728	30.405	Sqm.
8	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stoneaggregates 20 m.m. nominal size) and finshingsmooth with curing etc complete including the cost of form work but excluding the cost of rein -forcement for R.C.C work							
		1	9.14	9	0.15	12.339		
						12.339		

	DEDUCT	0	0.000	0	0	0.000		
						0.000		
						12.339	12.339	Cu. M
9	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level							
		12.339						
		12.339	100	0.8	1	987.120	1837.312	Kg
10	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level.							
		12.34						
		12.34	100	0.2	1	246.780	246.780	Kg
11	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.							
	(i) Cement mortar 1:3 (1 cement : 3 sand)							
		4	3.81		3.05	46.482		
		6	4.11		3.05	75.213		
		3	3.05		3.05	27.908		
		2	1.82		3.050	11.102		
		1	8.53		3.05	26.017		
		1	4.72		3.05	14.396		
		1	8.46	8.3		70.218		
						271.335		
	DEDUCTION FOR DOOR & WINDOW							
	QTY AS PER IT NO. 5			1	4.537	4.537		
	NET QTY					266.798	266.798	Sq. M
13	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)							
		4	0.6			2.400		
						2.400	2.4	Rmt
14	Providing indian type water closet in toilet block							
		2				2.000	2	nos
15	Providing and fixing Vitriuos tiles Of							

	size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.							
		2	3.81	4.11	---	31.318		
		1	4.72	5.18	---	24.450		
		1	1.82	3.05	---	5.551		
						61.319	61.319	sqmt

ABSTRACT

QTY.	DISCRIPTION	RATE	PER	AMOUNT
	ITEM NO. 1			
28.146	Excavation for foundation upto 1.5 m depth including sorting out and stacking of usefulmaterials and disposing of the excavated stuffupto 50 Meter lead.			
	Dense of hard soil			
		100	Cu. M	2814.600
	ITEM NO. 2			
4.262	Providing and laying Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand brokenstone aggregate 40 mm nominal size) and curing complete excluding cost of formwork.			
		1200	Cu. M	5114.400
	ITEM NO. 3			
38.362	Uncoursed Rubble Masonry with hard stone ofapproved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.			
		1500	Cu. M	57543.000
	ITEM NO. 4			
4.262	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.			
		2000	cu.m.	8524.000

	ITEM NO. 5			
35.750	White stone bela masonary block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc.complete.			
		3000	Cu. M	107250.000
	ITEM NO. 6			
49.356	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and watering.			
		125	Cu. M	6169.500
	ITEM NO. 7			
30.405	Providing and fixing 35 mm thick shutter for door windows including black enamelled m.s. but hinges with necessary screws using kutcha wood fully panelled including two coates of oilpaint kutcha wood frame of 10 x 7 c.m. sizeetc complete(market rate)			
		2500	Sqm.	76012.500
	ITEM NO. 8			
12.339	**Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stoneaggregates 20 m.m. nominal size) and finshingsmooth with curing etc complete including the cost of form work but excluding the cost of rein -forcement for R.C.C work**			
		2000	Cu. M	24678.000
	ITEM NO. 9			
		50	Kg	91865.600
	ITEM NO. 10			
246.780	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level.			
		50	Kg	12339.000
	ITEM NO. 11			

266.798	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.			
	(i) Cement mortar 1:3 (1 cement : 3 sand)	125	Sq. M	33349.750
	ITEM NO. 13			
2.400	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)			
		50	Rmt	120.000
	ITEM NO. 14			
2.000	Providing indian type water closet in toilet block			
		1200	nos	2400.000
	ITEM NO. 15			
61.319	Providing and fixing Vitriuos tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.			
		500	sqmt	30659.500
				458839.850
		TOTAL		458839.850
	ADD 3% OF ELECTRIFICATION			13765.196
	ADD 5% OF PLUMBING & WATER SUPPLY			22941.993
				495547.038
	SayRs.			495500.000
(RUPEES FOUR LACS NINTY FIVE THOUSAND FIVE HUNDRED ONLY.)				
DATE				

Chapter: 9

9. Proposing designs for Future Development of the Village for the PART-II Design

- Dharampur Village required a post office, Bus station, Community hall, Public Toilet, Gram panchayat, Biogas plant as they don't have a proper one in there village.

- To facilitate good health amenities through building Maternity Home and dispensary. Currently there are no maternity facilities present in the village. Hence provision of a Maternity home and dispensary in the village will prove to be useful in the time of emergency and also day to day basic treatment.

- There is no Public garden and Recreational Centre in Dharampur village, hence provision of public garden and Recreational will provide gathering and refreshing place to villagers.

- According to techno economical survey and gap analysis of part 1, almost required design of the village is do. First, basic requirement of the village should be fulfill, therefore the design in part one is do according to that. Now in the second part, we will try a design that covers all the required maintenance in the village first.

- As the design of approach road, internal roads, library, coconut leaf dustbin and Primary Health Centre is do, the next step is to do maintenance of the required structure. In addition, will provide some different design to the villagers.

- The village need some of unique or different design in order to make the village attractive and smart. Most of the focus of us is towards the maintenance of government properties such as bus stand; well, etc. because all these structures are damage. Until now, the bus stand was not maintain because there was no any regular route for government bus. However, after the approach road is make, there is hope of continuous route for the bus.

- In part 2 the designs are suggested by us are

  - ✓ Biogas Plant
  - ✓ Post Office
  - ✓ Anganvadi
  - ✓ Cyber Café
  - ✓ Rain Water Harvesting
  - ✓ Paver Block Road

Chapter: 10

10. Conclusion of the Entire Village Activities of the Project

- Vishwakarma Yojana: An approach towards Rurbanization. Name Itself indicates to provide primary and mandatory facilities to village which cities may have starting of the project we have visited the ideal village Ranavav. Ideal village terms as village should have facilities like primary school building , heath center , good water supply , well managed drainage system , cleanness of the village , should be connect with nearer city by transportation system , good education facilities.

- We visit the smart village and collect all information regarding the smart village form and Conclude what are the main and primary things needed in village and must be implemented.

- After the visit of ideal village we came to know which the main thing makes village are smart. **Dharampur** village is allot by GTU (Vishwakarma Yojana) for the refurbishment of village. We went for the village which is 14 km away from the Porbandar city and did interaction with villagers and sarpanch of Dharampur village whose name is Geetaben also we meet the principal of the primary school , also collaborate with the govt. officers.

- We did techno economic survey with the help of the Gov. Officer of **Dharampur** village & based on that we collected data of Necessary things, which are required in village, and things must be mend immediately.

- After did the techno economic survey we did the gap analysis which is the given by the standard of the governance of the India as we can found that particular thinks which is required in the development of **Dharampur** village.

- By providing required amenities to village, development of village can be possible. So ultimately, migration to the city from village will be reduce and livelihood of villagers will increase. So healthy and prosperous life can be possible for the villagers. Ultimate growth of village and people is base step for the development of country. India is developing country and GDP is highly depended on farming. As the development of village would be possible, farming techniques will increase and percentage of GDP will increase.

- In **Dharampur** village no renewable energy sources is use until now and the people are not aware for electric energy conservation and advantages of renewable sources. It is need to aware people from both the stuffs and people should also aware from the other government's schemes and subsidy related to it so, villagers can start using renewable energy sources, save electricity, and implement both for their personal uses.

- Comparison with smart village data and gap analysis we proposed detail design of certain amenities which may be use full for the growth of village and other advantage of **Dharampur** can be facilitated as like as other smart villages.

Chapter: 11

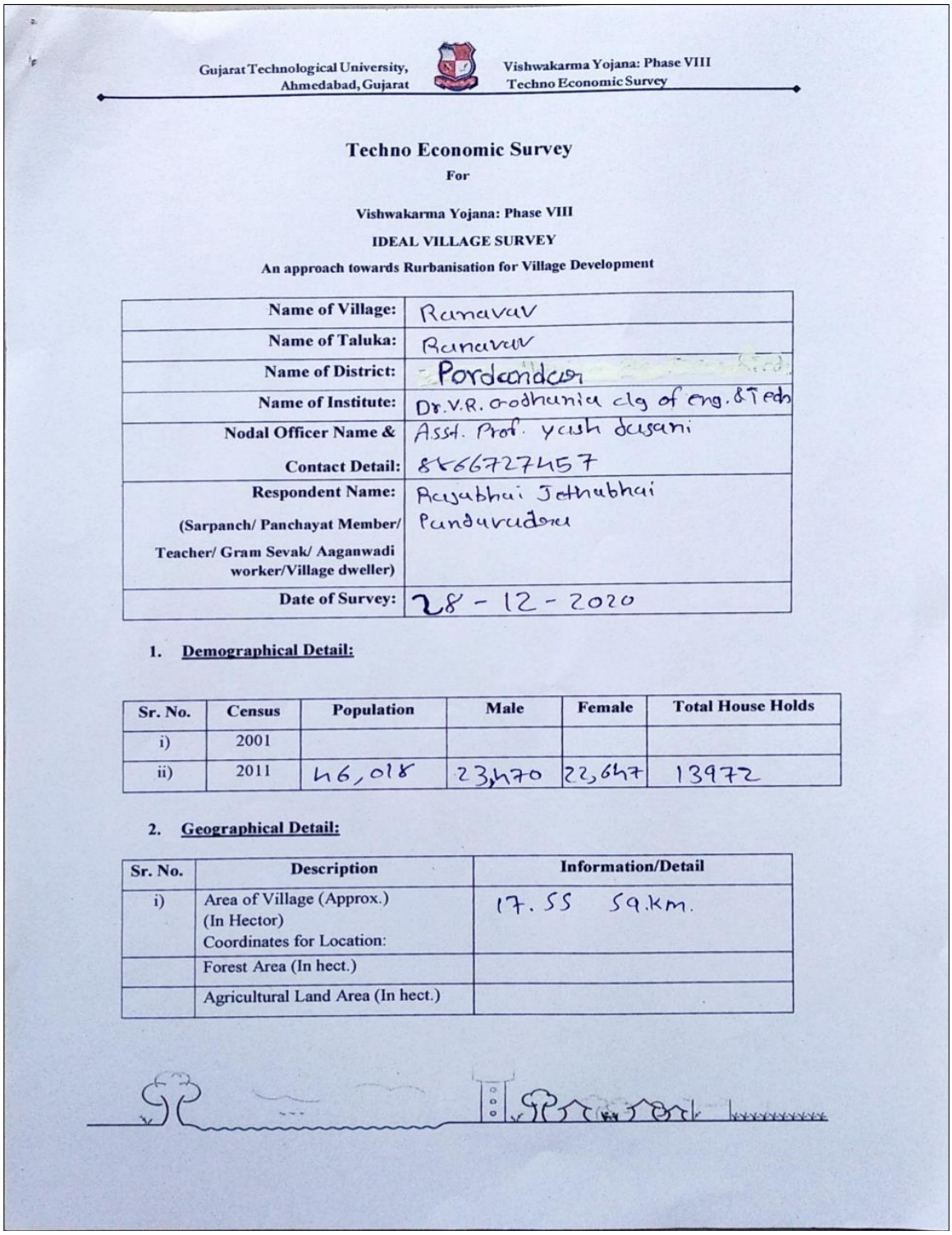
11. References

- www.wikipedia.com
- https://en.wikipedia.org/wiki/Mode_of_transport
- https://en.wikipedia.org/wiki/Sansad_Adarsh_Gram_Yojana
- https://www.google.co.in/maps/place/Dharampur,+Gujarat/@21.6656141,69.6485103,14z/data=!3m1!4b1!4m5!3m4!1s0x3956352c7d161ae3:0x6e2d1443075c63b8!8m2!3d21.666146!4d69.6750762
- http://www.vyojana.gtu.ac.in/ (Vishwakarma literatures)

Chapter: 12

12. Annexure attachment

12.1 Ideal village survey form



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Ranavav
Name of Taluka:	Ranavav
Name of District:	Porbandar
Name of Institute:	Dr. V.R. Godhania clg of Eng. & Tech
Nodal Officer Name & Contact Detail:	Asst. Prof. Yash Dusani 8866727457
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Ajabhai Jethabhai Pandavadara
Date of Survey:	28 - 12 - 2020

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001				
ii)	2011	46,018	23,470	22,647	13972

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	17.55 59.km.
	Forest Area (In hect.)	
	Agricultural Land Area (In hect.)	

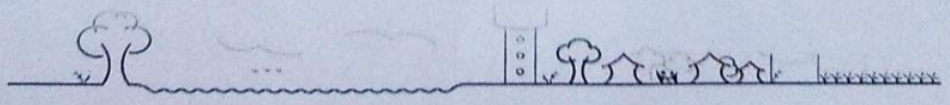
	Residential Area (In hect.)	
	Other Area (In hect.)	11.33 Hect.
	Water bodies	
	Nearest Town with Distance:	Porbandar (13.2 km)

3. Occupational Details:

Name of Three Major Occupation groups in Village	1. Agriculture - (10%) 2. Business - (70%) 3. Govt - (20%)

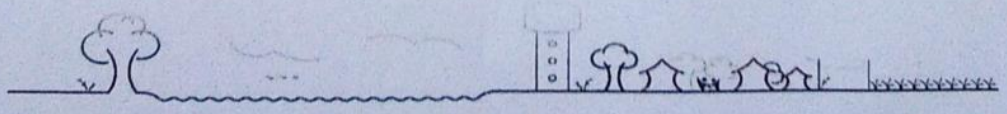
4. Physical Infrastructure Facilities:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated)	Treated	✓		
	• RO Water				
	• Well (Covered/ Uncovered)	–			
	• Hand pumps	Yes	✓		
	• Tube well/ Borehole	Yes	✓		
	• River/ Canal/ Spring/ Lake/ Pond	River	✓		
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:			
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	Yes	✓		



Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open	closed	✓		
	If Open than Pucca / Kutchcha				
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	water bodies			
Suggestions if any:					

E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	WBM.	✓		
	Main road	R.C.C.	✓		
	Internal streets	C.C. block	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-27	✓		
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	yes	✓		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes	✓		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	yes	✓		
Suggestions if any:					

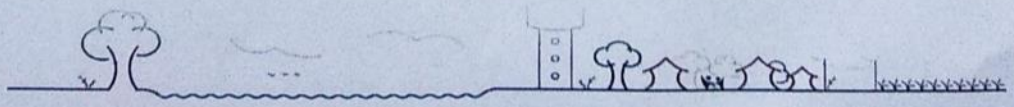


G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Govt (24hr)	✓		
	Power supply for Domestic Use	Yes	✓		
	Power supply for Agricultural Use	Yes	✓		
	Power supply for Commercial Use	Yes	✓		
	Road/ Street Lights	Yes	✓		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	No			
	LED Facilities	Yes	✓		
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	✓		
	Location Condition	Village good			
	Community Toilet (With bath/ without bath facilities)				
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	Door to Door	✓		

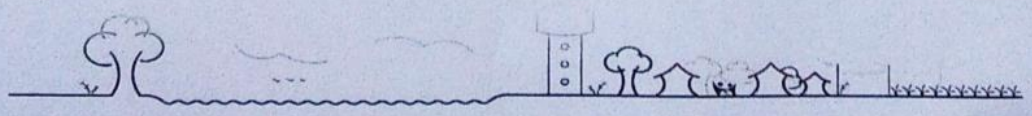
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	River tube bexell U/G sump			
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	80% pucca 20% kuchha			

5. Social Infrastructural Facilities:

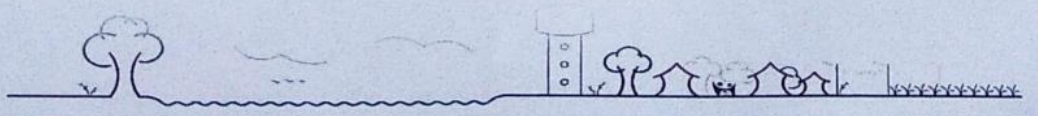
Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
K.	**Health Facilities:**				
	Sub center/ PHC/ CHC /Government Hospital/	PHC Govt hospital	✓ ✓		
	Child welfare & Maternity Homes (If Yes than specify No. of Beds)	Yes	✓		
	Condition:	Good	✓		
	Private Clinic/Private Hospital/ Nursing Home	All	✓		
	If any of the above Facility is not available in village than approx. distance from village: ……kms.				
Suggestions if any:					
L.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	✓		



	Primary School	Yes	✓		
	Secondary school	Yes	✓		
	Higher sec. School	Yes	✓		
	ITI college/ vocational Training Center	Yes	✓		
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes	✓		
	If any of the above Facility is not available in village than approx. distance from village: ……kms.				
Suggestions if any:					
M.	**Socio- Culture Facilities**				
	Community Hall (With or without TV) Location:	Yes	✓		
	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	Yes	✓		
	Public Garden Location: Condition:	Yes	✓		
	Village Pond Location: Condition:	Yes	✓		



	Recreation Center Location: Condition:	Yes	✓		
	Cinema/ Video Hall Location: Condition:	No			
	Assembly Polling Station Location: Condition:	Yes	✓		
	Birth & Death Registration Office Location: Condition:	Yes	✓		
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	Yes	✓		
	Telecommunication Network/ STD booth	No	✓		
	General Market	Yes	✓		
	Shops (Public Distribution System)	Yes	✓		
	Panchayat Building	Yes	✓		
	Pharmacy/Medical Shop	Yes	✓		
	Bank & ATM Facility	Yes	✓		
	Agriculture Co-operative Society	Yes	✓		
	Milk Co-operative Soc.	Yes	✓		
	Small Scale Industries	Yes	✓		



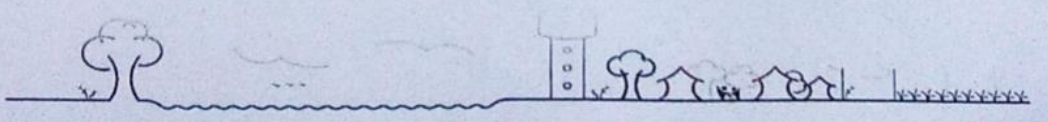
	Internet Cafes/ Common Service Center/Wi Fi	NO			
	Other Facility	-			
Suggestions if any:					

6. **Sustainable /Green Infrastructure Facilities:**

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
O.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	NO			
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	Yes	✓		
Q.	Any Other	-			

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	Yes



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VI
Techno Economic Survey

Recent Projects going on for Development of Village	
Any NGO working for village development	Yes

8. **Additional Information/ Requirement:**

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities(School Building, Health Center, Panchayat Building, Public Toilets & any other)	Good condition no need to maintenance	
2.	Additional Information/ Requirement	NO	

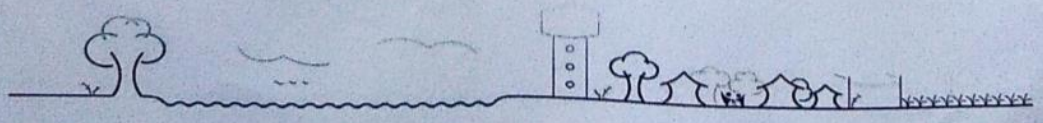
9. **Smart Village Proposal Design**

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Internet cafe, common service centre. wi-fi		

Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

For Any Administration queries/ Difficulties:
GTU VY Section:
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

પ્રમુખ
રાણાવાવ નગરપાલિકા



12.2 Smart village survey form

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

An approach towards **"Rurbanisation for Village Development"**

Name of District:	Porbandar
Name of Taluka:	Ranavav
Name of Village:	Ranavav
Name of Institute:	Dr.V.R. Godhaniu clg of Eng. & Tech.
Nodal Officer Name & Contact Detail:	Asst. Prof. Yash Dasani 8866727757
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Rajubhai Jethabhai Pandavadra
Date of Survey:	28 - 12 - 2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	46,018	23,470	22,547	13972

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	17.55 59.km.
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	
4.	Residential Area (In hect.)	
5.	Other Area (In hect.)	11.33 Hect.
6.	Distance to the nearest railway station (in kilometers):	in village available

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

7.	Name of Nearest Town with Distance:	Porbandar - (13.4 km)
8.	Distance to the nearest bus station (in kilometers):	In village
9.	Whether village is connected to all road for the any facility or town or City?	Yes

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Agriculture - (10%) 2. Business - (70%) 3. Govt - (20%)

Major crops grown in the village:	1. Cotton 2. wheat 3. Bajra

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER**	yes	✓		
	Piped Into Dwelling	yes	✓		
	Piped To Yard/Plot	yes	✓		
	Public Tap/Standpipe				
	Tube Well Or Bore Well				
2.	**DUG WELL**	yes	✓		
	Protected Well				
	Un Protected Well	NO	✓		
3.	**WATER FROM SPRING**	—			
	Protected Spring	—			
	Unprotected Spring	—			
	Rainwater	—			
	Tanker Truck	—			
	Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/**	River/ Lake/pond			
	Irrigation Channel	yes	✓		
	Bottled Water	yes	✓		
	Hand Pump	yes	✓		
	Other(Specify)**Lake/ Pond**				

21

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:			
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	Sol. U/G Drainage ✓	✓ ✓		
Suggestions if any:					
D.	**Road Network : All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	P.C.C.	✓		
	Main road	C.C.	✓		
	Internal streets	Blocks	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-27	✓		
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	All			
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Pvt Ltd 24 hr	✓		

3

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	Yes	✓		
	Power supply for Agricultural Use	Yes	✓		
	Power supply for Commercial Use	Yes	✓		
	Road/ Street Lights	Yes	✓		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	NO			
	LED Facilities	Yes	✓		
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	✓		
	Location Condition	village			
	Community Toilet (With bath/ without bath facilities)	NO			
	Solid & liquid waste Disposal system available	NO			
	Any facility for Waste collection from road	Door to Door	✓		
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND	-			
	STREAM/RIVER	Yes	✓		
	CANAL	-			
	WELL				
	TUBE WELL	Yes	✓		
	OTHER (SPECIFY)	Yes	✓		
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	80% Pucca 20% Kutchha	✓		

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	Yes	✓		
	Sub-Centre	–			
	PHC	Yes	✓		
	BLOCK PHC	Yes	✓		
	CHC/RH	–			
	District/ Govt. Hospital	Govt	✓		
	Govt. Dispensary	–			
	Private Clinic	Yes	✓		
	Private Hospital/ Nursing Home	Yes	✓		
	AYUSH Health Facility	–			
	sonography /ultrasound facility	–			
	If any of the above Facility is not available in village than approx. distance from village: ……kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	✓		
	Primary School	Yes	✓		
	Secondary school	Yes	✓		
	Higher sec. School	Yes	✓		
	ITI college/ vocational Training Center	Yes	✓		
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes	✓		
	If any of the above Facility is not available in village than approx. distance from village: ……kms.				

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:					
L.	**Socio- Culture Facilities**	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	Good	Village	Yes	
	Public Library (With daily newspaper supply: Y/N)	Good	Village	Yes	
	Public Garden	Good	Village	Yes	
	Village Pond	Good	Village	Yes	
	Recreation Center	–			No
	Cinema/ Video Hall	–			No
	Assembly Polling Station	–			No
	Birth & Death Registration	Good	Village	Yes	
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
M.	**Other Facilities**	Condition	Location	Available (YES)	Available (NO)
	Post-office	Good	Village	Yes	
	Telecommunication Network/ STD booth	–			No
	General Market	Good	Village	Yes	
	Shops (Public Distribution System)	Good	Village	Yes	
	Panchayat Building	Good	Village	Yes	
	Pharmacy/Medical Shop	Good	Village	Yes	
	Bank & ATM Facility	Good	Village	Yes	
	Agriculture Co-operative Society	Good	Village	Yes	
	Milk Co-operative Soc.	Good	Village	Yes	
	Small Scale Industries	Good	Village	Yes	
	Internet Cafes/ Common Service Center/Wi Fi	–			No
	Youth Club	–			No
	Mahila Mandal	–			No

19

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	Good Good	village village	yes yes	 NO NO
	Other Facility				

Suggestions if any:

N.	Other Facilities	Condition		Available (YES)	Available (NO)
	1. Have these programme implemented the village?			yes	
	2. Are there any beneficiaries in the village from the following programme?			yes	
	3. Janani Suraksha Yojana			yes	
	4. Kishori Shakti Yojana			yes	
	5. Balika Samriddhi Yojana				
	6. Mid-day Meal Programme			yes	
	7. Intergrated Child Development Scheme (ICDS)			yes	
	8. Mahila Mandal Protsahan Yojana (MMPY)			–	
	9. National Food for work Programme (NFFWP)			–	
	10. National Social Assistance Programme			yes	
	11. Sanitation Programme (SP)				
	12. Rajiv Gandhi National Drinking Water Mission			–	
	13. Swarnjayanti Gram Swarozgar Yojana			–	
	14. Minimum Needs Programme (MNP)			yes	
	15. National Rural Employment Programme			–	
	16. Employee Guarantee Scheme (EGS)			yes	
	17. Prime Minister Rojgar Yojana (PMRY)			–	
	18. Jawahar Rozgar Yojana (JRY)			yes	
	19. Indira Awas Yaojna (IAY)			–	
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)				
	23. Other (SPECIFY)				

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	NO	-		
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	Yes	✓		
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy	Yes	✓		
2.	Recent Projects going on for Development of Village	-			
3.	Any NGO working for village development	Yes	✓		
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)	NO			

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

8

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	Good Condition no need to maintanance	
2.	Additional Information/ Requirement	no	
3.	During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?	yes yes	Due to corona no fix

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	Recreation B/d	

Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

For Any Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: ruban@gtu.edu.in

રાણાવાવ નગરપાલિકા

પ્રમુખ
રાણાવાવ નગરપાલિકા

12.3 Allocated village survey form

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards **"Rurbanisation for Village Development"**

Name of District:	Porbandar
Name of Taluka:	Porbandar
Name of Village:	Dharampur
Name of Institute:	Dr. V. R. Godhaniya college of eng. & tech.
Nodal Officer Name & Contact Detail:	Ast. Prof. Yash Dusani mo.no:- 8866727457
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Geetaben Mamajbhai sida
Date of Survey:	20 / 12 / 2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	7704	3961	3743	1722

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1840.4 Hect.
2.	Forest Area (In hect.)	122.71 Hect.
3.	Agricultural Land Area (In hect.)	30 Hect.
4.	Residential Area (In hect.)	36.06 Hect.
5.	Other Area (In hect.)	26.03 Hect
6.	Distance to the nearest railway station (in kilometers):	Porbandar railway station 10km.

7.	Name of Nearest Town with Distance:	Porbandar 14 km
8.	Distance to the nearest bus station (in kilometers):	Porbandar bus station 14 km.
9.	Whether village is connected to all road for the any facility or town or City?	Village road connected

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Agricuture (80%.)
	2. Buisness (15%.)
	3. GOVT. (5%.)

Major crops grown in the village:	1. Wheat
	2. Millet
	3. Peanuts

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER** Piped Into Dwelling Piped To Yard/Plot Public Tap/Standpipe Tube Well Or Bore Well		A		
2.	**DUG WELL** Protected Well Un Protected Well				
3.	**WATER FROM SPRING** Protected Spring Unprotected Spring				
4.	Rainwater Tanker Truck Cart With Small Tank **SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel Bottled Water Hand Pump				

21

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Other(Specify)Lake/ Pond		A		
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	1		
	Underground Sump	Capacity:	1		
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	NO			
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	10km C.C. Road			
	Main road	3km W.B.M.			
	Internal streets	1 km Gravel			
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-27			
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes Porbandar Rly station 10km			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Porbandar bus station 1km			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto, chhakdu, others.			
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Govt. 24 hours.	A		

3

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	Yes 24 hrs.	A		
	Power supply for Agricultural Use	8hrs.	A		
	Power supply for Commercial Use	24 hrs.	A		
	Road/ Street Lights	yes	A		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes			
	Renewable Energy Source Facilities (Y/ N)	NO			
	LED Facilities	NO			
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Not available			
	Location Condition	-			
	Community Toilet (With bath/ without bath facilities)	Not available			
	Solid & liquid waste Disposal system available	Not available			
	Any facility for Waste collection from road	mannual swipers			
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	Natural water connection			
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	70 % 30%	Pucca Kutchha		

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi) Sub-Centre PHC BLOCK PHC CHC/RH District/ Govt. Hospital Govt. Dispensary Private Clinic Private Hospital/ Nursing Home AYUSH Health Facility sonography /ultrasound facility	PHC available			
	If any of the above Facility is not available in village than approx. distance from village: ……kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	2		
	Primary School	Yes	1		
	Secondary school	Yes	2.5km		
	Higher sec. School	Yes	1.2km		
	ITI college/ vocational Training Center	Yes	2.5km		
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes Yes	3.9km 4.6km		

51

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	If any of the above Facility is not available in village than approx. distance from village: 4.6 ...kms.
Suggestions if any:	

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	Not available			
	Public Library (With daily newspaper supply: Y/N)	No			
	Public Garden	No			
	Village Pond	No			
	Recreation Center	No			
	Cinema/ Video Hall	No			
	Assembly Polling Station	No			
	Birth & Death Registration Office	No			

If any of the above Facility is not available in village than approx. distance from village: 5.0 ....kms.

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office	Yes			
	Telecommunication Network/ STD booth	Yes			
	General Market	No			
	Shops (Public Distribution System)	Yes			
	Panchayat Building	Yes			
	Pharmacy/Medical Shop	Yes			
	Bank & ATM Facility	No			
	Agriculture Co-operative Society	No			
	Milk Co-operative Soc.	No			
	Small Scale Industries	Yes			
	Internet Cafes/ Common Service Center/Wi Fi	No			
	Youth Club	No			
	Mahila Mandal	No			

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries				
	Other Facility	NO			
Suggestions if any:					
N.	**Other Facilities**	**Condition**		**Available (YES)**	**Available (NO)**
	1. Have these programme implemented the village?				
	2. Are there any beneficiaries in the village from the following programme?				
	3. Janani Suraksha Yojana				NO
	4. Kishori Shakti Yojana				NO
	5. Balika Samriddhi Yojana				NO
	6. Mid-day Meal Programme				
	7. Intergrated Child Development Scheme (ICDS)				
	8. Mahila Mandal Protsahan Yojana (MMPY)				
	9. National Food for work Programme (NFFWP)				NO
	10. National Social Assistance Programme				NO
	11. Sanitation Programme (SP)				
	12. Rajiv Gandhi National Drinking Water Mission				
	13. Swarnjayanti Gram Swarozgar Yojana				
	14. Minimum Needs Programme (MNP)				
	15. National Rural Employment Programme				
	16. Employee Guarantee Scheme (EGS)				
	17. Prime Minister Rojgar Yojana (PMRY)				
	18. Jawahar Rozgar Yojana (JRY)				
	19. Indira Awas Yaojna (IAY)				
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)				
	23. Other (SPECIFY)				

17

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	Solar light	A		
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	NO NO NO			
3.	Any Other	–			

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy		A		
2.	Recent Projects going on for Development of Village			in Ad.	
3.	Any NGO working for village development			in Ad.	
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)	–	–		

8

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	Post office of Dharampur	
2.	Additional Information/ Requirement	-	
3.	During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?	-	

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	-	

Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

For Any Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

પોરબંદર છાંયા નગરપાલિકા
ઉષાબેન કેશુભાઈ સીડા
મ્યુ. કાઉન્સીલર
પોરબંદર છાંયા નગરપાલિકા

12.4 Gap Analysis of the Allocated Village

VILLAGE GAP Analysis					
Village Facilities	**Planning Commission/UDPFI Norms**	**Village Name**	**Dharampur**		
		Existing	**Required as per Norms**	**Future Projection Design**	**Gap**
Social Infrastructure re Facilities					
Education					
Anganwadi	Each or Per 2500 population	**2**	**1**	-	**+1**
Primary School	Each Per 2500 population	**1**	**1**	-	**0**
Secondary School	Per 7,500 population	**0**	**1**	-	**-1**
Higher Secondary School	Per 15,000 Population	**0**	**1**	-	**-1**
College	Per 125,000 Population	**0**	**0**	-	**0**
Tech. Training Institute	Per 100000 Population	**0**	**0**	-	**0**
Agriculture Research Centre	Per 100000 Population	**0**	**0**	-	**0**
Skill Development Center	Per 100000 Population	**0**	**0**	-	**0**
Health Facility					
Govt/Panchyat Dispensary or SubPHC or Health Centre	Each Village	**1**	**1**	-	**0**
Primary Health & Child Health Center	Per 20,000 population	**1**	**1**	-	**0**
Child Welfare and Maternity Home	Per 10,000 population	**0**	**0**	-	**0**
Multispeciality Hospital	Per 100000 Population	**0**	**0**	-	**0**
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slum pockets & kutcha house)	**0**	**1**	-	**-1**
Physical Infrastructure Facilities					
Transportation					
Pucca Village Approach Road	**Each village**	**Adequate**		**0**	**0**
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)	**Inadequate**	No pick up stand available (connected by ST bus, auto, AMTS)		
Drinking Water	(Mini. 70 lpcd)	**Adequate**		**0**	**0**
Over Head Tank	1 /3 of Total Demand	**Adiquate**		**0**	**0**
U/G Sump	2 /3 of Total Demand	**Inadiquate**		**0**	**0**
Drainage Network – Open		**Adequate**		**0**	**0**
Drainage Network - Cover		**Inadequate**		**0**	**0**
Waste Management System		**Inadequate**		**0**	**0**
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	**0**	**1**	**1**	**-1**
Community hall and Public Library	Per 15000 Population	**0**	**1**	**1**	**-1**
Cremation Ground	Per 20,000 population	**1**	**1**	**0**	**0**
Post Office	Per 10,000 population	**0**	**0**	**0**	**0**
Gram Panchayat Building	Each individual/group panchayat	**1**	**1**	**0**	**0**
APMC	Per 100000 Population	**0**	**0**	**0**	**0**
Fire Station	Per 100000 Population	**0**	**0**	**0**	**0**
Public Garden	Per village	**0**	**1**	**0**	**-1**
Police post	Per 40,000Population	**0**	**1**	**1**	**-1**
Shopping Mall		Shops are available			
Electrical design					
Electricity Network		**Adequate**		66 kv Substation	
Any Smart Village Facility					
Technology		**ESR cap**	**0**	**0**	**0**
		Sump cap	**0**	**0**	**0**
		Lat	**0**	**0**	**0**

12.5 Summary Details of All the Villages Designs in Table form as Part-I and Part-II

DRVRGCET, Porbandar				
Sr.No.	Village Name	Discipline	Part -1	Part-2
1	Dharamppur	Civil	Public Toilet	Biogas Plant
			Bus Station	Post Office
			Community Hall	Anganvadi
			ATM	Design of Speaker system with C.C.T.V. Camara
			Septic Tank	Design of Door to Door Waste Collection
			Gram Panchayat	Road in Village
2	Ranavav	Civil	Post office	Community Hall
			Public Garden	Anganwali
			Rain water harvesting	Higher Secondary school
			public Toilet	Collage
			PHC	Entrance Gate
			ATM	Biogas Plant
3	Kutiyana	Civil	Post office	Community Hall
			Public Garden	Anganwali
			Rain water harvesting	Higher Secondary school
			public Toilet	Collage
			PHC	Entrance Gate
			Septic Tank	Gram Panchayat

12.6 Drawings (If, required, A1, A2, A3 design is not visible then only)

All the 6 drawings of A3 sheet are attached in the last of the report.

12.7 Summary of Photographs in Table Format (village visits, Ideal, Smart Village or any other)

(Summary of photographs of(Dharampur - Allocated village)		
		
(Summary of photographs of Ranavav - Ideal Village & Smart Villge)		
		
		

12.8 Village Interaction WithSarpanch/ Talati letter

Village Interaction with Sarpanch / Talati letter

Vishvakarma Yojana Phase VIII

Dharampur Village ,Porbandar Taluka , Porbndar District.

Code :-360560

Subject :-Village Interaction form with Sarpanch / Talati letter Dharampur Village

Sarpanch/Taalati of Dharampur village understanding gives approval of doing village interaction activity under Vishvakarma Yojana Phase VIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Vara Nirav (181383106030) and Vaja Prashant (181383106028) .

Approval of design Proposal for Dharampur Village of part 1:

1) Public Toilet
2) Bus Station
3) Community Hall
4) ATM
5) Septic Tank
6) Gram Panchayat

Date : 10 Jun, 2021

Sign :

ઉષાબેન કેશુભાઈ સીડા
મ્યુ. કાઉન્સીલર
પોરબંદર છાંયા નગરપાલિકા

12.9 Sarpanch Letter giving information about the village development:

Approval Letter for Proposed Design Approval

Vishvakarma Yojana Phase VIII

Dharampur Village ,Porbandar Taluka , Porbndar District.

Code :-360560

Subject :- Approval of design Proposal for Dharampur Village

Sarpanch/Talati of Dharampur village understanding gives approval for following main design proposal given under Vishvakrmaarma Yojana Phase vIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Vara Nirav (181383106030) and Vaja Prashant (181383106028) .

Approval of design Proposal for Dharampur Village of part 1:

1) Public Toilet
2) Bus Station
3) Community Hall
4) ATM
5) Septic Tank
6) Gram Panchayat

Date : 10 Jun, 2021

Sign :

ઉષાબેન કેશુભાઈ સીડા
મ્યુ. કાઉન્સીલર
પોરબંદર છાંયા નગરપાલિકા

12.10 Approval Letter For Swachhta & Covid Awareness Activity Approval:

Approval Letter for Swachht and Covid Awareness Activity Approval

Vishvakarma Yojana Phase VIII

Dharampur Village ,Porbandar Taluka , Porbndar District.

Code :-360560

Subject :- Approval of doing Swachht and Covid Awareness Activity Approval for Dharampur Village

Sarpanch/Talati of Dharampur village understanding gives approval for doing Swachht and Covid Awareness Activity Approval for Dharampur Village under Vishvakarmakarma Yojana Phase VIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Vara Nirav (181383106030) and Vaja Prashant (181383106028) .

Date : 10 Jun, 2021

Sign :

ઉષાબેન કેશુભાઈ સીડા
મ્યુ. કાઉન્સીલર
પોરબંદર છાંયા નગરપાલિકા

Chapter: 13

13. From the Chapter- 9 future designs of the aspects (Feasibility, Construction, Operation and maintenance of various design options in Rural Areas along with cost with AutoCAD designs / planning with any software

13.1 BIOGASPLANT:

Design:

Total no. of animals in village = 150.

As per standard data assume per day dung of animals
= 10.5 kg so, total dung per day = 150 x 10.5

= 1575 kg/day

Design of Digester:

Assume retention period (R) = 70 days

Now total amount of slurry per day (S) = Total dung per day + water amount

= 1575+ 2(1575)

= 4725 kg/day= 47.25m^3/day

Digester Volume = S x R = 47.25 x 30 = 1417.5 =
1417m^3 Assume cylinder shape
biogas plant.
Provide total 2 no. of unit in different area.

So, digester volume becomes =1417 /2 = 708.5 m^3 Provide =
640 m^3 Total digester volume (Vd) = $\pi r^2 h$

640 =πr^2assume h = 10 m r =
4.51m so, dimensions are h =
10 m, r = 4.5 m

Design of Gas Holder:

Assume digester temperature = 26-

28^{O}C Now, Specific Gas Production

(Gd) = 37 liter/day Daily Gas

Production G = Gd x Feed Volume

= 37 x 12870 = 675990 lit = 676 m^3

Now,

Assume Gas Holder capacity = 60%

Gas Holder Volume = Daily Gas Production X Capacity of Holder

= 676 x 0.60

= 406 m^3

So, take gas holder volume = 300 m^3

Now, for 6 units provide volume of holder each unit = 300 m^3 /
2 = 150 m^3 Provide cylinder shaped,

Therefore, Volume = $\pi r^2 h$

150 =πr^2(1) assume h = 1 r = 6.91 m

So, dimension of the gas holder: h = 1 m, r = 7 m

Design of Inlet and Outlet:

Total Volume of slurry mix deposit = 18.27 / 2 = 9.135
m^3 / day Assume two-time filling operation in plant.

So, take total volume of slurry = 9.135 / 2 = 4.567 m^3 / day = 4

m^3 / day Provide Rectangular tank.

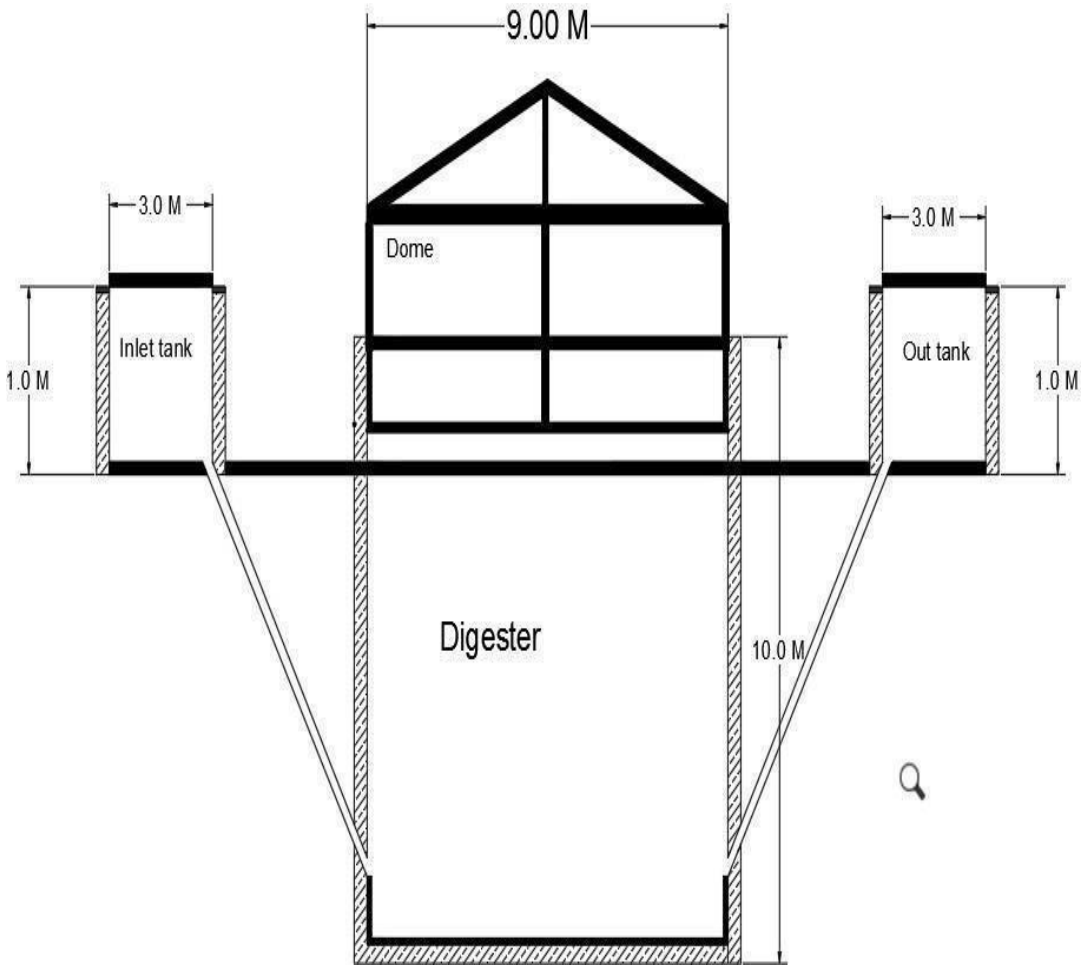
So, Total volume for one time mixing of slurry = L x

B x H 5 = L x B x 1

Dimensions of inlet: L = 3 m B = 2 m H = 1 m

Here, 5 m^3 / day required < 6 m^3 / day provided..... Hence OK.

Provide same size of outlet also.


9.00 M
3.0 M
3.0 M
Dome
Inlet tank
Out tank
1.0 M
1.0 M
Digester
10.0 M

MEASUREMENT SHEET

Sr. No.	Item Particular	Nos.	L (M)	B (M)	H (M)	Quantity	Total Quantity
1	Excavation for Foundation for depth more than 3.3m including sorting out and stacking of useful material and disposing off the excavated stuff up to 50 m lead	1	17.5	17.5	3.5	1071.8 m^3	1071.8 m^3
2	Providing and laying Cement Concrete 1:3:6 (1 cement: 3coarse sand: 6 stone aggregate 40 mm nominal size) and curing complete excluding cost of formwork in foundation	1	17.5	17.5	0.10	30.625 m^3	30.625 m^3
3	Providing and laying controlled cement concrete M15 for curing complete excluding the cost of formwork & reinforcement including curing Wall slab	4 2	17.5 17.5	3.5 17.5	0.10 0.10	24.50 m^3 61.25 m^3	85.75 m^3
4	Deduction of Manholes from the top Slab	2	0.6	0.60	0.10	0.072 m^3	61.25-0.072 = 61.178m^3
5	Providing H.Y.S.D bar reinforcement for R.C.C work including bending binding and placing in position	85.67 m^3	@	70 kg/m^3		6000 kg	6000 kg

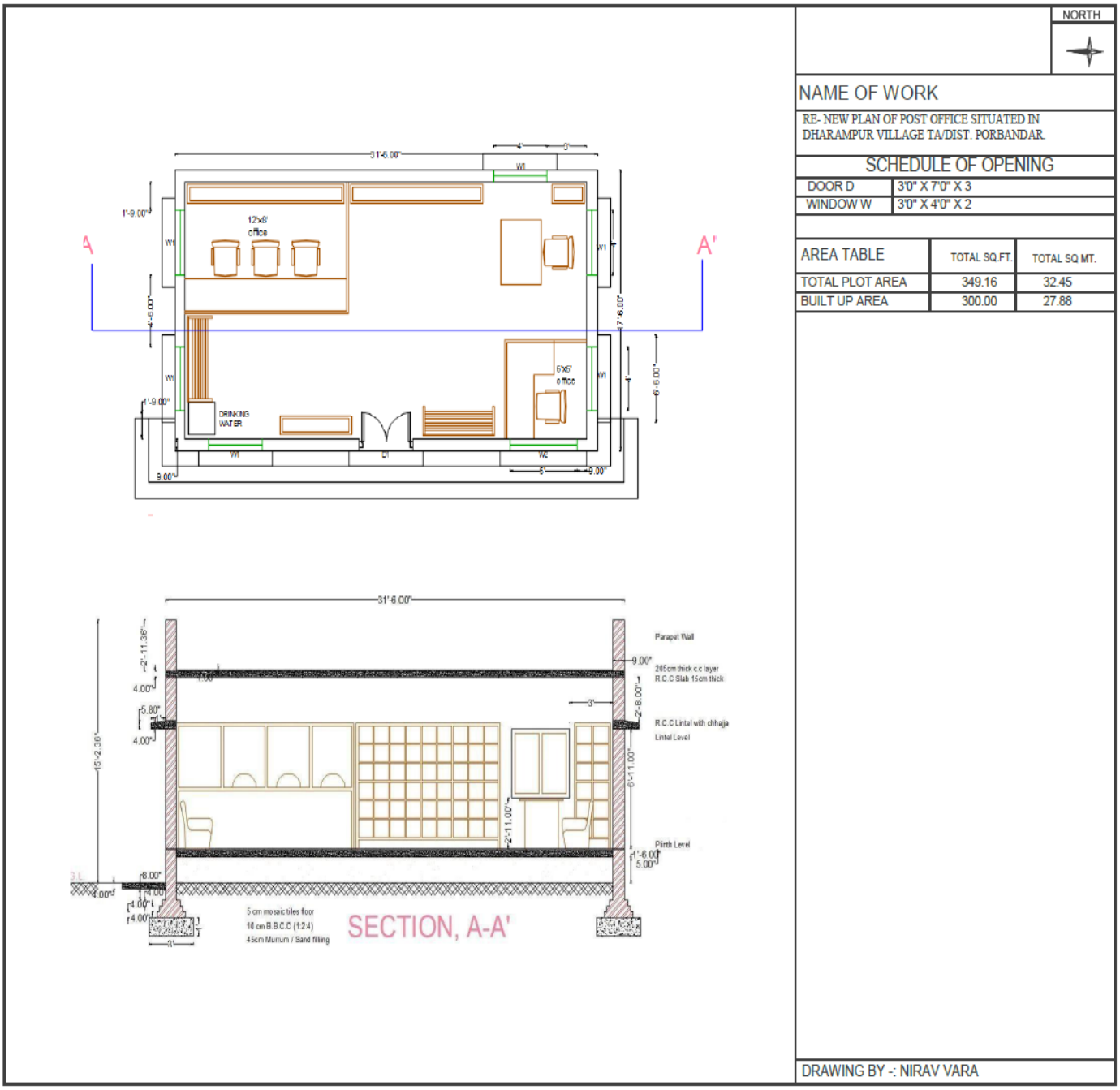
ABTRECT SHEET

Sr. No.	Particular or Item	Quantity	Rate (in Rs.)	Per	Amount (in Rs.)
1.	For Excavation of foundation	1071.8	124.00	Cum	132903.20
2.	Providing and laying P.C.C (1:3:6) excluding cost of formwork	30.625	2932.00	Cum	89792.50
3.	Providing and laying controlled cement concrete M15 for the walls excluding cost of reinforcement	24.50	4077.00	Cum	99886.50
4.	Providing and laying concrete and finishing smooth curing including the cost of formwork but excluding the cost of reinforcement in R.C.C slab	61.25	5927.00	Cum	363028.75
5.	Reinforcement	6000	40.00	Kg	24000.00

As per SOR R&B 2015-16

- Total Construction Cost including Labour Cost = 7,09,614 Rupees.
- Contractor‘s Profit = 1,06,442 Rupees (15%).
- Water charges =10,645Rupees (1.5%).
- Total Cost without considering wastage: 7,09,614+1,06,442+10,645 =8,26,701
- So, the cost is said to be **8,26,701 Rupees**.

13.2 Post office:



Measurement Sheet

Sr No.	Description of Item	No.	Length m (L)	Breadth m (B)	Depth h/t(m) (D/H)	Quantity
1	Excavation in ordinary soil	1	28.75	0.9	0.9	23.28
2	BBCC(1:2:4)	1	28.75	0.9	0.3	7.76
3	Brick masonary up to plinth					
	First	1	28.9	0.6	0.1	1.734
	Second	1	28.95	0.5	0.1	1.44
	Third	1	29	0.4	0.1	1.16
	Fourth	1	29.05	0.3	0.8	6.97
	Steps					
	First	1	1.4	0.9	0.2	0.252
	Second	1	1.4	0.6	0.2	0.108
	Third	1	1.4	0.3	0.2	0.884
						11.75
4	Filling in trench					3.77
	(23.28-7.76-11.75)					
	Filling in plinth	1	9	5	0.45	20.25
5	Brick masonary in					
	super structure					
	H=3.0 m	1	29.2	0.3	3	26.28
	Deduction					
	Door	1	1.2	0.3	2.1	0.756
	Window-1	6	1.2	0.3	1.2	2.592
	Window-2	1	1.2	0.3	1.5	0.54
	Lintel					
	D	1	1.5	0.3	0.15	0.0675
	W1	6	1.5	0.3	0.15	0.405
	W2	1	1.5	0.3	0.15	0.0675
6	RCC Work for					
	Slab	1	9.6	5.6	0.15	8.064
	Lintel					

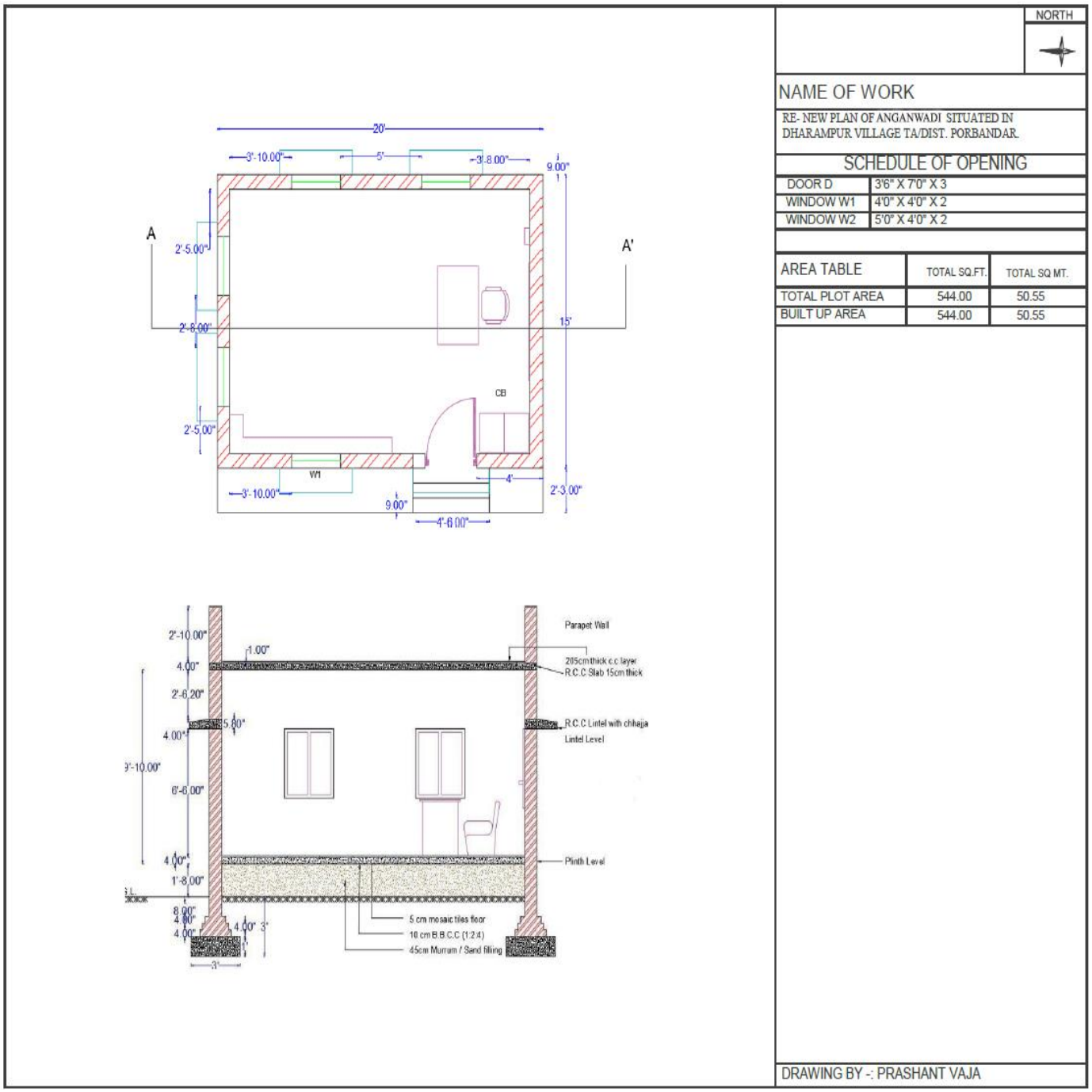
	D	1	1.5	0.3	0.15	0.0675
	W1	6	1.5	0.3	0.15	0.405
	W2	1	1.5	0.3	0.15	0.0675
	Chajja					
	D	1	1.5	0.6	0.1	0.09
	W1	6	1.5	0.6	0.1	0.54
	W2	1	1.5	0.6	0.1	0.09
						9.324
7	Brick masonary on	1-Jan	29.2	0.3	0.8	1.008
	parapet wall					
	Inside Plaster					
	12 mm thick	2	9		3	54
		2	5		3	30
	Celling	1	9	5		45
	Deduction of					
	D	0.5	1.2		2.1	1.26
	W1	3	1.2		1.2	4.32
	W2	0.5	1		1.5	0.9
						122.52
	Plaster on parapet	2	9		0.8	14.4
		2	5		0.8	8
						22.4
9	Outside plaster	2	9.6		4	76.8
		2	5.6		4	44.8
	Deduction of door	0.5	1.2		2.1	1.26
	W1	3	1.2		1.2	1.32
	W2	0.5	1.2		1.5	0.9
10	Painting Work	2	9		3	54
	Inside	2	5		3	30
	Celling	1	9	5		45
	Deduction					
	D	0.5	1.2		2.1	1.26
	W1	3	1.2		1.2	4.32
	W2	0.5	1.2		1.5	0.9
						122.52
	White Washing outside	2	9.6		4	76.8
		2	5.6		4	44.8
	Deduction					

	D	0.5	1.2		2.1	1.26
	W1	3	1.2		1.2	4.32
	W2	0.5	1.2		1.5	0.9
						115.12
13	Moisac tiles					
	Flooring					
	Area (9*5)					
	Tiles area(0.6*0.6)					125
	Add 10%					13
						138
14	Skirting	2	9			18
		2	6			10
						28
15	Wooden door & window					
	D					
	W1	1	1.2		2.1	2.52
	W2	6	1.2		1.2	8.64
		1	1.2		1.5	1.8
	Painting of door					
	W1	2	1.2		2.1	5.04
	W2	12	1.2		1.2	17.28
		2	1.2		1.5	3.6
						25.92
16	Office room-1	1	3.6	0.1	2.1	0.756
	(Wooden partition)	1	2.5	0.1	2.1	0.525
	Deduction of door					
	Opening	1	1.2	0.1	2.1	0.252
						1.029
17	Office room-2	1	2	0.1	2.1	0.21
		1	2	0.1	0.6	0.048
	Deduction of door &	1	1	0.1	2.1	0.21
	Opening	1	0.8	0.1	0.6	0.048

ABSTRACT SHEET

Sr	**Description of Item**	**Quantity**	**Rs.**	**Total Cost**
No.		**(Cu.m)**		**In Rs.**
1	Excavation in ordinary soil & filling	23.28	110	52035
2	BBCC (1:2:4)	7.76	7.76	120
3	Brick masonary	47.3	110	52035
5	Skearting	28.84	15	432.6
7	RCC Slab & lintel	9.324	10000	9324
9	Inside & outside plaster(12 mm)	237.64	150	65646
11	Painting Work Inside	122.52	150	18378
12	White Washing outside	115.12	150	17268
14	Wooden Doors &	1	1000	1000
15	Window	7	750	5250
	Total			177042

13.3 Anganvadi:



MEASUREMENT SHEET

		No.	Length	Breadth	Depth	
Sr	**Description of Item**				**Or**	**Quantity**
No.					**Height**	
			(L)	**(B)**	**(D/H)**	
1	Excavation in ordinary soil					
	Total centerline					
	20.2 m					
	L	1	19.75	0.9	0.9	16
2	BBCC (1:2:2)	1	19.75	0.9	0.3	5.33
3	Brick masonary up to plinth					
	First	1	19.9	0.6	0.1	1.194
	Second	1	19.95	0.5	0.1	1
	Third	1	20	0.4	0.1	0.8
	Forth	1	20.05	0.3	0.8	4.81
	Steps					
	First	1	1.4	0.9	0.2	0.252
	Second	1	1.4	0.6	0.2	0.168
	Third	1	1.4	0.3	0.2	0.084
						8.3
4	Filling in trench					5.87
	Filling in Plinth	1	5.5	4	0.45	9.9
5	Skearting of 10 cn	2	5.5			11
		2	4			8
6	Brick masonary in	1	20.2	0.3	3	18.18
	super structure					
	H=3.0 m					
	Deduction					
	Door	1	1.2	0.3	2.1	0.756
	Window	5	1	0.3	1.4	2.1
	Lintel					
	D	1	1.3	0.3	0.15	0.0675
	W	5	1.3	0.3	0.15	0.29

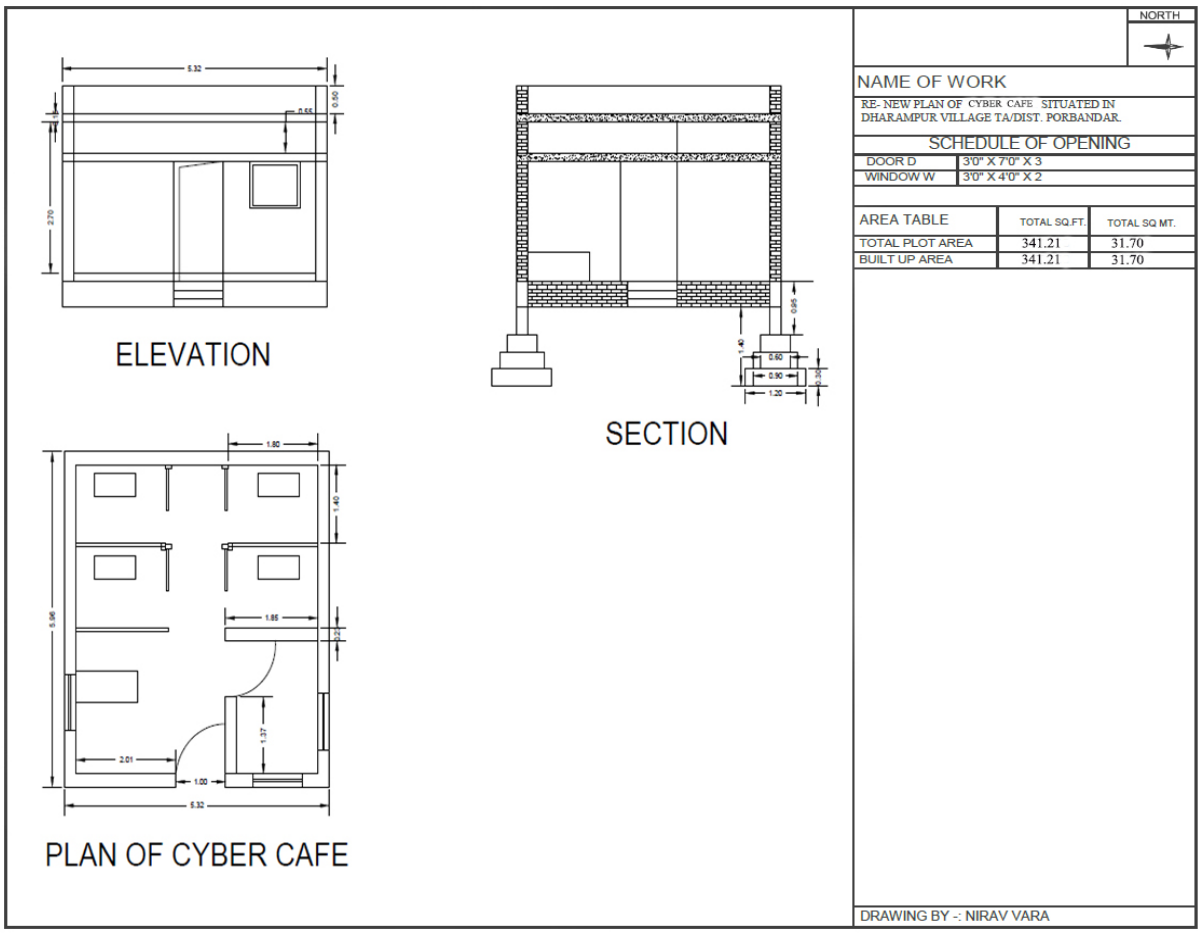
						3.21
7	RCC Work for					
	Slab	1	6	4.6	0.1	2.8
	Lintel					
	D	1	1.5	0.3	0.15	0.0675
	W	5	1.3	0.3	0.15	0.29
	RCC Chajja					
	D	1	1.5	0.6	0.1	0.09
	W	5	1.3	0.6	0.1	0.39
						3.6375
8	Brick Masonry on Parapet					
	Wall	1	20.2	0.3	0.9	5.45
9	Inside plaster 12 mm thick	2	5.5		3	33
		2	4		3	24
	Celling plaster	1	5.5	4		22
	Deduction of					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
	Plaster parapet wall	2	5.5		0.9	9.9
		2	4		0.9	7.2
						17.1
10	Outside plaster	2	6.1		4	48.8
		2	4.6		4	36.8
						85.6
	Deduction of					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
						80.84
11	Painting work inside	2	5		3	33
		2	4		3	24
	Celling paint	1	5.5	4		22
	Deduction					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
	Painting on parapet	2	5.5		0.9	9.9
		2	4		0.9	7.2
12	White washing	2	6.1		4	48.8
	outsize	2	4.6		4	36.8

	Deduction of					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	5.5
13	Moisac tiles flooring					
	Area(5.5*4)					62
	Tiles area(0.6*0.6)					68
14	No. Of door &	1	1.2		2.1	2.52
	Window	5	1		1.4	7
	Painting of door &	2	1.2		2.1	5.04
	Window	10	1		1.4	14
						19.04

ABSTRACT SHEET

Sr No.	Description of Item	Quantity (Cu.m)	Rs.	Total Cost In Rs.
1	Excavation in ordinary soil	32.77	110	3604.7
2	BBCC (1:2:4)	5.33	120	639.6
3	Brick Work	28.71	1250	35887.5
4	Filling in Plinth & Trenches	9.9	125	1237.5
6	Brick masonry	14.9665	4000	59866
7	RCC Slab & lintel	3.6375	1000	3637
9	Inside Plaster 12mm	17.1	250	4275
10	Outside Plaster	80.84	250	20210
11	PaintingWork Inside	7.2	13	93.6
12	Painting Work Inside	74.24	150	11136
13	White Washing outside	80.84	150	12126
15	Wooden Doors & window			
	D	1	1000	1000
	W	5	750	3750
	Total			157462.9

13.4 Cyber Cafe:



MEASUREMENT SHEET						
Sr. No.	Description Of Item	Nos.	Length (m)	Breadth (m)	Height (m)	Quantity
1	**Excavation for foundation**	1	23.062	1.20	1.40	38.744 m3
2	**PCC for foundation**	1	23.062	1.20	0.30	8.302 m3
3	**Brick Masonry upto Plinth**					
	Step 1 (Width 0.6 m)	1	23.52	0.90	0.30	6.348 m3
	Step 2 (Width 0.5 m)	1	23.962	0.60	0.30	4.33 m3
	Step 3 (Width 0.4 m)	1	24.172	0.23	0.95	5.28 m3

				Total Brickwork		**24.26 m3**
4	**Brick Masonry above plinth up to slab level**	1	24.172	0. 23	3	16.68m3
	Deduction for door-windows					
	D	1	1	0.23	2	-0.69 m3
	W	3	1	0.23	0.84	-0.20 m3
				Total		**15.79 m3**
5	**Concreting for slab Including Material, Formwork Etc.**	1	5.5	5.32	0.15	**4.389 m3**
				Total		**4.389 m3**
6	**Inside plaster**	1	28.54	-	3.49	99.623 m2
		2	-	4	3	24 m2
	Deduction for door-windows					
	D1	1	1	-	2	-2 m2
	W1	3	1	-	0.84	-2.52 m2
				Total		**95.393 m2**
7	**Outside plaster** Main wall	1	22.56	-	3.49	78.734 m2
	Deduction for door-windows					
	D1	1	1	-	2	-2 m2
	W1	3	1	-	0.84	-2.52 m2
				Total		**74.214 m2**

ABTRACT SHEET

Sr. No.	Description Of Item	Quantities	Rate	Per	Amount
1	Excavation	38.744	450	Cu. M	17434.8
2	Total Brick Masonry With Material & Labor	40.05	1500	Cu. M	60,075
3	Concreting for slab Including Material, Formwork Etc.	4.389	17000	Cu. M	74613
4	Inside Plaster Including Material & Labor	95.393	400	Sq. M.	38157.2
5	Outside Plaster Including Material & Labor	74.214	450	Sq. M.	33396.3
6	Doors & Windows				5000

7	Curtain Wall Door: Glass				5500
				Total	**234176.3**
		Add 1.5% water charge Rs.			5330
		Add 10% contractor profits Rs.			35523
			Total Cost		**275029 /-**

13.5 Rain Water Harvesting:

Rain Water Harvesting Gram Panchayat

Calculate of rain water in terrace

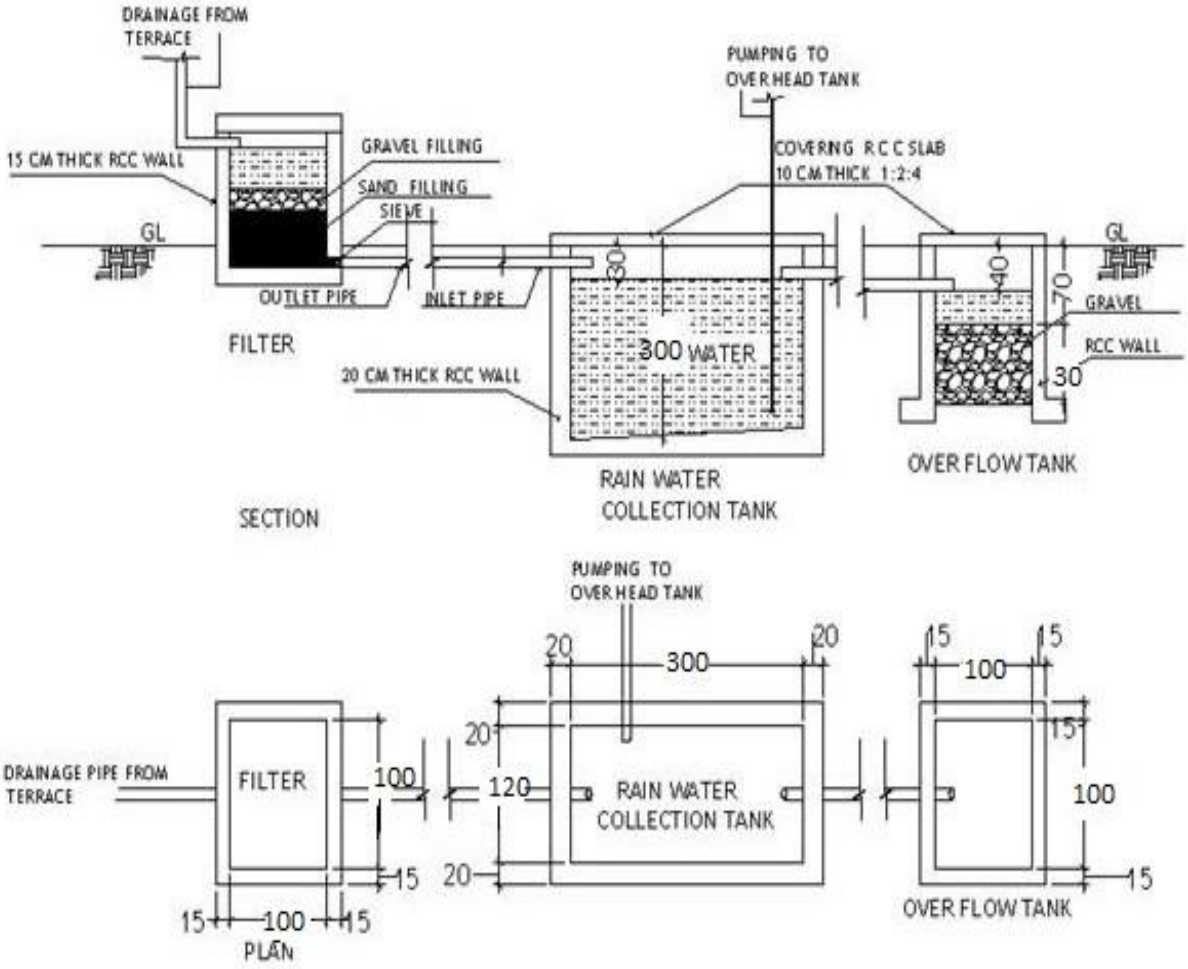
Part	Length(m)	Width(m)	Area(m^2)
1	10.0	15.3	153

Average rainfall 701 mm. Density of water 1000 lit/m^3

Collection of water volume = area × rainfall
= 153 × 0.701
= 107.253 m^3

Collection of water = volume of water × density of water
= 107.253 × 1000
= 107253 lit

Description	Width	Length	Height
	(m)	(m)	(m)
Filter tank	1	1	1
Underground tank	1.2	3	3
Overhead tank	1	1	1



Design of Rain water harvesting

Description	Length	Width	Height	Volume
	(m)	**(m)**	**(m)**	**(m^3)**
Filter tank	-	-	-	0
Water tank	3	1.2	3	12
Over flow tank	1	1	1	1
			Total	**13**

MEASUREMENT SHEET

	Description	No	Length (m)	Width (m)	Thickness (m)	Volume (m^3)
Filter tank	bottom slab	1	1	1	0.15	0.15
	side wall	4	1	1	0.15	0.6
	top slab	1	1	1	0.1	0.1
Under ground water tank	bottom slab	1	3	1.2	0.2	0.72
	side wall	2	3	3	0.2	3.6
	side wall	2	3	1.2	0.2	1.44
	top slab	1	3	1.2	0.1	0.36
Deduction	opening cover	1	0.5	0.5	0.1	-0.025
Over flow tank	bottom slab	1	1	1	0.15	0.15
	side wall	4	1	1	0.15	0.6
	top slab	1	1	1	0.1	0.1
				Total		**7.795**

ABSTRACT SHEET

Description		Unit	Rate	Quantity	Cost
Excavation in soils		m^3	150	13	1950
Reinforced cement concrete (1:2:4) cu. m. 5000.00Including steel bars, shuttering etc.		m^3	5000	7.795	38975
	PVC piping for rainwater pipes				
- 110 mm diameter		m	200	3	600
- 200 mm diameter		m	350	8	2800
PVC roof cover		m^2	7500	0.025	187.5
				Cost	**44512.5**
				Lump Sum	45000
			Contractor charges	10% cost	4500
				Total cost	**49500**

13.6 Road in Village:

- Due to the bad condition of internal road sin the village, the people are uncomfortable to reach the PHC, School-Collages and other place of the village.

MEASUREMENT SHEET						
Sr. No.	**Item**	**L**	**B**	**H**	**Quantity**	**Total**
1	**Excavation / surface excavation**	926.0	3.0	0.25	694.500	694.500
2	**Coarse Gravel base 100mm thick**	926.00	3.0	0.10	277.800	277.800Cum
3	**Sand base 50mm thick**	926.00	3.0	0.050	138.900	138.900Cum
4	**Paver block** I-shaped (200X100X60)mm	926.00	3.0	-	2778.00.	2778.00sq.mt

ABSTRACT SHEET					
Sr. No.	**Item**	**Quantity**	**Per**	**Rate (Rs.)**	**Amount (Rs.)**
1	**Excavation/ surface dressing**	692.50	Cum.	60.0	41550
2	**Coarse Gravel base 100mm thick**	277.800	Cum	1000.0	277800
3	**Sand base 50mm thick**	138.900	Cum.	800.00	111120
4	**Paver block** I-shaped (200X100X60)mm	2778.00	Sq.mt	550.00	1527900
	Cost				1958370/-
	Add 2 % water charges				39167.4
	Add 10% contractor‘s profit				195837.00
	Total cost of road				**21,93,374.4**

As per SOR R&B 2015-16

Total proposed length of paver road is 926mt and 3mt. wide.

- Size of paver blocks selected is 200 X 100 X 60mm.
- For 1 sq.mt. Of paver block = 550/- Rs. (50 nos.).
- Hence cost of 1 block is = 11 Rs. (approximate).
- Total no. of paver block required for 1sq.mt is 50 and hence for 926mt, 1, 38,900nos.
- Cost of only paver block is 15, 27,900.

Chapter: 14

14. Technical Options with Case Studies

14.1 Civil Engineering

14.1.1 Advanced Earthquake Resistant

✓ **Understanding of earthquake and Basic Terminology**

Earthquake is defined as a sudden ground shaking caused by the release of huge stored strain energy at the interface of the tectonic plates.

✓ **ROLE & RESPONSIBILITIES OF CIVIL ENGINEERS**

It is not the earthquake which kills the people but it is the unsafe buildings which is responsible for the devastation. Keeping in view the huge loss of life and property in recent earthquakes, it has become a hot topic and worldwide lot of research is going on to understand the reasons of such failures and learning useful lessons to mitigate the repetition of such devastation. If buildings are built earthquake resistant at its first place (as is being done in developed countries like USA, Japan etc.) we will be most effectively mitigating the earthquake disasters. The professionals involved in the design and construction of such structures are civil engineers. Who are responsible for building earthquake resistant structures and keep the society at large in a safe environment? It is we the civil engineers who shoulder this responsibility for noble and social cause.

✓ **GUIDELINES FOR EARTHQUAKE RESISTANT CONSTRUCTION**

In addition to the main earthquake design code 1893 the BIS (Bureau of Indian Standards) has published other relevant earthquake design codes for earthquake resistant construction Masonry structures (IS-13828 1993)

- Horizontal bands should be provided at plinth, lintel and roof levels as per code
- Providing vertical reinforcement at important locations such as corners, internal and external wall junctions as per code.
- Grade of mortar should be as per codes specified for different earthquake zones.
- Irregular shapes should be avoided both in plan and vertical configuration.
- Quality assurance and proper workmanship must be ensured at all cost without any compromise.

In RCC framed structures (IS-13920)

- In RCC framed structures the spacing of lateral ties should be kept closer as per the code
- The hook in the ties should be at 135 degree instead of 90 degree for better anchorage ment.
- The arrangement of lateral ties in the columns should be as per code and must be continued through the joint as well.
- Whenever laps are to be provided, the lateral ties (stirrups for beams) should be at closer spacing as per code.

14.1.2 Seismic Retrofitting of Buildings

✓ TRADITIONAL METHODS OF SEISMIC RETROFITTING

Traditional methods of seismic retrofitting fall essentially into two categories, one based on the classical principles of structural design which requires an increase of strength and stiffness, and the other based on mass reduction. Thus the first one tends to satisfy the design inequality by an increase of the capacity while the second one achieves the same result by a reduction of the demand. Since seismic design is different from ordinary design, both techniques may turn out to be quite ineffective as is shown in the following.

With reference to the first method, that is increase of strength and stiffness, the concept involved in its application can be understood using Figure 14.1.2.1. Suppose that the fundamental period of the structure is *Tnr* , to which corresponds a demand *Sanr* in pseudo-acceleration terms, which the structure cannot satisfy. On applying a strength and stiffness increment, the fundamental period will shorten from *Tnr* to *Tr* , to which corresponds a demand *Sar* much larger than the original one. It is, therefore, possible that the structure will be less safe in the new condition than in the original one

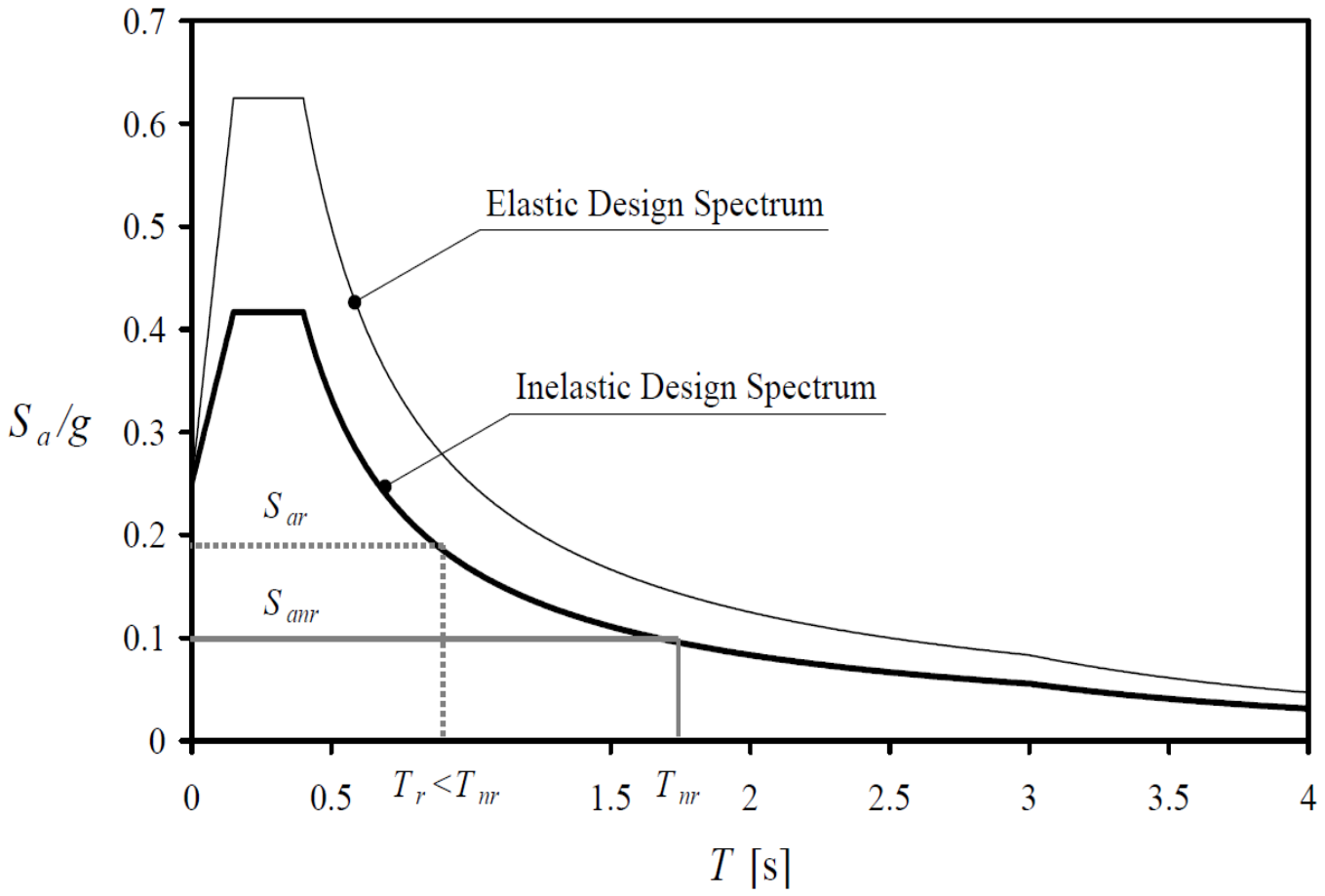


Fig 14.1.2.1 Increase of the seismic demand following an increase of seismic resistance

Only after stiffness and strength have been increased up to a level where the fundamental period corresponds to the constant branch of the design spectrum, is it possible to achieve a condition where the design inequality is satisfied. It is, therefore, evident that an attempt to increase the seismic resistance capacity in this way only results in an increase of the seismic demand. When, in the end, the procedure converges, it is at the expense of a considerable expenditure of resources.
A similar situation occurs with reference to mass reduction. This may be achieved, for instance, by removal of one or more storeys. In this case it is evident that the removal of the mass will lead to a decrease in the period, i.e. *Tr* < *Tnr*, which will lead to an increase in the required strength, i.e. *Sar* > *Sanr*. Therefore the advantage acquired by the mass reduction is partially cancelled by the period shortening through the increase in the demand as shown in Figure 14.1.2.1

✓ INNOVATIVE APPROACHES TO SEISMIC RETROFITTING

The main innovative methods of seismic retrofitting may be grouped into the following classes:
• Stiffness reduction
• Ductility increase
• Damage controlled structures
• Composite materials
• Any suitable combination of the above methods
• Active control.

For equal mass the 'stiffness reduction' produces a period elongation and a consequent reduction of the seismic action and therefore of the seismic strength demand. The stiffness reduction may be achieved by the principle of springs in series whereby the equivalent stiffness of two springs in series is smaller than either of the single springs as shown in Figure 6. In general it may be assumed that base isolation is a special case of the stiffness reduction approach. Although very effective, this method must be used with a pinch of salt. Too low a stiffness may result in large displacements, especially inter-story drifts, which may conflict with the functioning of the building and cause damage to non-structural components. Therefore deformability checks are always a must. Instances in which this method may not be effective are the cases of long period structures or of stiff structures on soft soils. In the first case the advantages gained by a reasonable increase in period may be negligible; in the second case the stiffness reduction may be counterproductive by leading to an increase of spectral ordinates. An application of the 'stiffness reduction method' will be shown in some detail in a further section.
A 'ductility increase' may be achieved locally by confinement of reinforced concrete flexural as well as compressed structural members. Although this method has a long history, it may now be applied easily using new materials such as fiber reinforced polymers (FRP). These materials are distinguishable by the type of fiber and the most common are denoted by CRP, GRP, ARP, indicating respectively reinforcement with carbon (C), glass (G) and aramid (A) fibers.

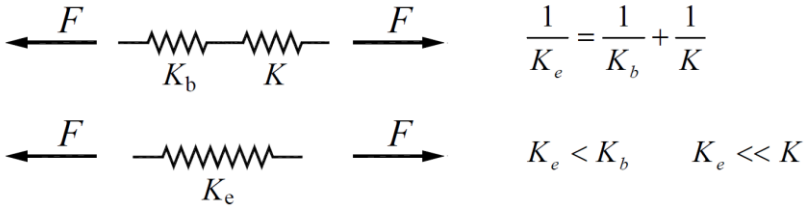


Fig. 14.1.2.2 Stiffness reduction by the principle of springs in series

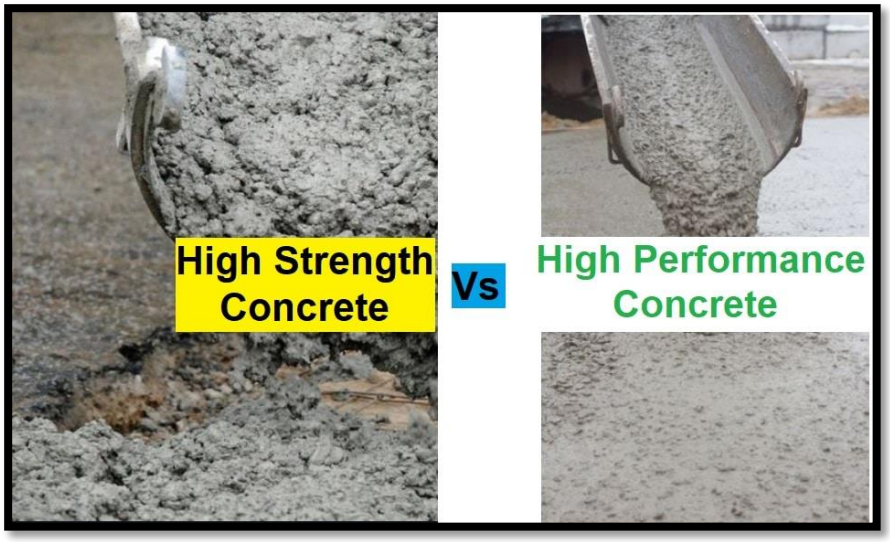
One of the most important developments to surface in earthquake engineering in the last 10 years is the introduction of the concept of designing 'damage controlled structures' (Huang et al., 2001).

14.1.3 Advance Practices in Construction field in Modern Material, Techniques and Equipment's

The main objective of this content is to make the student aware of the various construction techniques, practices and the equipment needed for different types of construction activities. At the end of this course the student shall have a reasonable knowledge about the various construction procedures for sub to super structure and also the equipment needed for construction of various types of structures from foundation to super structure.

- ✓ **High Performance Concrete**

Lafarge has developed a whole new family of concretes called Ductal. These concretes have high compressive and flexural strength, and their special characteristics enable the achievement of outstanding architectural feats. Ductal concrete incorporates strengthening fibers and opens the horizon to ultra-high performance due to its special composition which provides it with outstanding strength, six to eight times greater than traditional concrete (under compression)."Fiber-reinforced" means that it contains metal fibers which make it a ductile material. Highly resistant to bending, its great flexural strength means it can withstand significant transformations without breaking. Ductal also comes with organic fibers for applications with less load and for advanced architectural applications.



- ✓ **Foamed Aluminum**

"Light-as-air, stronger-than-steel materials are just beginning to shape our world. Foamed aluminum first emerged from the lab in the frame of a 1998 Karman concept car. Ten times stronger than traditional aluminum at just one tenth the weight, the material allows a more fuel-efficient vehicle. Its isotropic cellular structure helps the frame absorb shock and serves as an insulating firewall between the engine and the rest of the car. The foaming process can also be applied to steel, lead, tin, and zinc." The product is a high strength, extremely light weight material that possesses high durability, excellent finish and lasting value. The foam comes in an assortment of densities and sizes up to five feet wide and up to fifty feet long. It has numerous applications including architectural, automotive, marine, military, aviation, transportation, electronics, appliances, and signage.

- ✓ **Aerogel**

Aerogel or "Air glass" is a transparent material that looks like glass, insulates better than mineral wool and is more heat resistant than aluminum. The material has many interesting properties and possible applications such as insulation in windows and solar collectors, windows in firewalls, a component in air-conditioning equipment, etc. Aerogel is molded, giving the possibility of getting different shapes: cylinders, cubes, plates of varying thickness etc. Chemically, Aerogel is composed of quartz and a great deal of air, making it fragile. The grains of quartz are small compared to the wavelength of light, giving Aerogel good transparency properties. At around 750°C (1380°F), it starts to shrink and slowly collapses to a piece of ordinary quartz. Aerogel can be cut with a band saw and holes can be drilled with a metal drill. It should be noted that Aerogel is non-flammable and non-toxic.

14.1.4 Engineering Aspects Of Soil mechanics - Environmental Impact Assessment

The study involved environmental impact assessment of upgrading of existing flow station dealing with different civil engineering works such as road network, housing, water supply, to name a few. Data was collected from Federal Environmental Protection Agency (FEPA), Department of Petroleum Resources (DPR) Port Harcourt, Nigerian Meteorological Department (NMD), Lagos, Rivers State Ministry of Environment and Natural Resources (RSMENR), Port Harcourt, Ahoada West Local Government Area (AWLGA), Akinima, Rivers State the Internet. Data collected was used to get an overview of the existing Environment. Relevant test of existing water, soil, noise and air samples were carried out. Comparisons were made with results of the test carried out and data of the area collected. Formal and informal interviews were also carried out with some of the inhabitants of the area. All these were done with the aim of assessing the impact the infrastructure had on the environment, and projection of the likely impact of the upgrading exercise. The study revealed that civil engineering infrastructure development projects impacted greatly on the environment especially in areas of noise pollution, water pollution, decrease in size of available land, etcetera. Based on the findings, recommendations were made for the elimination of the negative effects in some cases; and for amelioration of the effects in situations where it will be impossible to completely eradicate such effects.

14.1.5 Water Supply-Sewerage system-Waste Water- Sustainable development techniques

This paper presents a study where sustainable development indicators (SDIs) for sludge handling and wastewater treatment systems were constructed in co-operation with a large Swedish water company. Results from a life cycle assessment, a risk assessment, an economic assessment and an uncertainty assessment were used as inputs for ranking technical options of sludge handling by use of multi-criteria analysis (MCA). The MCA included assessment of the different technical options, valuation of different, and often conflicting, aspects of sustainability and weighting of various criteria. On basis of the preferences expressed in the MCA, a number of SDIs and, when possible, targets for sustainable development, were formulated. The resulting SDIs reflected economic, environmental, technical and social aspects of sustainable development of sludge handling systems. Where possible, the coverage of the indicators was extended to the entire wastewater system.

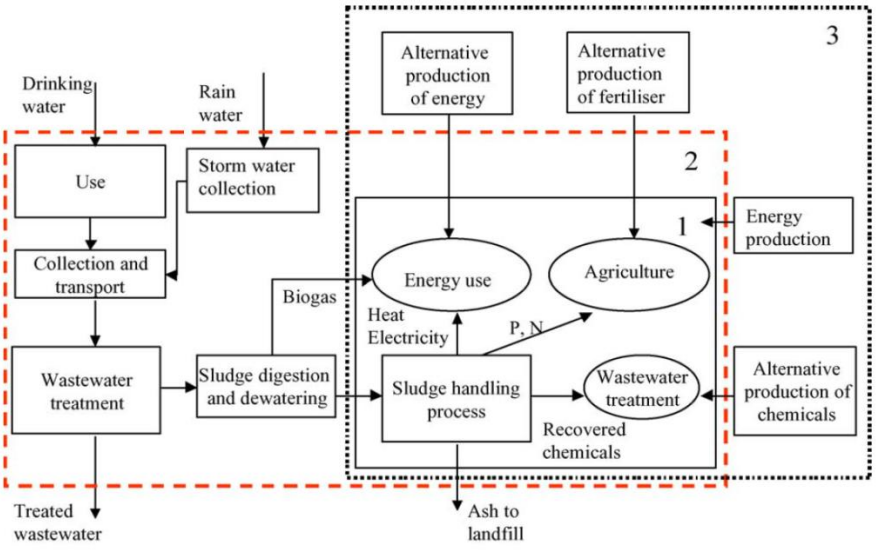


Fig 14.1.5.1 Resources, Conservation and Recycling

Chapter: 15

15. Smart and/or Sustainable features of Chapter 8 & 13 designs, Impact on society.
(For Allocated village development, villager's happiness, comfortable and for enhancement of the village) (With the Smart village development Concept as per Your Idea and Village Visit, modern technology with innovation).
With doing small changes, Period, Amount Expenditure and Benefit –

a) Immediately b) Within 1 year c) Long term (3-5 years) along with cost estimation.

b) If possible, List the sources of the funding available with the Village gram panchayat

❖ **Smart and/or Sustainable features of designs, Impact on society**.

- **Speaker System with CCTV Camera**

  There is no facility available for alert or safety from thief using CCTV camera and emergency announcement using Speaker system. CCTV camera give safety and security of village dwellers from theft. Speaker system is use to arrange emergency meeting, to give hazard information, and other communication purpose.

- **Solid Waste Management**

  As village has population 1830 so as aesthetic point of view it is necessary to keep the village clean & green. In the village there is no any type of management available in village for collection and dispose of solid waste. Due all the above reasons it is necessary to provide a basic facility of waste collection and dispose it at suitable dumping site.

- **Road construction in internal streets**

  Already most of area of Dharampur village is covered under this category by Gram Panchayat from the available fund. So we proposed in some old area which is not consider by them and water and transportation issue arise in monsoon in this areas. So we proposed Block road construction in these areas.

❖ (For Allocated village development, villager's happiness, comfortable and for enhancement of the village) (**With the Smart village development Concept as per Your Idea and Village Visit, modern technology with innovation**).

First - To Provide proper low-cost public toilet.

Second – To provide proper waste disposal system

Third – To provide higher secondary school so student don't have to go far for education

Forth - To provide clear water facilities of villagers and educate them to use water after filter or boil.

Fifth – Help them to understand about technologies and then understand new farming technologies.

❖ With doing small changes, Period, Amount Expenditure and Benefit –

a) Immediately b) Within 1 year c) Long term (3-5 years) along with cost estimation.

b) If possible, List the sources of the funding available with the Village gram panchayat

- As immediately we should implement the design proposed by us from the available grant. Because for making any village smart or model, basic facilities are prime requirement of Village.
- For now we can‘t even think about the provision of latest technology in village until basic need fulfill.
- Villagers are also not aware or habitat for use of latest technology.
- Involvement of Gram panchayat or Sarpanch is prime requirement for village development.
- It is real fact that, from all our visits to dharampur village and interaction with member of gram panchayat we realize that they don‘t interested to lead the village in new path.
- So before all this thing we should take an action to such village sarpanch or panchayat member who are illiterate and not working toward villagers oriented.

a) Within 1 year:-

- From actual visit we saw that there is no any major scheme is implemented in village.
- Some Internal street road and Close Drainage work are completed in new village but in old village these all basic requirement are lack.
- Some of our proposed design like Internal road design by paver block, Bio gas plant can implement within one year

b) Long term (3-5 years):-

- Form our proposed design long term development include those infrastructure which provide after few years.
- These facilities required more amount to implement.
- We proposed construction of, Post Office, cctv camera. Currently they less requirement than above design, but after few year they need to construct it.
- Bio-Gas Plant should provide after completion of all basic facilities.

Chapter: 16

16. Interviewing with Sarpanch

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Survey with Interviewing

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards **"Rurbanisation for Village Development"**

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?	Yes	Farm, Industry
2	What are the chances of employment in village?	Yes	-
3	What are the special technical facilities in village?	Yes	-
4	Is any debt on village dwellers?	-	-
5	Are village people getting agricultural help?	Yes	-
6	Is women health awareness Program organized in village?	NO	-
7	Are women having opportunity to work and income?	Yes	work in farm
8	Child girl education is appreciated in village?	Yes	-
9	Facility of vaccination to child is available in village?	No	-
10	Are village people aware about child vaccination and done to each and every child as per norms?	NO	-
11	Women help line number information is provided to village people?	Yes	-
12	Is water scarcity in village? How many days per year?	NO	-
13	Is village under any debt?	-	-
14	Is any serious issue due to debt from bank or any person happened in village?	NO	-
15	Is any suicide like incident observed in village due to government policy, debt or threatening?	-	-
16	Is any death of patient occurred due to unavailability of medical facility in village?	-	-
17	How many disabled (physically challenged) is observed in village? Provide list with Male/female/girl/boy with age and type of disability and reason of disability.	-	-
18	Is village improvement is observed in comparative scenario from past to present?	Yes	slow improvement
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	-	-
20	Life Living standard of girls and women is appreciated and uplifted in village?	Yes	Life standard incre-sing slowly

Nodal officer and students can add more questions. This is a sample. Having Minimum requirement.

Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

ઉષાબેન કશુભાઇ સાડા
મ્યુ. કાઉન્સીલર
પોરબંદર છાંયા નગરપાલિકા

Chapter: 17

17. Irrigation / Agriculture Activities and Agro Industry, Alternate Technics and Solution

➢ Irrigation

- **METHODS OF IRRIGATION**

(i) Surface irrigation which includes the following:
  (a) Uncontrolled (or wild or free) flooding method,
  (b) Border strip method,
  (c) Check method,
  (d) Basin method, and
  (e) Furrow method.
(ii) Subsurface irrigation
(iii) Sprinkler irrigation
(iv) Trickle irrigation

(i) Surface Irrigation

In all the surface methods of irrigation, water is either ponded on the soil or allowed to flow continuously over the soil surface for the duration of irrigation. Although surface irrigation is the oldest and most common method of irrigation, it does not result in high levels of performance. This is mainly because of uncertain infiltration rates which are affected by year-to-year changes in the cropping pattern, cultivation practices, climatic factors, and many other factors. As a result, correct estimation of irrigation efficiency of surface irrigation is difficult. Application efficiencies for surface methods may range from about 40 to 80 per cent.

- Uncontrolled Flooding
- Border Strip Method
- Check Method
- Basin Method
- Furrow Method

(ii) Subsurface Irrigation

Subsurface irrigation (or simply sub irrigation) is the practice of applying water to soils directly under the surface. Moisture reaches the plant roots through capillary action.

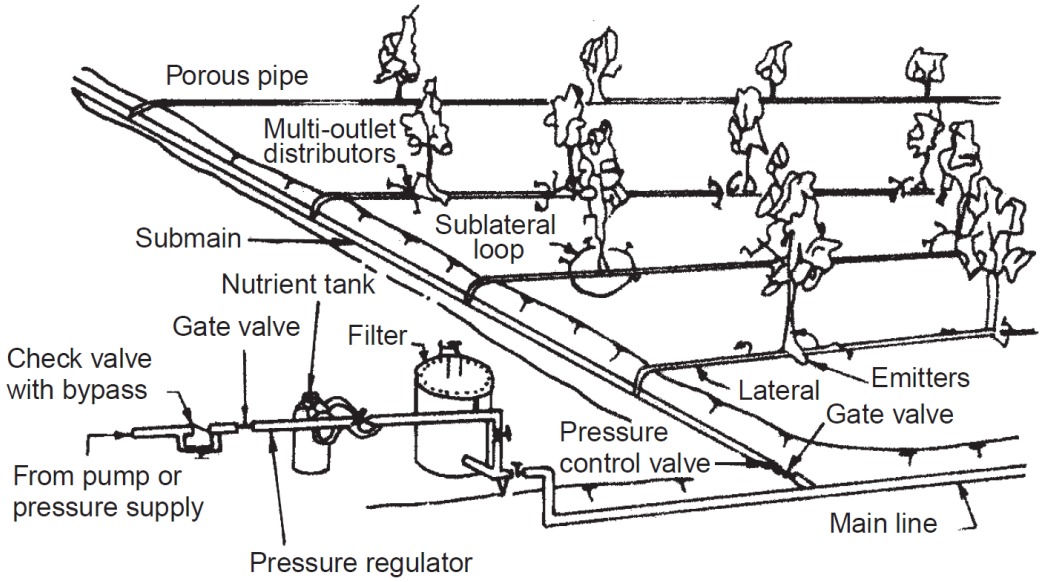
(i) Impervious subsoil at a depth of 2 meters or more,
(ii) A very permeable subsoil,
(iii) A permeable loam or sandy loam surface soil,
(iv) Uniform topographic conditions, and
(v) Moderate ground slopes.

In natural sub irrigation, water is distributed in a series of ditches about 0.6 to 0.9 meter deep and 0.3 meter wide having vertical sides. These ditches are spaced 45 to 90 meters apart.

Sometimes, when soil conditions are favorable for the production of cash crops (*i.e.*, high-priced crops) on small areas, a pipe distribution system is placed in the soil well below the surface. This method of applying water is known as artificial sub irrigation. Soils which permit.

(iii) Trickle Irrigation

Trickle irrigation (also known as drip irrigation) system comprises main line (37.5 mm to 70 mm diameter pipe), submains (25 mm to 37.5 mm diameter pipe), laterals (6 mm to 8 mm diameter pipe), valves (to control the flow), drippers or emitters (to supply water to the plants), pressure gauges, water meters, filters (to remove all debris, sand and clay to reduce clogging of the emitters), pumps, fertilizer tanks, vacuum breakers, and pressure regulators. The drippers are designed to supply water at the desired rate (1 to 10 liters per hour) directly to the soil. Low pressure heads at the emitters are considered adequate as the soil capillary forces cause the emitted water to spread laterally and vertically. Flow is controlled manually or set to automatically either (*i*) deliver desired amount of water for a predetermined time, or (*ii*) supply water whenever soil moisture decreases to a predetermined amount. A line sketch of a typical drip irrigation system is shown in Fig. 3.6. Drip irrigation has several advantages. It saves water, enhances plant growth and crop yield, saves labour and energy, controls weed growth, causes no erosion of soil, does not require land preparation, and also improves fertilizer application efficiency. However, this method of irrigation does have some economic and technical limitations as it requires high skill in design, installation, and subsequent operation.



(iv) Sprinkler Irrigation

Sprinkling is the method of applying water to the soil surface in the form of a spray which is somewhat similar to rain. In this method, water is sprayed into the air and allowed to fall on the soil surface in a uniform pattern at a rate less than the infiltration rate of the soil. This method started in the beginning of this century and was initially limited to nurseries and orchards. In the beginning, it was used in humid regions as a supplemental method of irrigation. This method is popular in the developed countries and is gaining popularity in the developing countries too.

Rotating sprinkler-head systems are commonly used for sprinkler irrigation. Each rotating sprinkler head applies water to a given area, size of which is governed by the nozzle size and the water pressure. Alternatively, perforated pipe can be used to deliver water through very small holes which are drilled at close intervals along a segment of the circumference of a pipe. The trajectories of these jets provide fairly uniform application of water over a strip of cropland along both sides of the pipe. With the availability of flexible PVC pipes, the sprinkler systems can be made portable too.

Sprinklers have been used on all types of soils on lands of different topography and slopes, and for many crops. The following conditions are favorable for sprinkler irrigation (1):

(i) Very previous soils which do not permit good distribution of water by surface methods,

(ii) Lands which have steep slopes and easily erodible soils,

(iii) Irrigation channels which are too small to distribute water efficiently by surface irrigation, and

(iv) Lands with shallow soils and undulating lands which prevent proper levelling required for surface methods of irrigation.

Future Prospects

- India also has much less per capita water as compared to other leading agrarian countries. This problem is exacerbated because India has been exporting virtual water embedded in crops, which is marked by its feature of non-replenishment.
- Once it is exported, it cannot be recovered. Given this scenario, it is time to make a shift to micro-irrigation so that the efficient and judicious use of scarce water resources can be made.
- High initial costs deter farmers to adopt this technology. While big farmers can easily avail of this technology, the government should consider giving subsidies to small farmers to boost the adoption of this technology.

Agricultural Activity

- The history of Agriculture in India dates back to Indus Valley Civilization and in some parts of Southern India, it was found to be practiced even before the Harappans.
- Today, India ranks second worldwide in farm output. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth, yet, having nearly 50% of the population dependent on it for livelihood.
- Agriculture, along with fisheries and forestry, is one of the largest contributors to the Gross Domestic Product (GDP). As per the estimates by the Central Statistics Office (CSO), the share of agriculture and allied sectors (including agriculture, livestock, forestry, and fishery) is expected to be 17.3 percent of the Gross Value Added (GVA) during 2016-17 at 2011-12 prices.
- The Department of Agriculture and Cooperation under the Ministry of Agriculture is responsible for the development of the agriculture sector in India. It manages several other bodies, such as the National Dairy Development Board (NDDB), to develop other allied agricultural sectors.

Pradhan Mantri Krishi Sinchayee Yojana

The Indian Government encourages water conservation and its management to be at a high priority. In order to get this in motion, the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was introduced with a vision of expanding irrigation coverage ***(Har Khet ko Pani)*** and using the water more efficiently ***(More Crop Per Drop).*** This scheme will provide an end-to-end solution on source creation, distribution, management, field application, and other extension activities.

Objectives

1. Increasing accessibility of irrigation facilities and expansion of cultivable range under guaranteed irrigation areas (Har Khet ko Pani)
2. Enhancing On-Farm water use efficiency to lessen wastage of water
3. Integrating the source, distribution, and efficiency of water through appropriate technologies
4. Enhancing and promoting the implementation of precision- irrigation and other water-saving technologies (More crop per drop)
5. Enhancing refilling of aquifers and present supportable water protection rehearses by investigating the attainability of reusing treated city-based water for peri-urban farming
    - Peri-urban farming refers to farm units close to town which operate intensive semi- or fully commercial farms to grow vegetables and other horticulture, raise chickens and other livestock, and produce milk and eggs.

6. Ensuring integrated development of rained areas by different methods like:
   - Regeneration of Groundwater
   - Watershed approach for conserving water and soil
   - Arresting runoff
   - Providing livelihood and other NRM Activities (natural resource management)
7. Promoting extension activities for farmers and field workers like:
   - Water Harvesting
   - Water Management
   - Crop alignment
8. Drawing in more noteworthy private investment in precision irrigation system framework. This will result in increased production and productivity which will further enhance farm income.

➢ Future Prospects

- India needs a second green revolution to bring food security to its billion-plus population, to remove the distress of the farming community, and to make its agriculture globally competitive.
- To achieve these goals, yield rates of food grains, pulses, oilseeds, dairying and poultry, horticultural crops, and vegetables need to be enhanced; and forward-backward linkages of agriculture with technology, food processing industry needs to be strengthened to match soil to seed, and product to market.
- High productivity and better value addition by agro-processing are its key parameters.

➢ Agro Industry

- ✓ The Scheme of Mega Food Park aims at providing a mechanism to link agricultural production to the market by bringing together farmers, processors, and retailers to ensure maximizing value addition, minimizing wastage, increasing farmers' income, and creating employment opportunities, particularly in the rural sector.
- ✓ The Mega Food Park Scheme is based on the "Cluster" approach and envisages a well-defined agree/ horticultural-processing zone containing state-of-the-art processing facilities with support infrastructure and a well-established supply chain.
- ✓ 9 Mega Food Parks namely Patanjali Food and Herbal Park, Haridwar, Srini Food Park, Chittoor, North East Mega Food Park, Nalbari, International Mega Food Park, Fazilka, Integrated Food Park, Tumkur, Jharkhand Mega Food Park, Ranchi, Indus Mega Food Park, Khargoan, Jangipur Bengal Mega Food Park, Murshidabad, and MITS Mega Food Park Pvt Ltd, Rayagada are functional as on 30.06.2017.

Chapter: 18

18. Social Activities – Any Activates Planned By Students e.g Teaching Learning activities, awareness camp, business idea for SELF HELP GROUP OR ANY OTHER

Fig. no. 18.1 Distributing Mask & Sanitizer

- **Approval Letter For Swachhta &Covid-19 Awareness Activity Approval:**

Approval Letter for Swachht and Covid Awareness Activity Approval

Vishvakarma Yojana Phase VIII

Dharampur Village ,Porbandar Taluka , Porbndar District.

Code :-360560

Subject :- Approval of doing Swachht and Covid Awareness Activity Approval for Dharampur Village

Sarpanch/Talati of Dharampur village understanding gives approval for doing Swachht and Covid Awareness Activity Approval for Dharampur Village under Vishvakarmakarma Yojana Phase VIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Vara Nirav (181383106030) and Vaja Prashant (181383106028) .

Date : 10 Jun, 2021

Sign :

ઉષાબેન કેશુભાઈ સીડા
મ્યુ. કાઉન્સીલર
પોરબંદર છાંયા નગરપાલિકા

Chapter: 19

19. <<ALLOCATED VILLAGE>> SAGY Questionnaire Survey form with the Sarpanch Signature (Scanned copy attachment in the soft copy report and Original copy in hardbound report)

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Dharampur Gram Panchayat: Dharampur Ward No.

Block: Ranavav District: Porbandar

State: Gujarat L S Constituency: PBR - Parliamentary.

1. Family Identity and Size

Name of Head of Household	Kanabhai Parbatbhai Vasa						Male/ Female	M
SECC Survey ID:		Family Size	4	Over 18	4	6 to 18	-	Under 6	-

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]	4	Life Insurance	1. All Adults 2. Some Adults 3. None	AABY	1. Yes 2. No	Kisan Credit Card	Yes / No
Poverty Status Year[2]:	1. BPL 2. APL	Health Insurance	1. All Adults 2. Some Adults 3. None	RSBY	1. Yes 2. No	MGNREGS Job Card Number	
PDS (If NFSA is not implemented)	Annapurna	Antyodaya	BPL	APL	Is any woman in the family member of an SHG? Yes / No		
PDS (If NFSA is implemented)	Annapurna	Antyodaya	Priority	Other			

2. Adults (above 18 years)

Name	Age	Sex M/F / O	Disability Status Y/N	Marital Status[3]	Education Status[4]	Adhaar Card (Y/ N)	Bank A/C (Y/N)	Social Security Pension[5]
Kanabhai	51	M	N	2	1	Y	Y	0
Hemiben	48	F	N	2	2	Y	Y	0
Payal	24	F	N	1	8	Y	N	0
Yashavant	22	M	N	1	6	Y	Y	0

3. Children from 6 years and up to 18 years

Name	Age	Sex M/F/O	Disability Y/N	Marital Code*	Level of Education: Code#	Going to School /College (Y/N)	Current Class	Computer Literate Y/N
NO								

4. Children below 6 years

Name	Age	Sex M/F/ O	Disability Yes/No	Going to School (Y/N)	Going to AWC Y/N	De-worming Done	Fully Immu-nised Y/N	Mother's Age at the time of Child's Birth
NO								

[1] Scheduled Caste 1, Scheduled Tribe 2, Other Backward Castes 3, Other 4
[2] Enter the BPL Survey round being used in the Gram Panchayat for identification of BPL Families (e.g. 1997/2002/2011)
[3] Marital Status: Not Married – 1, Married – 2, Widowed – 3, Divorced/Separated – 4
[4] Level of Education: Not Literate – 01, Literate – 02, Completed Class 5 - 03, Class 8th – 04, Class 10th-05, Class 12th-06, ITI Diploma-07, Graduate-08, Post Graduate/Professional – 09 (write the highest level applicable)
[5] No Pension – 0, Old Age Pension – 1, Widow Pension – 2, Disability Pension – 3, Other Pension – 4 (mention)

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

	Always		Sometimes		Never
After use of Toilet	Soap ✓	Other	Soap	Other	
Before Eating	Soap	Other	Soap ✓	Other	

6. Use of Mosquito Net

Children: Yes / ~~No~~ Adults: ~~Yes~~ / ~~No~~

7. Do members take Regular Physical Exercise

	Yoga	Games	Other Exercises
Adults	~~Yes~~ / No	Yes / ~~No~~	~~Yes~~ / No
Children	~~Yes~~ / No	Yes / ~~No~~	~~Yes~~ / No

8. Consumption of Tobacco

	Smoking	Chewing
Adults	YES	
Children	NO	

9. House & Homestead Data

Own House: Yes / ~~No~~	No. of Rooms: 2
Type: ~~Kutcha~~ / Semi Pucca / ~~Pucca~~	
Toilet: Private / ~~Community~~ / ~~Open Defecation~~	
Drainage linked to House: Covered / ~~Open~~ / ~~None~~	
Waste Collection System	Door Step / ~~Common Point~~ / ~~No Collection System~~
Homestead Land: ~~Yes~~ / No	Kitchen Garden : ~~Yes~~ / No
Compost Pit: ~~Individual~~/ ~~Group~~/ None	Biogas Plant: ~~Individual~~/ ~~Group~~/ None

10. Source of Water (Distance from source in KMs)

Source of Water		Distance
Piped Water at Home	Yes / ~~No~~	
Community Water Tap	~~Yes~~ / No	
Hand Pump (Public / Private)	Yes / ~~No~~	
Open Well(Public / Private)	Yes / ~~No~~	
Other (mention):		

11. Source of Lighting and Power

Electricity Connection to Household: Yes / ~~No~~
Lighting: Electricity/~~Kerosene~~/~~Solar Power~~
Mention if Any Other: —
Cooking: LPG/~~Biogas~~/Kerosene/Wood/~~Electricity~~
Mention if Any Other: —
If cooking in Chullah: Normal/~~Smokeless~~

12. Landholding (Acres)

1. Total	4547.65	2. Cultivable Area	
3. Irrigated Area		4. Uncultivable Area	

13. Principal Occupations in the Household

Livelihood	Tick if applicable
Farming on own Land	✓
Sharecropping /Farming Leased Land	✓
Animal Husbandry	✓
Pisciculture	—
Fishing	—
Skilled Wage Worker	✓
Unskilled Wage Worker	✓
Salaried Employment in Government	✓
Salaried Employment - Private Sector	✓
Weaving	—
Other Artisan(mention)	—
Other Trade & Business (mention)	—

14. Migration Status

Does any member of the household migrate for Work: Yes / ~~No~~. If Yes Entire Year / ~~Seasonal~~

Does anyone below 18 years migrate for work: ~~Y~~/N

15. Agriculture Inputs

Do you use Chemical Fertilisers	Yes/~~No~~
Do you use Chemical Insecticides	~~Yes~~/No
Do you use Chemical Weedicide	~~Yes~~/No
Do you have Soil Health Card	~~Yes~~/~~No~~
Irrigation: ~~None~~/ Canal/ ~~Tank~~/ Borewell/Other	
Drip or Sprinkler Irrigation: Drip /Sprinkler / ~~None~~	

16. Agricultural Produce in a normal year (Top 3)

Name	Unit	Quantity

17. Livestock Numbers

Cows: —	Bullocks: —	Calves: —
Female Buffalo: —	Male Buffalo: —	Buffalo Calves: —
Goats/ Sheep: —	Poultry/ Ducks: —	Pigs: —
Any other: Type _____		No. _____
Shelter for Livestock: Pucca / Kutcha / None		
Average Daily Production of Milk(Litres): _____		

18. What games do Children Play

Cricket, Kabbadi, Kho Kho.

19. Do children play musical instrument (mention)

NO.

Schedule Filled By:
Principal Respondent:
Date of Survey:

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

I. Basic Information

a. Gram Panchayat: Dharampur

b. Block: -

c. District: Porbandar

d. State: Gujarat

e. Lok Sabha Constituency: Porbandar. Parliamentary.

f. Number of Wards in the Gram Panchayat: 1

g. Number of Villages in the Gram Panchayat: 1

h. Names of Villages: Dharampur.

Demographic Information

Number of Households 1722 Total Population 7704 Male 3961 Female 3743

SC HHs 281 ST HHs 683 OBC HHs 674 Other HHs 383

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	Yes	
b.	Nearest Primary Health Centre (PHC)	Yes	6.3 km
c.	Nearest Community Health Centre (CHC)	No	
d.	Nearest Post Office	Yes	
e.	Nearest Bank Branch (Any)	Yes	8.0 km
f.	Nearest Bank with CBS Facility	Yes	
g.	Nearest ATM	Yes	4.3 km
h.	Nearest Primary School	Yes	
i.	Nearest Middle School	No	
j.	Nearest Secondary School	Yes	
k.	Nearest Higher Secondary School / +2 College	Yes	6.0 km
l.	Nearest Graduate College	Yes	4.0 km
m	Nearest ITI / Polytechnic Centre	Yes	2.5 km
n	Kisan Seva Kendra	No	

1

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
o	Agriculture Credit Cooperative Society	NO	
p	Nearest Agro Service Centre	NO	
p	MSP based Government Procurement Centre	NO	
q	Milk Cooperative /Collection Centre	NO	
r	Veterinary Care Centre	NO	
s	Ayurveda Centre	yes	
t	E – Seva Kendra	Yes	
u	Bus Stop	Yes	
v	Railway Station	Yes	
w	Library	yes	
x	Common Service Centre	yes	

IV. Sports Facilities in the Gram Panchayat

a. Number of Play Grounds in the GP: Total ____ Public_____ Private_____

b. Mini Stadium : NO Yes(Y) /No (N) *(Playground with equipment and sitting arrangement)*

V. Education, ICDS

a. Number of Angan Wadi Centres: 1

b. Number of villages without Angan Wadi Centres –

Names of such villages: –

c. Schools (Number)

Primary Private: - Primary Govt.: 1

Middle Private: – Middle Govt.: –

Secondary Private: - Secondary Govt.:_____

Higher Secondary Private: 2 Higher Secondary Govt: 1

VI. Public Distribution System

	Item	Private Contractor	Women's SHG	Gram Panchayat	Cooperative	Other (Mention)	Location in GP (mention Location)	If outside GP, Location & distance from GP HQrs)
a.	Cereal (Rice/ Wheat/ Millets)			NO				
b.	Kerosene			NO				
c.	Other (mention)			NO				

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

VII. Coverage of Villages under different Facilities & Services

	Parameter	Villages Status[1]	Names of Villages Covered	Names of Villages not Covered
a.	Piped Water Supply Coverage to Villages	Covered ✓ Not Covered		
b.	Hand Pump Coverage in Villages:	Covered ✓ Not Covered		
c.	Coverage under Covered Drains:	Covered yes Not Covered		
d.	Coverage under Open Drains:	Covered not Not Covered		
e.	Villages with Household Electricity Connection (Numbers)	Connected yes Not Connected		

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land		d.	Pasture / Grazing Land		g.	Check Dam	
b.	Irrigated Land		e.	Forests/ Plantations		h.	Wells/Bore Wells	
c.	Un-irrigated Land		f.	Other Common Land		i	Tanks /Ponds	

[1] Mention the number of Villages Covered and Not Covered

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

IX. Parameters relating to Households & Institutions

		Number
a)	Number of eligible Households for pension (old age, widow, disability)	
b)	Number of Households receiving pension (old age, widow, disability)	
c)	Number of eligible Households who are not receiving pension	
d)	Number of Households eligible for Ration Card	
e)	Number of eligible HHs having ration cards	
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	
h)	Number of active Job Card holders under MGNREGA	
i)	Number of Job Card holders who completed 100 days of work during 2013-14	
j)	Number of shops selling alcohol	
k)	Number of BPL families	
l)	Number of landless households	
m)	Number of IAY beneficiaries	
n)	Number of FRA[2] beneficiaries	
o)	Number of Community Sanitary Complexes	
p)	Number of Households headed by single women	
q)	Number of Households headed by physically handicapped persons	
r)	Total number of Persons with Disability in the village	
s)	Number of SHGs	
t)	Number of active SHGs	
u)	Number of SHG Federations	
v)	Number of Youth Clubs	
w)	Number of Bharat Nirman Volunteers	

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	ઉષાબેન કેશુભાઈ સીડા મ્યુ. કાઉન્સીલર પોરબંદર છાંયા નગરપાલિકા seniormost Government official in the Gram Panchayat)	Date of Survey

[2] The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

4

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

This questionnaire should be filled for each of the villages in the selected Gram Panchayat[1]

I. Basic Information

a. Village: Dharampur

b. Ward Number: 1

c. Gram Panchayat: Dharampur

d. Block: -

e. District: Porbandar

f. State: Gujarat

g. Lok Sabha Constituency: Porbandar Parliament

h. Number of Habitations / Hamlets in the Gram Panchayat: _____

i. Names of Habitations / Hamlets:

Demographic Information

Number of Households 1722 Total Population 7704 Male 3961 Female 3743

SC HHs 281 ST HHs 683 OBC HHs 674 Other HHs 383

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	yes	
b.	Nearest Middle School	no	
c.	Nearest Secondary School	yes	
d.	Kisan Seva Kendra	no	
e.	Milk Cooperative /Collection Centre	no	
g.	Health Sub Centre	no	
h.	Bank	yes	
i.	ATM	yes	4.3 km
j.	Bus Stop	yes	
k.	Railway Station	yes	8.1 km

[1] While filling this the surveyor must collect the information from the Ward Member/s and relevant government officials

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
l	Library	NO	
m	Common Service Centre	NO	
n	Veterinary Care Centre	NO	

ii. Road Connectivity

a. Habitations connected by All-weather Roads *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations where not available:_____

iii. Drinking Water Facilities

a.Piped Water Supply Coverage to Habitations: Some *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered:_____

b.Hand Pump Coverage in Habitations: Some *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered:_____

iv. Coverage of Habitations under Waste Management System

a. Coverage under Covered Drains: All *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered:_____

b. Coverage under Open Drains: All *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered:_____

c. Coverage under Doorstep Waste Collection: *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: All

v. Coverage of Habitations under Electrification

a. Coverage under Household Connections: *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: some.

b.Coverage under Street Lighting: All*(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: All

vi. Sports Facilities in the Village

a.Number of Play Grounds in the Village (minimum size 200 square meters): NO

b.Mini Stadium : NO Yes(Y) /No (N)

vii. Education, ICDS

a. Number of Anganwadi Centres: 1

c. Schools (Number)

Primary Private: 0 Primary Govt.: 1

Middle Private: 0 Middle Govt.: 0

Secondary Private: 0 Secondary Govt.: 1

Higher Secondary Private: 0 Higher Secondary Govt: 1

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

viii. Land Category		Area in Acres		Land Category	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land		d.	Pasture / Grazing Land		g.	Check Dam	1
b.	Irrigated Land		e.	Forests/ Plnatations		h.	Wells/Bore Wells	
c.	Un-irrigated Land		f.	Other Common Land		I	Tanks /Ponds	0

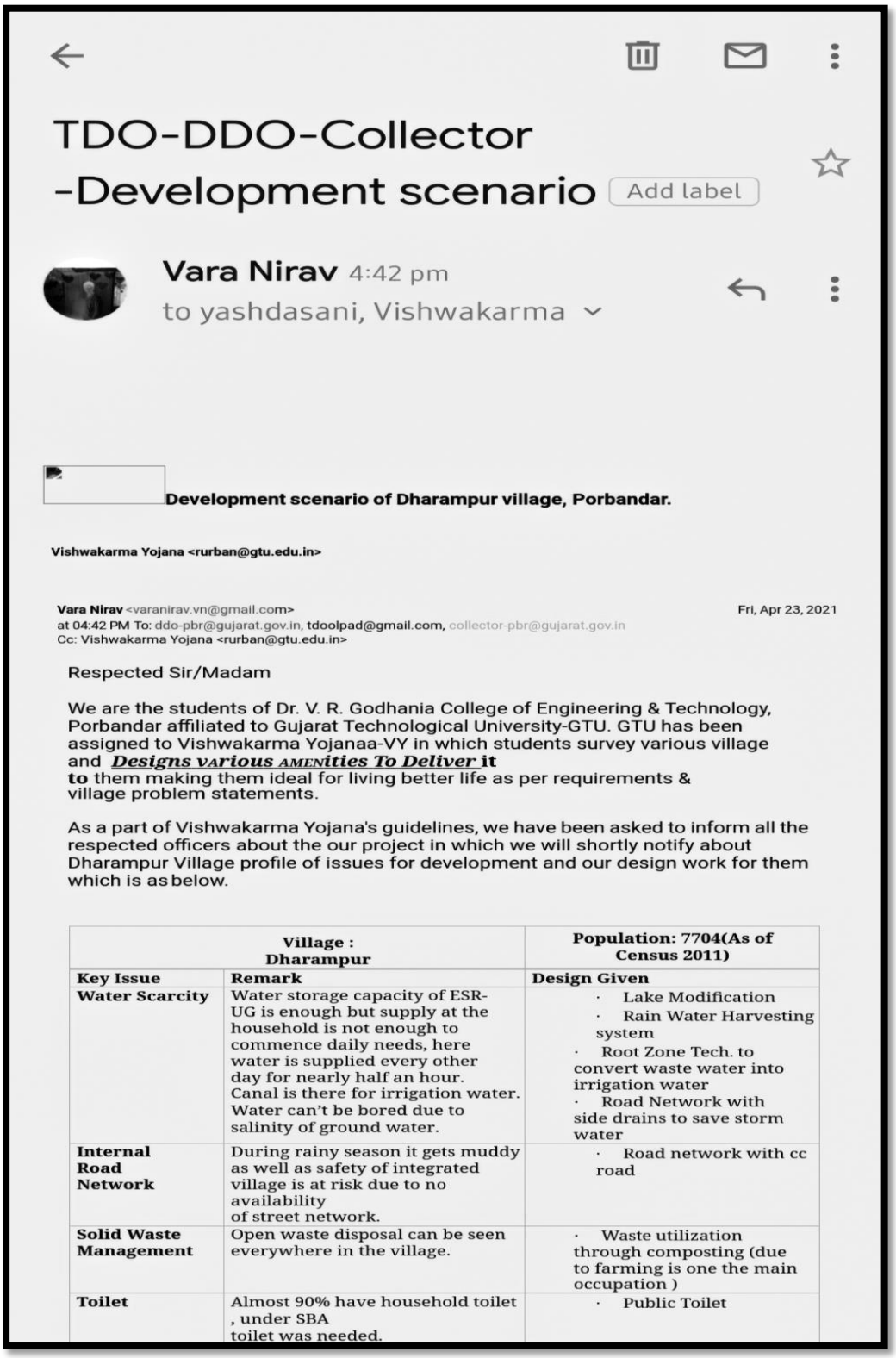
ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	
2	Number of active Job Card holders who have completed 100 days of work	
3	Number of shops selling alcohol	
4	Number of BPL families	
5	Number of landless households	
6	Number of IAY beneficiaries	
7	Number of FRA beneficiaries	
8	Number of common sanitation complexes	
9	Number of SHGs	
10	Number of active SHGs	
11	Existence of SHG Federation in the Village (Yes / No)	
12	Number of Youth Clubs	
13	Number of Bharat Nirman Volunteers	

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	ઉષાબેન કેશુભાઈ સીકા મ્યુ. કાઉન્સીલર પોરબંદર છાંયા નગરપાલિકા Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

Chapter: 20

20. TDO-DDO-Collector email sending Soft copy attachment in the report



TDO-DDO-Collector
-Development scenario Add label

Vara Nirav 4:42 pm
to yashdasani, Vishwakarma

Development scenario of Dharampur village, Porbandar.

Vishwakarma Yojana <rurban@gtu.edu.in>

Vara Nirav <varanirav.vn@gmail.com> Fri, Apr 23, 2021
at 04:42 PM To: ddo-pbr@gujarat.gov.in, tdoolpad@gmail.com, collector-pbr@gujarat.gov.in
Cc: Vishwakarma Yojana <rurban@gtu.edu.in>

Respected Sir/Madam

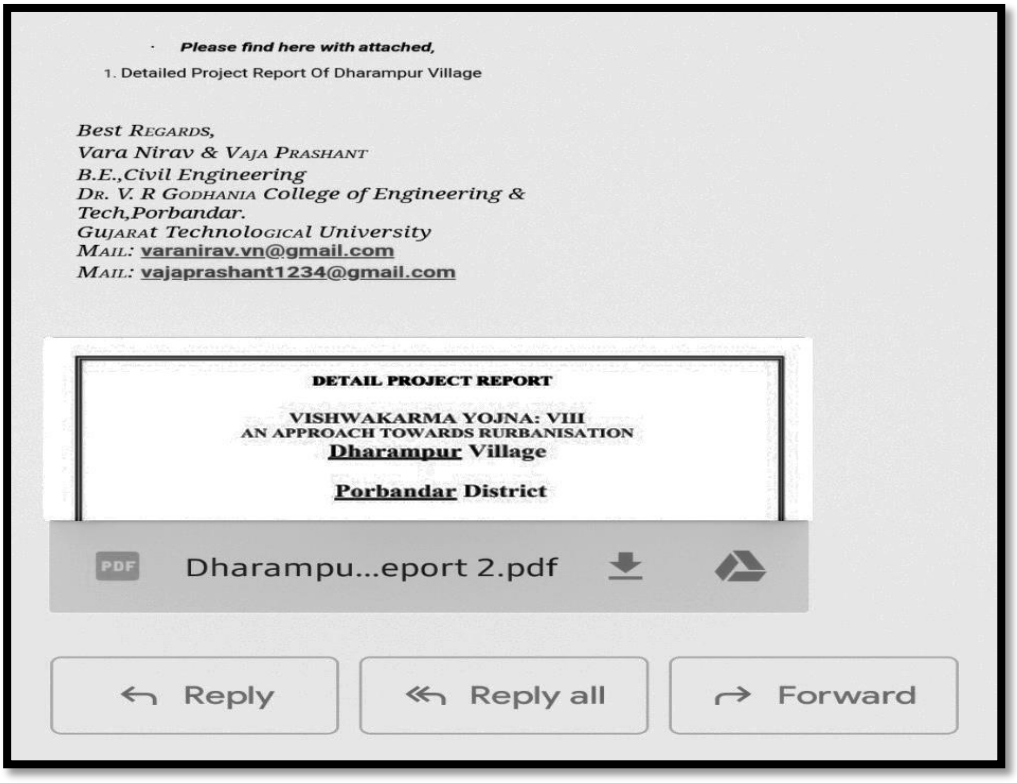
We are the students of Dr. V. R. Godhania College of Engineering & Technology, Porbandar affiliated to Gujarat Technological University-GTU. GTU has been assigned to Vishwakarma Yojanaa-VY in which students survey various village and ***Designs various AMENities To Deliver*** **it to** them making them ideal for living better life as per requirements & village problem statements.

As a part of Vishwakarma Yojana's guidelines, we have been asked to inform all the respected officers about the our project in which we will shortly notify about Dharampur Village profile of issues for development and our design work for them which is as below.

Village : Dharampur		**Population: 7704(As of Census 2011)**
Key Issue	**Remark**	**Design Given**
Water Scarcity	Water storage capacity of ESR-UG is enough but supply at the household is not enough to commence daily needs, here water is supplied every other day for nearly half an hour. Canal is there for irrigation water. Water can't be bored due to salinity of ground water.	· Lake Modification · Rain Water Harvesting system · Root Zone Tech. to convert waste water into irrigation water · Road Network with side drains to save storm water
Internal Road Network	During rainy season it gets muddy as well as safety of integrated village is at risk due to no availability of street network.	· Road network with cc road
Solid Waste Management	Open waste disposal can be seen everywhere in the village.	· Waste utilization through composting (due to farming is one the main occupation)
Toilet	Almost 90% have household toilet , under SBA toilet was needed.	· Public Toilet

Health Care	Habitats has to travel minimum 4 km for any health care aids(Mor village PHC), mobile van comes every week.	· PHC
Recreational Area	Currently only Village does not have any recreational place except for one temple near gamtal.	· Garden · Garden attached to kund
Community Place	Grampanchayat faces difficulties in conducting gramsabha, village does not have any place for gatherings or for celebration.	· Community hall
Identification	Village comes within the premises of other village but it was seen that village direction holdings were not proper which can cause difficulty in finding the village.	· Entrance Gate

Sr.No	Design Name	Period (Months)	Amount Expenditure	Benefit
1	Public Toilet	2	Rs.181500	Sanitation
2	Bus Station	2	Rs. 144000	Connectivity
3	Community Hall	-	Rs 915000	To organize events
4	ATM	-	Rs 29048.4	Accessibility
5	Septic Tank	1	Rs. 20000	Sanitation
6	Gram Panchayat	2	Rs.495500	Social work
7	Bio Gas Plant	3	Rs.24000	To Facilitate Good Health
8	Post Office	3	Rs.177042	Connectivity
9	Anganvadi	2	Rs.97640	Good Health
10	Speaker with CCTV Camara	6	Rs.396077	Security & info
11	Waste Collection	2	Rs.155500	Snitation
12	Paver Block Road network	2	Rs.2193374.4	To connect all the places , security , secure inhabitable area due to less provision of connectivity within village



Chapter: 21

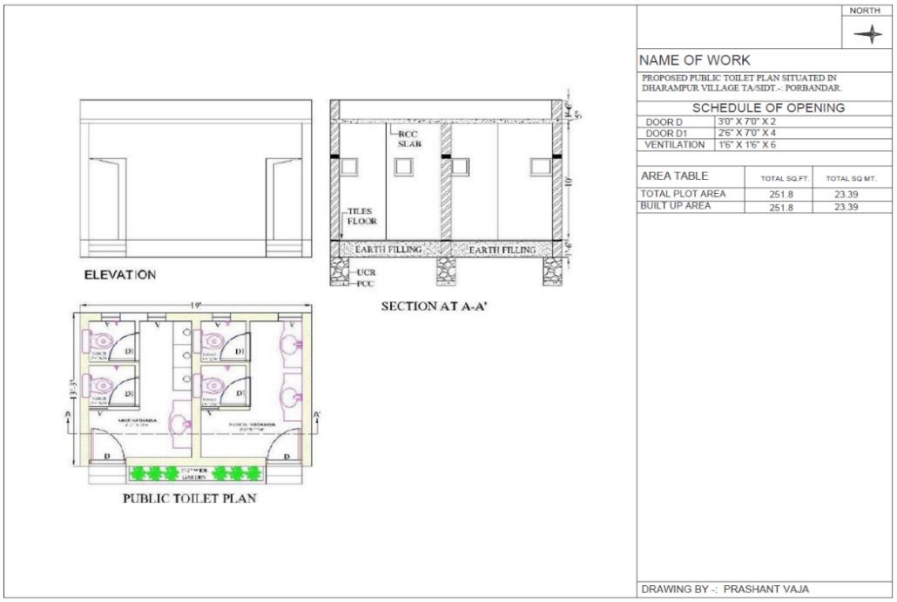
21. Comprehensive report for the entire village

Concept

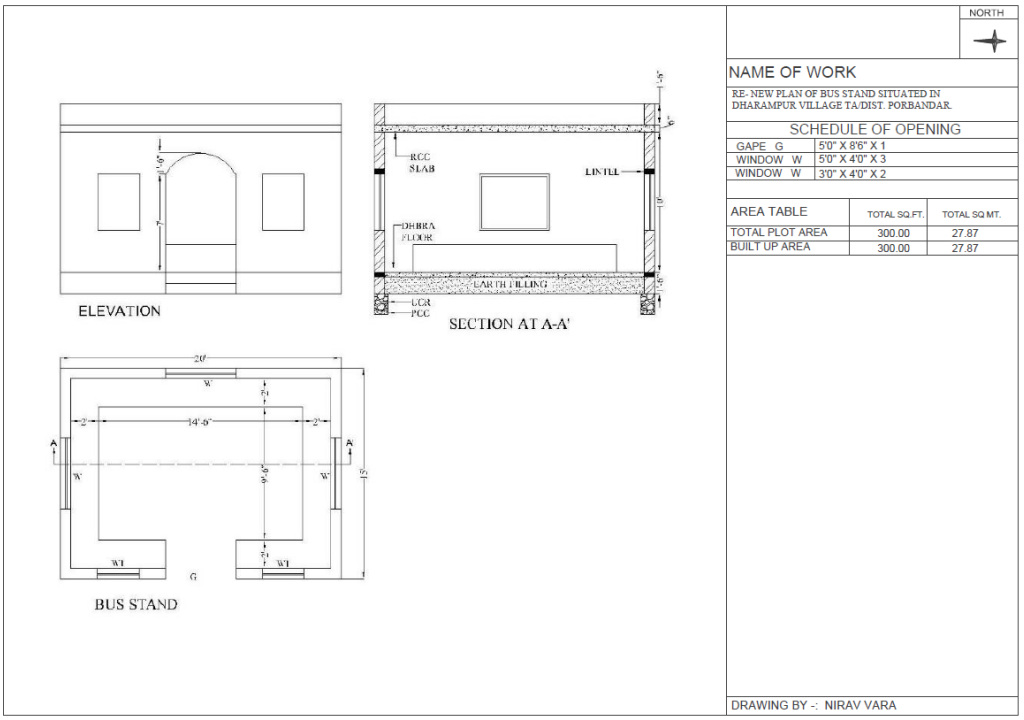
Vishwakarma Yojana is provides special scheme for development of village by GTU and Government of Gujarat in which students work together and collect data and information regards village development with the help of gram panchayat and stake holders. Village have some basic facilities likes drinking water, drainage system, pucca road, and other facilities like primary school, primary health center, community hall, library, public latrine block, are sufficient so that village can develop. So, we will give proposal regarding sustainable energy sources and solution related to infrastructure problems. Efforts have been made in this project work to identify and plan some of the below facilities for sustainable development of village and to meet need of future population. Vishwakarma Yojana is one of the initiatives towards Rurbanization that is village development by the government of Gujarat, which was allotted as a real time situation type project provides to GTU.

It is one of the strategies to reduce urban city pressure and lower the migration rate by developing village with a “rural soul” but with all urban amenities that a city may have. In this project the students meet the relevant citizens of village and survey the existing facilities. Then design of the sustainable infrastructure which is to be modified is carried out for the village. This includes implementation of engineering skills to prepare detailed project reports for village as a part of the final year project work. By this project certain experiences recreates a real work and need of application of an individual technical knowledge on any existing problems. Based on survey we tried to give design of basic facilities to fulfill their needs. By providing these basic facilities to village for reduce urban city pressure and decrease migration rate, which is ultimate aim of Vishwakarma Yojana.

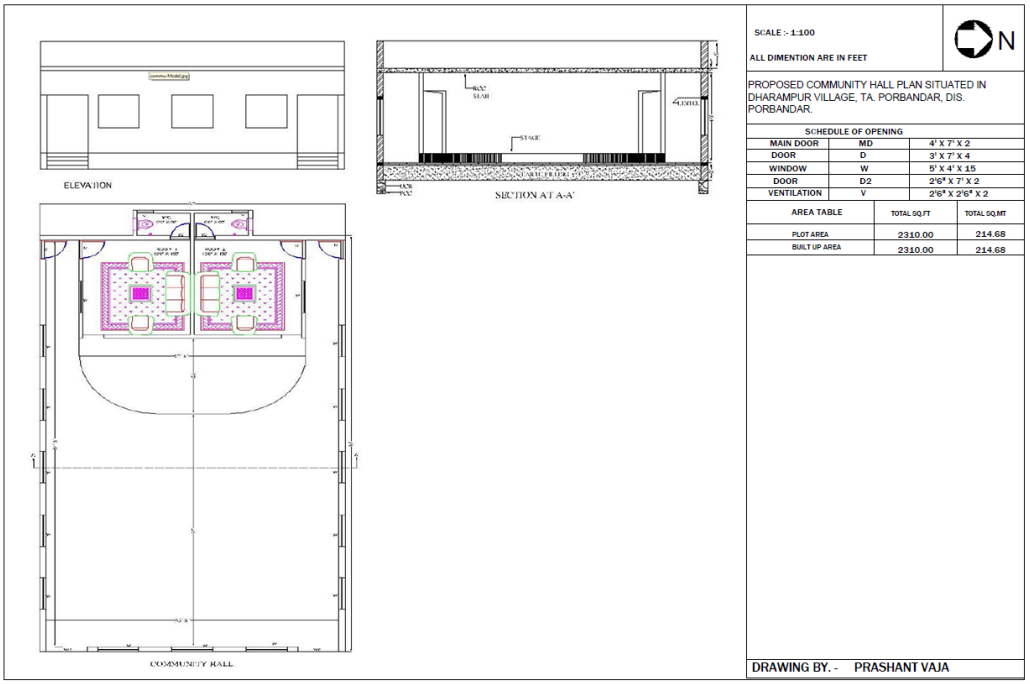
Design Infrastructure: - Public Toilet
Village: - Dharampur Dist: - Porbandar



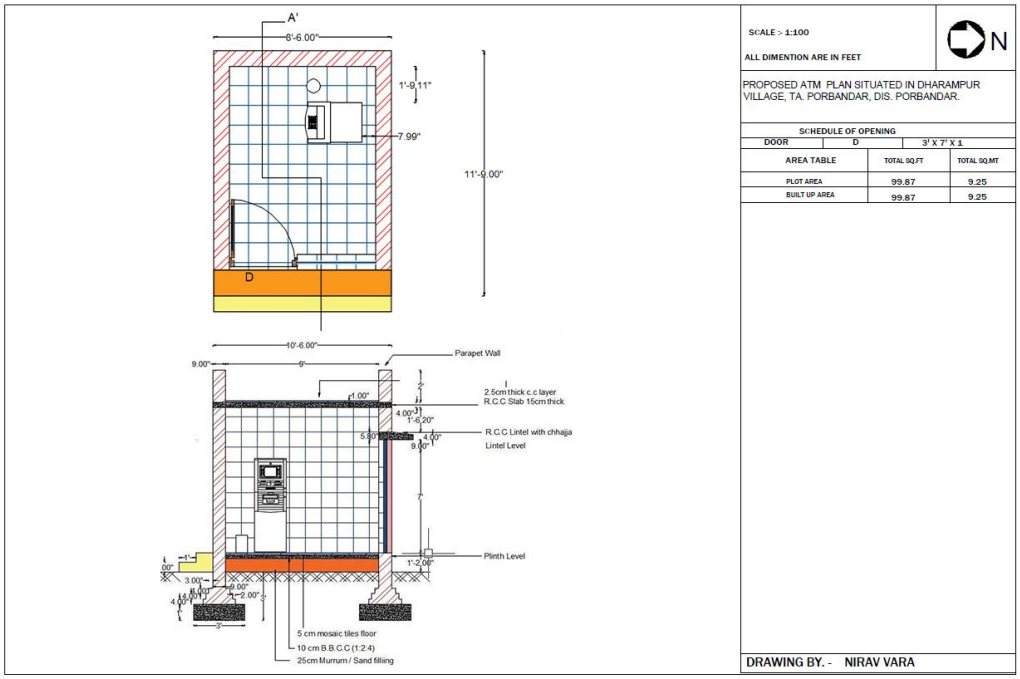
Design Infrastructure: - Bus Station
Village: - Dharampur Dist: - Porbandar



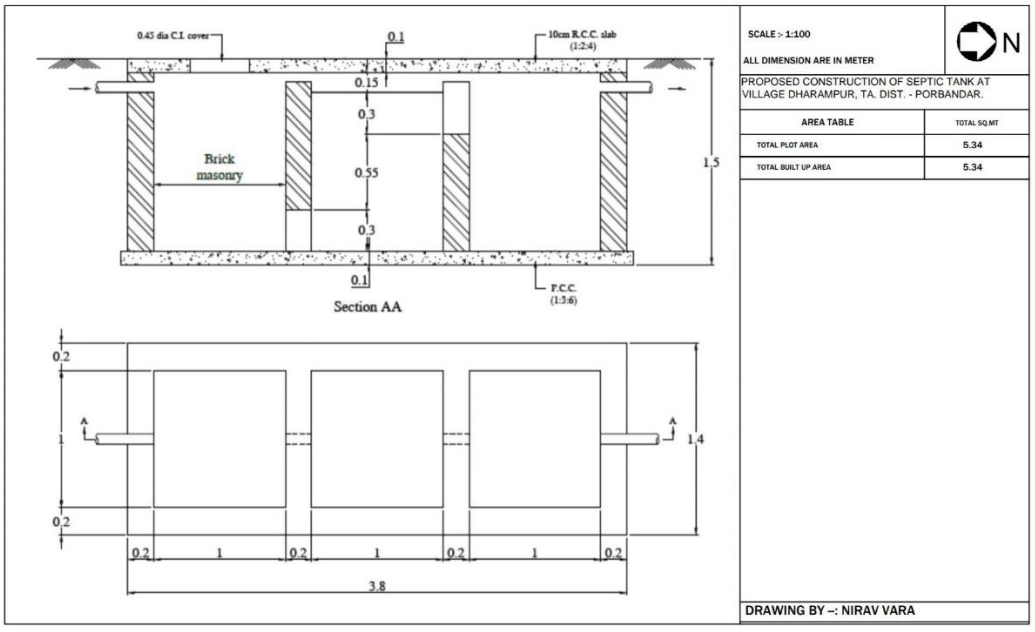
Design Infrastructure: - Community Hall
Village: - Dharampur Dist: - Porbandar



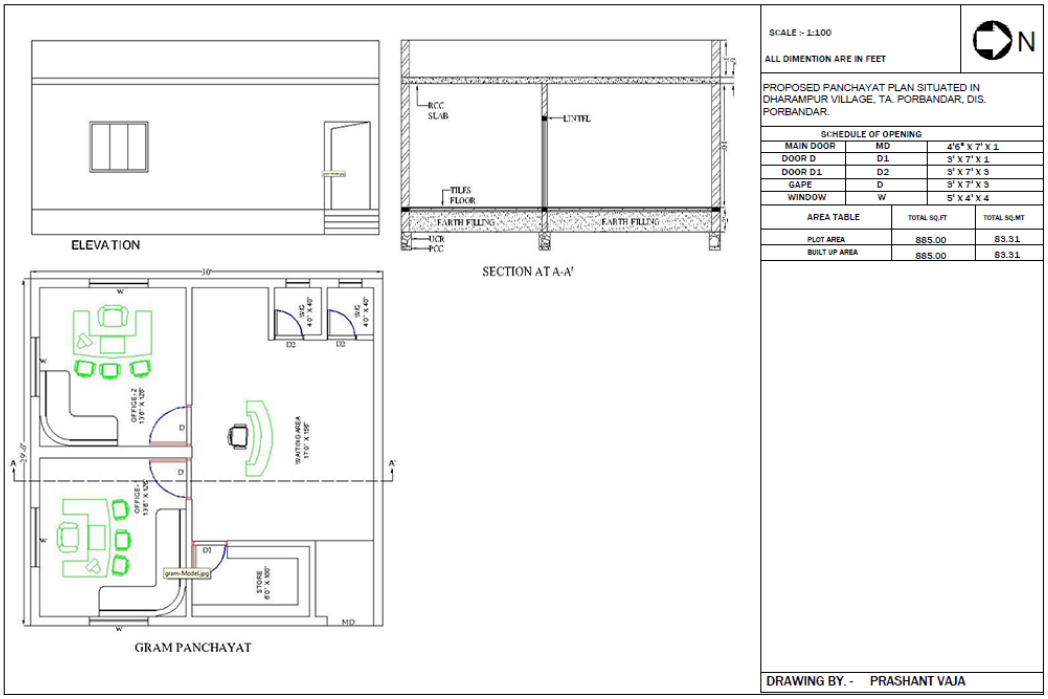
Design Infrastructure: - ATM
Village: - Dharampur Dist: - Porbandar



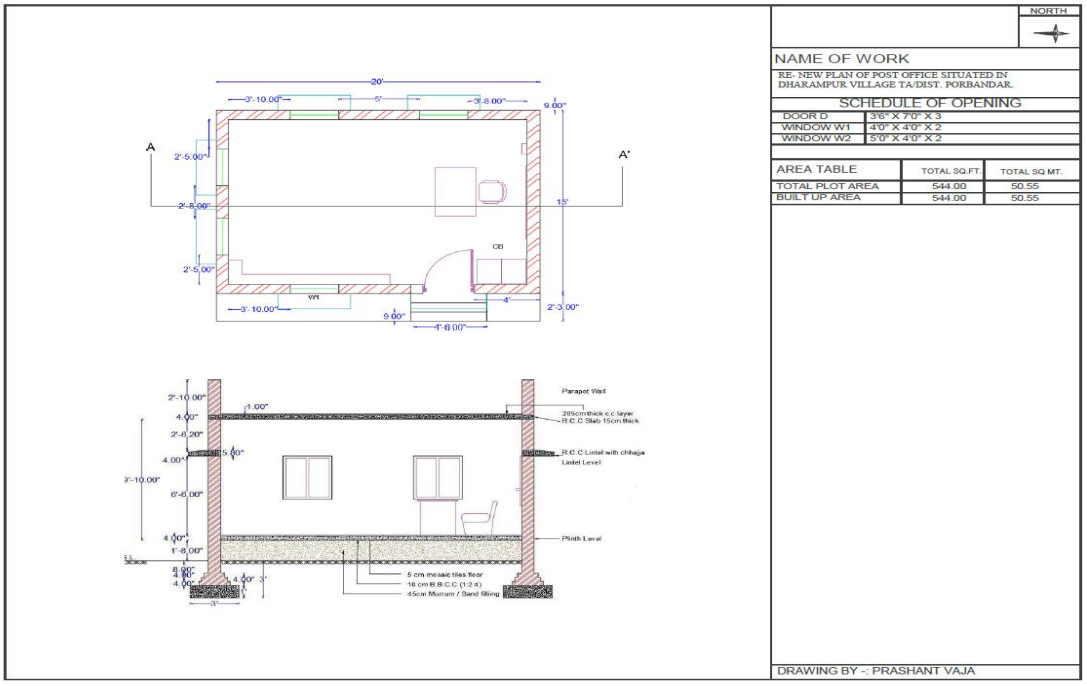
Design Infrastructure: - Septic Tank
Village: - Dharampur Dist: - Porbandar



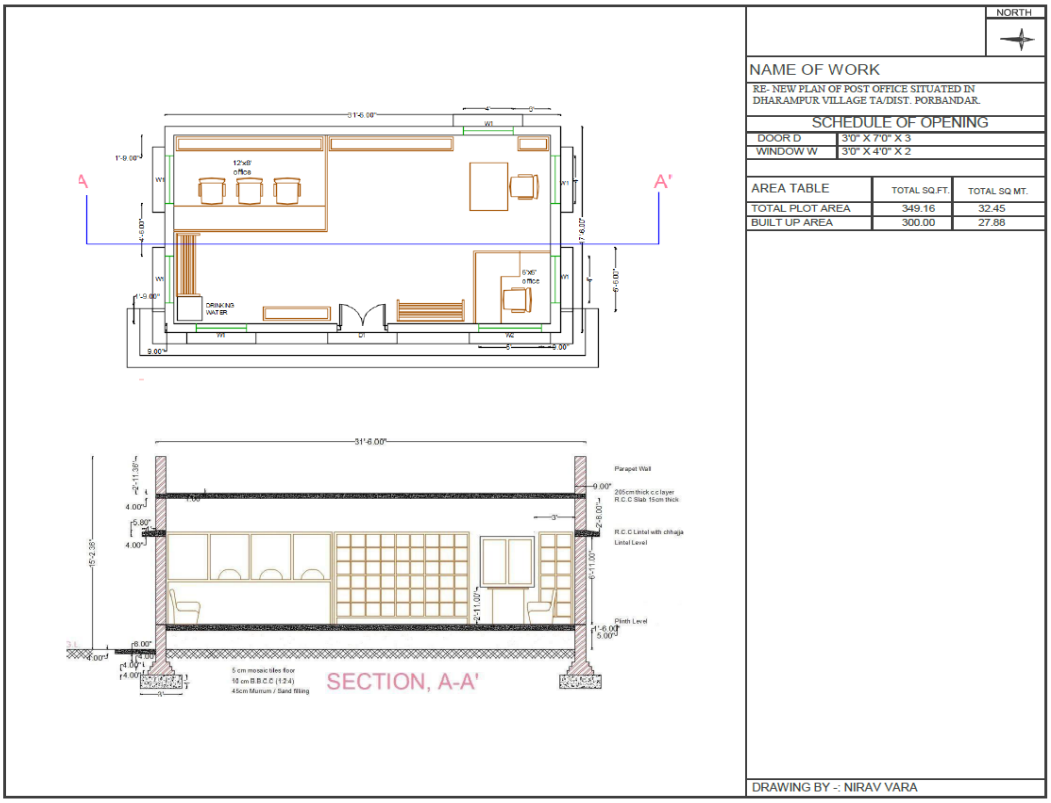
Design Infrastructure: - Gram Panchayat
Village: - Dharampur Dist: - Porbandar



Design Infrastructure: - Anganvadi
Village: - Dharampur Dist: - Porbandar



Design Infrastructure: - Post Office
Village: - Dharampur Dist: - Porbandar



Nodal Officer Statement:

By providing this required facility to village, development and growth of village can be possible. So ultimately migration rate and urban city pressure can be reduced and livelihood of village dweller will increase.

All the design which is given as above are very helpful for future development of village and village people for their enhancement and prosperity. I admire these students to do work related to civil engineering people and hope these works is help to improve and understand their skills and make it even batter. I am sure they got deep knowledge about development of village and various infrastructure facility design of village. Lastly, we all enjoyed the informational as well as practical journey of civil engineering work.

Nodal Officer
Mr. Yash Dasani
Dr. V. R. Godhania Collage of Engineering & Technology

- **Village Interaction WithSarpanch/ Talati letter**

Village Interaction with Sarpanch / Talati letter

Vishvakarma Yojana Phase VIII

Dharampur Village ,Porbandar Taluka , Porbndar District.

Code :-360560

Subject :-Village Interaction form with Sarpanch / Talati letter Dharampur Village

Sarpanch/Taalati of Dharampur village understanding gives approval of doing village interaction activity under Vishvakrmaarma Yojana Phase VIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Vara Nirav (181383106030) and Vaja Prashant (181383106028) .

Approval of design Proposal for Dharampur Village of part 2:

1) Biogas Plant
2) Post office
3) Aanganvadi
4) Cyber Cafe
5) Rain Water Harvesting
6) Road in Village

Date : 10 Jun, 2021

Sign :

ઉષાબેન કેશુભાઈ સીડા
મ્યુ. કાઉન્સીલર
પોરબંદર છાંયા નગરપાલિકા

- **Sarpanch Letter giving information about the village development :**

Approval Letter for Proposed Design Approval

Vishvakarma Yojana Phase VIII

Dharampur Village ,Porbandar Taluka , Porbndar District.

Code :-360560

Subject :- Approval of design Proposal for Dharampur Village

Sarpanch/Talati of Dharampur village understanding gives approval for following main design proposal given under Vishvakarma Yojana Phase VIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Vara Nirav (181383106030) and Vaja Prashant (181383106028) .

Approval of design Proposal for Dharampur Village of part 2:

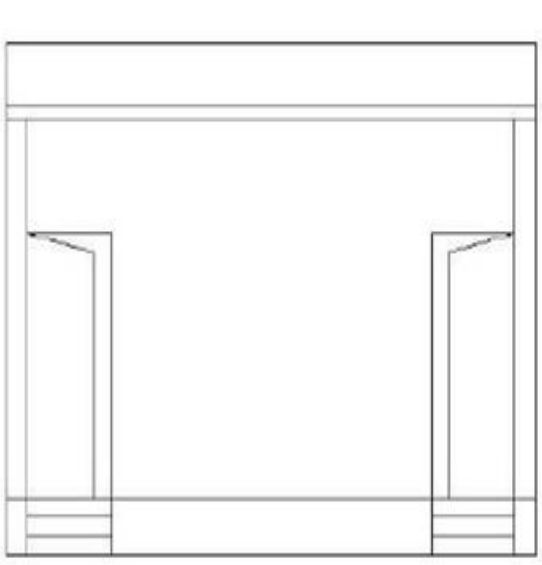
1) Biogas Plant
2) Post office
3) Aanganvadi
4) Cyber Cafe
5) Rain Water Harvesting
6) Road in Village

Date : 10 Jun, 2021

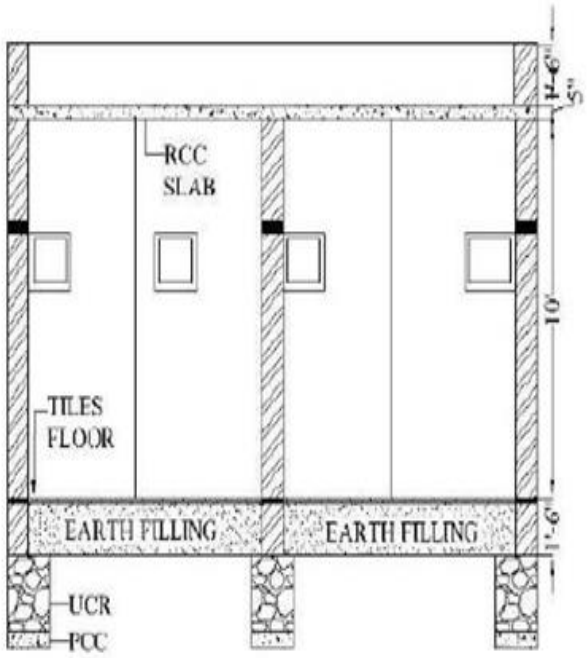
Sign :

ઉષાબેન કેશુભાઈ સીડા
મ્યુ. કાઉન્સીલર
પોરબંદર છાંયા નગરપાલિકા

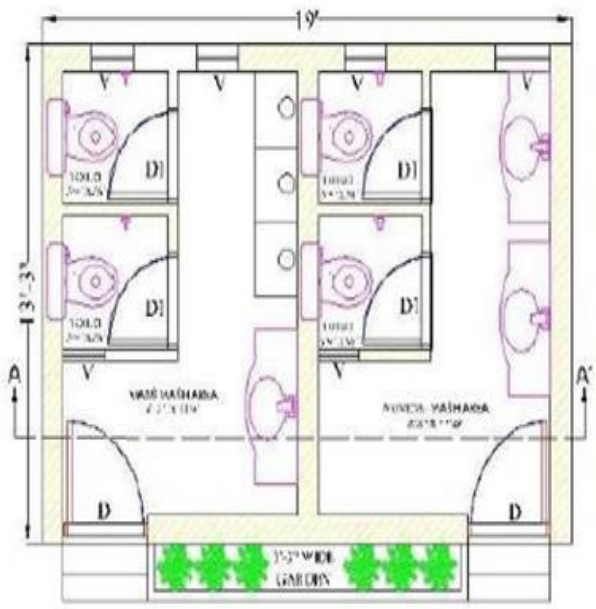
➢ Public Toilet



ELEVATION



SECTION AT A-A'



PUBLIC TOILET PLAN

NORTH

NAME OF WORK

PROPOSED PUBLIC TOILET PLAN SITUATED IN DHARAMPUR VILLAGE TA/SIDT.-: PORBANDAR.

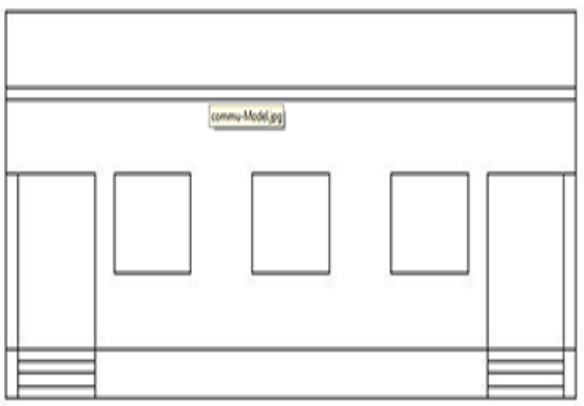
SCHEDULE OF OPENING

DOOR D	3'0" X 7'0" X 2
DOOR D1	2'6" X 7'0" X 4
VENTILATION	1'6" X 1'6" X 6

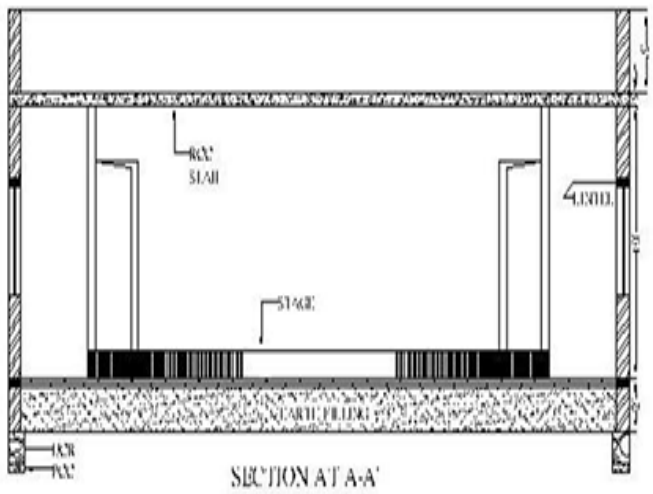
AREA TABLE	TOTAL SQ.FT.	TOTAL SQ MT.
TOTAL PLOT AREA	251.8	23.39
BUILT UP AREA	251.8	23.39

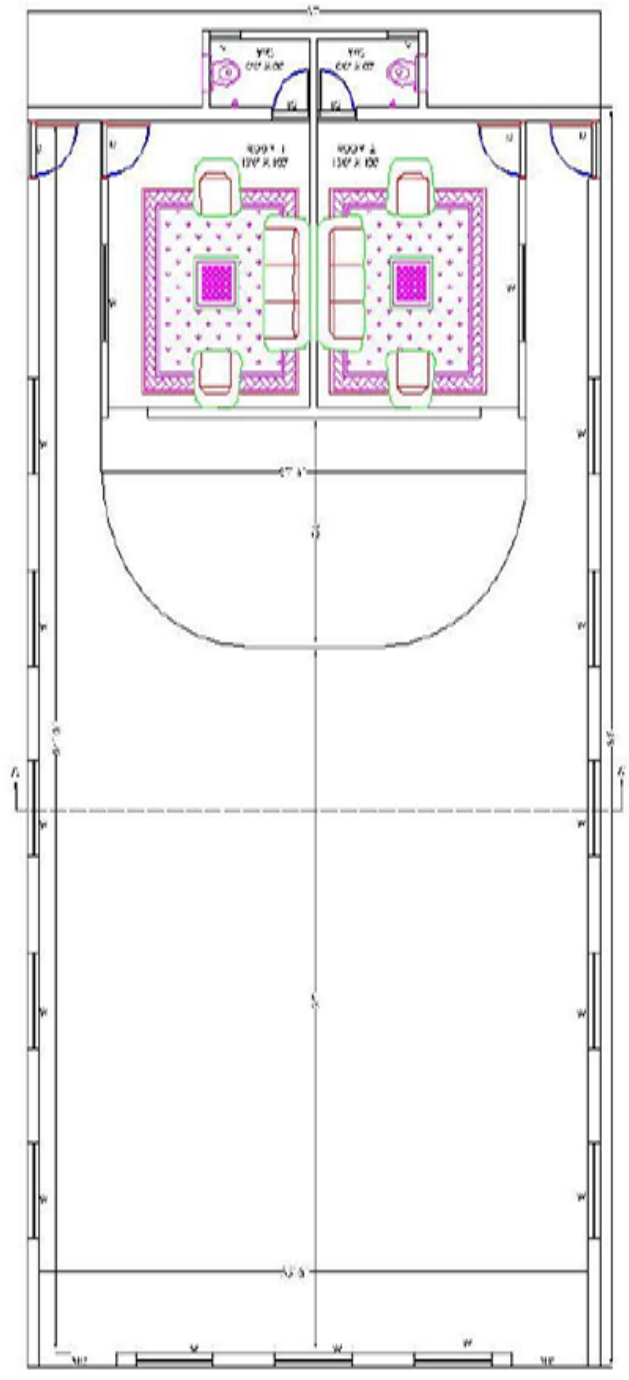
DRAWING BY -: PRASHANT VAJA

➢ Community Hall



ELEVATION





SCALE :- 1:100

ALL DIMENTION ARE IN FEET

N

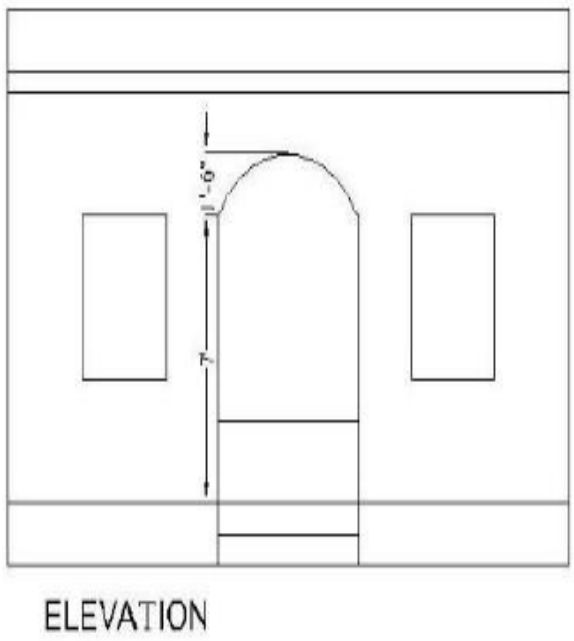
PROPOSED COMMUNITY HALL PLAN SITUATED IN DHARAMPUR VILLAGE, TA. PORBANDAR, DIS. PORBANDAR.

SCHEDULE OF OPENING		
MAIN DOOR	MD	4' X 7' X 2
DOOR	D	3' X 7' X 4
WINDOW	W	5' X 4' X 15
DOOR	D2	2'6" X 7' X 2
VENTILATION	V	2'6" X 2'6" X 2

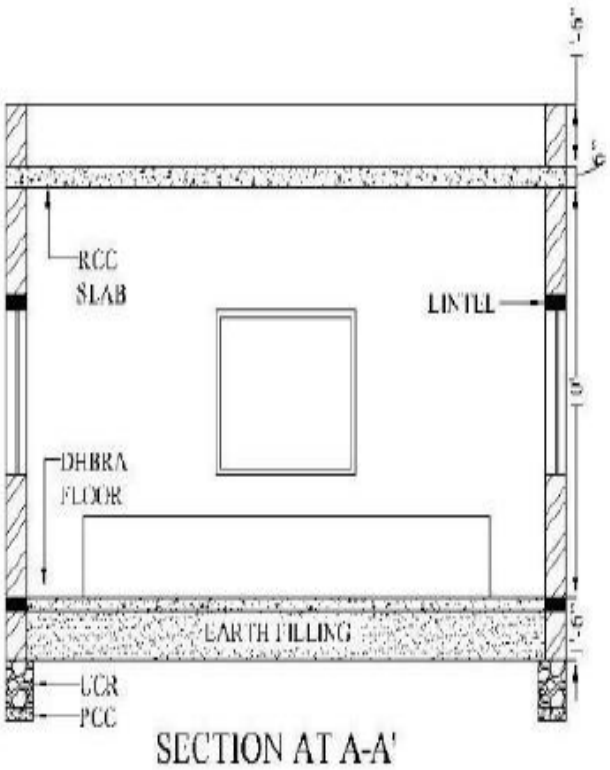
AREA TABLE	TOTAL SQ.FT	TOTAL SQ.MT
PLOT AREA	2310.00	214.68
BUILT UP AREA	2310.00	214.68

DRAWING BY.- PRASHANT VAJA

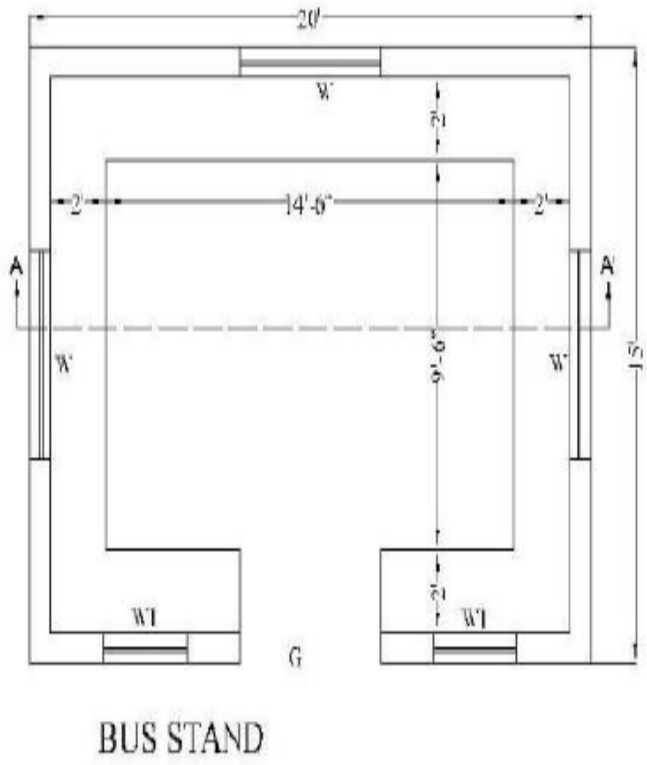
➢ Bus Station



ELEVATION



SECTION AT A-A'



BUS STAND

NORTH

NAME OF WORK

RE- NEW PLAN OF BUS STAND SITUATED IN DHARAMPUR VILLAGE TA/DIST. PORBANDAR.

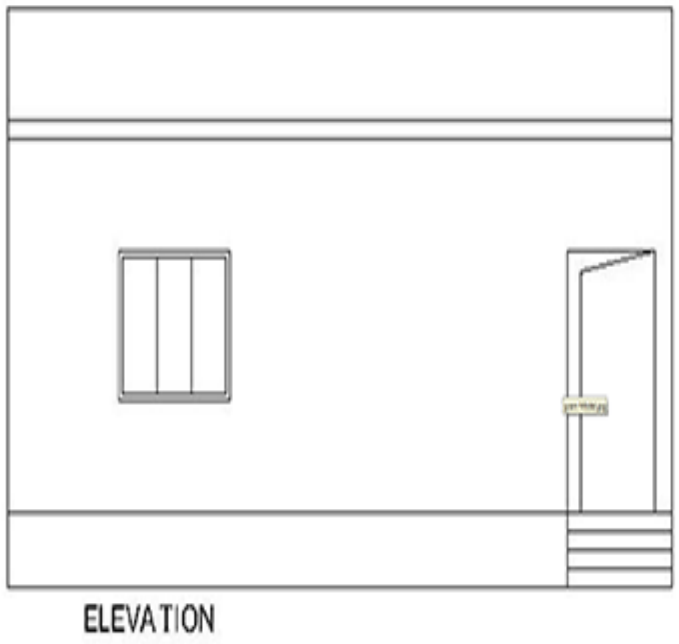
SCHEDULE OF OPENING

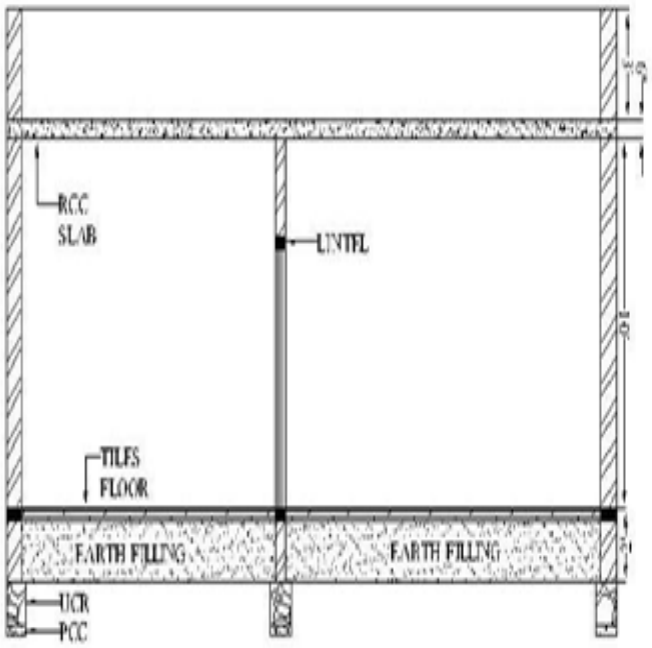
GAPE G	5'0" X 8'6" X 1
WINDOW W	5'0" X 4'0" X 3
WINDOW W	3'0" X 4'0" X 2

AREA TABLE	TOTAL SQ.FT.	TOTAL SQ.MT.
TOTAL PLOT AREA	300.00	27.87
BUILT UP AREA	300.00	27.87

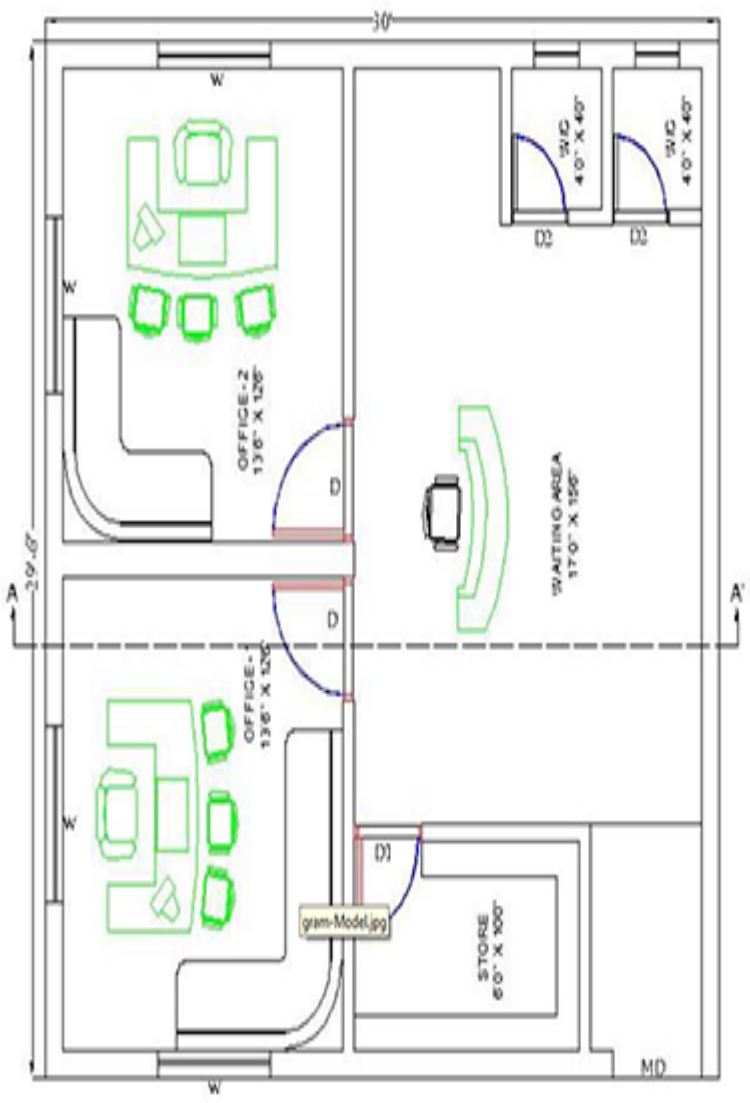
DRAWING BY -: NIRAV VARA

➢ Gram Panchayat





SECTION AT A-A'



GRAM PANCHAYAT

SCALE :- 1:100

ALL DIMENTION ARE IN FEET

N

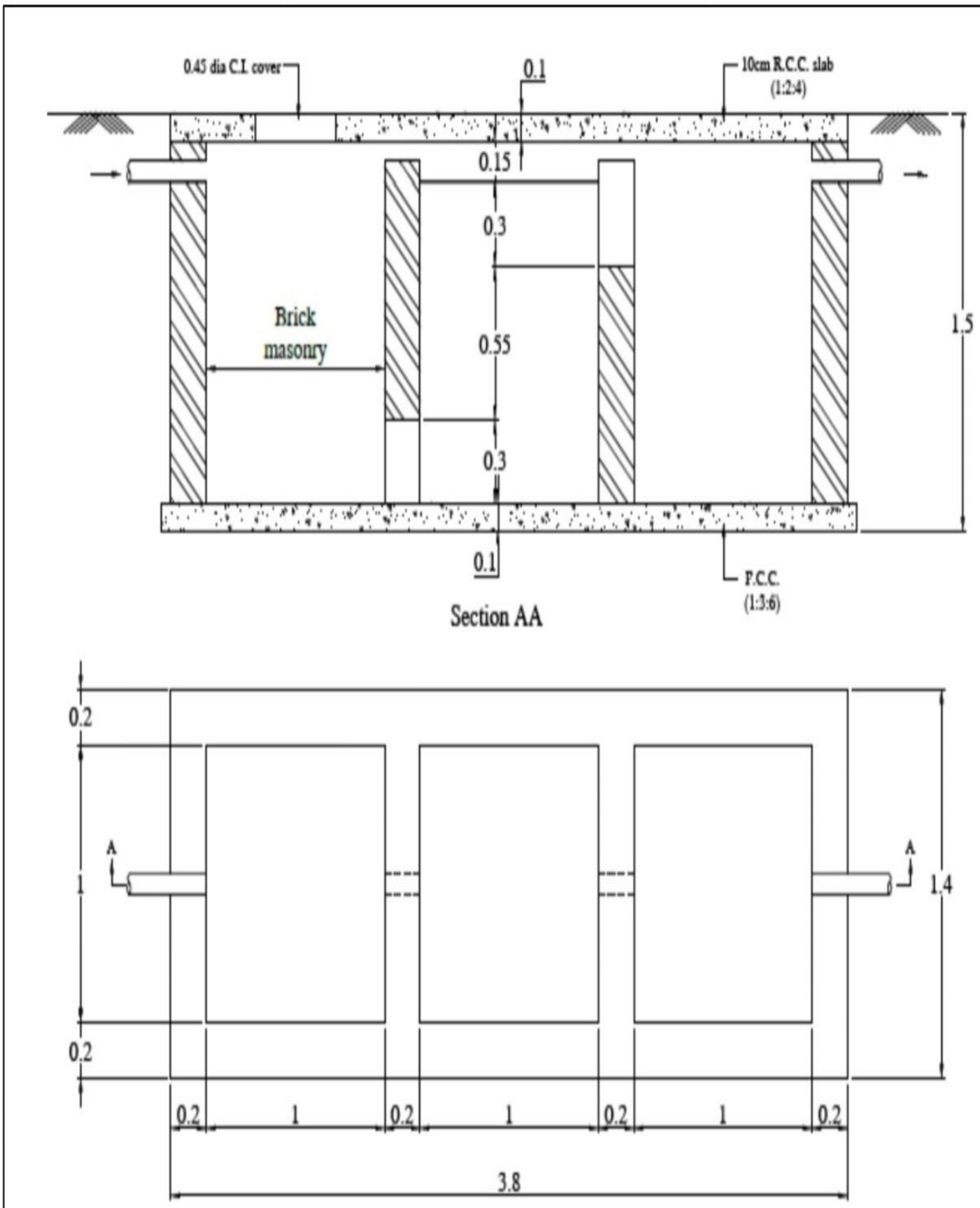
PROPOSED PANCHAYAT PLAN SITUATED IN DHARAMPUR VILLAGE, TA. PORBANDAR, DIS. PORBANDAR.

SCHEDULE OF OPENING		
MAIN DOOR	MD	4'6" X 7' X 1
DOOR D	D1	3' X 7' X 1
DOOR D1	D2	3' X 7' X 3
GAPE	D	3' X 7' X 3
WINDOW	W	5' X 4' X 4

AREA TABLE	TOTAL SQ.FT	TOTAL SQ.MT
PLOT AREA	885.00	83.31
BUILT UP AREA	885.00	83.31

DRAWING BY.- PRASHANT VAJA

➢ Septic Tank



SCALE :- 1:100

ALL DIMENSION ARE IN METER

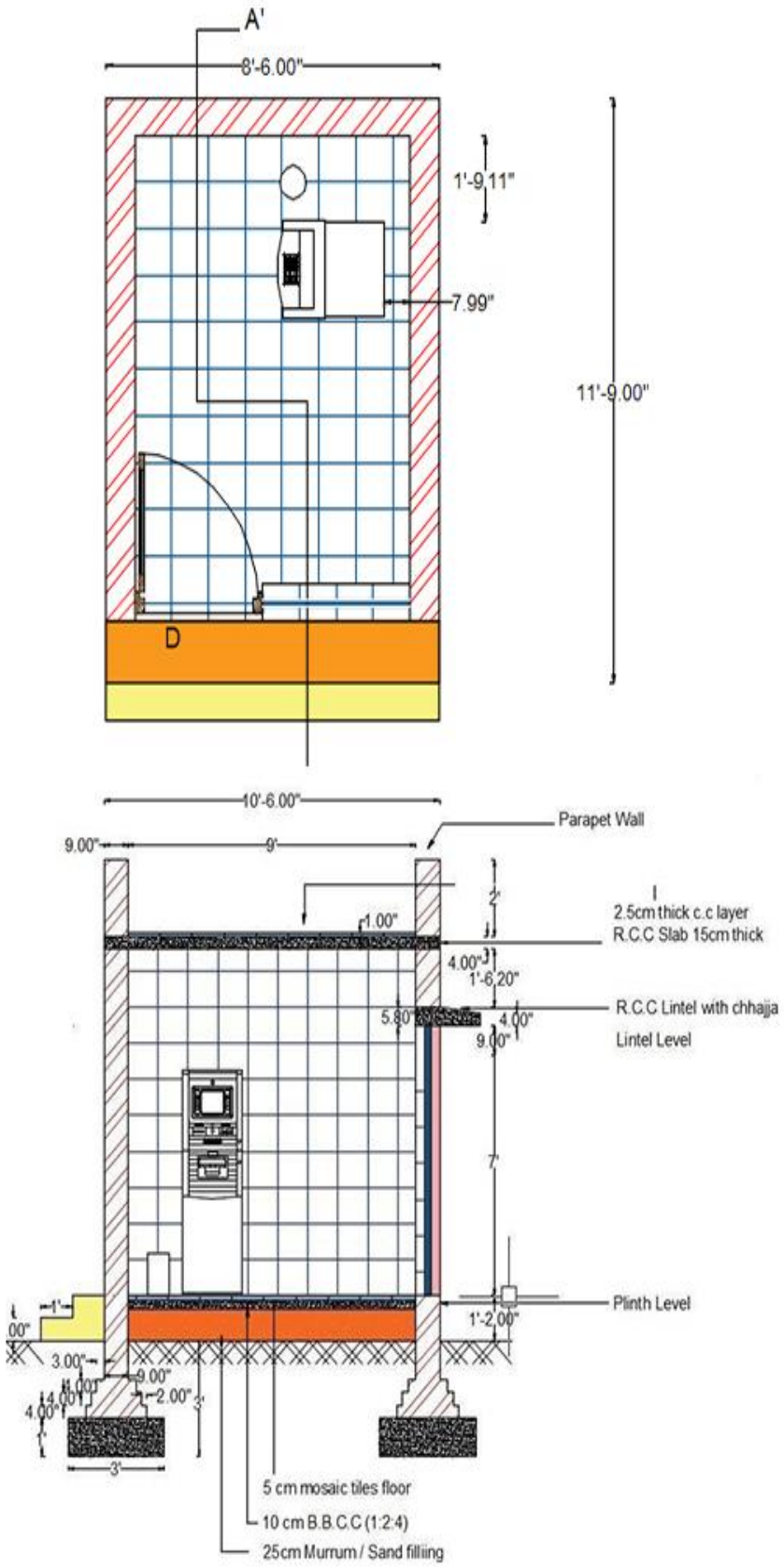
N

PROPOSED CONSTRUCTION OF SEPTIC TANK AT VILLAGE DHARAMPUR, TA. DIST. - PORBANDAR.

AREA TABLE	TOTAL SQ.MT
TOTAL PLOT AREA	5.34
TOTAL BUILT UP AREA	5.34

DRAWING BY –: NIRAV VARA

➢ ATM



SCALE :- 1:100

ALL DIMENTION ARE IN FEET

N

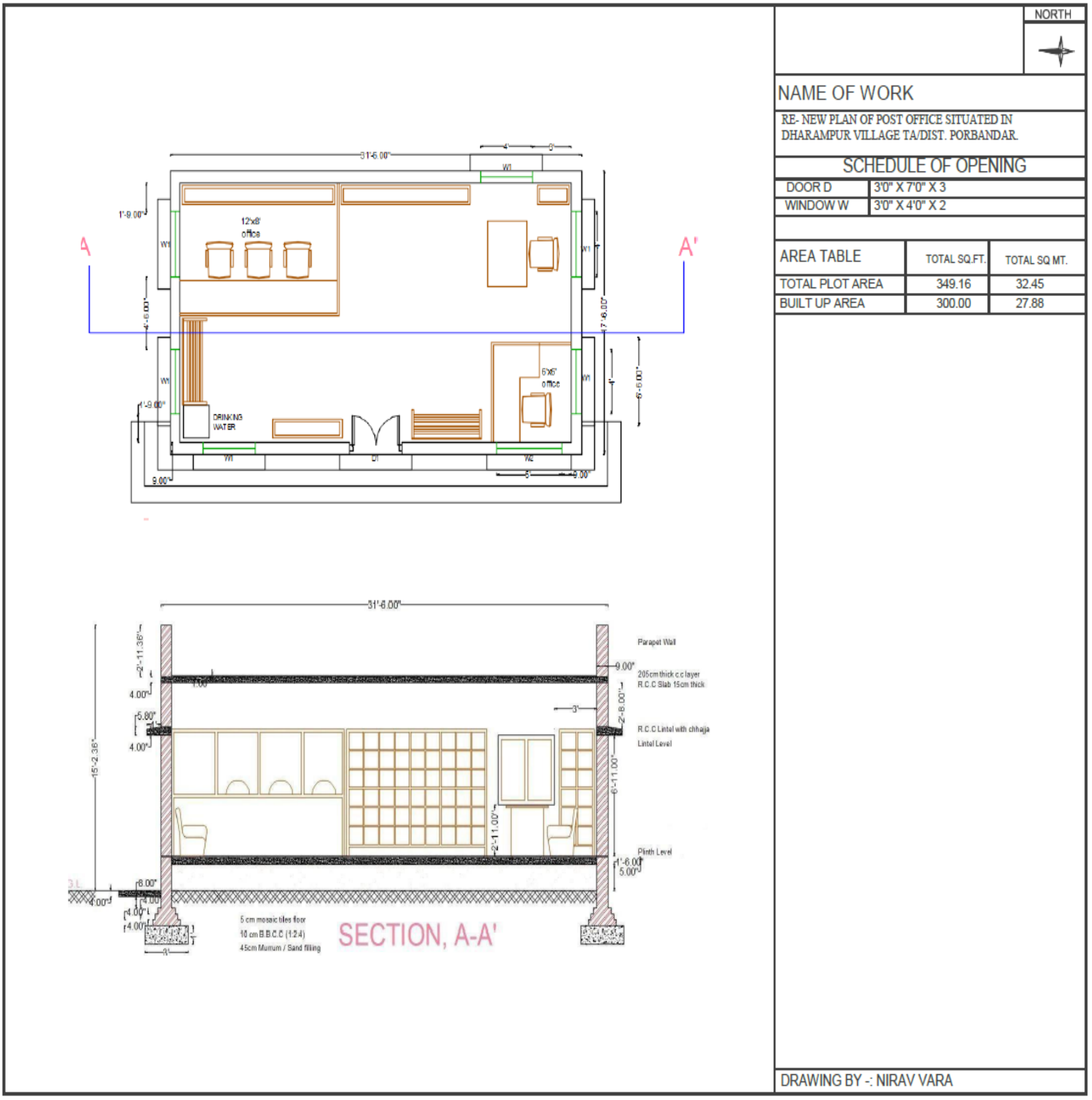
PROPOSED ATM PLAN SITUATED IN DHARAMPUR VILLAGE, TA. PORBANDAR, DIS. PORBANDAR.

SCHEDULE OF OPENING		
DOOR	D	3' X 7' X 1

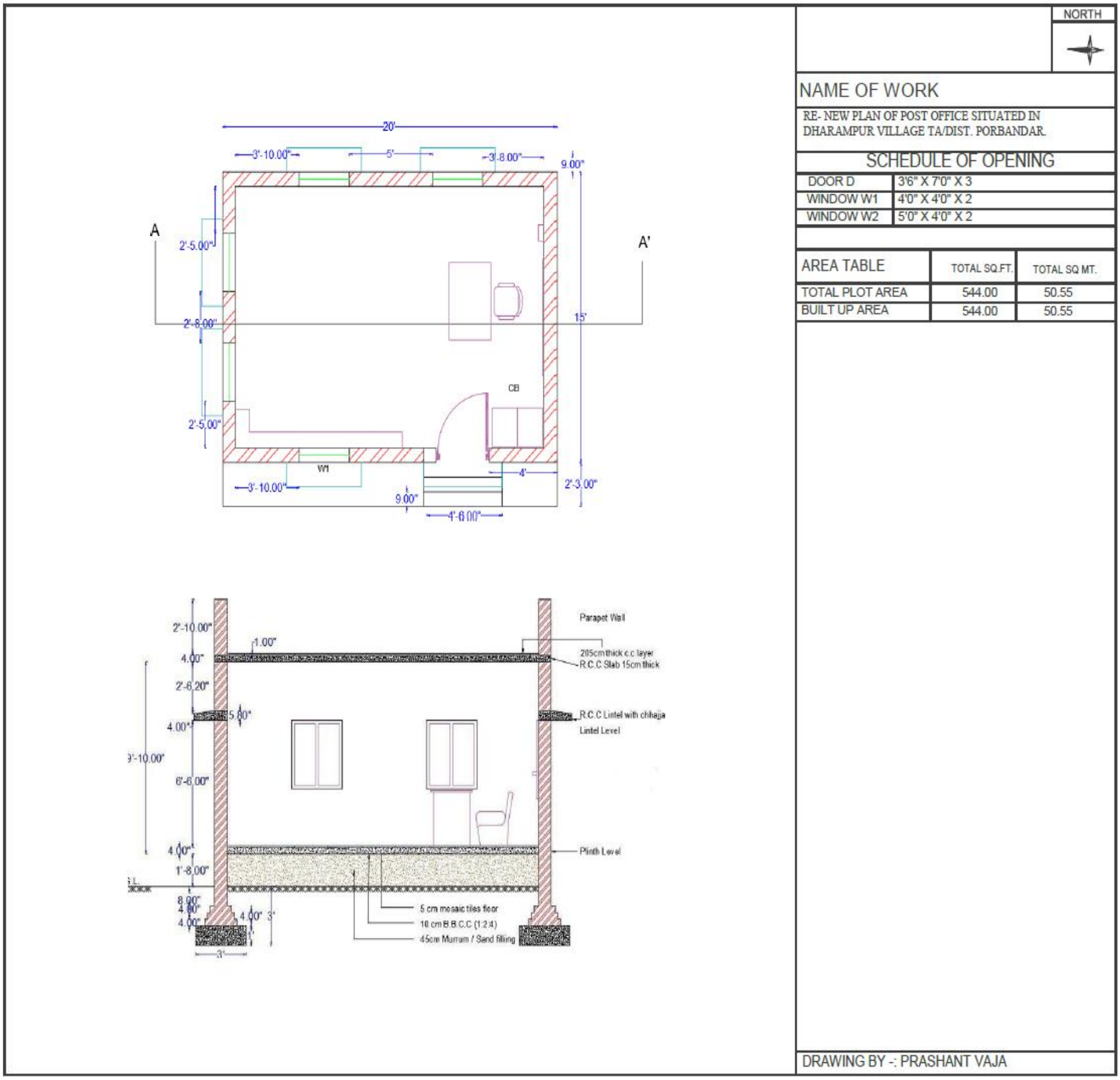
AREA TABLE	TOTAL SQ.FT	TOTAL SQ.MT
PLOT AREA	99.87	9.25
BUILT UP AREA	99.87	9.25

DRAWING BY. - NIRAV VARA

➢ Post Office


NORTH
NAME OF WORK
RE- NEW PLAN OF POST OFFICE SITUATED IN DHARAMPUR VILLAGE TA/DIST. PORBANDAR.
SCHEDULE OF OPENING
DOOR D 3'0" X 7'0" X 3
WINDOW W 3'0" X 4'0" X 2
AREA TABLE | TOTAL SQ.FT. | TOTAL SQ MT.
TOTAL PLOT AREA | 349.16 | 32.45
BUILT UP AREA | 300.00 | 27.88
31'-6.00"
12'x8' office
5'x6' office
DRINKING WATER
W1
W2
D1
A
A'
SECTION, A-A'
Parapet Wall
205cm thick c.c layer
R.C.C Slab 15cm thick
R.C.C Lintel with chhajja
Lintel Level
Plinth Level
5 cm mosaic tiles floor
10 cm B.B.C.C (1:2:4)
45cm Murrum / Sand filling
DRAWING BY -: NIRAV VARA

➢ Anganvadi


NORTH
NAME OF WORK
RE- NEW PLAN OF POST OFFICE SITUATED IN DHARAMPUR VILLAGE TA/DIST. PORBANDAR.
SCHEDULE OF OPENING
DOOR D 3'6" X 7'0" X 3
WINDOW W1 4'0" X 4'0" X 2
WINDOW W2 5'0" X 4'0" X 2
AREA TABLE TOTAL SQ.FT. TOTAL SQ MT.
TOTAL PLOT AREA 544.00 50.55
BUILT UP AREA 544.00 50.55
DRAWING BY -: PRASHANT VAJA
20'
3'-10.00"
5'
3'-8.00"
9.00"
A
A'
2'-5.00"
2'-8.00"
15'
CB
W1
4'
2'-3.00"
9.00"
4'-6.00"
2'-10.00"
1.00"
4.00"
2'-6.20"
5.00"
4.00"
3'-10.00"
6'-6.00"
4.00"
1'-8.00"
8.00"
4.00"
4.00"
4.00"
3'
1'
3'
Parapet Wall
205cm thick c.c layer
R.C.C Slab 15cm thick
R.C.C Lintel with chhajja
Lintel Level
Plinth Level
5 cm mosaic tiles floor
10 cm B.B.C.C (1:2:4)
45cm Murrum / Sand filling