DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII

AN APPROACH TOWARDS RURBANISATION

Ambheta Village

Surat District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
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COLLEGE NAME: - TAPI DIPLOMA ENGINEERING COLLEGE

COLLEGE LOGO

NODAL OFFICER NAME:
NIRANT J PATEL

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad – 382424 Gujarat

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ON

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CERTIFICATE

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

Detail Project Report for,

VILLAGE: - Ambheta

DISTRICT: - Surat

Under

Vishwakarma Yojana: Phase-VIII

in partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

during the academic year 2020-21.

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

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College Stamp:	

ABSTRACT

The Government of Gujarat has launched "Vishwakarma Yojana: An Approach towards Rurbanisation" for development of villages which is implemented by "Gujarat technological University". Vishwakarma Yojana would provide solution for development of villages in 'City' areas. Vishwakarma project give us best opportunity to Diploma and Degree to gain knowledge of Surveying, Planning, Estimating, Costing. We define an Ideal Village as a bundle of services which are delivered to its residents and businesses in an effective and efficient manner. We define an Ideal Village as a bundle of services which are delivered to its residents and businesses in an effective and efficient manner. The selected village is surveyed, data has been analyzed for the village and an Infrastructure facility has been found out by this Yojana with the help of UDPFI guidelines.

Ambheta is a village Olpad Taluka in Surat District of Gujarat State, India. It is situated 16 km away from district head quarter Surat. As per stats, Ambheta village also gram panchayat. The native language of Ambheta is Gujarati and most of the village people speak Gujarati. Ambheta people use Gujarati language for communication. Ambheta Village in 1713 population of 2011. The total geographical area of the village is 692 hectors.

The design is to be provided in the village. There are 4 design to be provided in village. Design of Bio-gas plant, Design of Public Toilet, Design of Library, Design of overhead tank. The selected village is surveyed, data has been analyzed for the village.

House without toilet is not good for the health of people but here in this village it is not having the public toilets also which is dangerous from the hygiene purpose. In the village there is a lake.

For future scope village will be designed as per the survey from smart village and ideal village like physical facilities, social facilities, socio-economies facilities…etc. Road, Post office, rain water harvesting, entrance gate, solar street lights, garden.

By constructing public toilet, we make hygiene environment and reduce the viral disease. By providing library we can help student who can't focus on study. with the assistance of biogas plant the waste is employed in such how that to supply the gas that is employed for change of state and electricity functions. Design overhead tank for storing water.

Key Words: Rural Development, Rurbanisation, Public Toilet, Bio-gas plant, Water harvesting system.

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.

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

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
C.C.	Cement concrete
ATM	Automated Teller Machine
GOI	Government of India
GOG	Government of Gujarat
GEB	Gujarat Electric Board
SC	Scheduled Caste
ST	Scheduled Tribe
R.C.C.	Reinforce Cement Concrete
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
PMSAGY	Pradhan Mantri Sansad Adarsh Gram Yojana
PMAY	Pradhan Mantri Avas Yojana
OHWT	Over Head Water Tank

Chapter 1: Ideal village visit from Surat district of Gujarat state

1.1 Background

Ena village is in Surat district in the state of Gujarat, India. The village is located 27 km far from the Surat. There has been use of advanced technology in primary and higher education system.

Fig 1.1: Ena village map

Detail	Total	Male	Female
Population	3777	1895	1882
Child (0-6)	378	202	176
Schedule Caste	260	126	134
Schedule Tribe	2006	1022	984
Literacy	74.43%	76.43%	72.45%

Table 1.1: Village Overview

- Study Area Location

For Vishwakarma Project, we select Ena village as an ideal village. We have visited Ena village and got information for development of our allocated village Ambheta. It is having facility of education properly from primary education to higher education. All type of necessary facilities is are provided in Ena village. It has good roads and are constructed in village (R.C.C. & Bitumen). And also have public garden, pond, temples, banks, ATMs, water tanks.

1.2 Concept: Ideal Village, Normal Village

1.2.1 Objectives:

- Efficient Water Supply
- Durable Roads join with SH
- Street light with Solar
- Better education facility
- Eco-friendly Infrastructure
- Door to Door Solid waste connection

1.2.2 Example/live case studies of ideal village of India/Gujarat

- People: People of Ena village are helpful and great. They have a sense of discipline and co-operation. They have a good spirit of service.
- Education facilities: There is Primary school, High school. Primary education is compulsory.
- Drinking Water facilities: There are enough Bore well and water tap.
- Agricultural: In Ideal village there are good farmers. They grow food crops, commercial crops. They take up improved method of farming.
- Clinic Facilities: In ideal village there are clinic facilities for people. Hence, there are dispensaries and veterinary dispensaries.
- Other facilities: There is Public Toilet, Post office, Playground & community hall.
- Conclusion: An Ideal village makes all possible provision for the all-round development of people. It's our duty to lift every village of India to much higher level.

1.2.3 The Idea of Model/ Smart village:

- The main aim behind ideal village is to decrease the rate of migration from rural to urban area.
- Other idea is to provide facility similar to that of cities to country side.
- To make irrigation facilities advance in technology and digitalize the same.

- To provide every agricultural land with water supply by providing efficient canal network.
- By providing different branches of education system, student will no longer be required to travel to different cities for study purpose which will ultimately save the time money and will be beneficial in many other ways.
- By providing marketing yard near country side will give more profit in terms of wealth, time and many other aspects.
- Proper training either by agricultural officer or by different communication mode should be provided to farmers for obtaining maximum agricultural product and thereby increasing their profit.

1.3 Detail study (Socio economic, physical, demographic and infrastructure details) of Ideal village with photograph:

- As being Ideal Village, this village have all physical needs as well a social community need. We have visited Ena village and got information for development of our allocated village Ambheta. Rods are constructed in village (R.C.C & Bitumen). It has Education facilities (Gujarati and English Medium). Other facilities are Playground, Water taps, Banks, ATMs, Children Park etc.
- There is Door to Door Solid Waste collection facility. They also provide a drinking water once in a day by regular time which they gave in noticed board by daily routine which was filtered at filter plant. They don't have any plant for waste solid treatment so, they throw the solid waste near village. Underground drainage system is excellently working in the village. Some of them are using renewable sources like solar panel and rain water harvesting.
- Road is essential component of transportation. It provides Door-to-Door type facility. In Ena, there is wide road network provided for interaction between places. Also provide block & R.C.C. at near house. In this village there is a community hall without TV.
- They have government health center which is known as "Peta Arogya center" and also have 1 private health center. They have no animal health center.
- Gujarat Electrical Board providing electricity in this village. They have street lights at every street which is Running by solar panel. They have big Cricket and volleyball ground.

Fig 1.2 Panchayat building

fig. 1.3 Primary School

Fig.1.4 Water Tap

Fig.1.5 Bank

Fig.1.6 Temple

Fig. 1.7 Ena village Sarpanch

Fig. 1.8 Roads of Ena Village

1.4 SWOT Analysis of Ideal Village:

Strength: - Door to Door solid waste Collection, Community Hall, Water Supply 24x7, Telecommunication, Good Road Connectivity, Health Facilities, Education Facilities
Weakness: - Cinema Hall, Free WIFI connection, Library, Solid and liquid waste disposal system
Opportunities: - Develop Wi-Fi network in Village, Development of Waste Disposal System
Threats: - Lack of awareness of villagers about cleaning and education

1.5 Future prospects of village

In the future, Waste water treatment plant and solid waste treatment plant will be constructed. Renewable is also needed because of day to day the electrical appliances uses in more amount and electrical energy uses in more amount. Public Toilet will construct in the village.

1.6 Benefits of the visits of Ideal village / Smart Village

By visiting Ideal / Smart village we got an idea about ideal / smart village. We see many kinds of new technologies which are using in Urban areas and we can use it in allocated village. We could discuss good & bad things about village by villagers. We had seen plans, and elevation for necessary infrastructure.

1.7 Civil aspects required in Ideal village/ Smart village

In Ideal Village So many structures, planning facilities available which is more than any other village. That happens because of rules of civil engineering conceptual fundamental studies.

In Ideal Village these things should be present,

Good Roads, Good drainage system, Good economic condition of villagers, Commercial buildings

Chapter 2: Literature Review

2.1 Introduction to Rural an Urban

I. Rural area:

- A rural area is a geographic area that is located outside towns and cities. The Health Resources and Services Administration of the U.S. Department of Health and Human Services defines the word rural as encompassing "...all population, housing, and territory not included within an urban area. Whatever is not urban is considered rural." Typical rural areas have a low population density and small settlements. Agricultural areas are commonly rural, as are other types of areas such as forests. Different countries have varying definitions of rural for statistical and administrative purposes.

II. Urban area:

- An urban area is a human settlement with a high population density and infrastructure of built environment. Urban areas are created through urbanization and are categorized by urban morphology as cities, towns, conurbations or suburbs. In urbanism, the term contrasts to rural areas such as villages and hamlets; in urban sociology or urban anthropology it contrasts with natural environment. The creation of early predecessors of urban areas during the urban revolution led to the creation of human civilization with modern urban planning, which along with other human activities such as exploitation of natural resources led to a human impact on the environment.

2.2 Importance of Rural Development

- Rural development is important not only for the majority of the population residing in a rural area but the growth of rural activities is necessary to stimulate the speed of overall economic expansion of the nation.
- Rural development is pretended to be noticeable importance in the country today than in the olden days in the process of the evolution of the nation. It is a strategy trying to obtain improved rural creation and productivity, higher socio-economic equality, and ambition, stability in social and economic development.
- The primitive task is to decrease the famine roughly about 70 percent of the rural population, implement sufficient and healthy food. Later, serve fair equipment of clothing and footwear, a clean environment and house, medical attention, recreational provision, education, transport, and communication.

2.3 Ancient Villages / Different Definition of: Rural area / Village

- We define the term 'rural' as a region located on the outskirts. It refers to a small settlement, which is outside the boundaries of a city, commercial or industrial area. It may include, countryside areas, villages or hamlets, where there are natural vegetation and open spaces. There is a low density of population in such area. The primary source of income of the residents is agriculture and animal husbandry. Cottage Industries also form a chief source of income here.
- The term urban simply refers to the region or area which is densely populated and possess the characteristics of the man-made surroundings. The people residing in such area, are engaged in trade, commerce or services. In this settlement, there is high scale industrialisation that results in better employment opportunities. The Urban settlement is not confined to the cities only, but towns and suburbs (suburban areas) are also included in it.

2.4 Scenario: Rural / Urban village of India population growth

- The population of India as per 2011 census was 1,210,854,977. India added 181.5 million to its population since 2001, slightly lower than the population of Brazil. India, with 2.4% of the world's surface area, accounts for 17.5% of its population. Uttar Pradesh is the most populous state with roughly 200 million people. Over half the population resided in the six most populous states of Uttar Pradesh, Maharashtra, Bihar, West Bengal, Andhra Pradesh and Madhya Pradesh. Of the 1.21 billion Indians, 833 million (68.84%) live in rural areas while 377 million stay in urban areas. 453.6 million people in India are migrants, which is 37.8% of total population.
- Rural Population in India: 68.84%
- Urban Population in India: 31.16%
- Level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census.
- The proportion of rural population declined from 72.19% to 68.84%

2.5 Scenario: Rural / Urban village of Gujarat as per Census 2011 and latest population

- As per the Census 2011, the **total Population of Gujarat is 6.04 Cr**. Thus, the population of Gujarat forms 4.99 percent of India in 2011. Gujarat has total population of 60,439,692 in which males were 31,491,260 while females were 28,948,432.

Table 2.1: Scenario: Rural / Urban Gujarat as per Census 2011

	Rural	Urban
Population%	57.4%	42.6%
Total Population	34,694,609	25,745,083
Male Population	17,799,159	13,692,101
Female Population	16,895,450	12,052,982
Sex ratio	949	880
Child sex ratio (0-6 age)	914	852
Child Population	4,824,903	2,952,359
Literates	21,420,842	19,672,516
Average literacy	71.71%	86.31%
Male literacy	81.61%	90.98%
Female literacy	61.36%	81.03%

2.6 Rural Issues & Concerns

i. The problems concerning agriculture.
ii. The problems of cottage industries.
iii. The problems of rural health and education.
iv. The problem of the status of women.
v. The problem of unemployment.
vi. The problem of land less labour.
vii. Problem of nutrition in villages
viii. Problem of housing. Apart from it there are also the problems of untouchability and casteism.

2.7 various infrastructure & guidelines/Norms for Villages for the provisions of different infrastructure facilitiesVillage Facilities and Planning Commission/UDPFI Norms

Social Infrastructure Facilities

Education

Anganwadi- Each or Per 2500 population, Primary School- Each Per 2500 population, Secondary School- Per 7,500 population, Higher Secondary School- Per 15,000 Population

College- Per 125,000 Population, Tech. Training Institute- Per 100000 Population, Agriculture Research Centre- Per 100000 Population, Skill Development Centre- Per 100000 Population

Health Facility

Govt/Panchayat Dispensary or Sub PHC or Health Centre- Each Village, Primary Health & Child Health Centre- Per 20,000 population, Child Welfare and Maternity Home- Per 10,000 population, Multispeciality Hospital- Per 100000 Population, Public Latrines- 1 for 50 families (if toilet is not there in home, especially for slum pockets & kutcha house)

Physical Infrastructure Facilities

Transportation

Pucca Village Approach Road- Each village, Bus/Auto Stand provision- All Villages connected by PT (ST Bus or Auto), Drinking Water (Minimum 70 lpcd), Over Head Tank- 1/3 of Total Demand, U/G Sump- 2/3 of Total Demand, Drainage Network - Open, Drainage Network - Cover, Waste Management System

Socio- Cultural Infrastructure Facilities

Community Hall- Per 10000 Population, community hall and Public Library- Per 15000 Population, Cremation Ground- Per 20,000 population, Post Office- Per 10,000 population, Gram Panchayat Building- Each individual/group panchayat, APMC- Per 100000 Population

2.8 Other Projects / Schemes

1 Pradhan Mantri fasal Bima yojana: The Union Cabinet has approved Pradhan Mantri Fasal Bima Yojana, it is a new crop insurance scheme to boost farming sector in the country, It is farmers' welfare scheme.

2 Pradhan Mantri Avas Yojana: PMAY Mission launched on 25th June 2015 which intends to provide housing for all in urban areas by year 2022, The Mission provides Central Assistance to the implementing agencies through States/Union Territories (UTs) and Central Nodal Agencies (CNAs) for providing houses to all eligible families/ beneficiaries against the validated demand for houses for about 1.12 cr.

3 Pradhan Mantri Jeevan Jyoti Bima yojana: (Launched on 9th May 2015)-Life insurance scheme by Government, Pradhan Mantri Jeevan Jyoti Bima Yojana is available to people between 18 and 50 years of age with bank accounts.

Chapter 3: Smart village concept

3.1 Concepts, Definitions and Practices

- Smart Village India gets its foundation from Mahatma Gandhi's vision of Adarsh Gram (model village) and Gram Swaraj (Village self-rule/independence). Gandhi in two texts, Hind Swaraj and Gram (Village) Swaraj, promotes the concept of integrated rural development to impact majority of the population, as the primary initiative after India Independence in 1947. The Eco Needs Foundation has initiated the concept of "Smart Village". Under this project the Foundation is adopting villages and putting efforts for sustainable development by providing basic amenities like sanitation, safe drinking water, internal road, tree plantation, water conservation.
- Smart Villages is a community-based initiative of Samanvay.Com Welfare Society, primarily aimed to harness the benefits of information technology for the rural folks. The initiative is a community effort to mobilize the collective strengths of people from various streams and integrate it with information technology to provide benefits to the rural community.

3.2 Vision-Goals, Standards and Performance Measurement Indicators

Sr. No.	Parameter	Benchmark
A	Transport	• Maximum travel time of 30 minutes in small & medium size cities and 45 minutes in metropolitan areas. • Continuous unobstructed footpath for 2 m wide on either side of all street with Row 12 m more.
B	Water supply	• 24 x 7 supply of water. • 100% household with direct water supply connections
C	Sewerage & Sanitation	• 100% households should have access to toilets. • 100% households should be connected to the waste water network. • 100% efficiency in the collection of sewerage network.
D	Health care facilities	• Availability of telemedicine facilities to 100% residents. • 30 minutes' emergency response time. • Nursing home, child, welfare and maternity. • Centre - 25 to 30 beds per lakh population.
E	Wi-Fi connectivity	• 100% households have a Wi-Fi internet connection or internet in mobile phone.
F	Telephone connections	• 100% households have a telephone connection including mobile phone.

G	Electricity	• 100% households have electricity connection 24 x 7 supply of electricity. • 100% metering of electricity supply.
H	Solid management	• 100% households are covered by daily door-step. • 100% collection of municipal solid waste.

3.3 Technological Options

1) Smart energy
2) Smart public services
3) Smart infrastructure
4) Smart Mobility
5) Smart security

3.4 Road Map and Safe Guards

- The first step in establishing a road map for a smart city is to know why there is a need for a smart city initiative.
- This can be done by studying the city's demographics, including the residents who are the Principal stakeholders in the city.
- GIS is an essential economic development tool that many cities use for planning, analyses, and building lively communities that attract businesses and residents
- The second step in establishing a smart city roadmap is by developing a policy that drives the whole initiatives.
- The policy needs to define the roles, responsibilities, strategies, and objectives of the smart cities.

3.5 Issues & Challenges

- The Smart Cities Mission requires smart people who actively participate in governance and reforms.

3.6 Smart Infrastructure

- Smart infrastructure provides the foundation for all the key themes related to a smart city, including smart people, smart mobility, smart economy, smart living, smart governance and smart environment. In a sensing environment, infrastructure is able to respond in real time to users' needs. Self-aware infrastructure assets direct their own maintenance, leading to condition- based maintenance, reduced down time and greater operational efficiency of the infrastructure overall.
- Smart infrastructure includes following:

- Smart sanitation
- Smart Hosing
- Technology Infrastructure
- Solid Waste Management
- Water Management

3.7 Cyber Security or any other concept as per the (ANNEXURE 1)

- Cyber security is the one of the key components of smart cities. Effective cyber security is increasingly complex to deliver. The objective of Smart Cities is to optimize the city in a dynamic way to offer a better quality of life to the citizens through the application of information and communication technology (ICT). It is important to remember that cyber security is a citywide issue and not just a technology risk.

3.8 District Cooling and Heating / Green Building

- **District cooling** is the cooling equivalent of district heating. Working on broadly similar principles to district heating, district cooling delivers chilled water to buildings like offices and factories needing cooling.
- **District heating** is a system for distributing heat generated in a centralized location through a system of insulated pipes for residential and commercial heating requirements such as space heating and water heating.
- **Green building** refers to both a structure and the application of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle: from planning to design, construction, operation, maintenance, renovation, and demolition. This requires close cooperation of the contractor, the architects, the engineers, and the client at all project stages.

3.9 Strategic Options for Fast Development

- The strategic components of area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city. Below are given the deigns of the three models of Area-based smart city development.
- 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 liveable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens. Depending on the existing level of infrastructure services in the identified area and the vision of the residents, the cities will prepare a strategy to

become smart. Since existing structures are largely to remain intact in this model, it is expected that more intensive infrastructure service levels and a large number of smart applications will be packed into the retrofitted smart city. This strategy may also be completed in a shorter time frame, leading to its replication in another part of the city.

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

- The consistent increase in the rate of growth of India's population has also led to the increase in demand for water, particularly in the urban areas where the rate of increase is higher compared to rural areas. In 2001, urban population was 285 million and assuming water supply of 135 liters per capita per day, the domestic water demand is estimated at around 38,475 million liters per day (MLD), whereas as in 2011 urban population was 377 million with a domestic water demand of 50,895 MLD. It shows that growth in urban population leads to additional water demand of 12,420 MLD in urban areas. The water supply of 135 liters per capita per day (LPCD) as a service level benchmark should be given for domestic water use in urban local bodies. However, currently as per Central Public Health and Environmental Engineering Organization (CPHEEO), an average water supply in urban local bodies is 69.25 LPCD. This indicates that there is a vast gap between the demand and supply of water in urban areas of India.

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. Urban localities covered in the 74th amendment it the constitution, have nagar palika but derive their powers from the individual state governments, while the power of rural localities have been formalized under the Panchayati raj system, under 73rd amendment to the constitution for the history of traditional local government in India and south Asia, see Panchayati raj. Although, as of 2015, implementation in all of India is not complete the intension is for there to be a gram Panchayat for each village or group of villages, Taluka level and district Panchayat at the district level.

3.12 Smart Initiatives by District Municipal Corporation

- Solid waste management.
- Selvedge water disposal.
- Effective road transportation.
- Maintained street light facilities.
- Agriculture awakening center.

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

- The panchayat raj system is a three-tier system with elected bodies at the village, taluka and district levels.
- The modern system is based in part on traditional panchayat governance, in part on the vision of Mahatma Gandhi and in part by the work of various committees to harmonize the highly centralized Indian governmental administration with a degree of local autonomy.
- The result was intended to create greater participation in local government by people and more effective implementation of rural development programs.
- Although, as of 2015, implementation in all of India is not complete the intention is for there to be a gram panchayat for each village or group of villages, a tehsil level council, and a zilla panchayat at the district level.

3.14 How to implement other Countries smart villages projects in Indian village context

- It is clear that the situations and challenges in developing urban and rural area are different due to the constraints and opportunities. Many researchers believe that the existing technologies developed for the smart city may be useful for the smart village concept.
- In entire country, rule should be passed in such a way that, in each year one mentioned amenity should be completed across country in all villages. something like this, year 1- Roads, Year 2 - Electricity and so on.
- Social Component: This component may address issues related to community life, participatory democracy, social innovation, proximity services etc.

Chapter 4: Allocated village Ambheta

4.1 Introduction

4.1.1 Introduction about Ambheta Village:

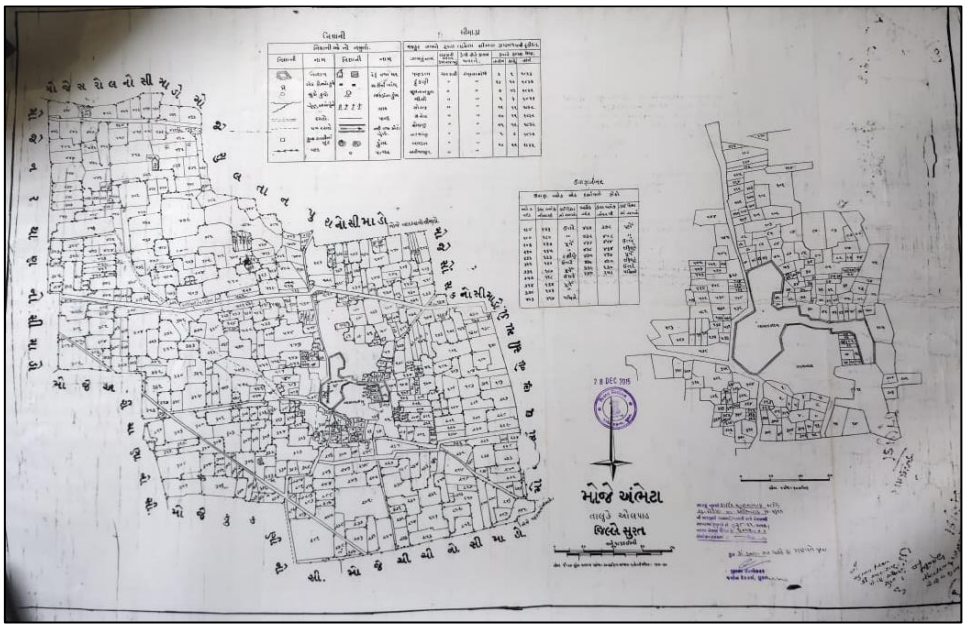


Fig.4.1Map of Ambheta Village

- Ambheta village is at a distance of 15 km from railway station Surat. The basic facility available in our located village like primary school, aanganwadi, milk cooperative society, panchayat building. Total area of village is about 692 hectors. Population of Ambheta village is 1713 according to 2011 census.

4.1.2 Justification/ need of the study

- Vishwakarma Yojana is one of the initiatives towards Rurbanisation by Government of Gujarat, which was allotted as a pilot project to GTU. The students meet all the stake-holders in a village, survey the existing facilities. Then they re-imagine and redesign the whole of the infrastructure of the village. The students use their engineering skills to prepare detailed project reports for the infra-structure as a part of their Final Year project work.

4.1.3 Study Area

- We have visited Ambheta village and got information. All type of necessary facilities is not available in village. Population of Ambheta village is 1713 peoples. The total no. of houses in village are 360. It has poor infrastructure; roads facility is inadequate in this

village. Recreational facilities like public gardens are not available in the village. Underground drainage system is working in the village.

4.1.4 Objectives of the study:

- The main object of the study is to identify the village in all aspects.
- To provide basic amenities in the village, like transportation, sanitation, Public Garden, Public toilet.
- To reduce migration from rural to urban.
- To study the present scenario of village, and involvement of villagers, Sarpanch.

4.1.5 Scope of the Study:

- It is very essential to develop village because India's development depends upon the progress of the villages.
- By the analyzing the present conditions of Ambheta village we can improve the basic amenities and facilities like agriculture facilities, milk cooperative facility, education facility.
- India is agriculture country and poverty can be removed through improvement in agriculture.
- From the Gap analysis for village development will be proposed and planning suggestions for physical infrastructure, social infrastructure and renewable energy source will be suggested for the village. This study will focus on the development of the village

4.1.6 Methodology Frame work for development of your village

- The study frame work of our village divided in three phases, Preliminary survey, analysis, design.
- In preliminary survey there are two approaches one is direct and second is indirect.
- We first done indirect study of village through using various online sources and official websites of Gandhinagar district.
- Then we visit the village on primary bases and to collect the data as per techno economic survey form prescribed by university.
- Then we come at the second phase of project, the analysis. We analyze the information collected and come to decide the road map of development of village.
- Then we again contact the Gram Panchayat member to inform about our future scope of project and get the further data for designing various facilities.
- And at third phase of project, we design the various facility in village like library, pick up stand, biogas plant, construction of paver block road and solid waste collection facility.
- In this way we approach our phase I project.

4.1.7 Available Methodology For Development Of Related To Civil

- R.C.C. Roads, Community Hall, WIFI, Education, Solid Waste System, Water Supply System, Panchayat, Bus Stop, Gram Drainage System

4.2 Ambheta village Study Area Profile

4.2.1 Study Area Location

- Ambheta village is at a distance of 15 km from a diamond city Surat. It is about
- Vihan is well connected by all state highways.
- Vihan village population is of 1713 according to 2011 census.
- The total area of village is about 692 hectares.

4.2.2 Base Location map & Study area land use:

Fig.4.2 *base location map*

4.2.3 Physical & Demographical Growth

Source of water	1. Overhead Water tank- 20000lit capacity. 2. bore well & piped water 3. Bottled water for drinking. 4. Local Municipal Corporation.
Road network	1. Village is connected by SH. 2. All connecting roads are bitumen road (Bad condition). 3. All internal roads are c.c. road.
Transportation facility	1. Nearest railway station 15 Km. (Surat). 2. Nearest bus station 1 Km. 3. Auto, jeep available.

Table 4.1 Physical Detail

Sr. No.	Census	Population	Male	Female	Total house
1	2001	-	-	-	-
2	2011	1713	872	841	329

Table 4.2 *Demographic Detail Ambheta Village*

4.2.4 Economic profile / Banks

- About the economic profile of this village, many citizens' works interest is farming and labor work. The village doesn't have any better facilities regarding infrastructure but has good electrification system which distributed 24x7 hours for domestic use and 8 hours for agricultural use. Village does not have good drainage system because there is open drainage etc. Dairy and milk production is also the prime source of income.

4.2.5 Actual Problem faced by Villagers and smart Solution

- We analyzed actual problems from villagers which are in below.
- They don't have Door to Door solid waste collection. They throw garbage at nearby places.
- They don't have WIFI connectivity and their internet connections are so poor.

4.2.6 Social scenario

Population	Persons	Males	Females
Total	1713	872	841
In the age group 0-6 year	222	113	109
Scheduled (SC)	37	-	-
Scheduled tribes (ST)	337	-	-

Table 4.3 Social Scenario of Ambheta Village.

4.2.7 Migration reason / Trends

- The Reason of migration is to study abort for further education in engineering and medical science.
- Some of villagers comes to do their job in city area so they can't updown up to 30 to 40 kms. So, they migrate to city area.

4.3 Data Collection Vihan village (Photograph/Graphs/Charts/Table)

4.3.1 Methods for data collection

- For primary data collection.
  - Self-survey of village
  - Physical inspection in the village.
  - Interaction with the villagers.
  - Interaction with school principal, teachers, and head of sahkari Mandali.
- For secondary data collection.
  - Census 2011 reports and other reports published by different Ministries of the Government.

- Journals, Magazines and periodicals.
- Statement of villagers.
- Published reports of Central and State Governments and local bodies.

4.3.2 Primary survey details

- Ambheta village is in Olpad taluka in Surat district of Gujarat state. It is a small village consisting population of 1713 only. Sarpanch of the village Ambheta is Pramod Bhai Vasantji Patel. Total area of the village is 692 hectares. The nearest town to the Ambheta is Surat which is 15 km away from village. The village has Gram Panchayat, Community Hall, Primary School, overhead tank, Lake etc.

4.3.3 Average size of the House

- As per census 2011, Village consist population of 1713 out of which 872 are male and 841 are female. In area wise average size of house are 100sq.mt.

4.3.4 No. of human being in One House

- In village generally each family consist 4 to 5-member in a house.

4.3.5 Material Available Locally in The Village and Material Out Sourced by The Villagers

Φ For house, they mainly use bricks, sands and woods
Φ There is no any out sourced material in the village.

4.3.6 Geographical details:

Φ Village name: Ambheta
Φ Taluka name: Olpad
Φ District: Surat
Φ State: Gujarat
Φ Language: Gujarati

4.3.7 Demographical details:

Particulars	Total	Male	Female
Total No. of Houses	329	-	-
Population	1713	872	841
Literacy	74.6%	-	35%

Table 4.4 Demographical Details

4.3.8 Occupation wise detail:

Major Occupation of Village People is Agriculture.
- Agriculture – 80%
- Milk production- 10%
- Job at nearest town- 10%

4.3.9 Agriculture detail:

- Main source of income in this village is farming. Farmers use drip irrigation system to do farming. The main agriculture product is Sugarcane, Paddy wheat, Rice.

4.3.10 Physical Infrastructure Facility:

Various type of infrastructure facilities is given below
- Bus stand
- Primary school
- Overhead Water tank & Underground Sump
- Closed drainage
- Bitumen and RCC road
- Panchayat building
- Community hall

4.3.11 Tourism cluster:

- No tourism in this village

4.4 Infrastructure Details:

4.4.1 Drinking Water / Water Management Facilities

- Drinking water: For drinking Purpose 1 Overhead water tank, 1 underground sump and Hand Pump available. Some people also use hand pump for water purpose.

Fig.4.3 Under Ground Sump

Fig.4.4 Hand Pump

Fig. 4.5 Overhead water tank

4.4.2 Drainage Network:

- In this village, the drainage system is Closed and the sewage is going into the Canal.

4.4.3 Transport & Road network:

- For transport network Railway station, available within 15 km in Surat. Bus station is within 15 km in Surat. Mainly people use local transport like auto rickshaw and private vehicle. Approach road and Main Road of village are Bitumen Road.

4.4.4 Housing Condition:

- There are 360 households in the village. 65% households are kutcha and 35% are pucca.

4.4.5 Social Infrastructure Facilities:

4.4.5.1 Social infrastructure facility:

- Primary School, Panchayat Bhavan, Community Hall, Anganwadi, One overhead water tank, Underground Sump

4.4.5.2. Health Facility:

- There is 1 PHC available in Ambheta Village.

4.4.5.3 Education Facility:

- For Education Purpose Primary School and Anganwadi is available.

4.4.5.4. Community Hall:

- In Ambheta, community hall is available. But it is in Bad condition.

4.4.5.5. Public Library:

- There is no Availability of Public library in Ambheta.

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

- There is one public building in the village called gram panchayat building which is in center of the village. The village roads need a maintenance. There is no bus stop in the village.
- Primary school building is under Construction.

4.4.7. Technology Mobile / WIFI / Internet usage Details:

- Ambheta village is not a Wi-Fi village. Approximately only 30-40 % people use technology or mobile or internet.

4.4.8 Sport Activity as Gram Panchayat:

- There is no Any Sport Activity as Gram panchayat.

4.4.9 Socio-Cultural Facilities:

4.4.9.1 Public Garden:

- There is no playground, park and public garden in the Ambheta village.

4.4.9.2 Village Pond/Lake:

- There is one big pond between the village.

4.4.9.3 Other Recreation Facilities:

- In the village, none recreational facilities available like there is no cinema hall or theatre.

4.6 Existing Institution

4.6.1 Bachat Mandali:

- There is no Bachat Mandali available in Village.

4.6.2 Dudh Mandali:

- Farmers have Cows and Buffaloes they sell Milk in Small scale business.

4.6.3 Mahila Forum:

- Mahila Forum is available in Ambheta Village.

4.6.4 Plantation for the Air Pollution:

- In village, there are many plants and trees are planted. so, Ambheta village's Air is so Good.

4.6.6 Rain Water Harvesting:

- Villagers didn't have idea about Rain water harvesting. But recently, first rain water harvesting work is done in their school building.

Chapter 5: Sustainable Technical Options with Case Studies of the Existing Village

5.1 Concept (Civil)

5.1.1 Advance Sustainable construction techniques:

i. 3D printing.
ii. Materials.
iii. Building information modelling (BIM).
iv. Cladding systems.
v. Computer aided design and computer aided manufacturing (CAD/CAM).
vi. Computer numerical control.
vii. Construction plant.
viii. Modern methods of construction
ix. Modular construction
x. Smart technology
xi. Robotics
xii. GPS Controlled equipment

Cladding systems: - A cladding system is any family or group of products meant to serve as decorative or protective coverings for walls, roofs, ceilings, or floors of buildings. There are many different types of materials used in these systems including wood, concrete, steel, and a range of PVC and composite materials. These coverings do not form part of the load bearing structure of any building and are typically installed with surface fastening techniques only. Cladding systems may be installed during the initial construction of buildings or may be retrofitted to existing structures during refurbishments or repairs. The unique, cost-effective characteristics of these materials allow engineers and architects to use them in the core structure of a building.

Cladding installation is a special skill among roofers and roofing installation technicians.
The material used in cladding systems are formulated to enhance the visual appearance of a building while offering thermal and sound insulation in addition to protection against the elements. The use of these materials also prevents conditions such as ground water seepage from damaging the structure. Cladding systems are available in an extensive range of materials, textures, and colour schemes which cater to all building designs. Although they are typically used on the exterior, they are also available as interior finishes for walls floors and ceilings. Commonly used

cladding system materials include precast concrete, masonry, and ceramic products, timber, steel and alloys, plastics, and reinforced composites.

- In India wall, stone cladding starts per sq. Ft. 40- 4000rs, based upon varieties of tiles and whether it's manufacturing, depends on imported from other countries or made in India, stone tiles emporium is the best whole seller in Bangalore to get 40rs to 600rs per sq. Ft. The average coast is sq. Ft. 200rs.

5.1.2 Soil liquefaction

- Soil liquefaction occurs when a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress such as shaking during an earthquake or other sudden change in stress condition, in which material that is ordinarily a solid behaves like a liquid. In soil mechanics, the term "liquefied" was first used by Allen Hazen in reference to the 1918 failure of the Calavera's Dam in California. He described the mechanism of flow liquefaction of the embankment dam as:
- If the pressure of the water in the pores is great enough to carry all the load, it will have the effect of holding the particles apart and of producing a condition that is practically equivalent to that of quicksand… the initial movement of some part of the material might result in accumulating pressure, first on one point, and then on another, successively, as the early points of concentration were liquefied.

Fig. 5.1 Some effects of soil liquefaction

5.1.3 Sustainable Sanitation

- 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. The Sustainable Sanitation Alliance 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.

- 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.

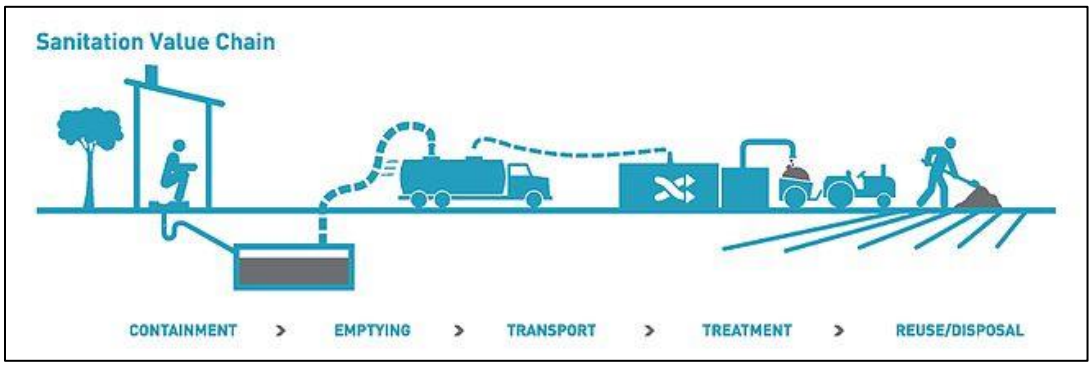


Fig.5.2 Sustainable Sanitation

5.1.4 Transport Infrastructure

Fig. 5.3 Transportation Infrastructure

- Transportation infrastructure are foundational structures and systems for transporting people and goods. The following are common types of transportation infrastructure.
  1. Roads: Roads such as Streets, avenues and highways. Includes paved roads, unpaved roads and roads with unique surfaces such as cobblestone.
  2. Railways: Railways including high speed rail, subways and elevated railways such as a cable car.
  3. Walkways: Path for walking such as sidewalks, trails and pedestrian zones.
  4. Bridges & Tunnels: Bridges and Tunnels for vehicles, trains and pedestrians.

5. Stations: Railway station and similar facilities such as bus station.
6. Airports: Airports & related services such as air traffic control.
7. Air Routs: The management of air routes and related services such as air traffic control, aeronautical metrology, air navigation systems, air navigation systems, air space management, air traffic flow and capacity management.
8. Waterways: Navigable waterways such as canal.
9. Ports: Harbors where Ships can dock and transfer people and/or Cargo. This may include passenger facilities known as seaports.
10. Cycling Infrastructure: Infrastructure of bicycles such as bicycle highways, bike paths and bike lanes.
11. Living Streets: Streets designed for multiple uses by restricting the speed of vehicles and giving pedestrians right of way. Living Streets are often designed for children, recreation and green spaces such as community Gardens.

5.1.5 Vertical Farming:

Fig.5.4 Vertical Farming System

- Vertical farming is the practice of growing crops in vertically stacked layers. It often incorporates controlled-environment agriculture, which aims to optimize plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics. Some common choices of structures to house vertical farming systems include buildings, shipping containers, tunnels, and abandoned mine shafts. As of 2020, there is the equivalent of about 30 ha (74 acres) of operational vertical farmland in the world. The modern concept

of vertical farming was proposed in 1999 by Dickson Despommier, professor of Public and Environmental Health at Columbia University. Despommier and his students came up with a design of a skyscraper farm that could feed 50,000 people. Although the design has not yet been built, it successfully popularized the idea of vertical farming. Current applications of vertical farming coupled with other state-of-the-art technologies, such as specialized LED lights, have resulted in over 10 times the crop yield than would receive through traditional farming methods.

- The main advantage of utilizing vertical farming technologies is the increased crop yield that comes with a smaller unit area of land requirement. The increased ability to cultivate a larger variety of crops at once because crops do not share the same plots of land while growing is another sought-after advantage. Additionally, crops are resistant to weather disruptions because of their placement indoors, meaning less crops lost to extreme or unexpected weather occurrences. Because of its limited land usage, vertical farming is less disruptive to the native plants and animals, leading to further conservation of the local flora and fauna.
- Vertical farming technologies face economic challenges with large start-up costs compared to traditional farms. In Victoria, Australia, a "hypothetical 10 level vertical farm" would cost over 850 times more per cubic meter of arable land than a traditional farm in rural Victoria. Vertical farms also face large energy demands due to the use of supplementary light like LEDs. Moreover, if non-renewable energy is used to meet these energy demands, vertical farms could produce more pollution than traditional farms or greenhouses.

5.1.6 Corrosion Mechanism, Prevention & Repair Measures of RCC Structure

Causes of Corrosion

- Following are the two most common contributing factors leading to reinforcement corrosion:
- Localized breakdown of the passive film on the steel by chloride ions called chloride attack. The general breakdown of passivity by neutralization of the concrete, predominantly by reaction with atmospheric carbon dioxide called carbonation.

Prevention

- **Cement and pozzolans:** the components of the concrete that determine the pH of the pore solution, the total porosity, and the pore-size distribution are of importance for the corrosion process. In general, mineral admixtures such as fly ash, slag, and silica fume reduce and refine the porosity. Concretes containing these minerals exhibit considerably enhanced resistance to penetration of chlorides from the environment. The binding capacity of cement for chloride ions has been considered to be directly related to the C3A content of the cement. This is because the chloride ions can react to form insoluble chloro aluminates. The chloride ions, however, cannot be totally removed from solution by chemical binding. An equilibrium is always established between the bound and the free

chloride ions, so that even with high C3A contents, there will always be some free chloride ions in solution.

- **Water-cementitious materials ratio:** the porosity and the rate of penetration of deleterious species are directly related to the water cementitious materials ratio (w/cm). For high-performance concretes, the ratio is generally less than 0.40 and can be as low as 0.30 with the use of suitable water-reducing admixtures.

Repair & Rehabilitation of Damaged RCC Structures

- To repair is defined as "to replace or refix parts, compensating for loss or exhaustion". One definition of the word rehabilitate is "to restore to proper condition".
- These definitions are worth bearing in mind. If we want to rehabilitate a structure, we want to restore it, not necessarily to its original condition, because if we do, it may fail again because of intrinsic flaws.
- We want to establish its "proper" condition that is, resistant to corrosion. In other words, to rehabilitate the structure we may need to improve it compared to its original condition. To repair is merely fixing the damage. This implies that deterioration may continue.
- Patch repairs are just what they say. They repair the damaged concrete. They will not stop future deterioration and may accelerate it. Cathodic protection and other electrochemical techniques can rehabilitate the structure.
- They mitigate the corrosion process across the whole treated areas. Coatings and barriers can also rehabilitate if applied well at the correct time.

5.1.7 Sewage Treatment Plant:

- Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge.
- Sewage treatment may also be referred to as wastewater treatment. However, the latter is a broader term that can also refer to industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant that has usually received pre-treatment at the factories to reduce the pollutant load. If the sewer system is a combined sewer, then it will also carry urban runoff (stormwater) to the sewage treatment plant.

Fig. 5.5 Sewage Treatment Plant

Chapter 6: Swatchh Bharat Abhiyan (Clean India)

6.1 Swatchhta needed in your village explaining Existing Situation with photograph

Fig.6.1 Swatchhta of Roads

- In Ambheta Village, there is no Door-to-Door waste collection facility. So villagers throw their garbage nearby place and burn it.
- At some places there is very clean roads and society.

6.2 Guidelines - implementation in allocated village with photograph

- While traveling doesn't throw any wrapper, paper or any dry waste on road.
- Keep it in your bag or pocket (as it is a dry waste you can keep them in your bag/pocket).
- Keep paper bags with yourself to store wet waste and throw them in dustbin only.
- Spitting on roads (as it can be the reason of viral disease).
- Avoid chewing Pan-Masala, Gutka and Tobacco.
- Avoid use of plastic bag.
- Follow government's rules and regulations.

6.3 Actual Activity Done by Students for making your village Clean with Photograph

Fig.6.2 Actual Activity Done by Students for Swatchhta

Chapter 7: Village condition due to Covid-19

7.1 Taken steps in allocated village – Existing Situation with Photograph

- In Ambheta village, there is less population and people of village maintain social distance.
- They clean their hands often.
- People who are ill they go to PHC and quarantine themselves at home.
- In village, all the steps for Covid-19 are taken in Panchayat office also.
- Steps like: Hand sanitizer, Face mask are also provided outside the Panchayat office and also maintain social distancing in office.

7.2 Activities Done by Students for allocated village with Photograph:

Fig 7.1 Activity done for Covid-19 Situation

7.3 Any Other Steps Taken by The Students/Villagers.

- In this Pandemic, Ration kits and Vegetables were distributed to the needy people by Gram Panchayat.

Chapter 8: Sustainable Design Planning Proposal (Prototype Design)- Part- I

8.1 Design Proposals

8.1.1 Design Proposal of Biogas plant (With the Plan, Section and Cost)

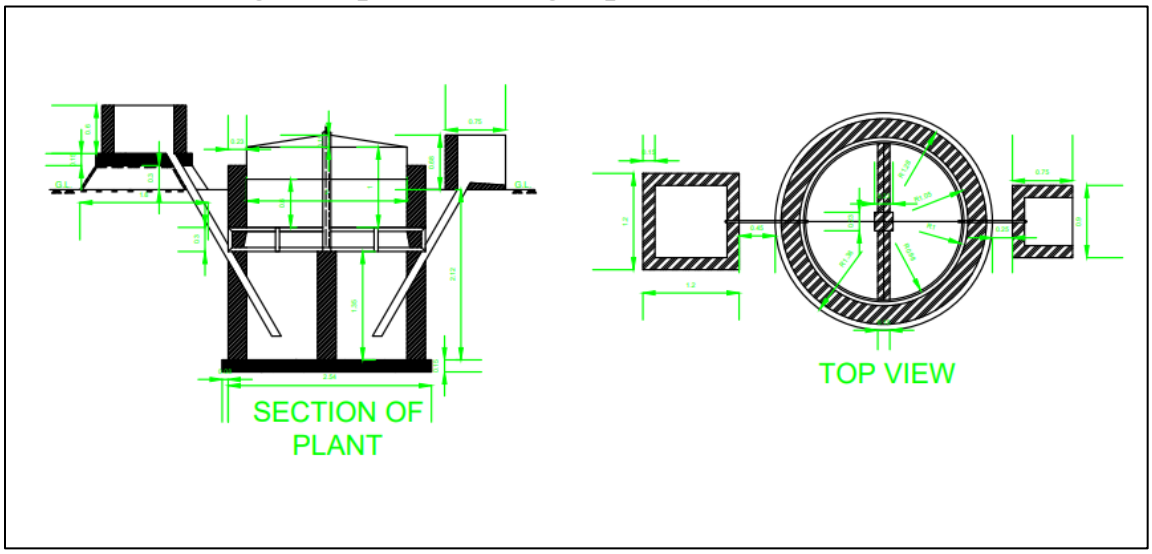


Fig.8.1 Biogas Plant

Approximate Costing of Biogas plant

Sr. No.	Item Description	Quantity	Rate	per	Estimated cost
1	Excavation	20.688	100	m3	2068.88
2	Concreting in foundation	2.02	3400	m3	6868
3	Masonry work	19.45	400	m3	7780
4	Iron top cap	157	90.95	kg	14279.15
5	Wooden shaft	0.012	550	cft	234.85
6	Pipe	2	984	nos.	1968
7	Earth filling	2.06	50	nos.	103
8	Water proofing	3.14	110	m2	345.4
9	Plastering	19.5	161	m3	3139.5
10	Painting cost	19.01	14	m2	2666.14
			TOTAL cost		39452.92
			10% Construction Profit		3945.29
			Estimated value		43398.21

Table 8.1 Approximate costing of Biogas plant

8.1.2 Design Proposal of Pond Development (With Plan)

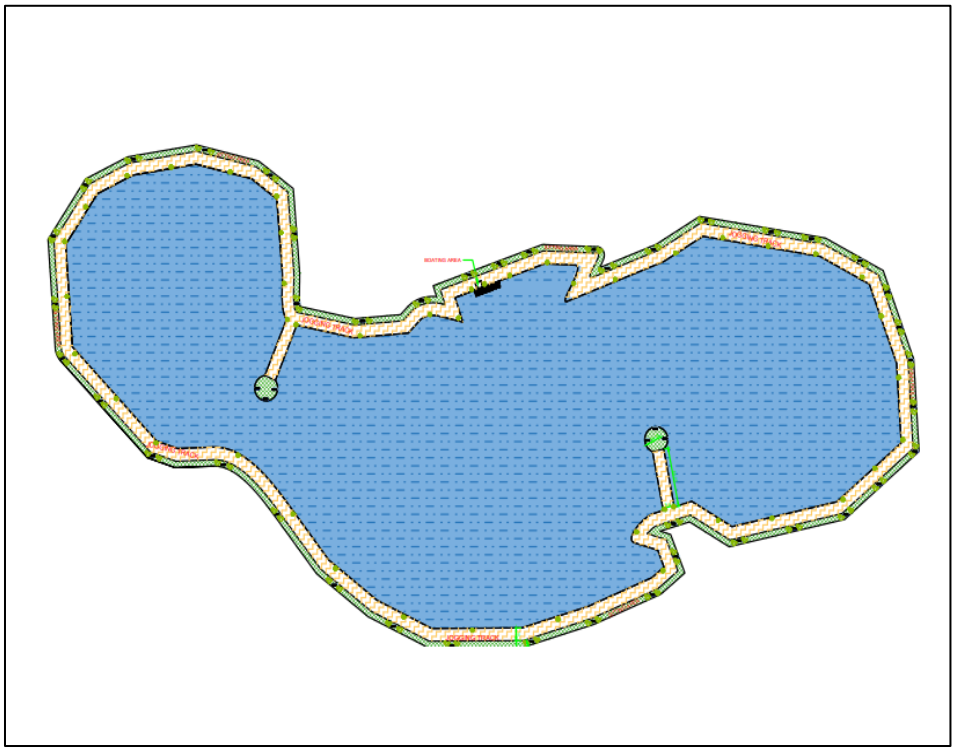


Fig. 8.2 Design Proposal of Pond Devlopment

Approximate cost of Pond Development

Sr. No.	Description of Item	Quantity	Rate	Per	Estimated cost
1	Excavation for boating room	165	120	m3	19800
2	Concreting for foundation in boat room	16.36	3400	m3	55624
3	Iron plates on water surface	96.64	125	m2	12080
4	Iron railing over boundary	987	485	m2	478695
5	Blocks path for jogging	9870	157.45	m2	1554031.5
6	Wooden benches	50	6990	piece	349500
7	Plantation over boundary	500	790	nos	395000
			total cost		2864730.5
		10%construction profit			286473.05
			Total estimated value		**3151203.55**

Table 8.2 Approximate Cost of Pond

8.1.3 Design Proposal of Public Library (With plan, Elevation, Section and Cost)

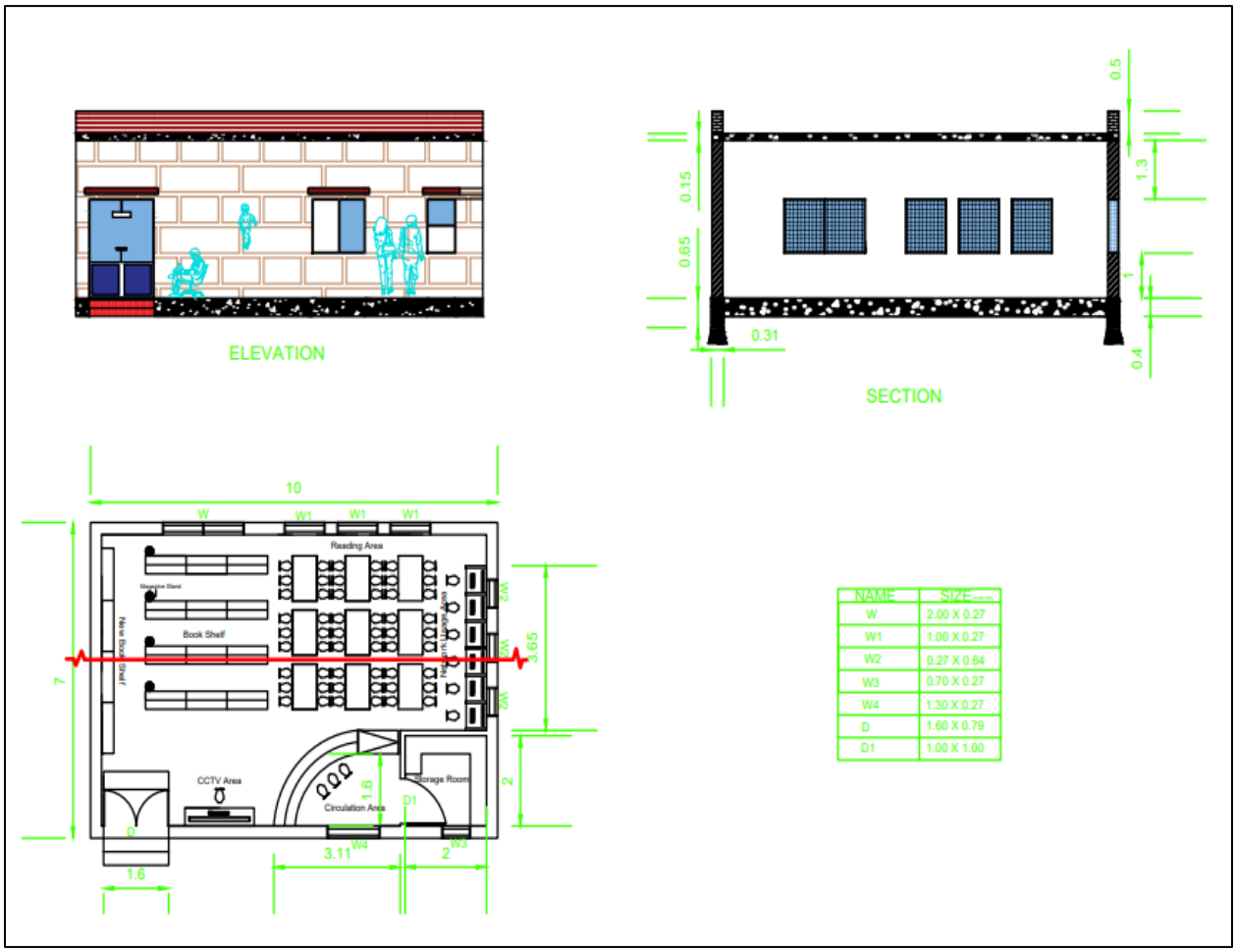


Fig 8.3 Design proposal of Public Library

Approximate Cost of Public Library

Sr. No.	Description of Item	Quantity	Rate	Per	Estimated value
1	Excavation for Foundation of Column	350	120	m3	42000
2	Concreting in Foundation	17.28	3400	m3	58752
3	Earth filling	9.96	40	m3	390
4	Super Structure Masonry work	4221.45	6	nos	25328.7
5	Plaster work	10	4100	m3	41000
6	Colouring	60	14		840

7	Paint bucket	35.7	2478	litre	88464
8	Computer	7	30000	piece	210000
9	Tables	9	6000	piece	54000
10	Chair	64	1600	piece	102400
11	Book shelf	4	28000	piece	112000
12	Main door	1	12000	piece	12000
13	Internal door	1	7000	piece	7000
14	Window panel with glass	8	9450	nos	75600
15	Wooden flooring	58.93	550	m2	32415
			Total cost		862190
		10% construction cost			86219
		Total value			**948409**

Table 8.3 Approximate Cost of Public Library

8.1.4 Design Proposal of Overhead Water Tank (With plan, Elevation, Section, Cost)

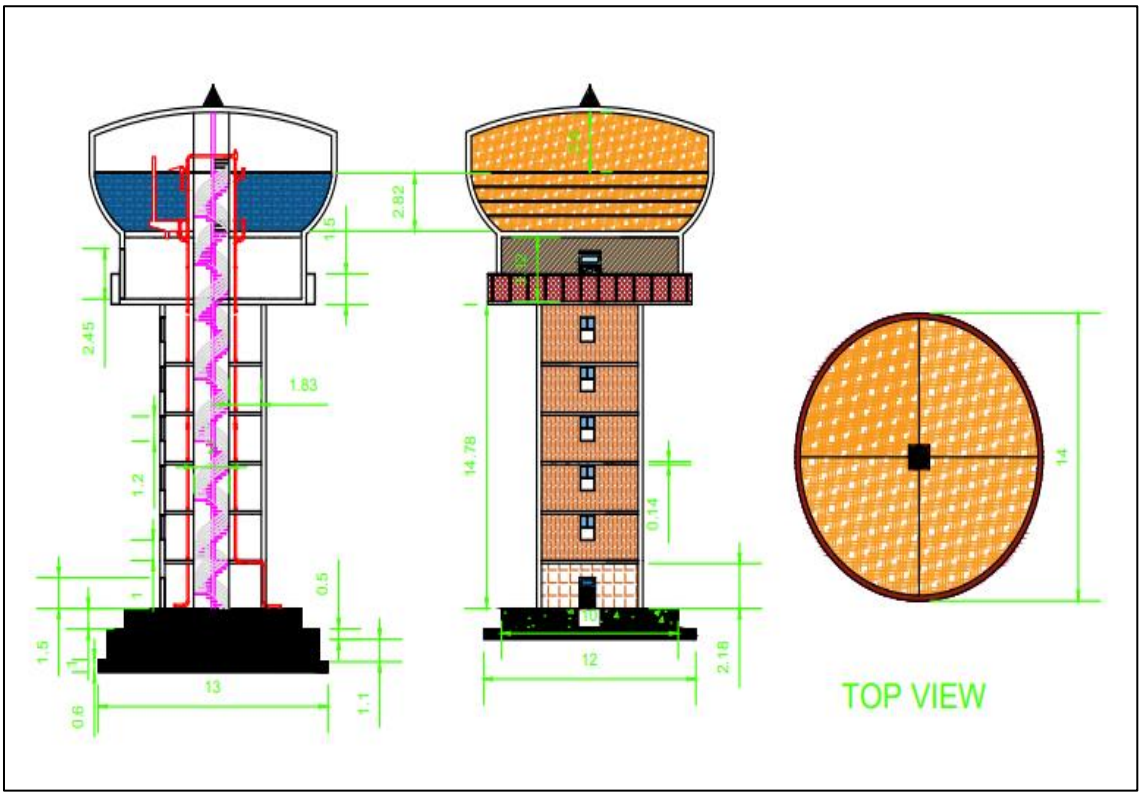


Fig 8.4 Design Proposal of Overhead Tank

Approximate Cost of Overhead Water tank

Sr. No.	Description of Item	Quantity	Rate	Per	Estimated value
1	Excavation for Foundation of Column	252	120	m3	30240
2	Concreting in Foundation	109.2	3400	m3	371280
3	Earth filling	140.8	40		5632
4	Super Structure Masonry work	21967.2	6		131803.2
5	Plaster work	45.93	4100		188313
6	Colouring	391	14	m2	5474
7	Paint bucket	113	2478	litter	280014
8	Slab work in each floor	16.45	150	m3	106747.5
9	Pipeline	26	566	m	14716
10	Window	10	13500	piece	135000
11	Water proofing	290	2700	m3	783000
12	Iron stairs in spiral shape	23.8	5500	m	130900
13	Main door	1	10000	piece	10000
14	Earth lightning antenna	1	3000	piece	3000
15	Tiles on each floor	450	150	box	67500
16	Automatic water pump	1	69757	piece	69757
17	Plumbing work	25	3000	m	75000
			Total cost		2006856.7
		10% construction cost			200685.67
		Estimated value			**2207542.37**

Table 8.4 Approximate Cost of Overhead Water Tank

8.1.5 Design proposal of Public Garden: (With Plan and Cost)

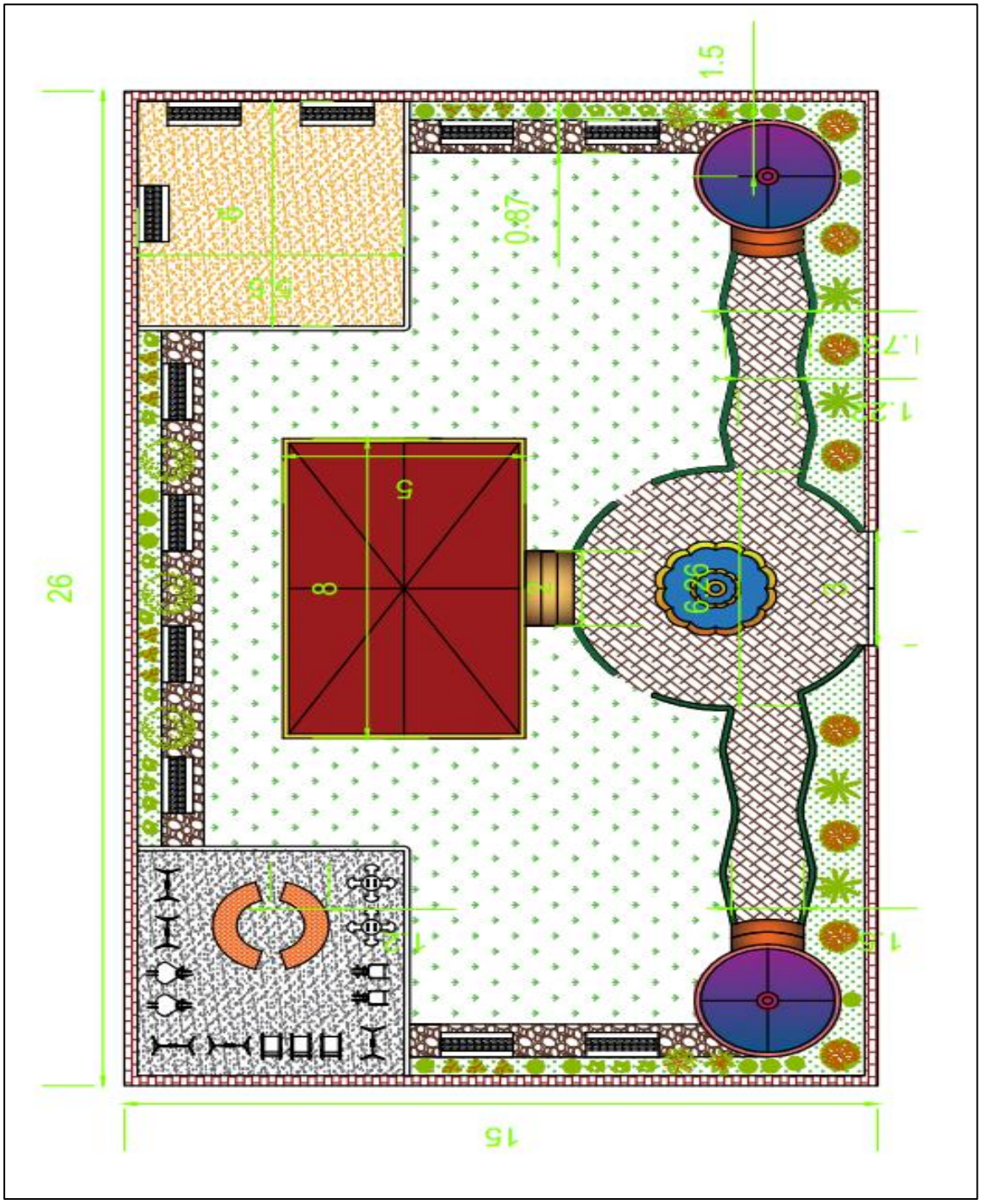


Fig 8.5 Design Proposal of Public Garden

Approximate Cost of Public Garden

Sr. No.	Description of Item	Quantity	Unit	Rate (Rs)	Per Unit	Estimated Value
1	Excavation for Foundation of Column	60.75	m^3	120	m^3	7,290
2	Concreting in Foundation	20.25	m^3	3400	m^3	68,850
3	Masonry in Foundation	30.89	m^3	1250	m^3	38,612.50
4	Earth Filling	9.61	m^3	40	m^3	384.4
5	Super Structure Masonry work	17,546	Nos.	6	No.	1,05,276
6	R.C.C Work	18	m^3	4100	m^3	1,33,218
7	Plaster work	295.2	m^3	193	m^3	56,973.60
8	Colouring	313.2	m3	14	m3	4,384.80
9	Block	13.2	m3	157.45	m3	2,078.43
10	Fountain	1	Nos.	10000	Nos.	10,000.00
11	Tree plantation	55	Nos.	50	Nos.	2750
12	Light pole with light	25	Nos.	5000	Nos.	125000
13	Slides & Swings	4	Nos.	7000	Nos.	28000
14	Benches	10	Nos.	4500	Nos.	45000
					TOTAL cost	627817.73
					10% Construction Profit	62781.77
					Estimated value	**6,90,599.50**

Table 8.5 Approximate Cost of Public Garden

8.1.6 Design Proposal of Public Toilet (With Plan, Elevation, Section, Cost)

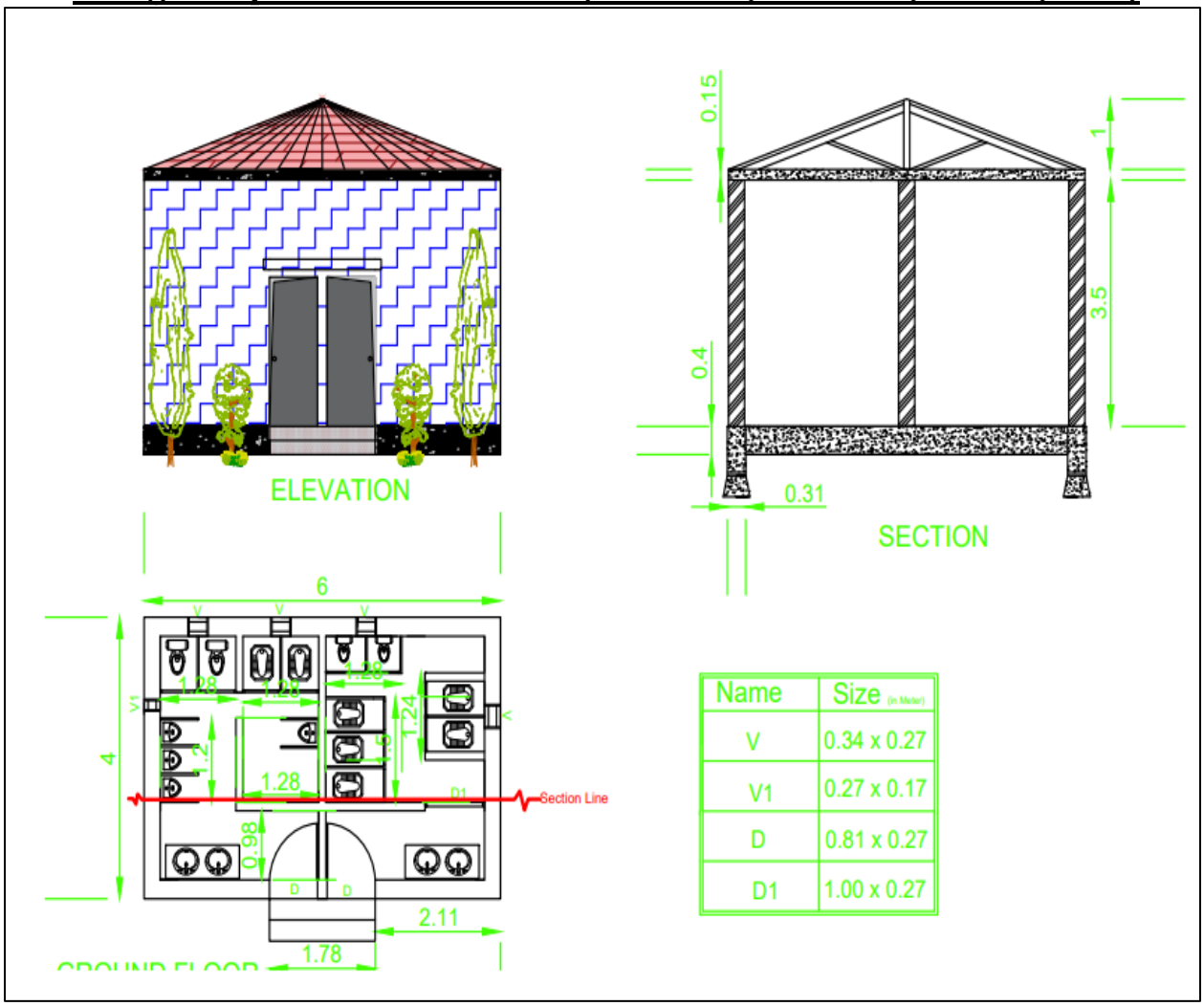


Fig. 8.6 Design Proposal of Public Toilet

Approximate Cost of Public Toilet

Sr. No.	Description of Item	Quantity	Rate	Per	Estimated cost
1	Excavation for Foundation of Column	216.32	120	m3	25958.4
2	Concreting in Foundation	17.28	3400	m3	58752
3	Earth Filling	9.96	40	m3	390
4	Super Structure Masonry work	2831	6	nos.	16986
5	Plaster work	6	4100	m3	24600
6	Colouring	130	14	m3	1820
7	paint bucket	27.1	2478	litre	67153

8	Tree plantation	6	150	nos.	900
9	sink	4	1899	m3	7596
10	Indian toilet	7	1350	m3	9450
11	western toilet	4	2222	m3	8888
12	gent's urinal	4	1600	m3	6400
13	main door	2	12000	piece	24000
14	toilet partition door	12	7000	piece	84000
15	tiles	10	150	box	1500
16	ventilator	5	15000	piece	75000
17	plumbing work	15	3000	toilet	45000
				Total cost	405513.4
			Construction cost 10%		40551.34
			Estimated value		446064.74

Table 8.6 Approximate Cost of Public Toilet

8.2 Reason for Student Recommending this design

- As by gap analysis done by as we found the requirement of proposed designs.
- The Solid Waste Management system of the village must be improved for the sake of the cleanliness and health of the people of village because there is no provision for disposal of solid waste generated. People through it out in open land areas.
- Recreational facilities can be provided like public garden, playground etc. for the recreational purpose because there are no such provisions made in the village.
- In this way we approach this design. Might be it can improve the economic and social level of village.

8.3 Benefit of Villagers

- There are two visions for providing Biogas plant, one is to provide as sustainable source to villagers and second is to reduce the pollution and disease occurred due to cow dung, and fertilizer waste.
- Vision of Public Toilet is to clean the roads and to maintain healthy life for villagers.

Chapter 9: Future Development of the Village (for PART-II Design)

- In Ambheta Village, By Gap analysis We have provide design of Overhead Water Tank, Public Toilet, Public Garden, Biogas Plant, Public Library and Pond Development. We can provide other facilities like Road, Bank ATM, Post office, Rain water harvesting system, General Market… etc.
- Also, we can give our efforts for literacy & better infra-structure for village to make ideal village.
- The study is aimed to know the basic scenario of village through techno economic survey and gap analysis done.
- Through our study we will try to make a master development plan of the village for future.
- Our master development plan might be including provisions of all the facilities suggest by us, then we focus on the improvement in the existing facilities. Our aim is to work according to new upcoming scheme in Ambheta.
- In next part we will design 6 design like .....
    1. Road
    2. Rain Water Harvesting
    3. Post Office
    4. Entrance Gate
    5. Public Market
    6. Bus Stand
- One this all-basic facilities is available in Ambheta Village, then we should focus on making the village smarter by adopting various technology.
- In new designs proposed by as, we should focus on regular maintenance of these facilities. Because due to lack of maintenance peoples will avoid to use and hence it become obsolete. For maintenance purpose we should provide a maintenance plan which is economical and effective. It can be done by villagers them self.
- In this way with coordination between various Government agencies, we can develop Ambheta village in better way as other smart village.
- Design is very useful for the future development.

Chapter 10: Conclusion

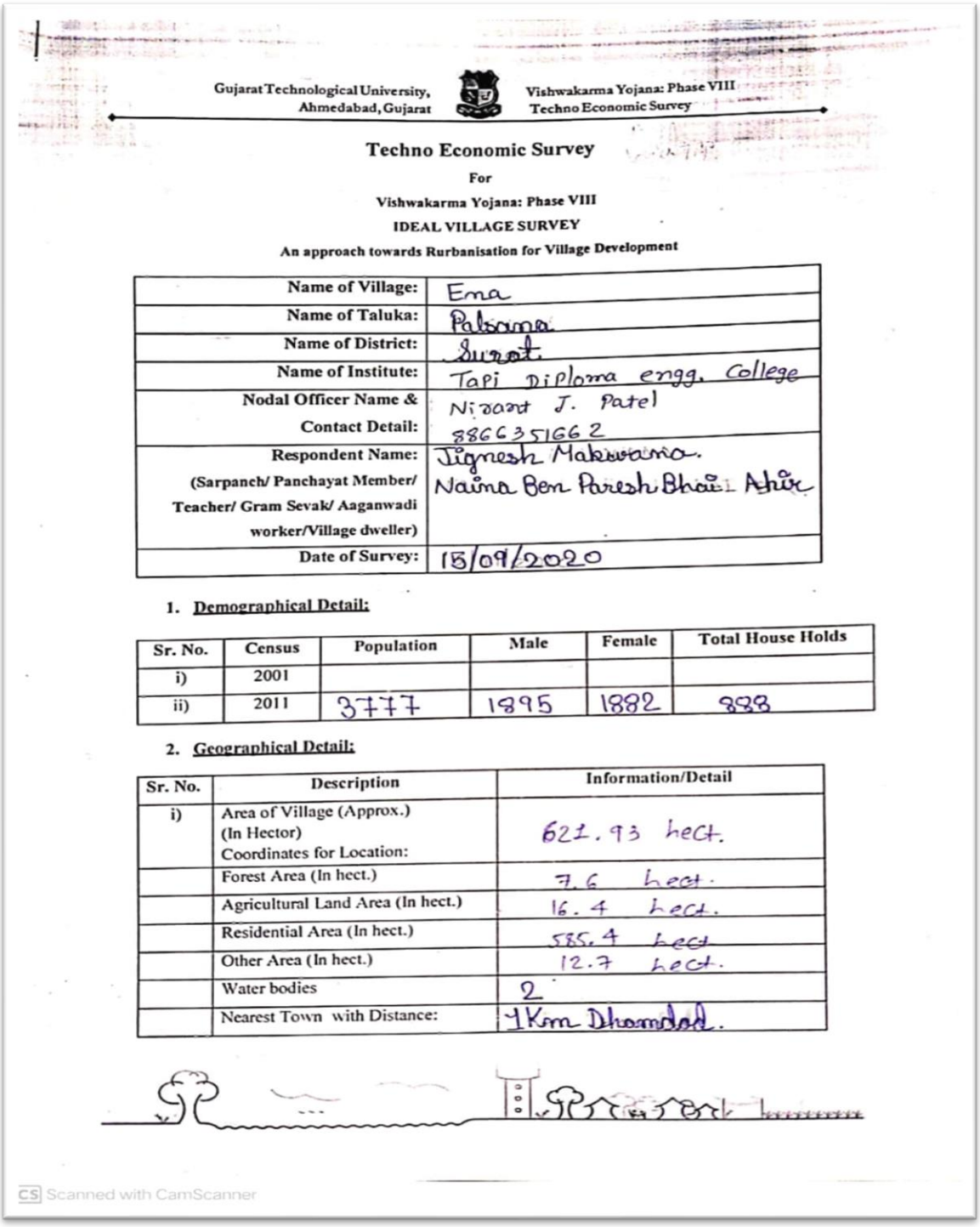
- After visiting of Ideal Village Ena and Smart Village Baben, we got the idea and scenario of a model village. Now a day scenario is totally changed and Indian villages are growing more. Smart Village concept is also introduced while cities are becoming smart. We can proudly say that we are part of it. Through Vishwakarma Yojana we connect with the rural development concepts.
- After carrying out physical survey and comparing the existing facilities of village with the basic amenities needed by a village based on population norms given by government of India and personal interface many of the villagers of Ambheta and meeting with sarpanch we finalize the remaining amenities required fulfil basic need of this village based on the priority requirement some of the facilities are designed and complete estimate is prepared.
- We have design public latrine block, Overhead water tank, Public Garden, Public Library, Biogas Plant. And we also make design of development of Lake.
- All designed are carried out the overall development of the village which over physical infrastructure facilities, social infrastructure and socio-cultural infrastructure facilities. A point is considered while designing all amenities.
- In Vishwakarma Phase-VIII, we selected Ena Village as an Ideal Village. It is 34 km away from Surat City. We visited Ena village. Roads of Ena village is Pucca and vehicle can pass easily. Panchayat building, Post Office, Public Health Center is in Good Condition. Gate, Bio Gas Plant is available. Streets and Roads are very clean in Ena Village. So, we decided to make design of Bio Gas Plant and Public Toilet to clean the village and to maintain healthy life of villagers.
- Then We selected Baben Village as Smart Village. Its Electricity condition is Good. And Pond is also developed. Sewage system is also good in Baben Village. It is 40 km away from Surat City.
- Allocated Village: Ambheta
- It is 15 km away from Surat City. We Visited Ambheta Village, there we see Situations of buildings, roads, school, lake.
- Then we met Sarpanch Mahadev Bhai Rathod and Talati Nitesh Bhai. We explained whole project and we take permission for survey.
- We also ask them what they need in their Village.
- And during surveying we also ask that to the Villagers. They told us about what they need in the village.
- Village was not that good at cleaning. so, we explain villagers about Swatchh Bharat Abhiyan and cleanliness is also good for their and animals' health. So, we clean some of area and some of villagers also help us.

Chapter 11: References

1. Census department, Ministry of Home Affairs, Govt. of India, www.censusindia.gov.in
2. UDPFI Guidelines, Ministry of Urban Development
3. Rural development scheme of Govt. of Gujarat
4. https://www.wikipedia.org/
5. www.rural.nic.in
6. www.sagy.gov.in
7. www.swaniti.in
8. https://panchayat.gujarat.gov.in
9. www.niug.org
10. www.unohabitat.org
11. www.giftgujarat.in
12. UDA (Surat Urban Development authority)
13. https://moud.gov.in
14. www.gujarattourism.in
15. www.cag.gov.in
16. MPCB (Maharashtra Pollution Control Board)
17. GPCB (Gujarat Pollution Control Board)
18. www.gujaratgov.in
19. www.solarsystem.nasan.gov
20. www.mdws.nic.in
21. Biogas book by LUDWIG SASSE (online).
22. SOR of R & B department of Ahmedabad.
23. Rate from market survey done in Surat region.

Chapter 12: Annexure

12.1 Scanned copy of Ideal Village Survey Form (Ena Village)



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For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Ena
Name of Taluka:	Palsana
Name of District:	Surat.
Name of Institute:	Tapi Diploma engg. College
Nodal Officer Name & Contact Detail:	Nirzart J. Patel 8866351662
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Jignesh Makwana. Naina Ben Paresh Bhai Ahir
Date of Survey:	15/09/2020

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001				
ii)	2011	3777	1895	1882	888

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	621.93 hect.
	Forest Area (In hect.)	7.6 hect.
	Agricultural Land Area (In hect.)	16.4 hect.
	Residential Area (In hect.)	585.4 hect
	Other Area (In hect.)	12.7 hect.
	Water bodies	2
	Nearest Town with Distance:	4 Km Dhamdod.

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3. Occupational Details:

Name of Three Major Occupation groups in Village	1. Agricultural Work 2. Workers or Employes 3. Hardware A

4. Physical Infrastructure Facilities:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated)	Tap water	✓		Treated
	• RO Water		✓		
	• Well (Covered/ Uncovered)	well			Uncovered
	• Hand pumps		✓		
	• Tube well/ Borehole	Tube well	✓		
	• River/ Canal/ Spring/ Lake/ Pond	Canal	✓		
	Suggestions if any:				
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	✓		50,000 Litre
	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	Pucca	✓		
	Whether drain water is discharged directly in to Water bodies/ Sewer plants				
	Suggestions if any:				

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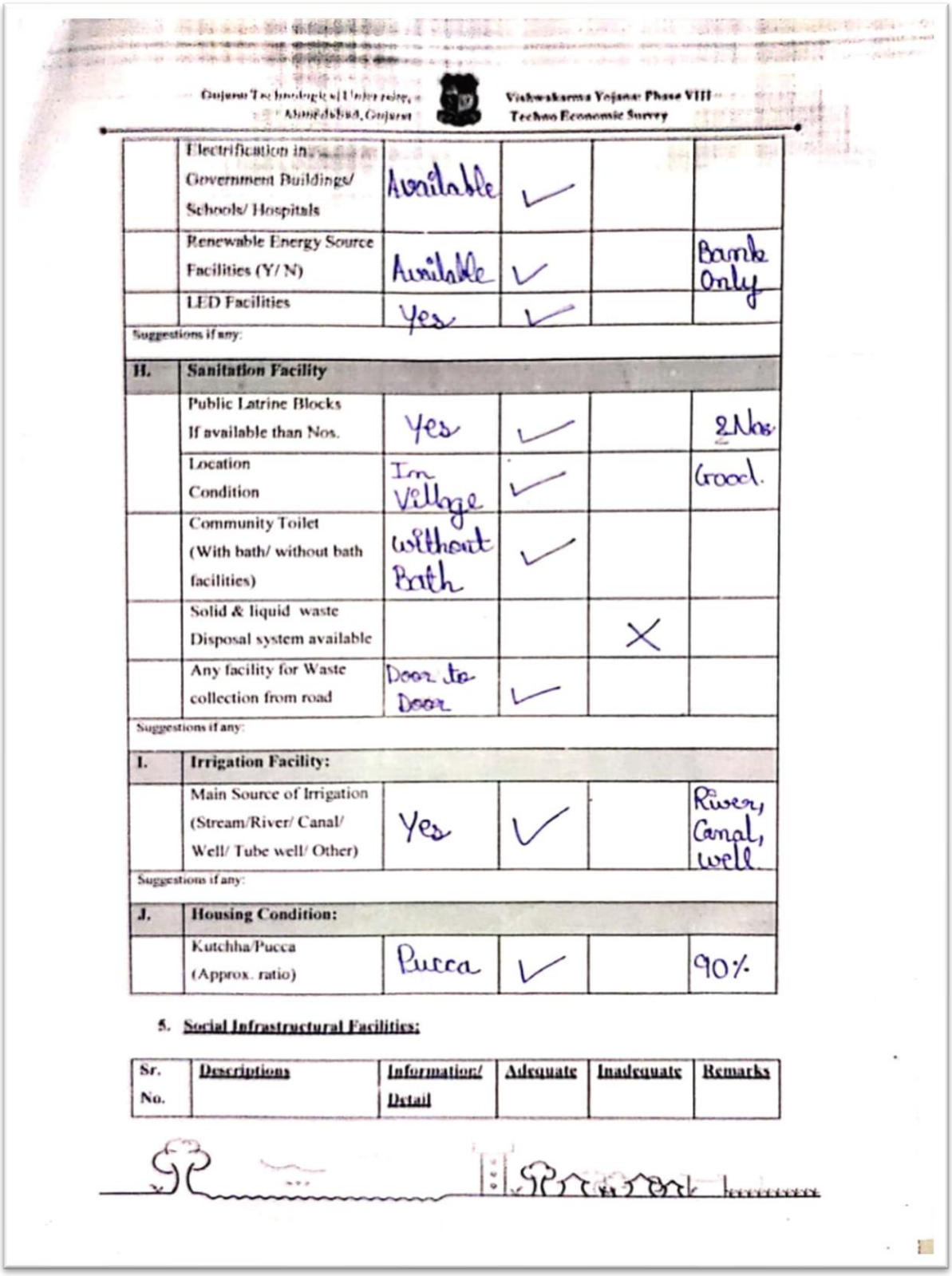
E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Bituminem	✓		Pacca
	Main road	R.C.C.	✓		Pacca
	Internal streets	R.C.C.	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH SH	✓		NH=5KM SH=Village
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No			5KM Gangadhara
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	No			Near 9KM Bardoli
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Yes			Auto, Jeep, Private Vechile set
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes	✓		DGVCL 24Hrs
	Power supply for Domestic Use	Yes	✓		24Hrs
	Power supply for Agricultural Use	Yes	✓		8Hrs
	Power supply for Commercial Use	Yes	✓		24Hrs
	Road/ Street Lights	Yes.	✓		



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	Electrification in Government Buildings/ Schools/ Hospitals	Available	✓		
	Renewable Energy Source Facilities (Y/ N)	Available	✓		Bank Only
	LED Facilities	Yes	✓		
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	✓		2 Nos
	Location Condition	In Village	✓		Good.
	Community Toilet (With bath/ without bath facilities)	Without Bath	✓		
	Solid & liquid waste Disposal system available			X	
	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)	Yes	✓		River, Canal, well
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca	✓		90%

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks

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K.	Health Facilities:				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	PHC Good	✓		2 Nos Bed.
	Private Clinic/Private Hospital/ Nursing Home	Private clinic	✓		4 Nos
	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			X	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities			X	
	If any of the above Facility is not available in village than approx. distance from village: ...7...kms.				
Suggestions if any:					

M.	Socio- Culture Facilities				
	Community Hall (With or without TV) Location:	Available without TV in the Village	✓		Good.

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	Condition:	Working	✓		
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	Available in School Panchayat	✓		No Suffici for Newspa
	Public Garden Location: Condition:			X	
	Village Pond Location: Condition:	1 Pond. Good.	✓		
	Recreation Center Location: Condition:	No		X	
	Cinema/ Video Hall Location: Condition:	No		X	
	Assembly Polling Station Location: Condition:	School. Good.	✓		
	Birth & Death Registration Office Location: Condition:	Yes Gram Panchayat	✓		

If any of the above Facility is not available in village than approx. distance from village: .....kms. Cinema Hall = 9KM, Recreation Center = 10KM

Suggestions if any:

N.	Other Facilities				
	Post-office	Yes	✓		
	Telecommunication Network/ STD booth	Yes	✓		

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	General Market	Available	✓		
	Shops (Public Distribution System)	Available	✓		
	Panchayat Building	Yes	✓		
	Pharmacy/Medical Shop	Yes	✓		
	Bank & ATM Facility	Yes	✓		3
	Agriculture Co-operative Society	Yes	✓		
	Milk Co-operative Soc.	Yes	✓		
	Small Scale Industries	Hardware Accessories	✓		
	Internet Cafes/ Common Service Center/Wi Fi		✗		Should be Developed
	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	Private Solar Panel for houses.	✓		
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	Solar Street Light	✓		
Q.	Any Other			✗	

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	Soft Copy Available

Recent Projects going on for Development of Village	Road Workers, Sanskrutik Hall
Any NGO working for village development	Yes, Government Help uso

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)	—	
2.	Additional Information/ Requirement	—	

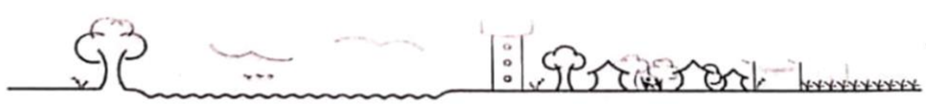
9. Smart Village Proposal Design

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	No Design Proposed		

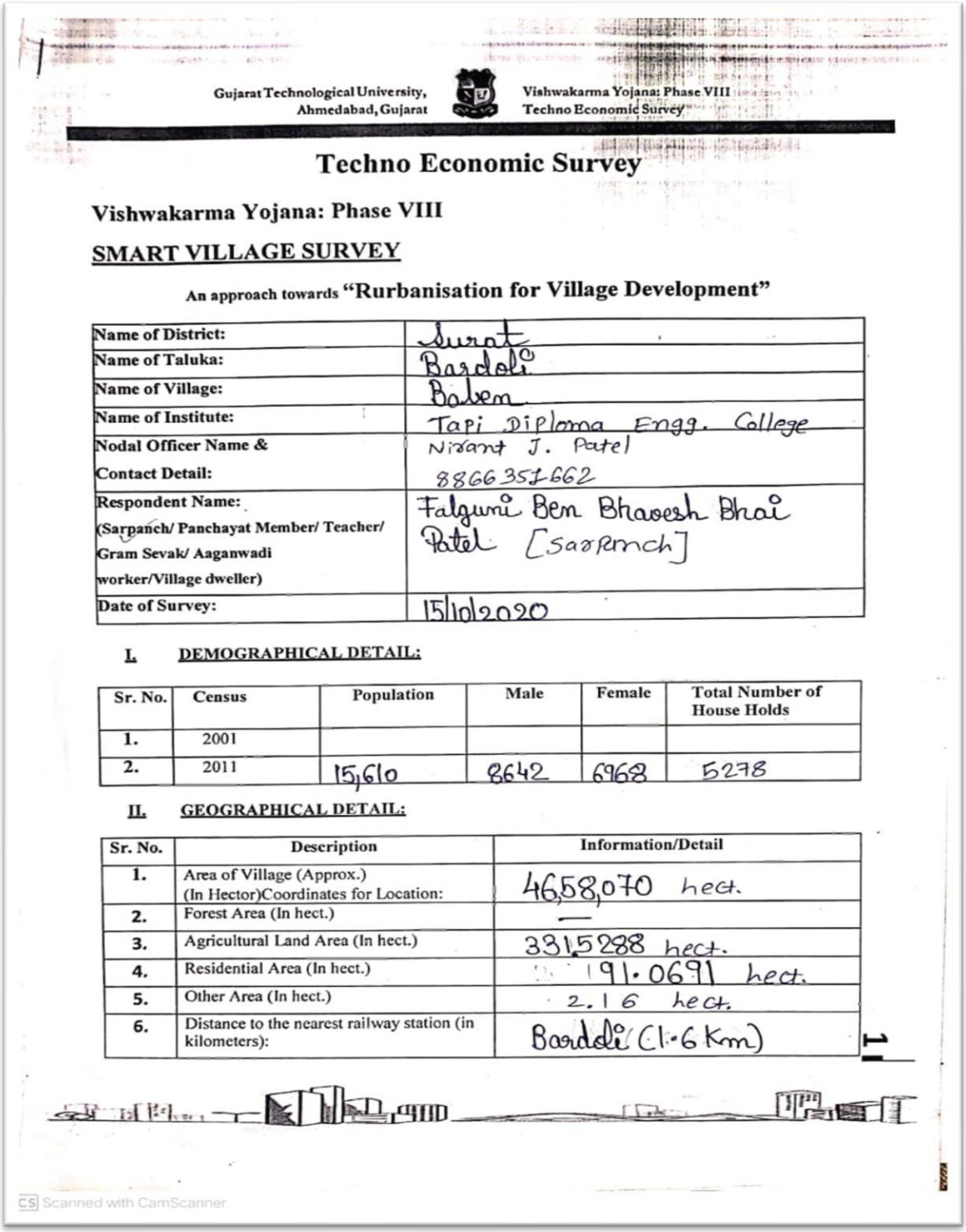
Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

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

સરપંચ
એના-ગોટીયા ગૃપ ગ્રામ પંચાયત
તા. પલસાણા, જિ. સુરત



12.2 Scanned copy Smart Village Survey details (Baben Village)



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Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Surat
Name of Taluka:	Bardoli
Name of Village:	Baben
Name of Institute:	Tapi Diploma Engg. College
Nodal Officer Name & Contact Detail:	Nirant J. Patel 8866351662
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Falguni Ben Bhavesh Bhai Patel [Sarpanch]
Date of Survey:	15/10/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	15,610	8642	6968	5278

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	46,58,070 hect.
2.	Forest Area (In hect.)	—
3.	Agricultural Land Area (In hect.)	331.5288 hect.
4.	Residential Area (In hect.)	191.0691 hect.
5.	Other Area (In hect.)	2.16 hect.
6.	Distance to the nearest railway station (in kilometers):	Bardoli (1.6 Km)

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7.	Name of Nearest Town with Distance:	Bardoli
8.	Distance to the nearest bus station (in kilometers):	Bardoli (1 Km)
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.	Sugar Factory
	2.	Agricultural
	3.	Building Construction Work
Major crops grown in the village:	1.	Sugar Cane
	2.	
	3.	Vegetables

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	Bore well Public Tap	✓		
2.	**DUG WELL** Protected Well Un Protected Well		—		
3.	**WATER FROM SPRING** Protected Spring Unprotected Spring Rainwater Tanker Truck Cart With Small Tank	Rainwater	✓		
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel Bottled Water Hand Pump Other(Specify)**Lake/ Pond**	From Mindora River	✓		

21

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Vishwakarma Yojana: Phase VIII
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Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:			1,00,000
	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	In Good Condition	✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Bitumen	✓		
	Main road	Bitumen	✓		
	Internal streets	R.C.C.	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH48			(3Km From Village)
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No		X	Bardoli 1.6 KM
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	No		X	Bardoli 4KM
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto, Jeep, Private Vehicle etc.	✓		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	DGVCL Govt	✓		24 Hrs

3

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Vishwakarma Yojana: Phase VIII
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	Power supply for Domestic Use	24 Hrs	✓		
	Power supply for Agricultural Use	8 Hrs	✓		
	Power supply for Commercial Use	24 Hrs	✓		
	Road/ Street Lights	10 Hrs	✓		LED, Solar Pannel
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	Yes	✓		Solar Pannel.
	LED Facilities	Yes	✓		

Suggestions if any:

G.	Sanitation Facility				
	Public Latrine Blocks If available than Nos.	8 Nos in Village	✓		
	Location Condition	Working			
	Community Toilet (With bath/ without bath facilities)	8 Nos without Bath Facilities	✓		
	Solid & liquid waste Disposal system available	Dumping	✓		
	Any facility for Waste collection from road		✓		Door to Door collection

Suggestions if any:

H.	Main Source of Irrigation Facility:				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	Main source of Irrigation is Canal other is Boring	✓		

Suggestions if any:

I.	Housing Condition:				
	Kutchha/Pucca (Approx. ratio)	All most Pucca.			Kutchha = 2%, Pucca = 98 %

4

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	7	✓		
	Sub-Centre	2	✓		
	PHC	Umrakh	✓		
	BLOCK PHC	Bardoli	✓		
	CHC/RH	—	X		
	District/ Govt. Hospital		X		Bardoli
	Govt. Dispensary	Bardoli	✓		1 KM
	Private Clinic	26	✓✓		
	Private Hospital/ Nursing Home	—	X		
	AYUSH Health Facility	—	X		
	sonography /ultrasound facility	—	X		Bardoli- 1KM
	If any of the above Facility is not available in village than approx. distance from village: 2 ...kms. Bardoli				
	Suggestions if any:				
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Available	✓		
	Primary School	Available	✓		1-Govt, 2 Private
	Secondary school	No		X	2-Private Trust
	Higher sec. School	No		X	11
	ITI college/ vocational Training Center	No		X	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Art, Commerce, Science, Medical, other college	✓		
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

5

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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:

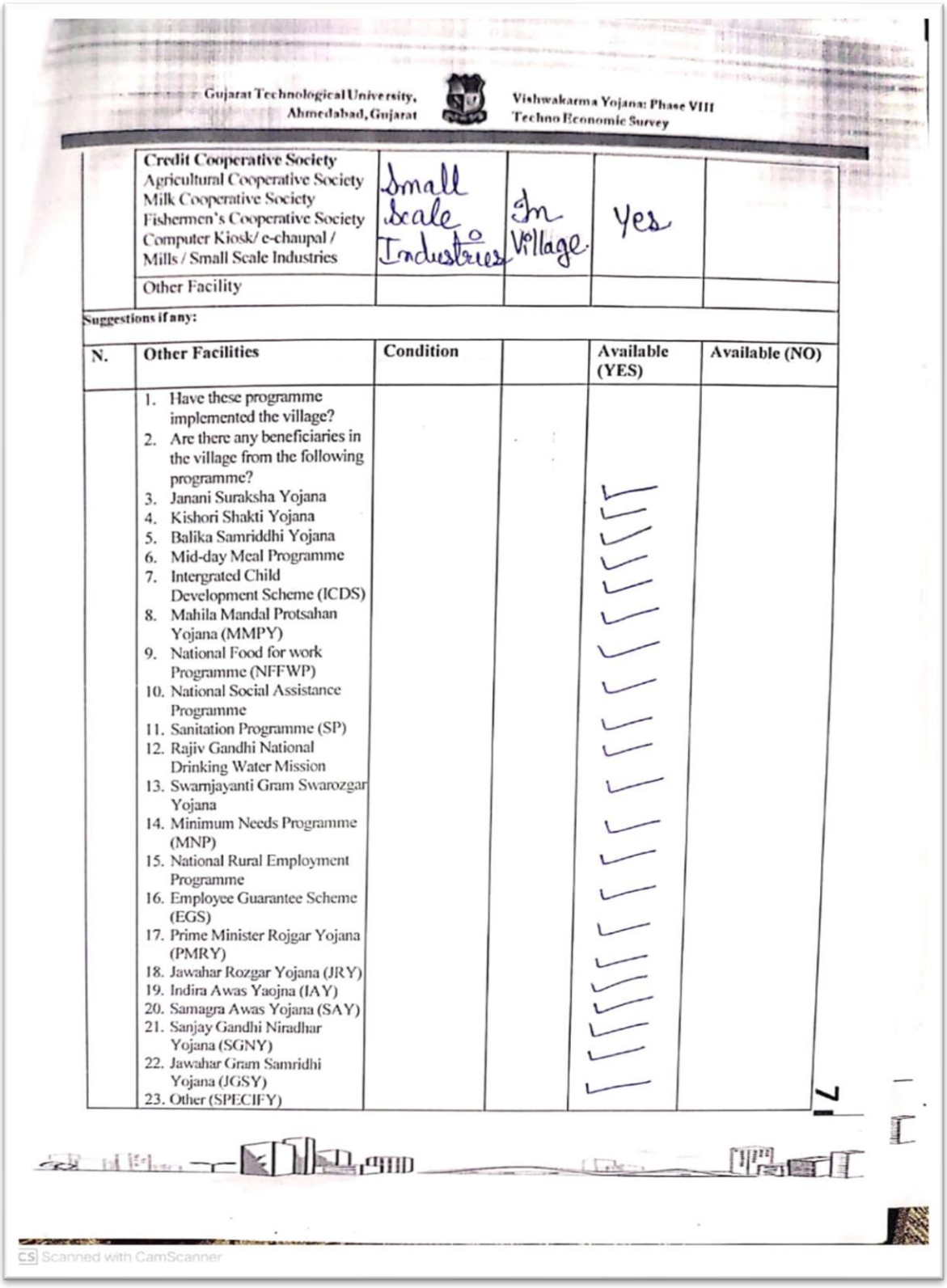
L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	Working	Good	✓	
	Public Library (With daily newspaper supply: Y/N)			X	
	Public Garden			✓	2
	Village Pond			✓	1
	Recreation Center			✓	1
	Cinema/ Video Hall			✓	1
	Assembly Polling Station	Working	School	✓	
	Birth & Death Registration	Working	Panchayat	✓	

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	Working	Middle	Yes	
	Telecommunication Network/ STD booth				No
	General Market			Yes	
	Shops (Public Distribution System)		In Village	✓	
	Panchayat Building	Working	In Village	✓	
	Pharmacy/Medical Shop		In Village	✓	3
	Bank & ATM Facility		In Village	✓	3
	Agriculture Co-operative Society			✓	2
	Milk Co-operative Soc.	Working	In Village	—	
	Small Scale Industries			✓	6
	Internet Cafes/ Common Service Center/Wi Fi			✓	
	Youth Club				X
	Mahila Mandal			✓	

19



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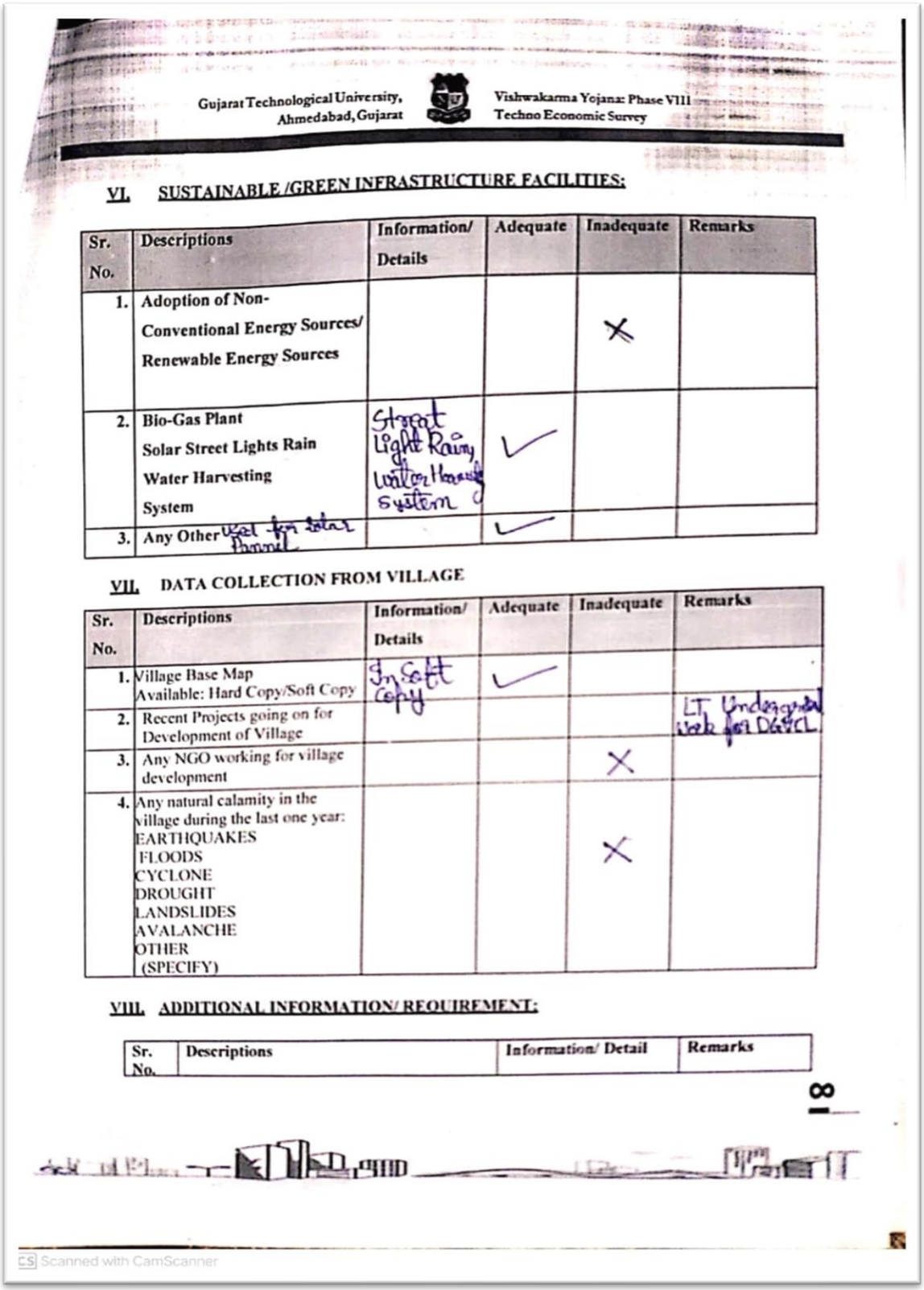
	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	Small Scale Industries	In Village.	Yes	
	Other Facility				

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 4. Kishori Shakti Yojana 5. Balika Samriddhi Yojana 6. Mid-day Meal Programme 7. Intergrated Child Development Scheme (ICDS) 8. Mahila Mandal Protsahan Yojana (MMPY) 9. National Food for work Programme (NFFWP) 10. National Social Assistance Programme 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)			✓	



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Techno Economic Survey

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

8

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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	X	
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?	Every day / water also drawing 2.5 months	

IX. Smart Village / Heritage Details

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

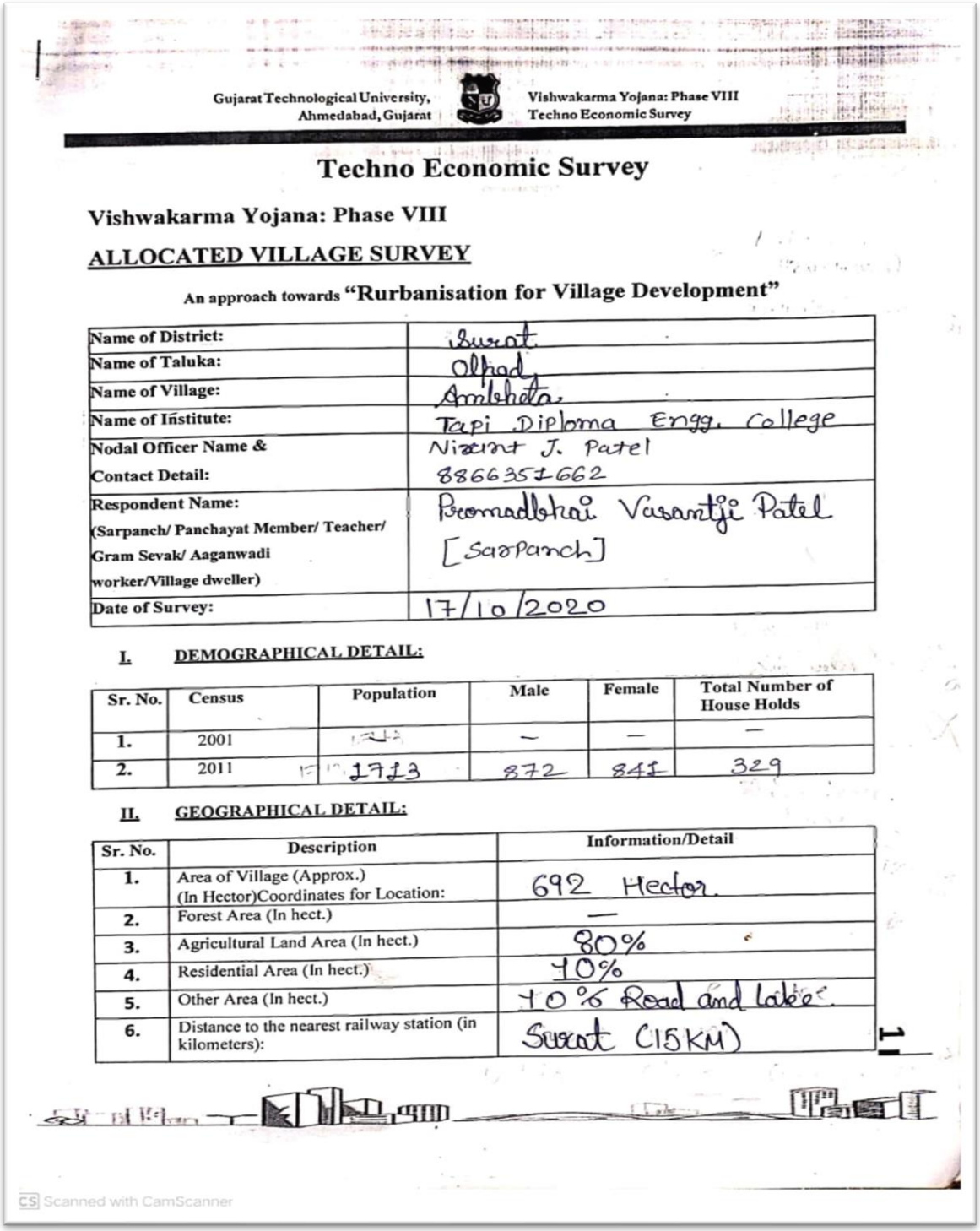
Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

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

T. B Patel
સરપંચ
ગ્રામ પંચાયત આંભેટા
તા. બારડોલી, જી. સુરત.

16

12.3 Scanned copy of allocated village Techno-Economic Survey Form (Ambheta village)



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Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

Name of District:	Surat
Name of Taluka:	Olpad
Name of Village:	Ambheta.
Name of Institute:	Tapi Diploma Engg. College
Nodal Officer Name & Contact Detail:	Nishant J. Patel 8866351662
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Premadbhai Vasantji Patel [Sarpanch]
Date of Survey:	17/10/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	[illegible]	–	–	–
2.	2011	1713	872	841	329

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	692 Hector.
2.	Forest Area (In hect.)	–
3.	Agricultural Land Area (In hect.)	80%
4.	Residential Area (In hect.)	10%
5.	Other Area (In hect.)	10% Road and Lake.
6.	Distance to the nearest railway station (in kilometers):	Surat (15KM)

1

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Techno Economic Survey

7.	Name of Nearest Town with Distance:	Kumkami (1.5 KM)
8.	Distance to the nearest bus station (in kilometers):	1 KM
9.	Whether village is connected to all road for the any facility or town or City?	✓

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Agricultural
	2.	Job
	3.	

Major crops grown in the village:	1.	
	2.	Sugar cane.
	3.	

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	Water (Ukai dam)	✓		
2.	**DUG WELL**				
	Protected Well	Dug well	✓		
	Un Protected Well				Un Protected well
3.	**WATER FROM SPRING**				
	Protected Spring				
	Unprotected Spring				
	Rainwater	Rainwater	✓		
	Tanker Truck				
	Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/**	DAM	✓		
		CANAL	✓		
	Irrigation Channel	Irrigation channel	✓		
	Bottled Water				
	Hand Pump	Hand Pump	✓		

13

21

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	Other(Specify)Lake/ Pond	Lake	✓		

Suggestions if any:

B.	Water Tank Facility				
	Overhead Tank	Capacity:			20000 litre
	Underground Sump	Capacity:			30000 litre

Suggestions if any:

C.	The Type of Drainage Facility				
	A. UNDERGROUND DRAINAGE 1	Open	✓		

Suggestions if any:

D.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road	Kaccha			
	Main road	Kachal Para.			
	Internal streets	RCC(Block)			
	Nearest NH/SH/MDR/ODR Dist. in kms.	SH			1KM From Village.

Suggestions if any:

E.	Transport Facility				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes	✓		15KM Surat.
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes.	✓		15KM Surat.
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto, Jeep, Private Vehicle (Other) Tractor			

Suggestions if any:

F.	Electricity Distribution				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	DGVCL Govt.			24 hrs

3

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Techno Economic Survey

	Power supply for Domestic Use		✓		
	Power supply for Agricultural Use	8 Hrs to 10 Hrs	✓		
	Power supply for Commercial Use		✓		
	Road/ Street Lights	10 Hrs	✓		
	Electrification in Government Buildings/ Schools/ Hospitals		✓		
	Renewable Energy Source Facilities (Y/N)		✓		Private
	LED Facilities		X		

Suggestions if any:

G.	Sanitation Facility				
	Public Latrine Blocks If available than Nos.		X		
	Location Condition				
	Community Toilet (With bath/ without bath facilities)		X		
	Solid & liquid waste Disposal system available		X		
	Any facility for Waste collection from road		X		

Suggestions if any:

H.	Main Source of Irrigation Facility:				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	Main sources of Irrigation is Pond, Canal, well Rainwater	✓		Ukai of Tapi Yojana

Suggestions if any:

I.	Housing Condition:				
	Kutchha/Pucca (Approx. ratio)	Allmost Kutchha			Total 360 House as per (2020)

4

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)		✓		1
	Sub-Centre	—	X		
	PHC	—	X		
	BLOCK PHC	—	X		
	CHC/RH	—	X		
	District/ Govt. Hospital	—	X		
	Govt. Dispensary	—	X		
	Private Clinic		✓	—	1
	Private Hospital/	—	X		
	Nursing Home	—	X		
	AYUSH Health Facility		✓	—	1
	sonography /ultrasound facility	—	X		
	If any of the above Facility is not available in village than approx. distance from village: ..6.....kms.				
	Suggestions if any:				
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Available	✓		1
	Primary School	Available	✓		1
	Secondary school	No	X		
	Higher sec. School	No	X		
	ITI college/ vocational Training Center	No	X		
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No	X		

51

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Techno Economic Survey

If any of the above Facility is not available in village than approx. distance from village: ..7.....kms.

Suggestions if any:

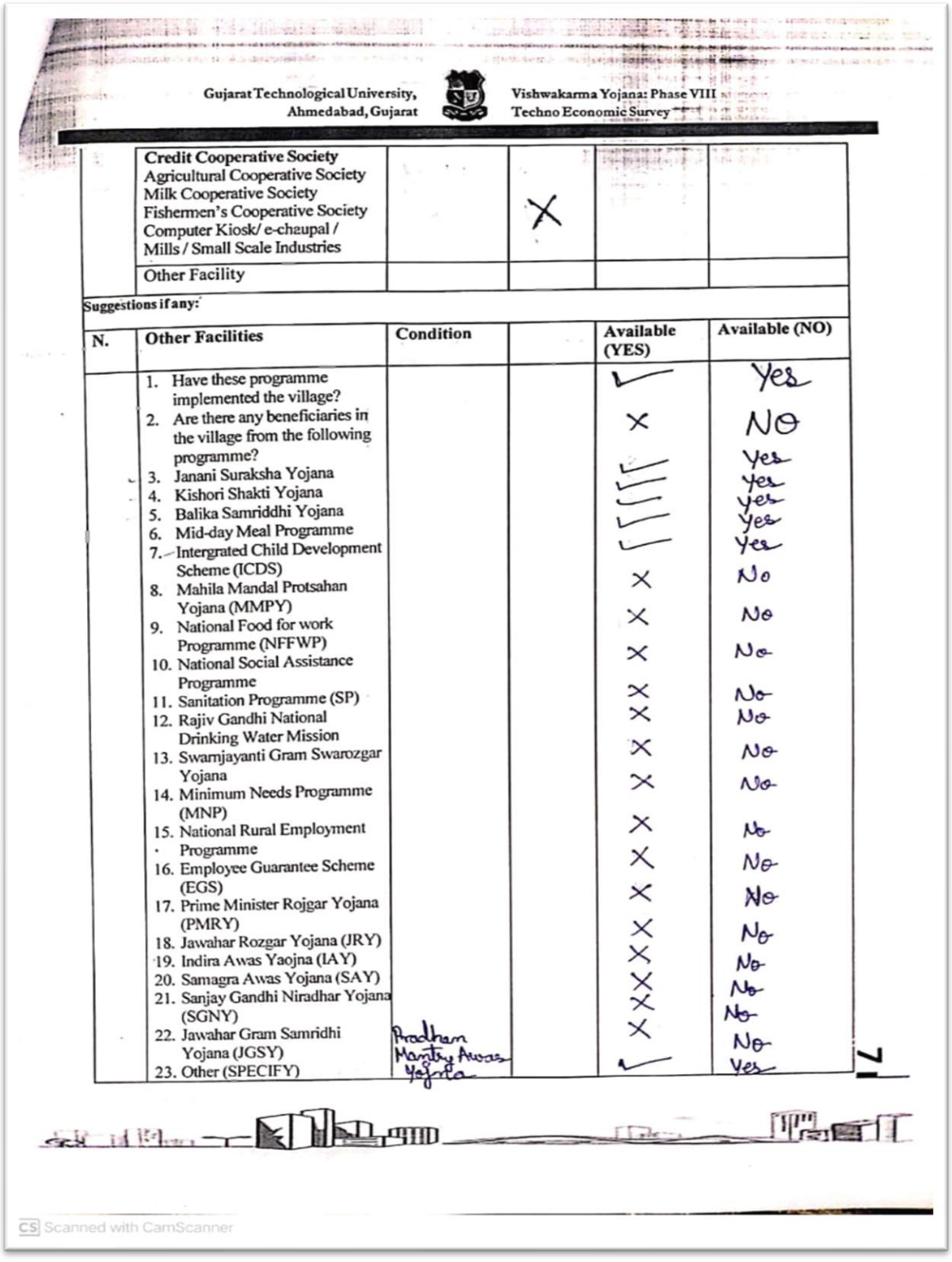
L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	Bad Condition		✓	
	Public Library (With daily newspaper supply: Y/N)			X	
	Public Garden			X	
	Village Pond			✓	
	Recreation Center			X	
	Cinema/ Video Hall			X	
	Assembly Polling Station	Good Condition		✓	
	Birth & Death Registration Office			✓	

If any of the above Facility is not available in village than approx. distance from village: .10...kms.

Suggestions if any:

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

19



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	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries		X		
	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?			X	NO
	3. Janani Suraksha Yojana			✓	Yes
	4. Kishori Shakti Yojana			✓	Yes
	5. Balika Samriddhi Yojana			✓	Yes
	6. Mid-day Meal Programme			✓	Yes
	7. Intergrated Child Development Scheme (ICDS)			✓	Yes
	8. Mahila Mandal Protsahan Yojana (MMPY)			X	No
	9. National Food for work Programme (NFFWP)			X	No
	10. National Social Assistance Programme			X	No
	11. Sanitation Programme (SP)			X	No
	12. Rajiv Gandhi National Drinking Water Mission			X	No
	13. Swarnjayanti Gram Swarozgar Yojana			X	No
	14. Minimum Needs Programme (MNP)			X	No
	15. National Rural Employment Programme			X	No
	16. Employee Guarantee Scheme (EGS)			X	No
	17. Prime Minister Rojgar Yojana (PMRY)			X	No
	18. Jawahar Rozgar Yojana (JRY)			X	No
	19. Indira Awas Yaojna (IAY)			X	No
	20. Samagra Awas Yojana (SAY)			X	No
	21. Sanjay Gandhi Niradhar Yojana (SGNY)			X	No
	22. Jawahar Gram Samridhi Yojana (JGSY)			X	No
	23. Other (SPECIFY)	Pradhan Mantry Awas Yojna		✓	Yes

17

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VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

8

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VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities,	Work in Progress	Yes
	School Building	Available	Yes
	Health Center	Available	Yes
	Panchayat Building	Available	Yes
	Public Toilets & any other	∅	NO
2.	Additional Information/ Requirement	NO	NO
3.	During the last six months how many times CLEANING	X	No
	FOGGING.....	X	No
	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 ?	Construction is to be required in Village	

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

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તા.: ઓલપાડ, જિ.: સુરત.

12.4 Gap Analysis

VILLAGE GAP Analysis					
Village Facilities	Planning Commission/UDPFI Norms	Village Name	Ambheta (Surat DIST.)		
		Population: 1713			
		Existing	Required as per Norms	Future Projection Design	Gap
Social Infrastructure re Facilities					
Education					
Anganwadi	Each or Per 2500 Population	1	0	-	0
Primary School	Each Per 2500 population	1	0	-	0
Secondary School	Per 7,500 population	0	0	-	0
Higher Secondary School	Per 15,000 Population	0	0	-	0
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 Centre	Per 100000 Population	0	0	-	0
Health Facility					
Govt/Panchayat Dispensary or Sub PHC or Health Centre	Each Village	1	0	-	0
Primary Health & Child Health Centre	Per 20,000 population	0	0	-	0
Child Welfare and Maternity Home	Per 10,000 population	0	0	-	0
Multispecialty 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		Adequate			
Pucca Village Approach Road	Each village	Adequate	10 km approach road		

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			
Over Head Tank	1 /3 of Total Demand	150000 lit.			
U/G Sump	2 /3 of Total Demand	Inadequate			
Drainage Network - Open		Inadequate			
Drainage Network - Cover		adequate	50% covered		
Waste Management System		Inadequate			
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	1	0	-	0
community hall and Public Library	Per 15000 Population	0	0	-	0
Cremation Ground	Per 20,000 population	0	0	-	0
Post Office	Per 10,000 population	0	1	-	-1
Gram Panchayat Building	Each individual/group panchayat	1	0	-	0
APMC	Per 100000 Population	0	0	-	0
Fire Station	Per 100000 Population	0	0	-	0
Public Garden	Per village	0	1	-	-1
Police post	Per 40,000Population	0	0	-	0
Shopping Mall		Shops are available			
Electrical D design					
Electricity Network		Adequate	-		
Any Smart Village Facility					
Technology					
		ESR cap	0		
		Sump cap	0		
		Lat	0		

Table 12.1 Gap Analysis

12.5 Summary of All Villages Designs as Part-I and Part-II, in Table Format

Sr no	Village name	Displine	Phase – I	Phase-II
1	Ambheta	Civil	Public Garden	Road
			Bio gas plant	Rain Water Harvesting
			Pond Development	Post Office
			Public Toilet	Entrance Gate
			Overhead Water Tank	Public Market
			Public Library	Bus Stand
2	Manvad (Hadmatiya)	Civil	Solid Waste Management	Bio Gas
			Animal Water Pond	Krishi Seva Kendra
			Waste water Treatment	Public Toilet
			Public Garden	Public Library
			E-suvidha Centre	Sport Complex
			Government Dispensary	Dairy

12.6 Drawings (Attached at the end of the report)

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

Fig.12.1 Entrance Gate (Ena)

Fig. 12.2 Primary & Secondary School (Ena)

Fig. 12.3 Photos of Houses in Ena

Fig. 12.4 Clock Tower (Ena)

Fig. 12.5 Sarpanch of Ena Village

Fig. 12.6 Garden of Ena Village

Fig. 12.7 High School and College (Baben)

Fig. 12.8 Sarpanch of Baben

Fig. 12.9 Lake of Baben Village

Fig 12.10 Bank (baben)

Fig 12.11 Panchayat building (Baben)

Fig. 12.12 Secondary School & College Gate

Fig 12.13 Lake of Ambheta Village

Fig 12.14 Road Condition of Ambheta

Fig. 12.15 Panchayat Building Ambheta)

Fig. 12.16 Primary School (Ambheta)

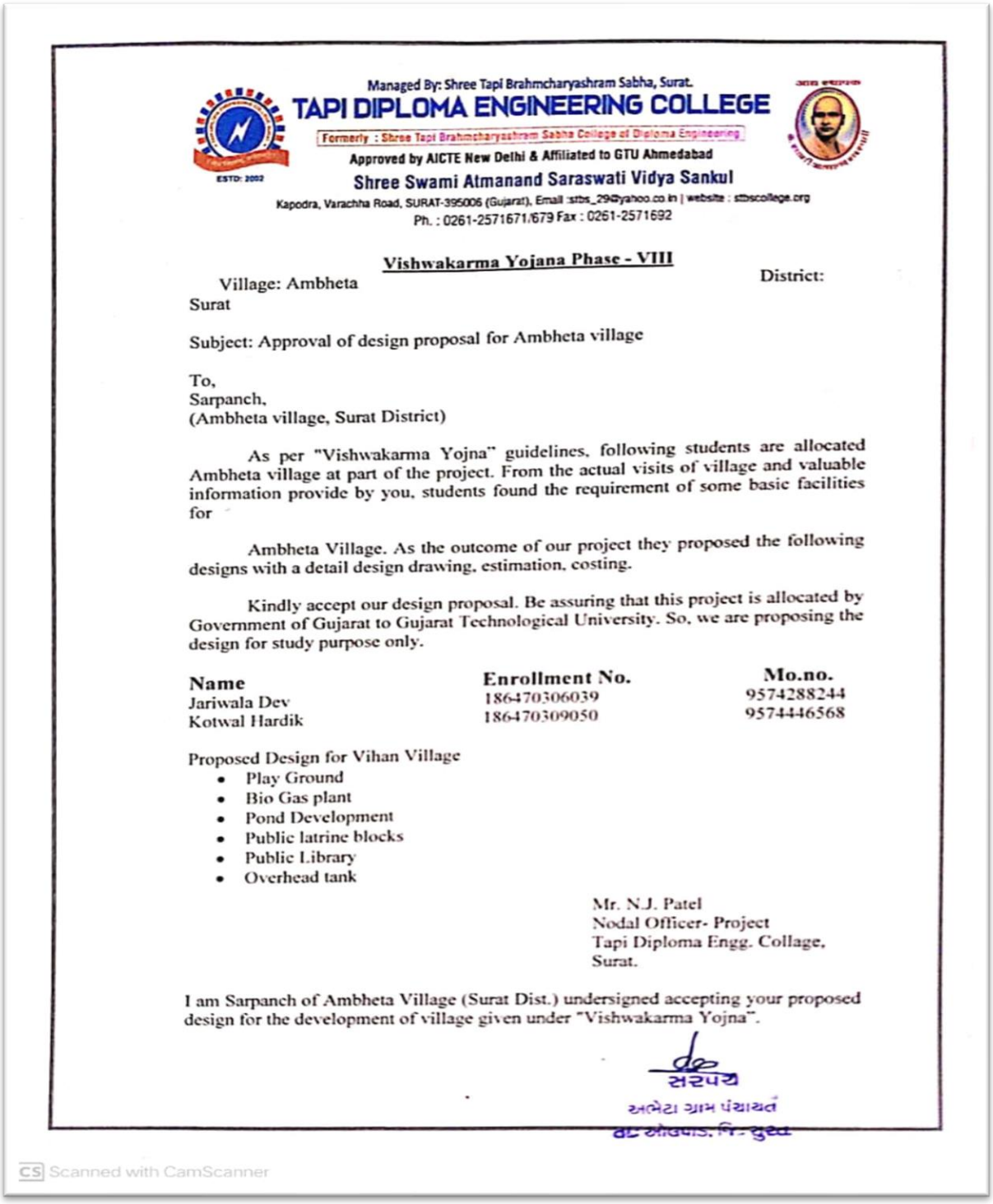
Fig. 12.17 Repair/Maintanance of Road

12.8 Village Interaction Report with the photograph as a report format

- As per the guideline of Vishwakarma Yojana, we visit Vihan village for the study purpose with all safety precautions (Of Covid-19).
- We met Sarpanch of Ambheta Village Pramod Bhai Patel We met Talati also. They gave us the information and data which were required.
- We also visit all the internal part of the village and interact with villagers directly and ask them about the present situation of village.
- After this all the study, we done gap analysis and provide the necessary facilities to village. We saw that as per URDPFI norms there is adequate facility is available in village but as per our visit we found that some of facility not there. Like Biogas Plant, Public latrine Block, Public Library etc.
- We also send our design proposal to Gram Panchayat of Ambheta Village.

Fig. 12.18 Talati and Sarpanch of Ambheta Village

12.9 Sarpanch Letter (village design proposal shown to the Sarpanch interaction report)



Managed By: Shree Tapi Brahmcharyashram Sabha, Surat.

TAPI DIPLOMA ENGINEERING COLLEGE

Formerly : Shree Tapi Brahmcharyashram Sabha College of Diploma Engineering

Approved by AICTE New Delhi & Affiliated to GTU Ahmedabad

Shree Swami Atmanand Saraswati Vidya Sankul

Kapodra, Varachha Road, SURAT-395006 (Gujarat), Email :stbs_29@yahoo.co.in | website : stbscollege.org

Ph. : 0261-2571671/679 Fax : 0261-2571692

Vishwakarma Yojana Phase - VIII

Village: Ambheta District: Surat

Subject: Approval of design proposal for Ambheta village

To,
Sarpanch,
(Ambheta village, Surat District)

As per "Vishwakarma Yojna" guidelines, following students are allocated Ambheta village at part of the project. From the actual visits of village and valuable information provide by you, students found the requirement of some basic facilities for

Ambheta Village. As the outcome of our project they proposed the following designs with a detail design drawing, estimation, costing.

Kindly accept our design proposal. Be assuring that this project is allocated by Government of Gujarat to Gujarat Technological University. So, we are proposing the design for study purpose only.

Name	Enrollment No.	Mo.no.
Jariwala Dev	186470306039	9574288244
Kotwal Hardik	186470309050	9574446568

Proposed Design for Vihan Village

- Play Ground
- Bio Gas plant
- Pond Development
- Public latrine blocks
- Public Library
- Overhead tank

Mr. N.J. Patel
Nodal Officer- Project
Tapi Diploma Engg. Collage,
Surat.

I am Sarpanch of Ambheta Village (Surat Dist.) undersigned accepting your proposed design for the development of village given under "Vishwakarma Yojna".

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TO WHOM SO EVER IT MAY CONCERN

It is certified that following students of Diploma in Civil Engineering from Tapi Diploma Engineering College, Surat have visited your industry/ construction site / Gov. Office Ena, Bardoli On dated 15-10-2020 for shodh yatra as a part of Project work.

Sr. No.	Name of Students	Enrolment No.
1	Jadiavala Dev M.	186470306039
2	Kotwal Hardik H.	186470306050
3		
4		
5		
6		
7		

Sign & Seal of Authority

ગણપતભાઈ પરશોત્તમભાઈ ચાવડા
સરપંચ
એના-ગોટીયા ગૃપ ગ્રામ પંચાયત
તા. પલસાણા, જિ. સુરત

TO WHOM SO EVER IT MAY CONCERN

It is certified that following students of Diploma in Civil Engineering from Tapi Diploma Engineering College, Surat have visited your industry/ construction site / Gov. Office Baben , Bardoli On dated 15/10/2020 for shodh yatra as a part of Project work.

Sr. No.	Name of Students	Enrolment No.
1	Jariwala Dev M.	186470306039
2	Kotwal Hardik H.	186470306050
3		
4		
5		
6		
7		

F. D. Patel
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તા. બારડોલી, જી. સુરત.

Sign & Seal of Authority

TO WHOM SO EVER IT MAY CONCERN

It is certified that following students of Diploma in Civil Engineering from Tapi Diploma Engineering College, Surat have visited your industry/ construction site / Gov. Office Airam panchayat AmBheta On dated 19\10\2020 for shodh yatra as a part of Project work.

Sr. No.	Name of Students	Enrolment No.
1	Jariwala Dev manishbhai.	186470306039
2	Kotwal Hardik Hitesh.	186470306050
3		
4		
5		

સરપંચ
અમેટા ગ્રામ પંચાયત

Sign. & Seal of Authority

Managed By: Shree Tapi Brahmcharyashram Sabha, Surat.

TAPI DIPLOMA ENGINEERING COLLEGE

Formerly : Shree Tapi Brahmcharyashram Sabha College of Diploma Engineering

Approved by AICTE New Delhi & Affiliated to GTU Ahmedabad

Shree Swami Atmanand Saraswati Vidya Sankul

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Ph. : 0261-2571671/679 Fax : 0261-2571692

Ref. No. TDEC/CIVIL/2020/187 Date: 28/9/2020

To,
Sarpanch
Ambheta,
Olpad,
Surat

Subject: Permission required for village visit & Techno Economic survey of village as a part of Vishwakarma Yojna project.

Dear Sir / Madam

We belong to Shri Tapi Brahamcharyashram Sabha, Surat;which is one of the oldest trusts engaged in Education & Social services since 1924. At present our polytechnic offers diploma courses in **Civil**, Electrical, Mechanical, Computer, Automobile, Chemical & Information technology Engineering .

Civil engineering related project at any industry/organization & its report submission is a part of syllabus of subject (Project I & II) for the final year student. Therefore, you are requested to grant permission for **village visit & Techno Economic survey of village as a part of Vishwakarma Yojna project.**

Sr. No.	Name of Students	Enrolment. No.	Contact No.
1	Jariwala Dev M.	186470306039	9574288244
2	Kotwal Hardik H.	186470306050	9574446568
3			

We request you to provide necessary guidance, required for the successful completion of his visit & please provide him certificate of visit in your Industry.

Thank you for your kind co-operation.
Yours faithfully,

26/09/2020.
Mr. H.B.Dudhat
GTU Innovation Club Member

TAPI DIPLOMA ENGINEERING COLLEGE

Prof. Y. S.Choupare
Principal

PRINCIPAL
TAPI DIPLOMA ENGINEERING COLLEGE
SURAT.

Chapter 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 Design Proposals

- In the Vishwakarma Yojana Phase- VIII Part-II we have given total six design according to the village need and useful for the villagers.
- The design proposal is:
  - Road
  - Rain Water Harvesting
  - Post Office
  - Entrance Gate
  - Public Market
  - Bus Stand

13.1.1 Road

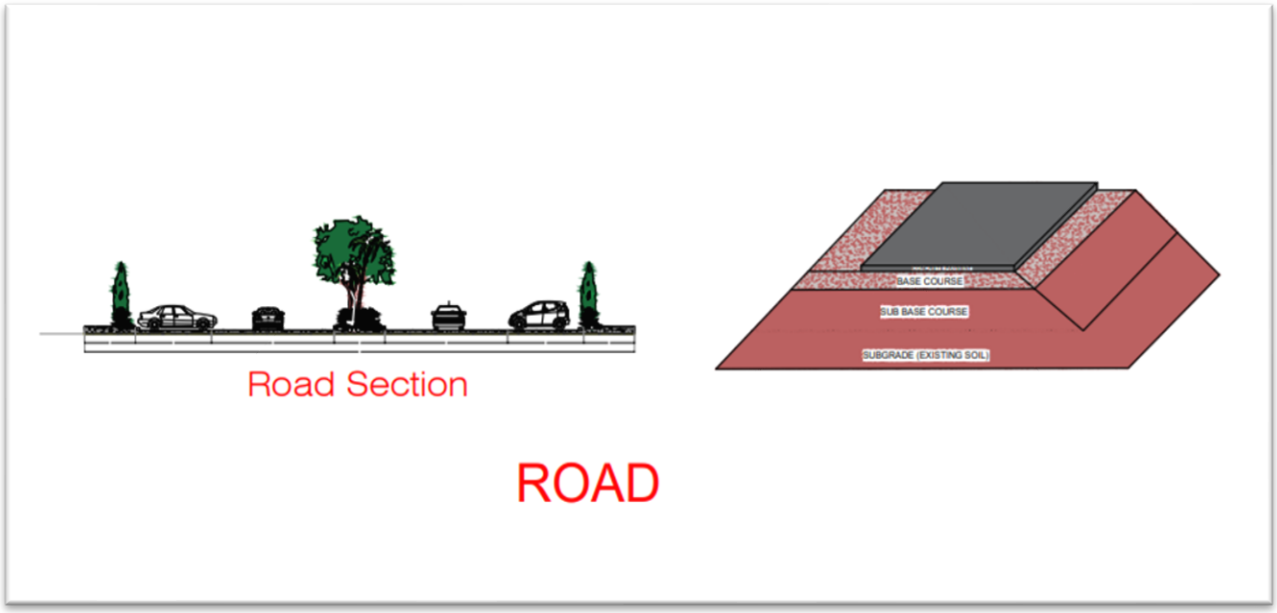


Fig. 13.1 Road

Sr. No.	Description of Item	quantity	rate	per	estimated value
1	Preparing sub grade	66	1200	m3	79200
2	Preparing base course	842.4	950	m3	800280
3	preparing wearing course	676.2	1300	m3	879060
		total cost			1758540
		10% construction cost			175845
		1.5% water charges			**263767.5**
		total value			2198152.5

Table 13.1 Approximate cost of Road

13.1.2 Rain Water Harvesting

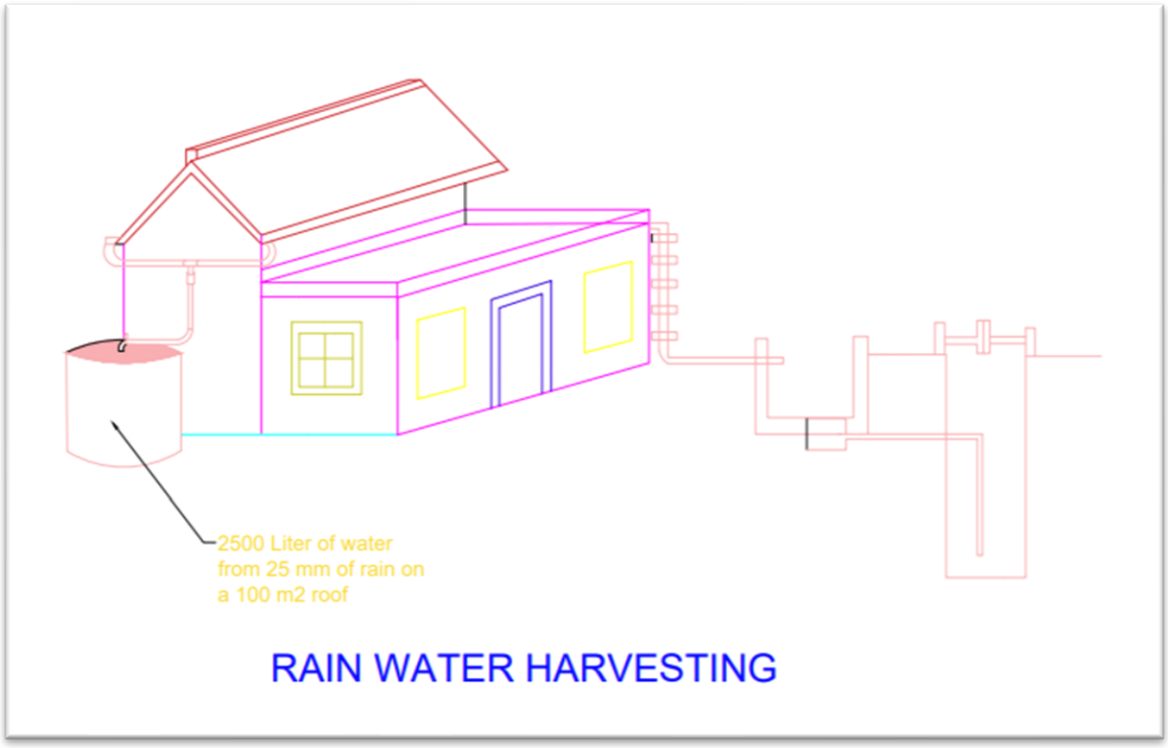


Fig.13.2 Rain Water Harvesting

Sr. No.	Description of Item	quantity	rate	per	estimated value
1	Excavation in RCC tank	1101.6	100	m3	110160
2	PCC in botton	22.032	3200	m3	70502.4
3	PCC in side	51.6	3200	m3	165120
4	PCC in upper	7.344	3200	m3	23500.6
		Total cost of rain eater harvesting			369283

Table 13.2 Approximate cost of Rain Water Harvesting

13.1.3 Post Office

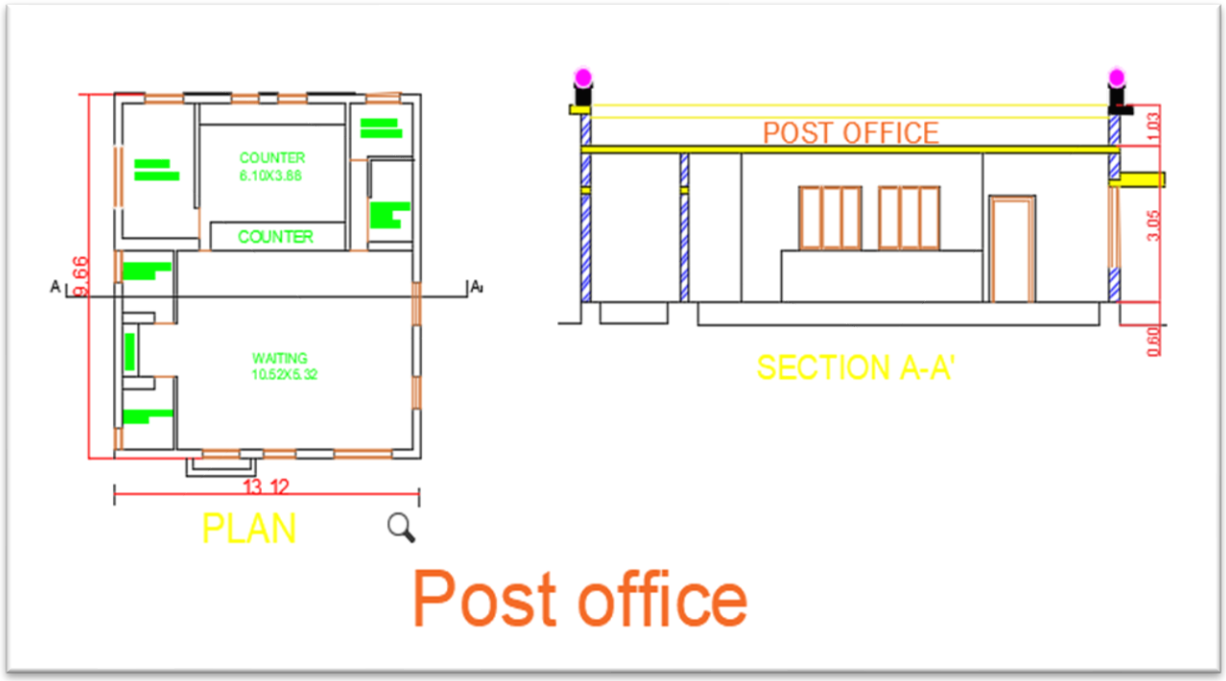


Fig. 13.3 Post Office

Sr. No.	Description of Item	quantity	rate	per	estimated value
1	Excavation in foundation	49.64	100	m3	4964
2	Plain cement concrete (P.C.C.)	8.11	3500	m3	28385
	foundation in (1:3:6)				
3	first class brick work to plinth in C.M.	25.3	3500	m3	88550
	(1:6)				

4	Damp proof course (1:2:4) above	18.74	180	m3	3373
	plinth wall				
5	Earth filling in plinth	21.3	80	m3	1704
			8890		207404
		23.33		m3	
→	R.C.C work in slab, lintel and chajja		8890		112014
→	Cement concrete for slab (1:1.5:3)	12.6		m3	
→	Cantering and shuttering for slab		150		18339
→	12 mm diameter bar (HYSD bars)	122.26		m3	
→	6 mm diameter bars (Mild steel)			kg	
→	Labour for cutting bending and placing		45		82440
	steel	1832			
7		1832			
			8	kg	14656
→	Brick work for parapet wall 200 mm	13.89	3800	m3	52782
	thick				
8					
→	Brick work for steps	0.82	3500	m3	2870
→	Smooth plaster on side wall and celling	386.14	180	m2	69505
	in C.m. (1:3)				
9					
→	Plaster outside (1:6)	244	170	m2	41480
10					
→	Tiles flooring	110.48	800	m2	11048
11	Wood work for door-window and	28.37	8100	m2	229797
	shutters				
12					
→	paint inside	386.14	100.72	m2	38892
→	paint outside	244	100.72	m2	24576
13	Toilet seat	2	3080	no	6160

		Total cost			1038939
		Add 3% Contingencies			31168
		Add 2% Work Charged Establishment 20779			
			Total value		1090886

Table 13.3 Approximate Cost of Post Office

13.1.4 Entrance Gate

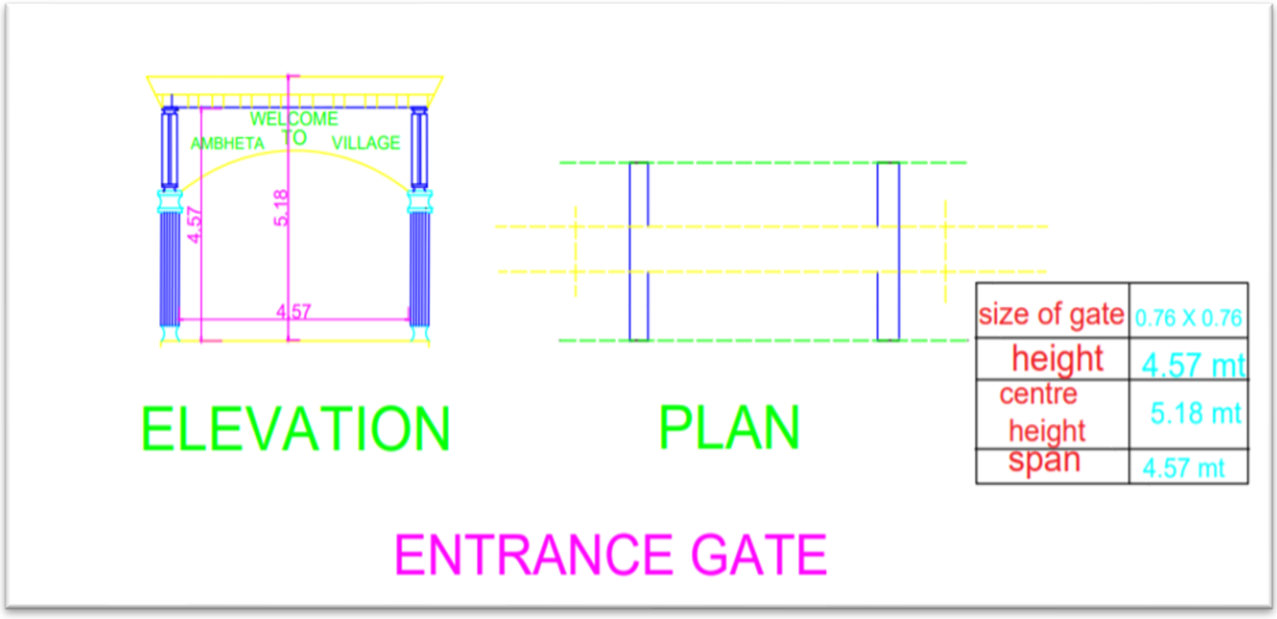


Fig. 13.4 Entrance Gate

Sr. No.	Description of Item	quantity	rate	per	estimated value
1	Excavation for Foundation up to 1.5 Mt. Depth incl. Sorting Out and Stacking Of Useful Materials And depositing Of the excavated stuff up to a lead of 50 Mt. (S.O.R. Pno. 18 Item No.1.0 €	1.7328	950	Cu.mt.	1646
2	Providing R.C.C. footing with depth of 1.5 meter	1.7328	4750	Cu.mt.	8231

3	Providing column of height of 4.57	3.400994	4700	Cu.mt.	15985
	meter				
4	Providing Circular arc beam with depth of 0.61 meter.	5.4154	980	Sq. Ft.	5307
5	Providing carving work	23.5216	750	Sq. Ft.	17641
6	Providing Paint for finishing	514.119	80	Sq. Ft.	41130
			Total cost		89940
		Labour charge		4.50%	4047
			Total value		93987

Table 13.4 Approximate cost of Entrance Gate

13.1.5 Public Market

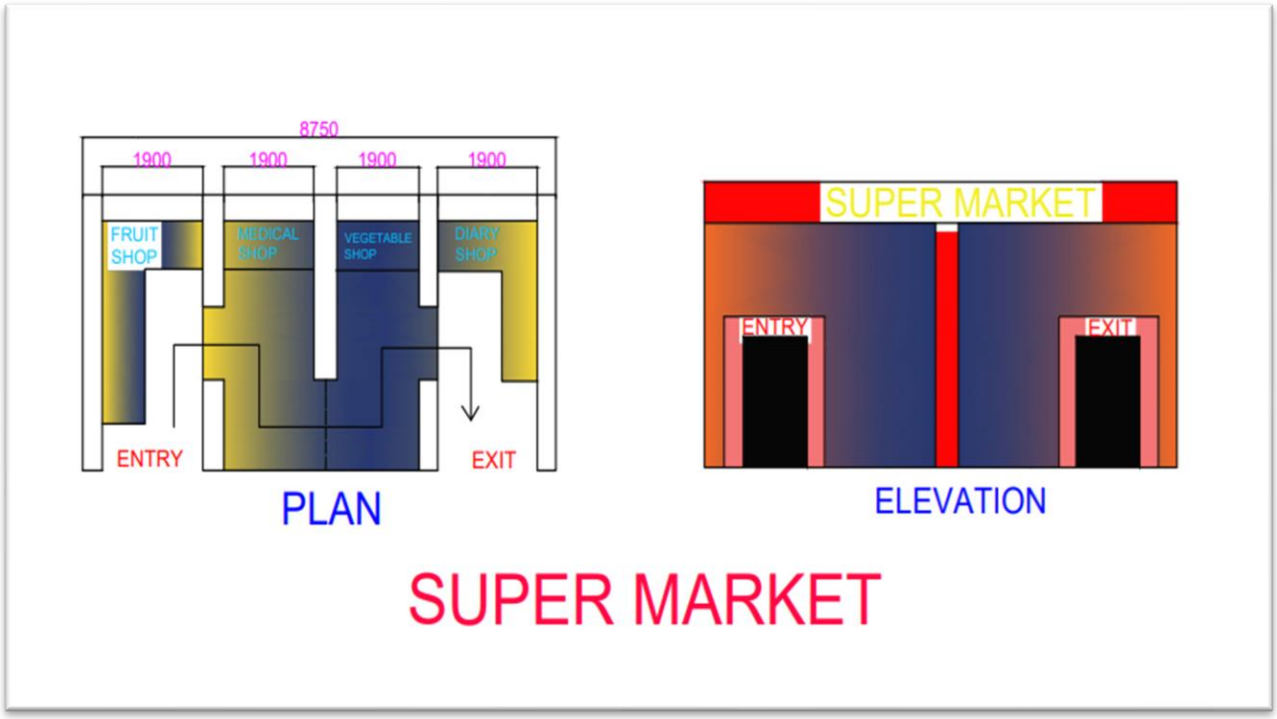


Fig. 13.5 Public Market

Sr. No.	Description of Item	quantity	rate	per	estimated value
1	Excavation for foundation	22.25	100	m3	2225
2	P.C.C. work in foundation	5.738	3322	m3	19062
3	Brick masonry in foundation	11.155	3465	m3	38652
4	Brick masonry in super structure	15.36	3850	m3	59136
5	plaster	83.82	152	m3	12741
		Total cost			131816
		3% Contingencies			3954
		2% work charged establish			2636
		Total value			138406

Table 13.5 Approximate Cost of Public Market

13.1.6 Bus Stand

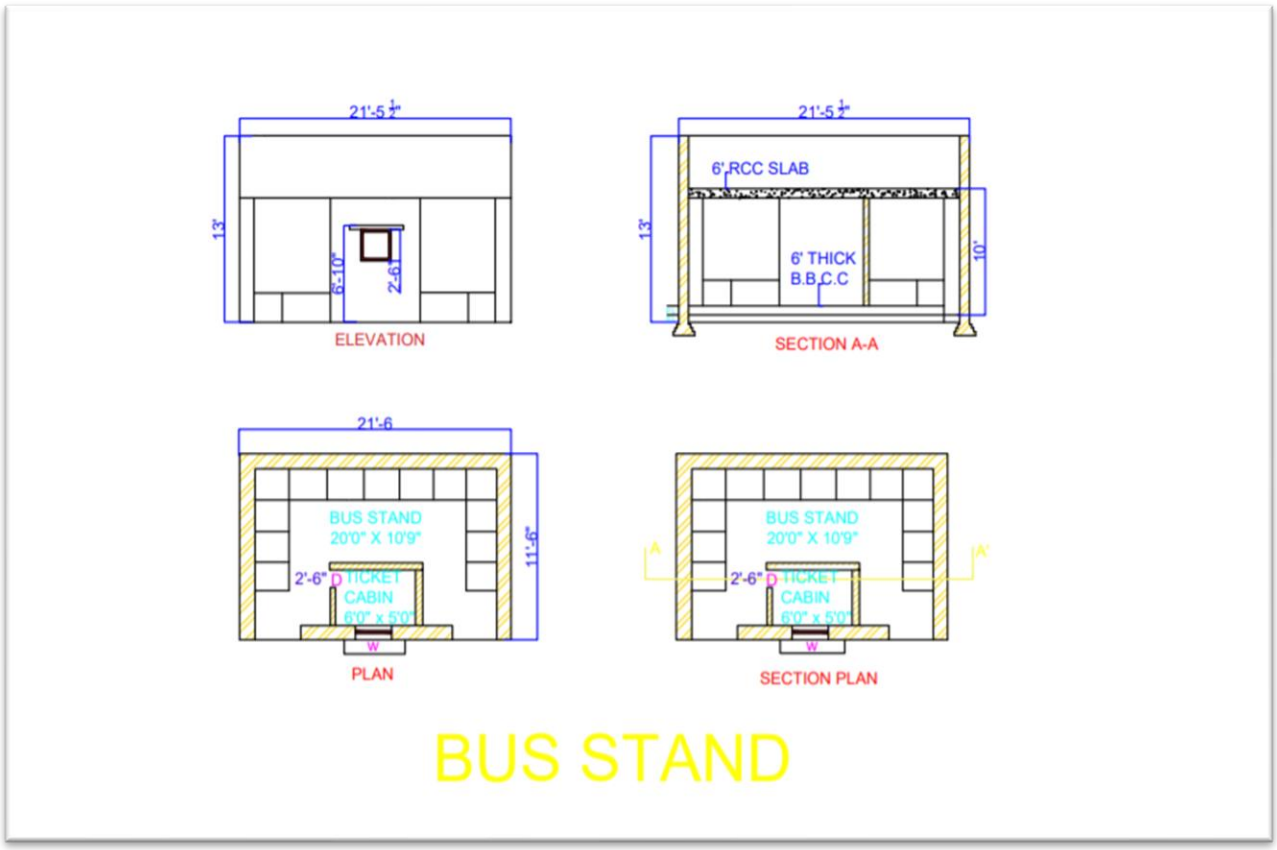


Fig. 13.6 Bus Stand

Sr. No.	Description of Item	quantity	rate	per	estimated value
1	Excavation for foundation	16.18	100	Cu.m	1618
2	P.C.C. work in foundation	2.69	3500	Cu.m	9415
3	Brick work in foundation up to plinth	7.18	3500	Cu.m	25130
4	Brick work for super structure	14.65	3750	Cu.m	54938
5	R.C.C. work	4.12	4100	Cu.m	16892
6	Plaster	157.51	193	Sq.m	30399
7	Flooring	19.98	700	Sq.m	13986
8	Paint	157.51	160	Sq.m	25202
9	Steel bars	174	65	Kg	11310
			Total cost		188890

Table 13.6 Approximate cost of Bus Stand

13.2 Reasons for Students Recommending this Design

- As by gap analysis done by as we found the requirement of proposed designs.
- Bus Stand for connectivity to the cities.
- Water Harvesting is to save water for further use.
- Post Office is to Provide risk free transection and saving a money of village people.

13.3 About designs Suggestions/ Benefit of the villagers

- Public Garden for children to play in Garden. And for provide refreshment to the village peoples.
- Villagers don’t need to go to the city for catching bus.
- By public toilet roads of village will be and healthy life will be maintained for villagers.
- Good Road will provide good connectivity from village to S.H.

Chapter 14: Technical Option with Case Studies

14.1 Civil Engineering

14.1.1 Advanced Earthquake Resistant

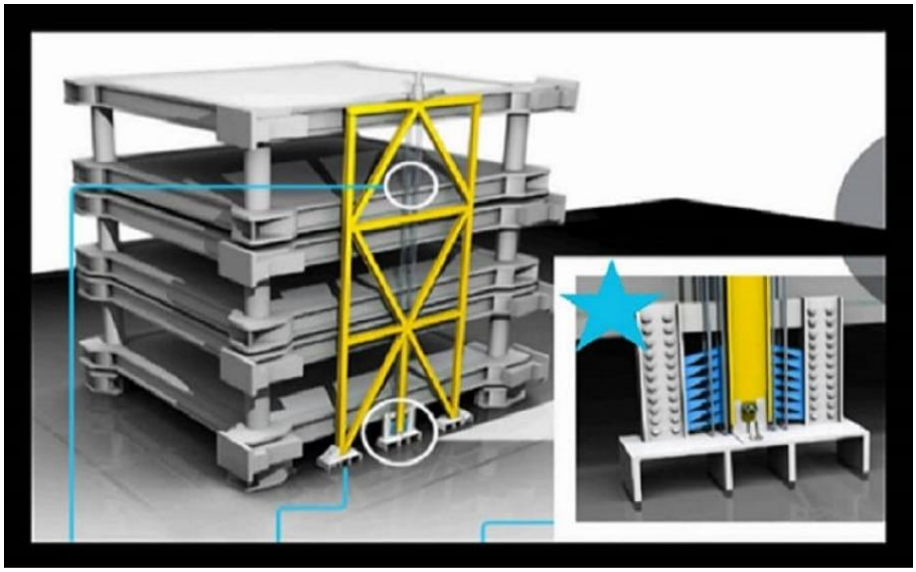


Fig. 14.1 Advanced Earthquake Resistant

- Earthquake-resistant structures are structures designed to protect buildings from earthquakes. While no structure can be entirely immune to damage from earthquakes, the goal of earthquake-resistant construction is to erect structures that fare better during seismic activity than their conventional counterparts. According to building codes, earthquake-resistant structures are intended to withstand the largest earthquake of a certain probability that is likely to occur at their location. Currently, there are several design philosophies in earthquake engineering, making use of experimental results, computer simulations and observations from past earthquakes to offer the required performance for the seismic threat at the site of interest.
- These range from appropriately sizing the structure to be strong and ductile enough to survive the shaking with an acceptable damage. The conventional approach to earthquake resistant design of buildings depends upon providing the building with strength, stiffness and inelastic deformation capacity which are great enough to withstand a given level of earthquake-generated force.

This is generally accomplished through the selection of an appropriate structural configuration and the careful detailing of structural members, such as beams and columns, and the connections between them. But more advanced techniques for earthquake resistance is not to strengthen the building, but to reduce the earthquake-generated forces acting upon it.

- Among the most important advanced techniques of earthquake resistant design and construction are:
- 1.Base Isolation
- 2.Energy Dissipation Devices

- **Base Isolation Method of Earthquake Resistant Design**

➢ A base isolated structure is supported by a series of bearing pads which are placed between the building and the building's foundation. A variety of different types of base isolation bearing pads have now been developed. the bearing is very stiff and strong in the vertical direction, but flexible in the horizontal direction. To get a basic idea of how base isolation works, examine Figure. This shows an earthquake acting on both a base isolated building and a conventional, fixed-base, building. As a result of an earthquake, the ground beneath each building begins to move. In Figure, it is shown moving to the left. Each building responds with movement which tends toward the right. The building undergoes displacement towards the right. The building's displacement in the direction opposite the ground motion is actually due to inertia. The inertial forces acting on a building are the most important of all those generated during an earthquake. It is important to know that the inertial forces which the building undergoes are proportional to the building's acceleration during ground motion. It is also important to realize that buildings don't actually shift in only one direction. Because of the complex nature of earthquake ground motion, the building actually tends to vibrate back and forth in varying directions. By contrast, even though it too displacing, the base-isolated building retains its original, rectangular shape. It is the lead-rubber bearings supporting the building that are deformed.

- **Energy Dissipation Devices**

➢ The second of the major new techniques for improving the earthquake resistance of buildings also relies upon damping and energy dissipation, but it greatly extends the damping and energy dissipation provided by lead-rubber bearings. As we've said, a certain amount of vibration energy is transferred to the building by

earthquake ground motion. Buildings themselves do possess an inherent ability to dissipate, or damp, this energy. However, the capacity of buildings to dissipate energy before they begin to suffer deformation and damage is quite limited. The building will dissipate energy either by undergoing large scale movement or sustaining increased internal strains in elements such as the building's columns and beams. Both of these eventually result in varying degrees of damage. So, by equipping a building with additional devices which have high damping capacity, we can greatly decrease the seismic energy entering the building, and thus decrease building damage. Accordingly, a wide range of energy dissipation devices have been developed and are now being installed in real buildings. Energy dissipation devices are also often called damping devices. The large number of damping devices that have been developed can be grouped into three broad categories: Friction Dampers: these utilize frictional forces to dissipate energy Metallic Dampers: utilize the deformation of metal elements within the damper Viscoelastic Dampers: utilize the controlled shearing of solids Viscous Dampers: utilized the forced movement (orificing) of fluids within the dampe.

- **Construction Methods**

- 1.Base-isolation are designed in buildings. It is a building designed to reduce amount of energy that reaches the building during earthquake. 2.Flexible joints and automatic shut off valves can be installed. Protecting Against Earthquake Damage Prepare a Seismic Risk Map for the globe which identifies rock types, liquefaction potential, landslide potential. Extensive geological surveying has to be done to identify all active faults, including hidden faults. Earthquake Resistant Design of Structures Enact building codes to design and build earthquake-resistant structures in high seismic risk areas. wood, steel and reinforced concrete are preferred as they tend to move with the shaking ground (unreinforced concrete and heavy masonry tend to move independently and in opposition to the shaking, battering one another until the structure collapses)

- **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 degrees instead of 90 degrees for better anchoragement. • The arrangement of lateral ties in the columns should be as per code and must be continued through the joint as well.

14.1.2 Seismic Retrofitting of Buildings

- **Introduction:**
- The aftermath of an earthquake manifests great devastation due to unpredicted seismic motion striking extensive damage to innumerable buildings of varying degree i.e., either full or partial or slight. This damage to structures in its turn causes irreparable loss of life with a large number of casualties. As a result, frightened occupants may refuse to enter the building unless assured of the safety of building from future earthquakes. It has been observed that majority of such earthquake damaged buildings may be safely reused if they are converted into seismically resistant structures by employing a few retrofitting measures. This proves to be a better option catering to the economic considerations and immediate shelter problems rather than replacement of buildings. Moreover, it has often been seen that retrofitting of buildings is generally more economical as compared to demolition and reconstruction even in the case of severe structural damage. Therefore, seismic retrofitting of building structures is one of the most important aspects for mitigating seismic hazards especially in earthquake prone countries. Various terms are associated to retrofitting with a marginal difference like repair, strengthening, retrofitting, remoulding, rehabilitation, reconstruction etc. but there is no consensus on them. The most common definition of these terms may be summarized.

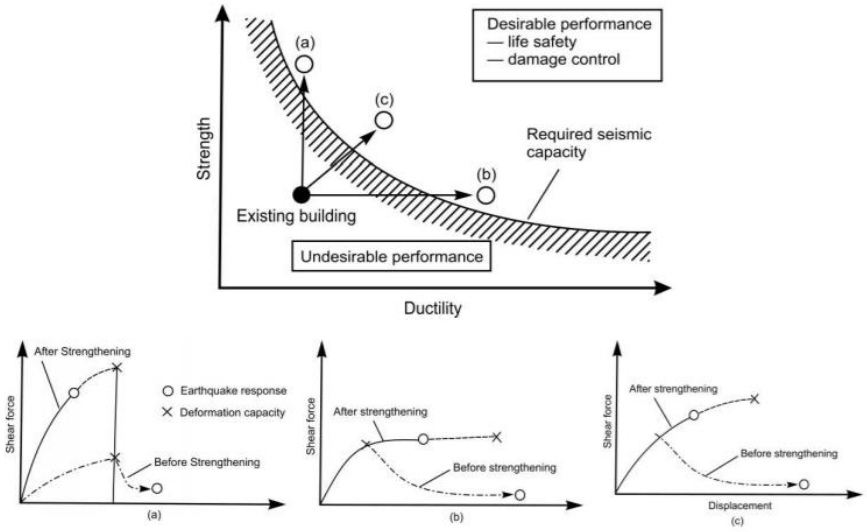


Figure 1: Aim of seismic strengthening

Fig. 14.2 Seismic Retrofitting of Buildings

- **Consideration in Retrofitting of Structures**
  - The method of retrofitting principally depends on the horizontal and vertical load resisting system of the structure and the type of materials used for parent construction. It also relies on the technology that is feasible and economical. The understanding of mode of failure, structural behavior and weak and strong design aspects as derived from the earthquake damage surveys exercise considerable influence on selection of retrofitting methods of buildings. Usually, the retrofitting method is aimed at increasing the lateral resistance of the structure. The lateral resistance includes the lateral strength or stiffness and lateral displacement or ductility of the structures. The lateral resistance is often provided through modification or addition of retrofitting elements of an existing structure in certain areas only. The remaining elements in the structure are usually not strengthened and are assumed to carry vertical load only, but in an earthquake, all components at each floor, retrofitted or not, will undergo essentially the same lateral displacements. While modified or added elements can be designed to sustain these lateral deformations, the remaining nonstrengthened elements could still suffer substantial damage unless lateral drifts are controlled. Therefore, caution must be taken to avoid an irregular stiffness distribution in the strengthened structure. Thus, the ability to predict initial and final stiffness of the retrofitted structure need clarification and quantification. Consequently, it is suggested that the design of retrofitted schemes should be based on drift control rather than on strength consideration

alone. The use of three-dimensional analysis is recommended to identify and locate the potential weakness of the retrofitted building.

- **Source of Weakness in RC Frame Building**
  - Earthquake engineering is not a pure science; rather it has been developed through the observation of failure of structure during earthquake (Otani, 2004). Damage survey reports of past earthquakes reveal the following main source of weakness in reinforced concrete moment resisting frame buildings. (a) Discontinuous load path/ interrupted load path/irregular load path (b) Lack of deformation compatibility of structural members (c) Quality of workmanship and poor quality of material.

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

- Procurement
  - The procurement practice involves:
  - Selecting Appropriate Method for Construction Management
  - Selection of Best team for the design
  - Selection of best team to deliver
  - Select best team to Operate the facility

- Partnering
  - When compared to the traditional approach of working, the partnering is an different working style. This takes a collaborative approach in working. It has been proved through great projects that working through partnering helps in achieving
  - Greater value of money
  - Higher Profits for the company
  - Quality Improvement
  - Prediction of project completion

➢ Risk Management

- Risk in projected are always expected and it is necessary to maintain a "risk register". This will help to enter all the risk faced from the starting of the project to its end. Along the risk encountered, the method used to manage is also recorded. This helps to be applied in other projects. Risk assessing and analyzing will help to assign appropriate actions to different project team. The risk assessment is an activity that have to be performed in a regular basis and in no case be ignored. For all risk residual items, it is necessary to have some financial allowance. The cost of this item can be avoided by selecting a best solution for the problem faced.

➢ Value Management

❖ This key practice takes into account **time, cost** and **risk constraints,** in order to meet the client's business needs. The method of value management will involve complete collaboration with the team. The team is in charge of design and delivery of the project. This team will also include the end-users and the stake holders. The steps in value management are:

- Identify the need of client in terms of benefits and their priorities
- Different options to satisfy the needs are identified and evaluated
- Options assessed in terms of risk, cost, and satisfaction.

➢ Supply Chain Management in Construction

❖ In construction, this term is new. Here, all the operations of the organizations are integrated that is associated with the delivery of a product or a service. Hence, from the primary producer till the end user this is analyzed. Supply chain management in construction will involve analyzing from:

- Material
- Suppliers
- Manufacturer
- Distributors
- Installation
- Contractors

- Designers
- Client organization

14.1.4 Engineering Aspects of Soil mechanics- Environmental Impact Assessment

- Soil mechanics is a discipline of civil engineering that predicts the soil performance characteristics utilizing the engineering techniques of dynamics, fluid mechanics, and other technologies. Soil mechanics includes the study of soil composition, strength, consolidation, and the use of hydraulic principles to deal with issues concerning sediments and other deposits. Soil mechanics is one of the major sciences for resolving problems related to geology and geophysical engineering. Soil mechanics studies are very important for civil engineers because based on the findings of soil mechanics studies, engineering structures are constructed. The type of construction, type of equipment to be used, type of foundation, support material, and many other aspects of construction works are largely affected by the soil mechanics studies. Basically, we study about soil formation modes, physical and chemical properties of soil, dynamic loading of soils, permeability, consolidation, etc. In the subsequent sections of this article, we will discuss in detail about major aspects of soil mechanics studies.

Φ In view of the colossal damage to the environment, there is a felt need for assessing the environmental impacts of developmental activities. EIA is a tool to anticipate the possible damage to the environment caused by developmental projects and schemes, and propose mitigation measures and strategies.

Φ EIA exerts to declare a national policy to encourage productive and enjoyable harmony between man and environment. It promotes efforts to prevent or eliminate damage to the environment and the biosphere, and stimulate the health and welfare of man.

Φ It seeks to increase the understanding of ecological system and nature resources important to the nation and to provide for appropriate institutional structure to carry out the objectives.

Φ It provides a broad, integrated perspective of a region about to undergo or undergoing developments. EIA ascertains the cumulative impacts from the multiple development in the region. It establishes priorities for environmental protection. It also identifies the positive and negative aspects of any project as well as assesses the policy options and analyses the impact on the environment therein.

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

- Water was an important factor in the location of the earliest settled communities, and the evolution of public water supply systems is tied directly to the growth of cities. In the development of water resources beyond their natural condition in rivers, lakes, and springs, the digging of shallow wells was probably the earliest innovation. As the need for water increased and tools were developed, wells were made deeper. Brick-lined wells were built by city dwellers in the Indus River basin as early as 2500 BCE, and wells almost 500 meters (more than 1,600 feet) deep are known to have been used in ancient China.
- The need to channel water supplies from distant sources was an outcome of the growth of urban communities. Among the most notable of ancient water-conveyance systems are the aqueducts built between 312 BCE and 455 CE throughout the Roman Empire. Some of these impressive works are still in existence. The writings of Sextos Julius Frontinus (who was appointed superintendent of Roman aqueducts in 97 CE) provide information about the design and construction of the 11 major aqueducts that supplied Rome itself. Extending from a distant spring-fed area, a lake, or a river, a typical Roman aqueduct included a series of underground and aboveground channels. The longest was the Aqua Marcia, built in 144 BCE. Its source was about 37 km (23 miles) from Rome. The aqueduct itself was 92 km (57 miles) long, however, because it had to meander along land contours in order to maintain a steady flow of water. For about 80 km (50 miles) the aqueduct was underground in a covered trench, and only for the last 11 km (7 miles) was it carried aboveground on an arcade. In fact, most of the combined length of the aqueducts supplying Rome (about 420 km [260 miles]) was built as covered trenches or tunnels. When crossing a valley, aqueducts were supported by arcades comprising one or more levels of massive granite piers and impressive arches.

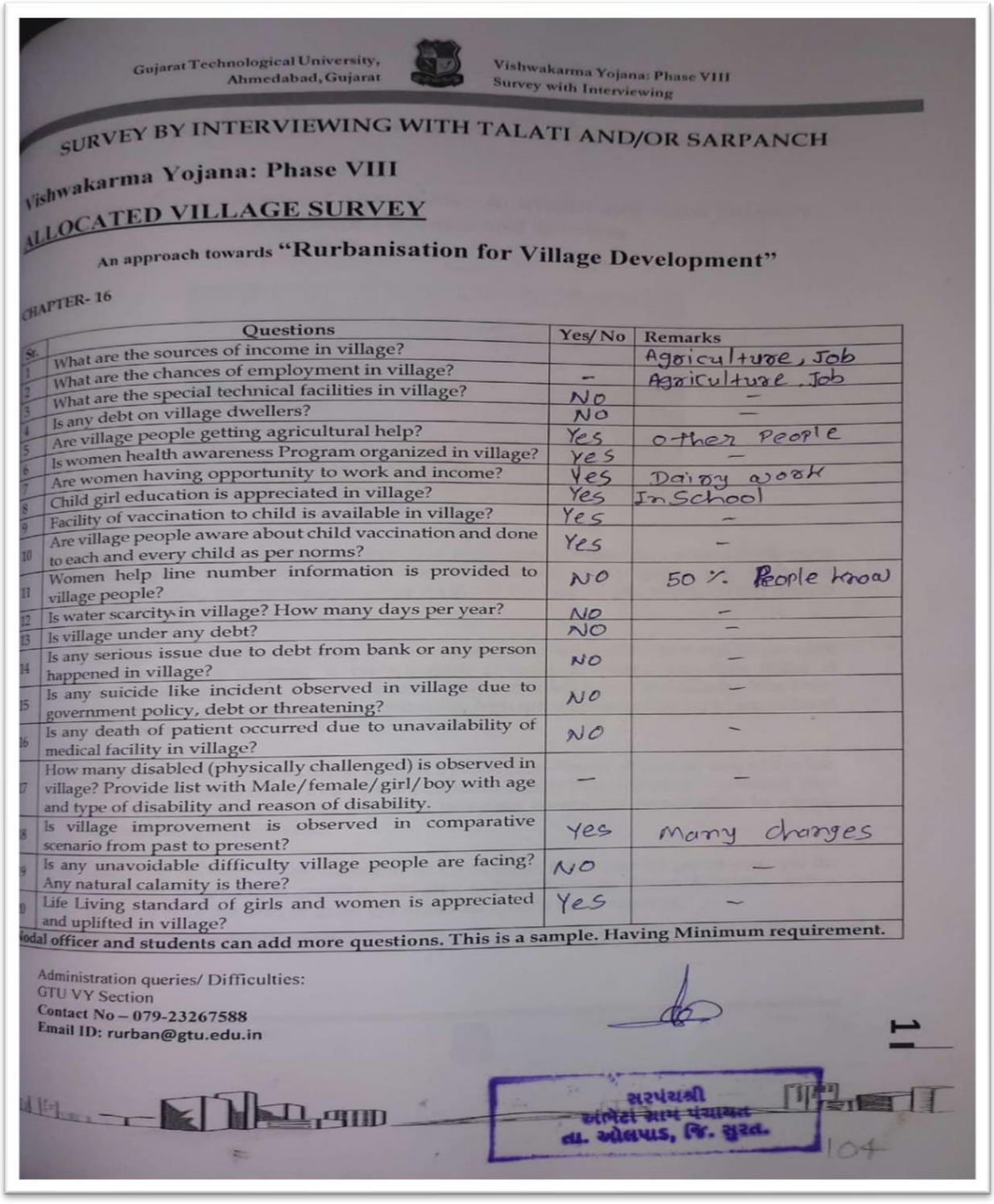
Chapter 15: Smart /or Sustainable features of Chapter 8 & 13 designs, Impact on society.
Benefit – a) Immediately b) Within 1 year c) Long term (3-5 years) along with cost estimation.
If possible, List the sources of the funding available with the Village gram panchayat

Sr. No.	Design	Period	Amount Expenditure	Benefits
1	Public Garden	Within 1 Year	690599 Rs.	For children to play in Garden. And for provide refreshment to the village peoples.
2	Bio Gas Plant	Long Term (3-5 Years)	43398 Rs.	It will help to clean nearby area of village and produce gas prom it.
3	Pond Development	Long Term (3-5 Years)	3151203 Rs.	The development of pond is necessary to this village for the further use of storage of rain water in the rainy season.
4	Public Toilet	Within 1 Year	446064 Rs.	To clean the roads and to maintain healthy life for villagers.
5	Overhead Water Tank	Within 1 Year	2207542 Rs.	Provide Suffiecient water to village people.
6	Public Library	Within 1 Year	948409 Rs.	For Educational Facilities. Newpaper section is also available in Library.
7	Road	7-8 Months	2198152 Rs.	To provide good connectivity for vehicles.
8	Rain Water Harvesting	Immediately	369283 Rs.	This design is for to save the water for further use in any purpose to do a work.

9	Post Office	Within 1 Year	1090886 Rs.	Provide risk free transection and saving a money of village people.
10	Entrance Gate	7-8 Months	93987 Rs.	To know people this is the Ambheta village entrance and vehicles can transport easily.
11	Public Market	Within 1 Year	138406 Rs.	For Easily getting Vegetables, Dairy product and other things from same place.
12	Bus Stand	7-8 Months	188890 Rs.	For transport fast and easily to villagers.

Table 15.1 Design Benefits and Period

Chapter 16: Survey by Interviewing with Talati and/or 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"

CHAPTER- 16

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?		Agriculture, Job
2	What are the chances of employment in village?	-	Agriculture, Job
3	What are the special technical facilities in village?	NO	-
4	Is any debt on village dwellers?	NO	-
5	Are village people getting agricultural help?	Yes	other People
6	Is women health awareness Program organized in village?	Yes	-
7	Are women having opportunity to work and income?	Yes	Dairy work
8	Child girl education is appreciated in village?	Yes	In School
9	Facility of vaccination to child is available in village?	Yes	-
10	Are village people aware about child vaccination and done to each and every child as per norms?	Yes	-
11	Women help line number information is provided to village people?	NO	50 % People know
12	Is water scarcity in village? How many days per year?	NO	-
13	Is village under any debt?	NO	-
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?	NO	-
16	Is any death of patient occurred due to unavailability of medical facility in village?	NO	-
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	Many changes
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	NO	-
20	Life Living standard of girls and women is appreciated and uplifted in village?	Yes	-

odal 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

સરપંચશ્રી
અંભેટા ગામ પંચાયત
તા. ઓલપાડ, જિ. સુરત.

104

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

Fig. 17.1 Agriculture Activity

- Another of the major modern trends in agriculture is increasing water efficiency in farming and food production. Whether for traditional rural irrigation, arid regions or urban farms, this represents a key metric in the face of global population growth and climate change.
- Considered together, scarcity of freshwater resources and the fact that 71 per cent of the Earth's surface is nevertheless covered in water, therefore make a compelling argument for desalination. The stumbling block, historically, has been its energy-hungry nature and prohibitively high running costs relative to agricultural profit margins.
- One innovation in agriculture, offered by Sun drop Farms, draws on one of the few renewable resources in even more abundant supply than seawater – sunlight. Sun drop Farms harvests solar power to generate energy for desalination to supply hydroponic greenhouses.
- Requiring no freshwater, farmland or fossil fuels, this potential game-changer for sustainable farming is creating 300 jobs in Port Augusta, South Australia, with a ten-year contract won to grow tomatoes for Cole's supermarkets.

- **Agro Industry:** Agriculture, including livestock husbandry, is the most characteristic form of Ethiopian economic activity. Eighty five percent of the population is rural and depends on agricultural activities. Dependency on rain puts food sustainability in a serious challenge. A well-developed irrigation system to large and small holder farmers is vital for efficient per hectare harvest and self-sufficient agricultural production. Linkage of these agricultural produce to the manufacturing sector will uplift country's capacity to add value and market it beyond its borders. Agro industry is an integral part in linking the long dominating agriculture sector to the emerging small-scale industry.
- Irrigation and Land Drainage System Design, Design and supervision of hydraulic structures, Land Use Planning, Soil and Topographic Survey, Crop study, Water Shade management, Agricultural Marketing Study, Livestock management study

Chapter 18: Social Activities- Any Activities Planned by Students

- In Ambheta village, there is less population and people of village maintain social distance.
- They clean their hands often.
- People who are ill they go to PHC and quarantine themselves at home.
- In village, all the steps for Covid-19 are taken in Panchayat office also.
- Steps like: Hand sanitizer, Face mask are also provided outside the Panchayat office and also maintain social distancing in office

Fig. 18.1 Social Activity

Chapter 19: SAGY Questionnaire Survey form with the Sarpanch Signature (Scanned copy attachment in the soft copy report and original copy in hardbound

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Ambheta Gram Panchayat: Ambheta Ward No. 1 to 8

Block: Olpad District: Surat

State: Gujarat L S Constituency: 24 - Surat

1. Family Identity and Size

Name of Head of Household	Mahadevbhai Patel							Male/ Female	M
SECC Survey ID:		Family Size	5	Over 18	4	6 to 18	1	Under 6	

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]		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]
Mahadevbhai Patel	52	M	N	✓	12	✓	✓	✗
Damyantiben Patel	43	F	N	✓	10	✓	✓	✗
Jenish Patel	24	M	N	✗	12	✓	✓	✗
Jhanvi Patel	20	F	N	✗	12	✓	✓	✗

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
Roshan Patel	19	M	N	✗	12	✓	✓	✗

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

[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	X	X
Children	X	X

9. House & Homestead Data

Own House: ~~Yes~~ / No	No. of Rooms: 3
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	2200.5	2. Cultivable Area	50.07
3. Irrigated Area	2050.7	4. Uncultivable Area	10005

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/ ~~Bore~~well/Other	
Drip or Sprinkler Irrigation: ~~Drip~~ /Sprinkler / None	

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

Name	Unit	Quantity
Rice	—	—

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
Indoor Games

19. Do children play musical instrument (mention)
—

Schedule Filled By: Jasiwala Dev
Principal Respondent:
Date of Survey: 25-3-21

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

1. Basic Information

a. Gram Panchayat: Ambheta

b. Block: Olpad

c. District: Surat

d. State: Gujarat

e. Lok Sabha Constituency: 24 - Surat

f. Number of Wards in the Gram Panchayat: 2 to 8

g. Number of Villages in the Gram Panchayat: -

h. Names of Villages:

-

Demographic Information

Number of Households_____ Total Population_____ Male _____ Female _____

SC HHs_____ ST HHs_____ OBC HHs_____ Other HHs_____

1. 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	
c.	Nearest Community Health Centre (CHC)	Yes	
d.	Nearest Post Office	Yes	
e.	Nearest Bank Branch (Any)	Yes	
f.	Nearest Bank with CBS Facility	NO	
g.	Nearest ATM	Yes	
h.	Nearest Primary School	Yes	
i.	Nearest Middle School	NO	
j.	Nearest Secondary School	NO	
k.	Nearest Higher Secondary School / +2 College	NO	
l.	Nearest Graduate College	No	
m	Nearest ITI / Polytechnic Centre	NO	
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	Yes	
r	Veterinary Care Centre	NO	
s	Ayurveda Centre	Yes	
t	E – Seva Kendra	Yes	
u	Bus Stop	No	
v	Railway Station	NO	
w	Library	NO	
x	Common Service Centre	NO	

IV. Sports Facilities in the Gram Panchayat

a. Number of Play Grounds in the GP: Total – Public – Private –

b. Mini Stadium : – 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: – Higher Secondary Govt: –

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)			✓				
b.	Kerosene			✓				
c.	Other (mention)			✓				

2

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 Good / Not Covered	Ambheta	–
b.	Hand Pump Coverage in Villages:	✓Covered Good / Not Covered	Ambheta	–
c.	Coverage under Covered Drains:	✓Covered / Not Covered	Ambheta	–
d.	Coverage under Open Drains:	✓Covered good / Not Covered	Ambheta	–
e.	Villages with Household Electricity Connection (Numbers)	✓Connected good in all house / Not Connected	Ambheta	–

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	1
c.	Un-irrigated Land		f.	Other Common Land		i	Tanks /Ponds	1

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

3

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)	150
b)	Number of Households receiving pension (old age, widow, disability)	50
c)	Number of eligible Households who are not receiving pension	100
d)	Number of Households eligible for Ration Card	All
e)	Number of eligible HHs having ration cards	All
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	8
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	103
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'

Jadiwala Dev (18647030603) Kotwal Hardik (18647030605) Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	15-3-21 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: Ambheta
b. Ward Number: 1 to 8
c. Gram Panchayat: Ambheta
d. Block: Olpad
e. District: Surat
f. State: Gujarat
g. Lok Sabha Constituency: 24 - Surat
h. Number of Habitations / Hamlets in the Gram Panchayat: -
i. Names of Habitations / Hamlets: -

Demographic Information

Number of Households: 360 Total Population: 1713 Male: 872 Female: 841

SC HHs: ____ ST HHs: ____ OBC HHs: ____ Other HHs: ____

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	NO	
d.	Kisan Seva Kendra	-	
e.	Milk Cooperative /Collection Centre	Yes	
g.	Health Sub Centre	Yes	
h.	Bank	Yes	
i.	ATM	Yes	
j.	Bus Stop	Yes	
k.	Railway Station	NO	15 km

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

1

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	Surat - 15km
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: 1 (1-All 2-None 3-Some)

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

b.Hand Pump Coverage in Habitations: 13 (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: 1 (1-All 2-None 3-Some)

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

b. Coverage under Open Drains: 1 (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:_____

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:_____

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

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

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: — Primary Govt.: 1

Middle Private: — Middle Govt.: —

Secondary Private: — Secondary Govt.: —

Higher Secondary Private: — Higher Secondary Govt: —

2

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	—
b.	Irrigated Land		e.	Forests/ Plnatations		h.	Wells/Bore Wells	1
c.	Un-irrigated Land		f.	Other Common Land		I	Tanks /Ponds	1

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	8
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	32
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'

Jadiwala Dev (18647030603 9) Kotaval Hardik (18647030605 0)			15-3-21
Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

Chapter 20: TDO-DDO-Collector email sending soft copy attachment in the report

Developement Scenerio of Ambheta Village, Olpad, Surat

From: Nirant Patel (p.nirant@yahoo.com)

To: tdoolpad@gmail.com

Cc: rurban@gtu.edu.in

Date: Wednesday, 23 June, 2021, 12:12 pm IST

Respected Sir/Madam

I **Nirant J. Patel**, Lecturer in Tapi diploma engineering college under my guidance **Mr. Jariwala Dev M. & Mr. Kotwal hardik H.** of **Tapi diploma engineering college, Surat** affiliated to Gujarat technological university & Accredited by National board of Accreditation. GTU is allotted important and prestigious project of **Vishwakarma Yojna (Part-VIII)** by the Government of Gujarat, in which the students would study the identified villages and make recommendation to achieve integrated and comprehensive development through Technological options.
As a part of Vishwakarma Yojana's guidelines, we have discussed and informed to all the respected officers about our project in which we will shortly notify about **Ambheta village** of Surat district, our design work for them which are as below:

Village: Ambheta

Population: 1713 (As per Census 2011)

Sr. No.	Design	Period	Amount Expenditure	Benefits
1	Public Garden	Within 1 Year	690599 Rs.	For children to play in Garden. And for provide refreshment to the village peoples.
2	Bio Gas Plant	Long Term (3-5 Years)	43398 Rs.	It will help to clean nearby area of village and produce gas prom it.
3	Pond Development	Long Term (3-5 Years)	3151203 Rs.	The development of pond is necessary to this village for the further use of storage of rain water in the rainy season.
4	Public Toilet	Within 1 Year	446064 Rs.	To clean the roads and to maintain healthy life for villagers.
5	Overhead Water Tank	Within 1 Year	2207542 Rs.	Provide Suffiecient water to village people.
6	Public Library	Within 1 Year	948409 Rs.	For Educational Facilities. New paper section is also available in Library.
7	Road	7-8 Months	2198152 Rs.	To provide good connectivity for vehicles.
8	Rain Water Harvesting	Immediately	369283 Rs.	This design is for to save the water for further use in any purpose to do a work.
9	Post Office	Within 1 Year	1090886 Rs.	Provide risk free transaction and saving a

				money of village people.
10	Entrance Gate	7-8 Months	93987 Rs.	To know people this is the Ambheta village entrance and vehicles can transport easily.
11	Public Market	Within 1 Year	138406 Rs.	For Easily getting Vegetables, Dairy product and other things from same place.
12	Bus Stand	7-8 Months	188890 Rs.	For transport fast and easily to villagers.

Please find herewith attached,

Detailed Project Report of **AmbhetaVillage**

Thanking you,

Nirant J. Patel
Lecturer in Civil engineering Department
Tapi diploma engineering college, Surat
Mo. No.- 8866351662

Vishwakarma Yojana Phase- VIII- Surat- Ambheta.pdf
19.7MB

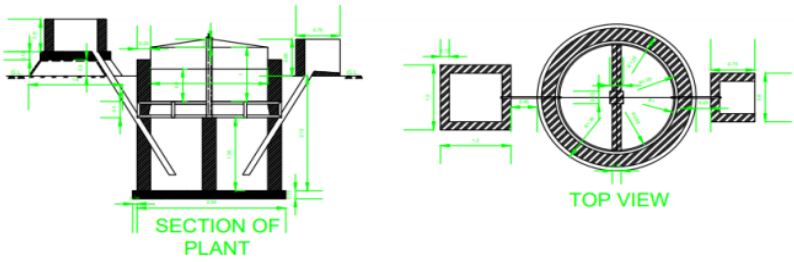
Chapter 21: Comprehensive report for the entire village

- In Vishwakarma Phase-VIII, we selected Ena Village as an Ideal Village. It is 34 km away from Surat City. We visited Ena village. Roads of Ena village is Pucca and vehicle can pass easily. Panchayat building, Post Office, Public Health Center is in Good Condition. Gate, Bio Gas Plant is available. Streets and Roads are very clean in Ena Village. So, we decided to make design of Bio Gas Plant and Public Toilet to clean the village and to maintain healthy life of villagers.
- Then We selected Baben Village as Smart Village. Its Electricity condition is Good. And Pond is also developed. Sewage system is also good in Baben Village. It is 40 km away from Surat City.
- Allocated Village: Ambheta
    - It is 15 km away from Surat City. We Visited Ambheta Village, there we see Situations of buildings, roads, school, lake.
    - Then we met Sarpanch Mahadev Bhai Rathod and Talati Nitesh Bhai. We explained whole project and we take permission for survey.
    - We also ask them what they need in their Village.
    - And during surveying we also ask that to the Villagers. They told us about what they need in the village.
    - Village was not that good at cleaning. so, we explain villagers about Swatchh Bharat Abhiyan and cleanliness is also good for their and animals' health. So, we clean some of area and some of villagers also help us.
    - Coronavirus disease is a contagious disease. Its Case is increasing day by day in all over world. Some of Villagers was not taking precautions so, we aware them about COVID-19 and precautions. We told them to wear mask when they are going somewhere. And sanitize their hand regularly.
    - As per Gap analysis we decide to make designs that are as per below.

- Design Proposal: -

1. Biogas Plant: -

Estimated value: - 43398.21



2. Pond Development: -

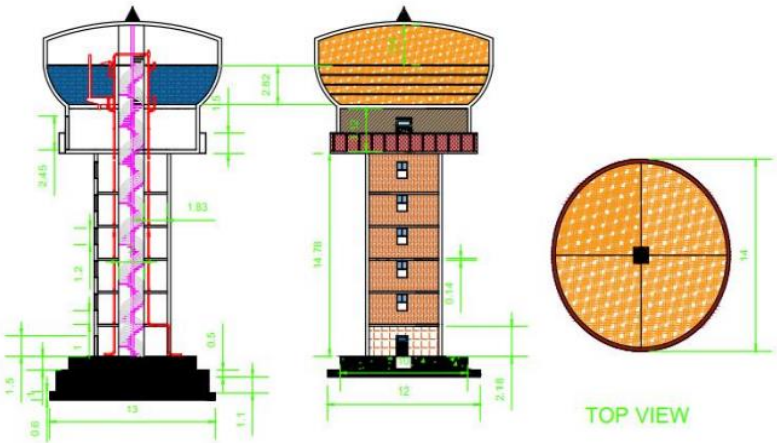
Estimated value: - 3151203.55

3. Public Library: -

Estimated value: - 948409

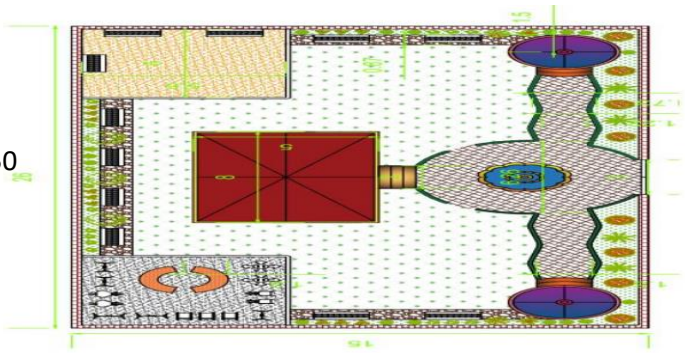
4. Overhead Water Tank: -

Estimated value: - 2207542.37



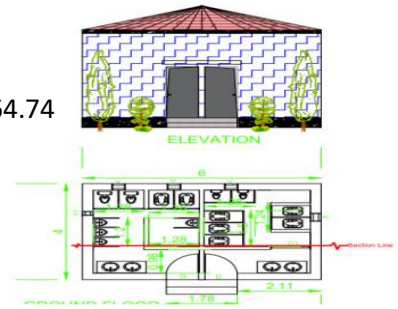
5. Public Garden: -

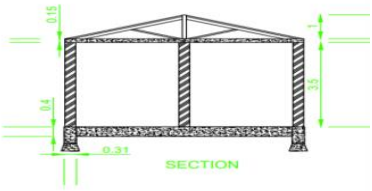
   Estimated value: - 6,90,599.50



6. Public Toilet: -

   Estimated value: - 446064.74



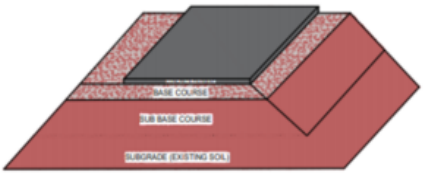


Name	Size
V	0.34 x 0.27
V1	0.27 x 0.17
D	0.81 x 0.27
D1	1.00 x 0.27

7. Road: -

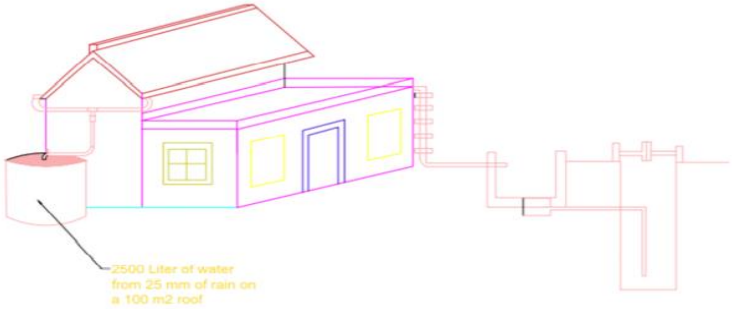
   Estimated value: - 2198152.5

Road Section



8. Rain Water Harvesting: -

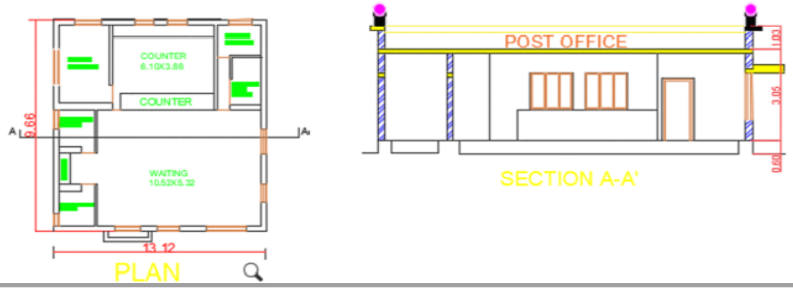
   Estimated value: - 369283



RAIN WATER HARVESTING

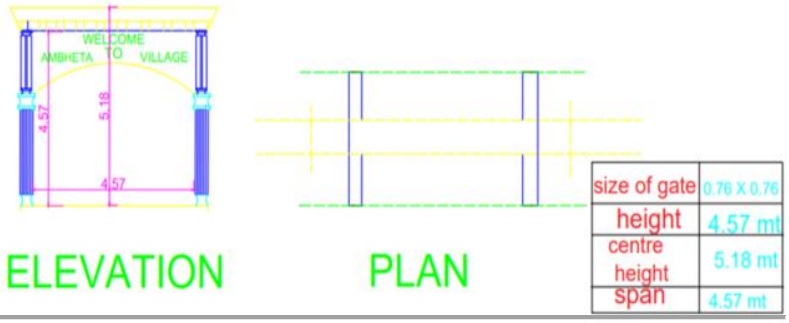
9. Post Office: -

Estimated value: - 1090886



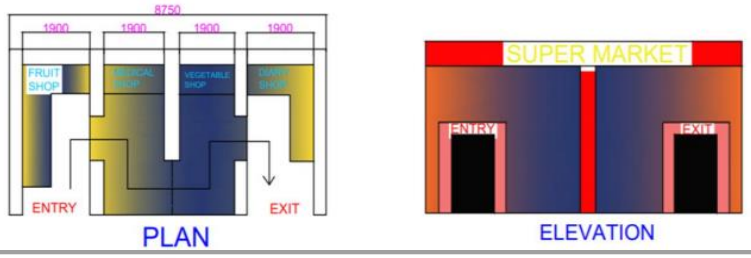
10. Entrance Gate: -

Estimated value: - 93987



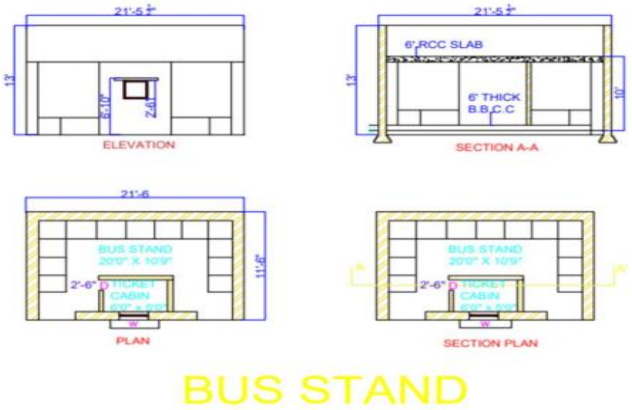
11. Public Market: -

Estimated value: - 138406



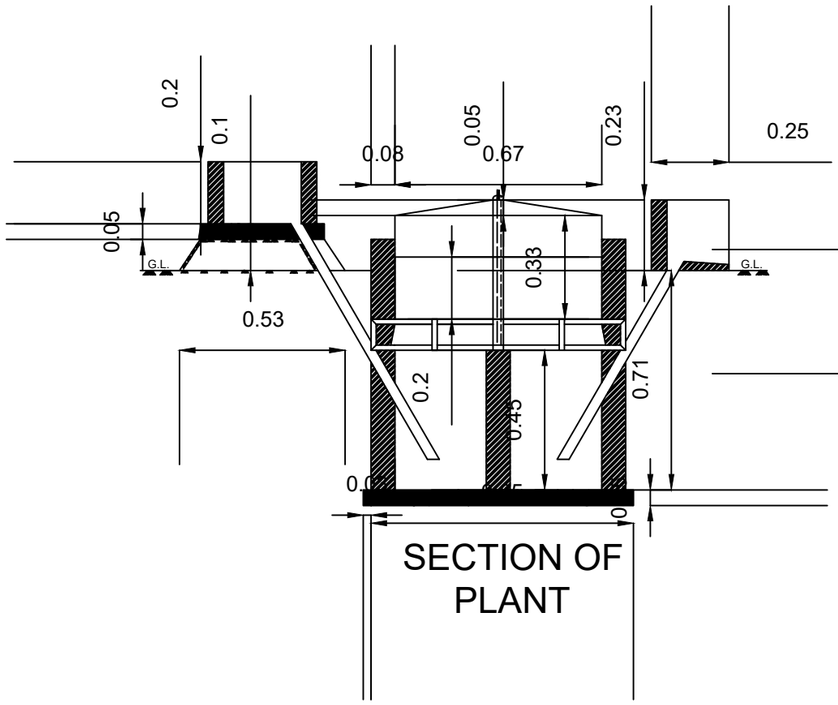
12. Bus Stand: -

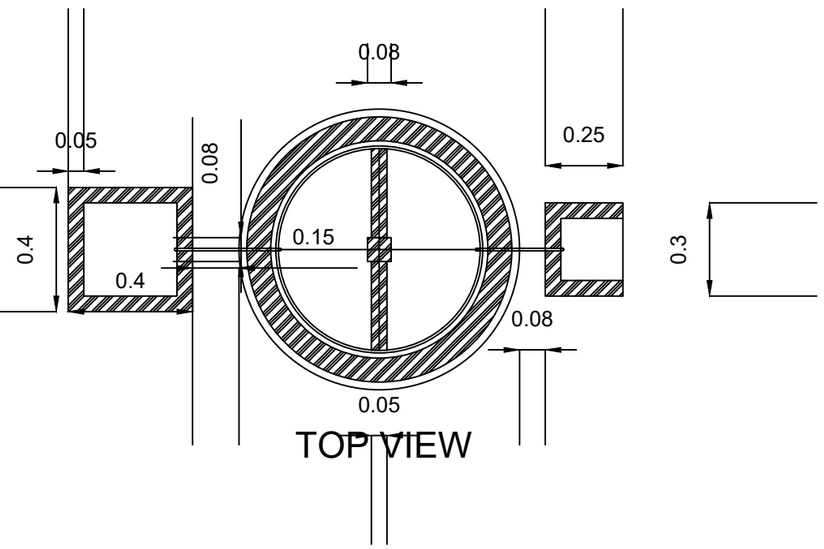
Estimated value: - 188890



Chapter 22: Entire Village Video of 2 minute (Film)

https://youtu.be/4uZE23WJ1n8





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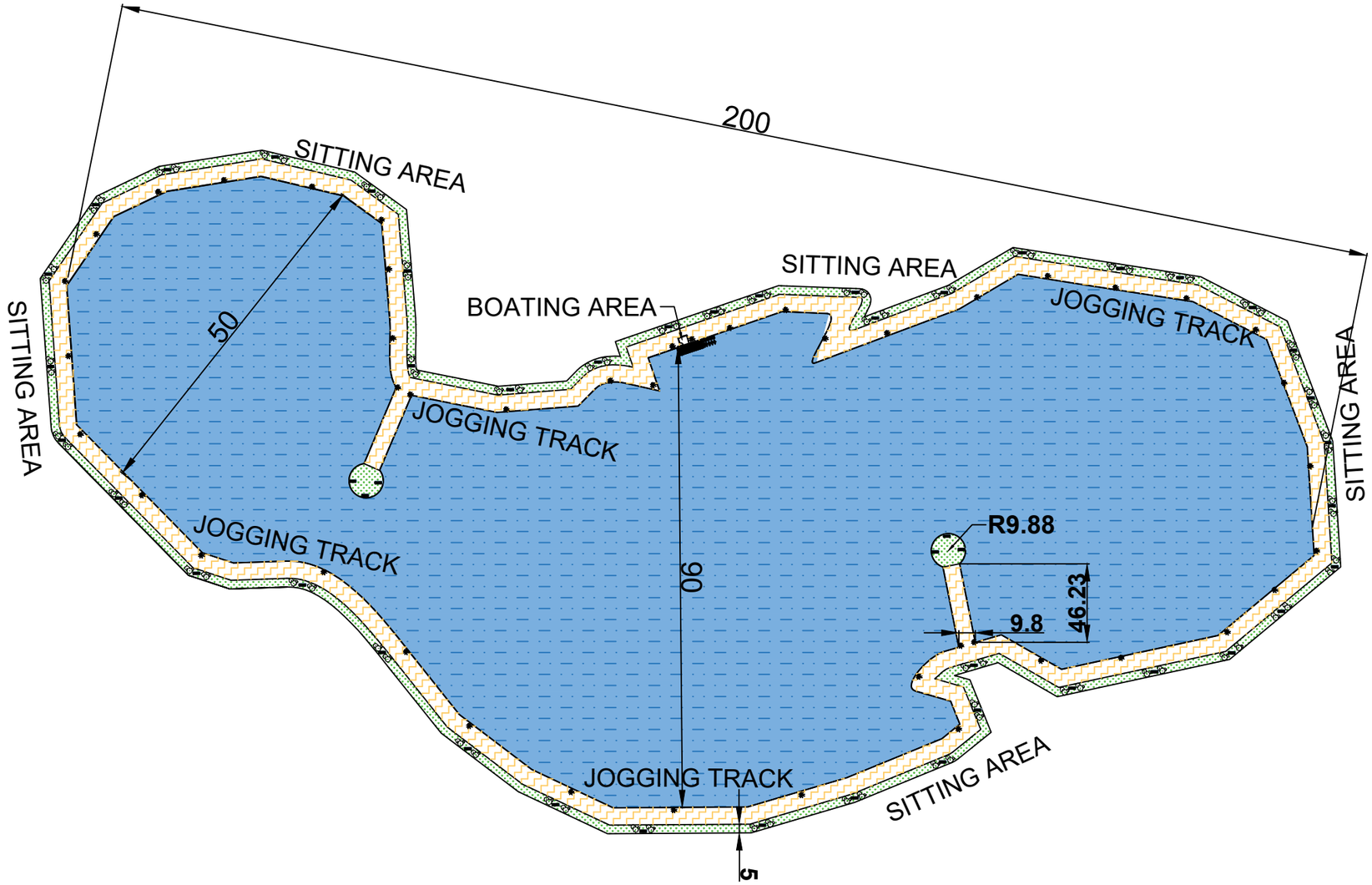
Varachha Road, Kapodra,
SURAT, Pincode - 395006
tapidiploma@gmail.com

Design Name :- Biogas Plant

Drawing No :- 1



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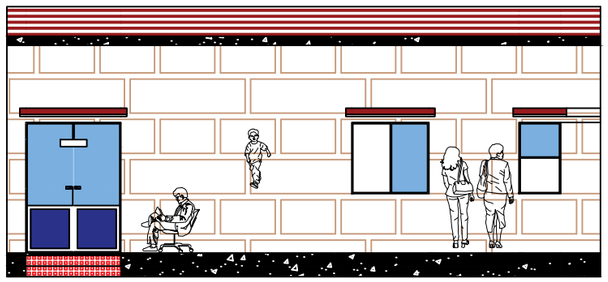
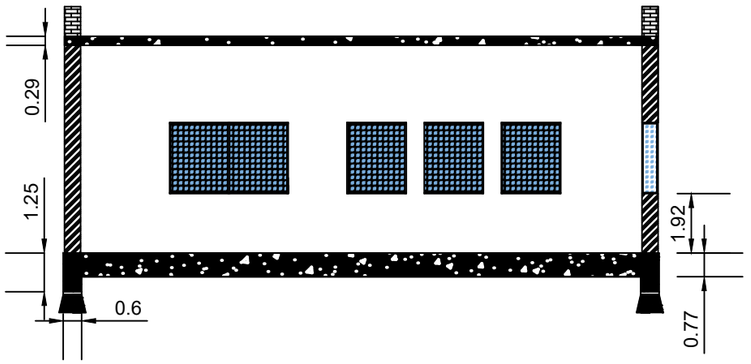
Design Name :- Pond Development

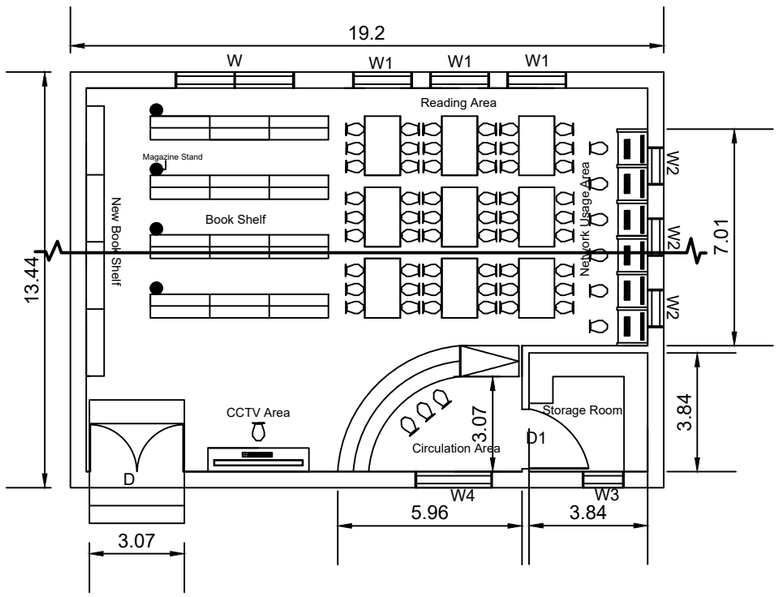
DRG. NO: 2



ELEVATION



SECTION



GROUND FLOOR

NAME	SIZE (IN METER)
W	2.00 X 0.27
W1	1.00 X 0.27
W2	0.27 X 0.64
W3	0.70 X 0.27
W4	1.30 X 0.27
D	1.60 X 0.79
D1	1.00 X 1.00

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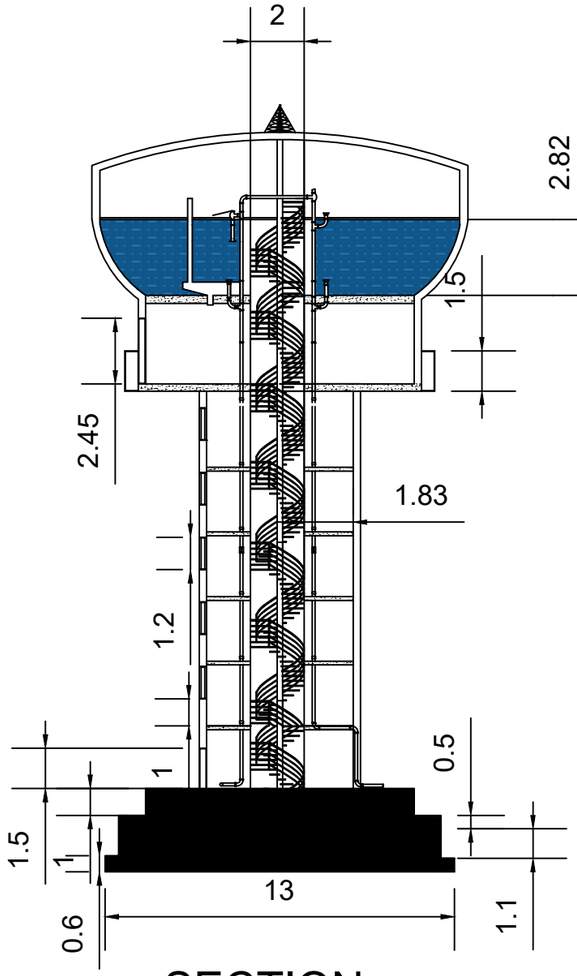
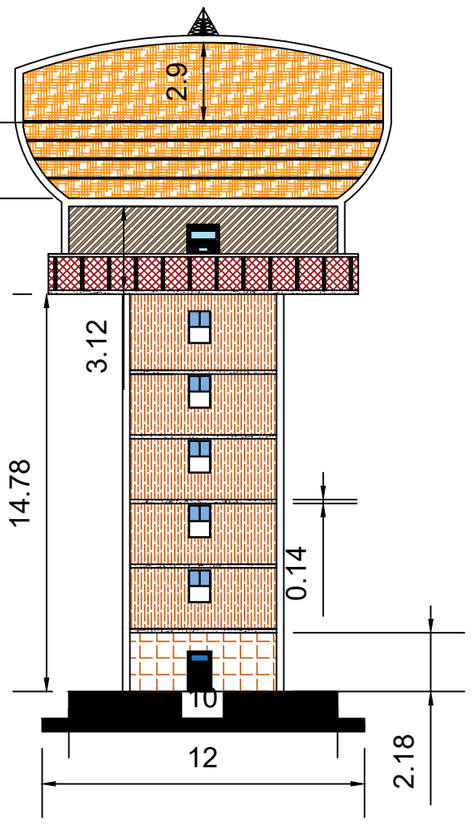
Design Name :- Public Library

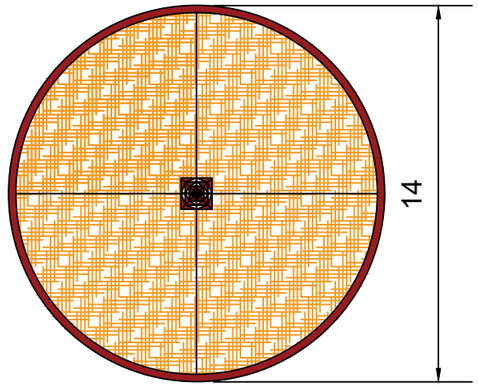
Drawing No :- 3



SECTION



ELEVATION



TOP VIEW

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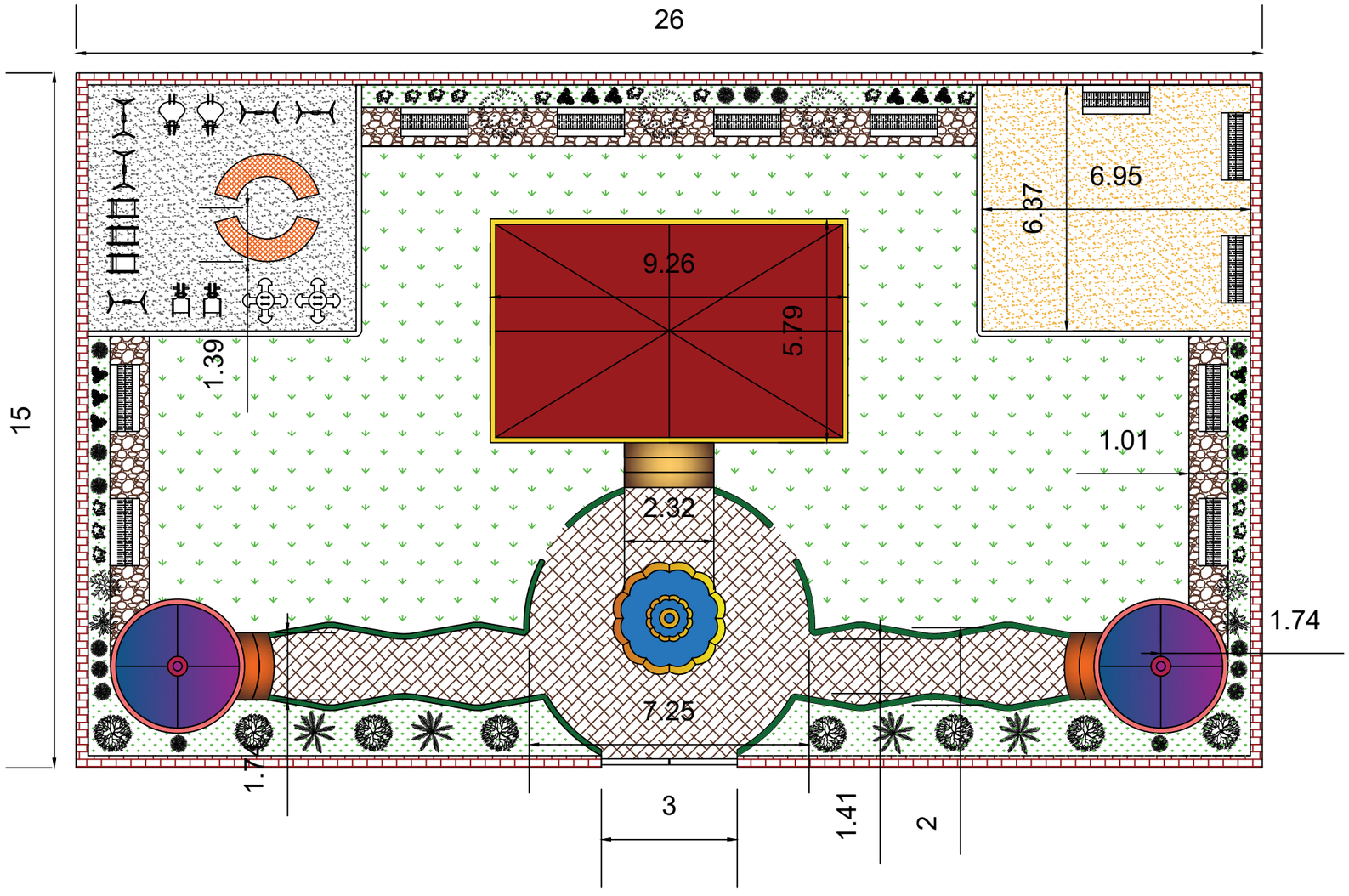
Design Name :- Overhead Water Tank

Drawing No :- 4



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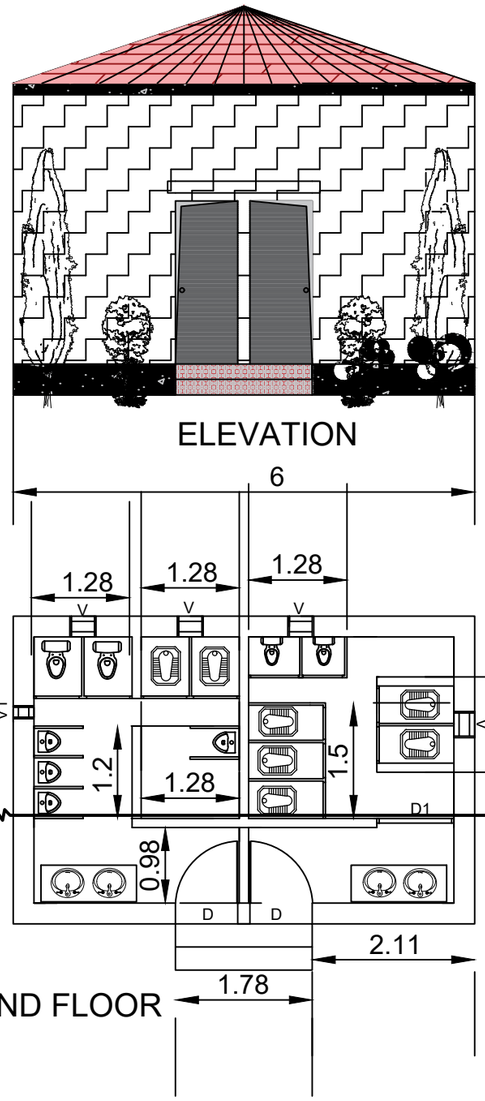
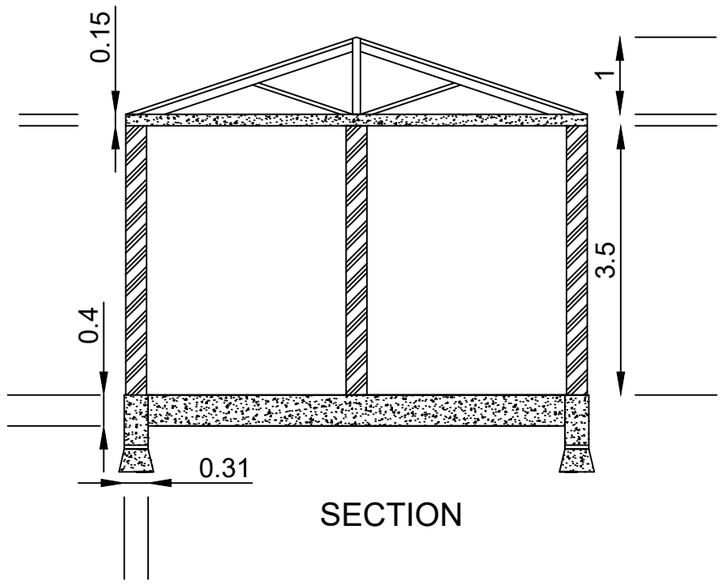
Design Name :- Public Garden

Drawing No :- 5





Name	Size
V	0.34 x 0.27
V1	0.27 x 0.17
D	0.81 x 0.27
D1	1.00 x 0.27

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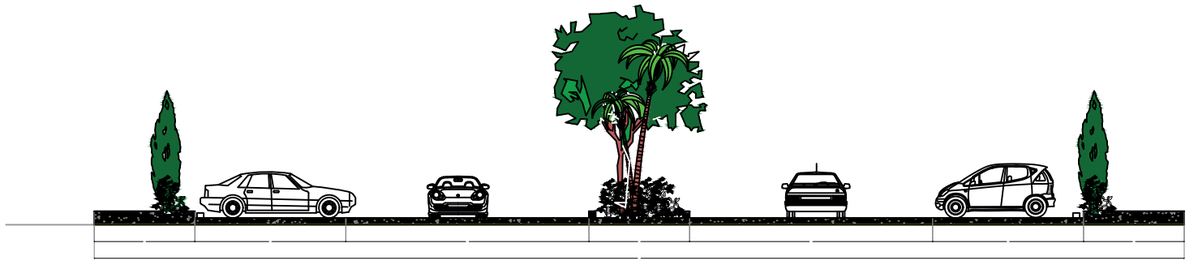
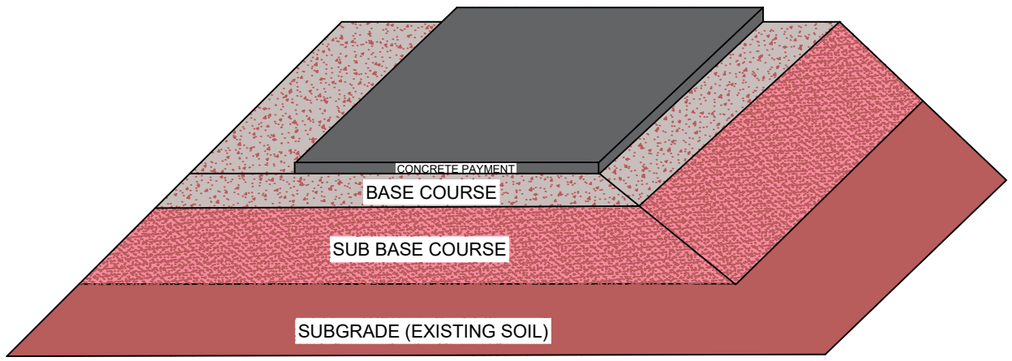
Design Name :- Public Toilet

Drawing No :- 6



Road Section



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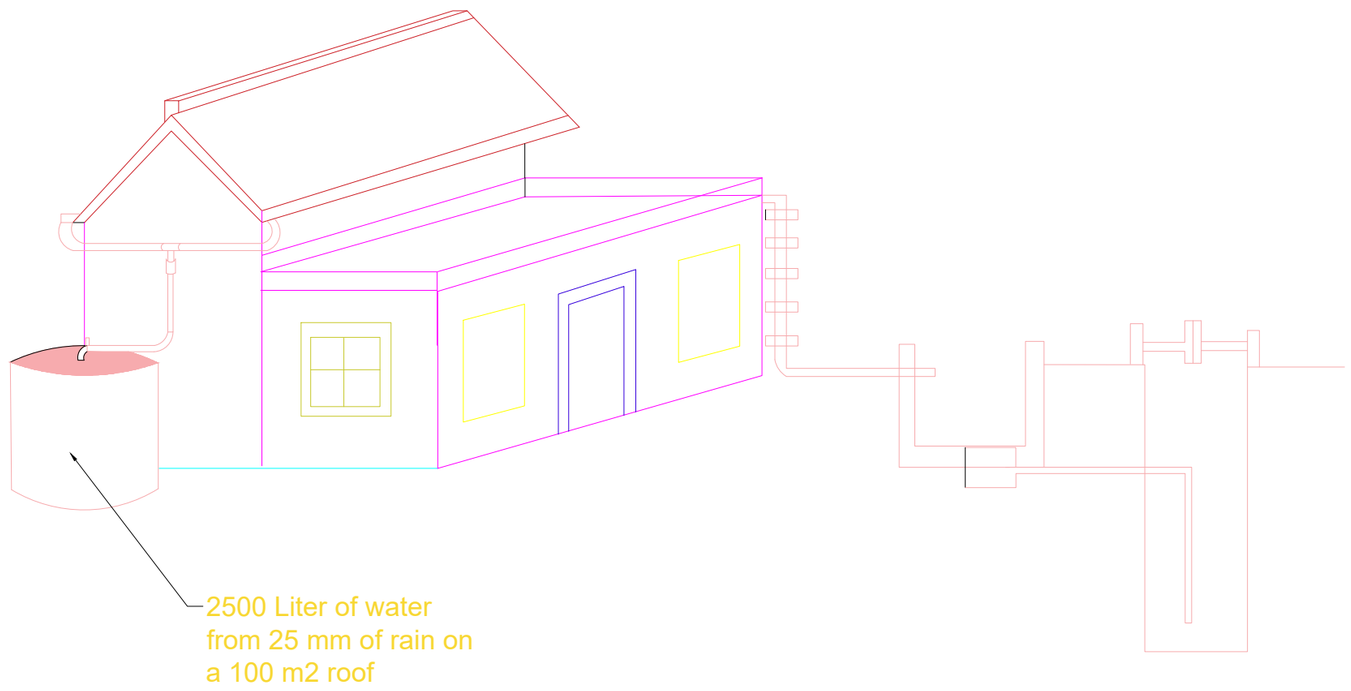
Design Name :- Road

DRG. NO: 7



RAIN WATER HARVESTING

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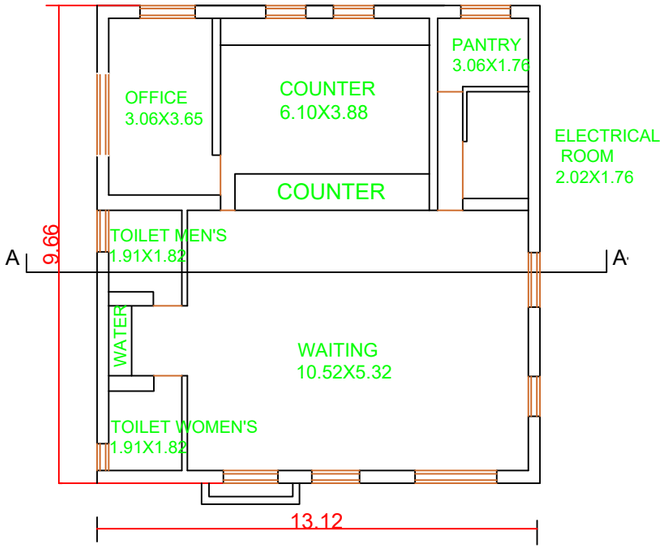
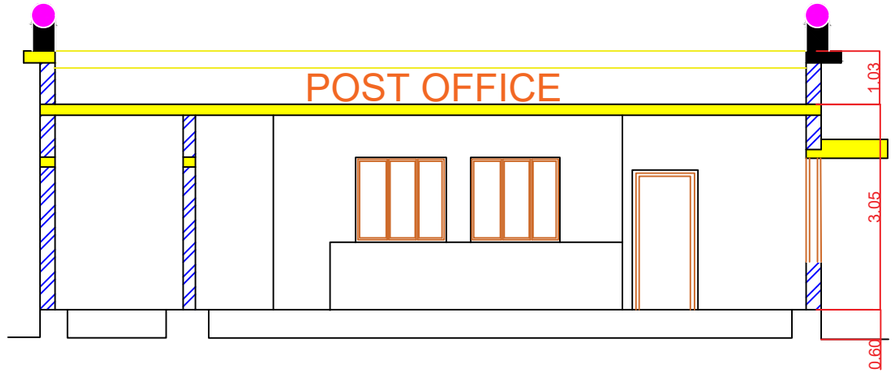
Design Name :- Rain Water Harvesting

DRG. NO: 8



PLAN



SECTION A-A'

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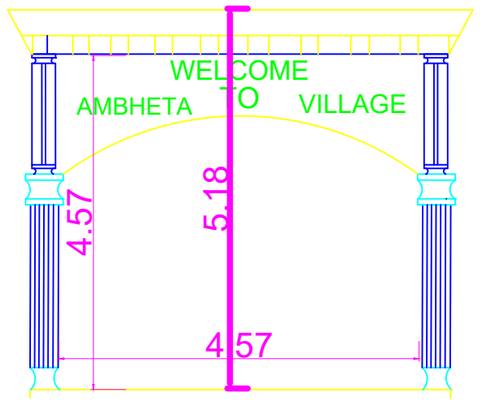
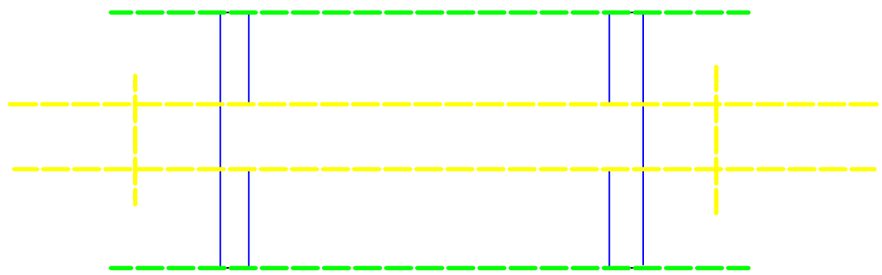
Design Name :- Post Office

DRG. NO: 9





ELEVATION

PLAN

size of gate	0.76 X 0.76
height	4.57 mt
centre height	5.18 mt
span	4.57 mt

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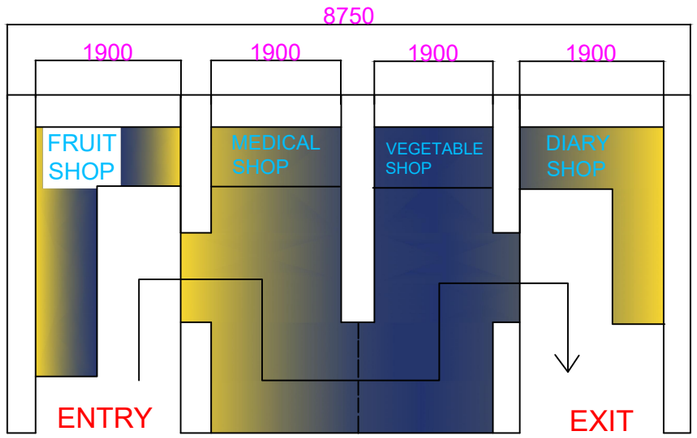
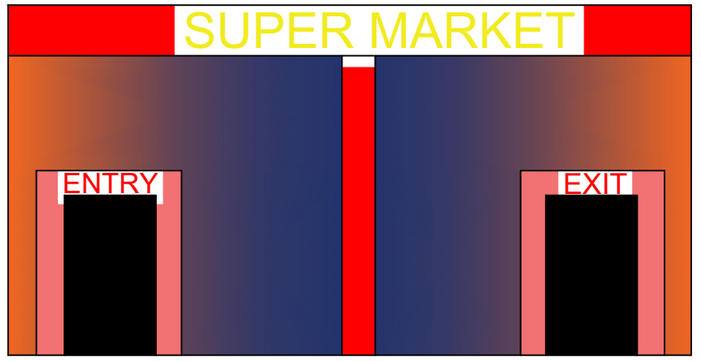
Design Name :- Entrance Gate

DRG. NO: 10



PLAN



ELEVATION

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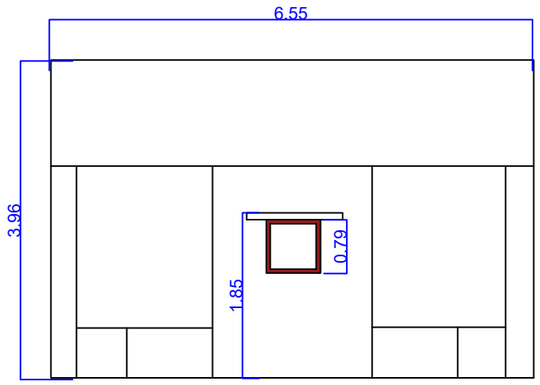
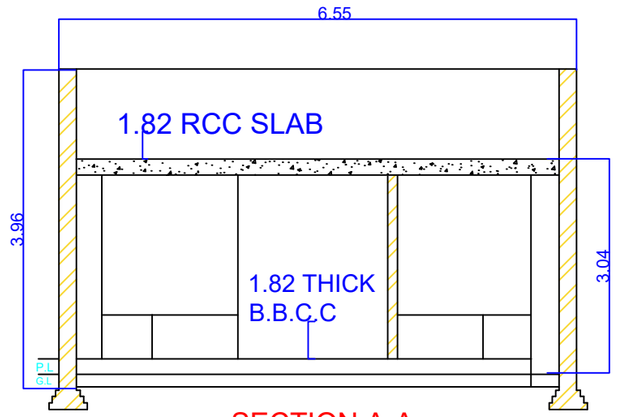
Design Name :- Public Market

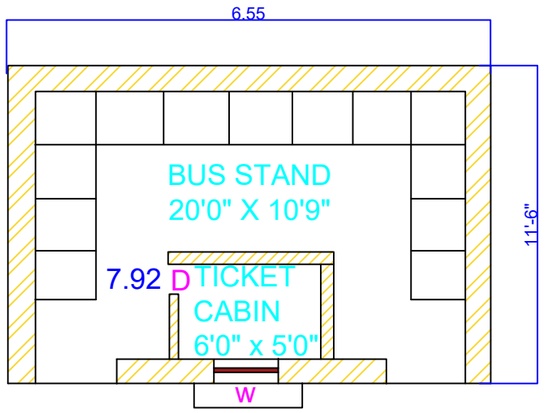
DRG. NO: 11



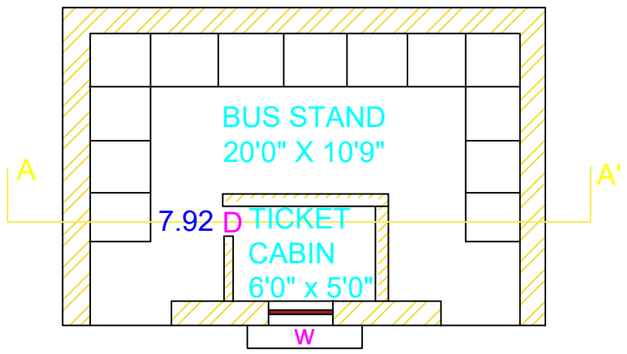
ELEVATION



SECTION A-A



PLAN



SECTION PLAN

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Design Name :- Bus Stand

DRG. NO. 12