



MOC AN CHAU LOGISTICS CORPORATION



(4th Floor), 29 Nguyen Khac Nhu Street,
Cau Ong Lanh Ward, Ho Chi Minh City, Viet Nam



mac@maccorp.com.vn
www.maccorp.com.vn



Da Phuoc Solid Waste Treatment Complex and
Cemetery, Hung Long Commune, HCMC, Vietnam



+ 84 28 3535 5050
+ 84 343 67 68 69



MOC AN CHAU PROFILE

Collection, Transportation & Treatment of Industrial-Hazardous Waste

CONTENTS



INTRODUCTION

03



COMPANY OVERVIEW

04

Important Milestones

04

Vission - Mission - Action Guidelines

06

Company Organization

07

Activity Fields

08



MOC AN CHAU FACTORY

10

Factory Overview

11

The Legal Documents

14

Waste Treatment Process

15

Specialized Transportation Vehicles

16

Waste Treatment Systems

18

INTRODUCTION



Moc An Chau Logistics Corporation (mAc) greets and sincerely thanks customers, agencies, partners and contractors for your interest and belief in mAc's environmental services.

mAc was established in 2007. We have had a long way of developing in the investment and environment fields. mAc is a combination of the original name Arcadia with the Vietnamese meaning Moc An Chau. Inspired by Greek mythology, Arcadia is a peaceful and pristine holy land, which brings a sense of peace and comfort to the forest god and to all the courtiers. Arcadia is the goal and vision that mAc aspires to bring to all customers through our products and services.

mAc lives and works with the action guidelines "A green clean path to the future". Each product, service, and action of mAc is geared towards serving the community, living environment as well as directing the community to a better life in a sustainable way. mAc provides consulting services and solutions so that businesses can move towards sustainable development in all three aspects: financial growth, community benefits and preserving the environment. For state agencies, mAc is one of the useful solutions in the management of industrial and hazardous waste in particular and environmental protection in general. For partners and contractors, mAc is a potential and reliable unit.

mAc has invested and built the Industrial - Hazardous Waste Recycling and Treatment Factory with total capacity of 500 tons/day, phase 1 with a capacity of 313 tons/day with full modern treatment technology under a closed process. The factory has been built on an area of nearly 17ha, is the first large-scale and modern Industrial - Hazardous Waste Recycling and Treatment Factory in Ho Chi Minh City. With our investment in the factory, mAc is committed to ensuring the treatment of all types of waste arising from your company's manufacturing activities thoroughly with the most closed, safe and effective process. Besides, our company is committed to providing services with competitive prices and dedication to bring satisfaction to customers.

GENERAL DIRECTOR

Truong Kien Dung

COMPANY OVERVIEW

IMPORTANT MILESTONES

Established businesses

Investing in construction and providing environmental services and waste management

2007

Investment factory planning

Investment project planning: "Industrial-Hazardous Waste and Recycling Factory"

2011

The Environmental impact assessment of project was approved

Ministry of Natural resources and environment approved the Environmental impact assessment of project: "The Industrial-Hazardous Waste Recycling & Treatment Factory"

2016

Groundbreaking ceremony

Groundbreaking ceremony of the Industrial - Hazardous Waste Recycling and Treatment Factory

2019

Approving to operate

Ministry of Natural Resources and Environment approved for operating the Factory

2021

Moc An Chau Logistics Corporation (mAc) was established in 2007 under the Business Registration Certificate license number 0304806666 issued by the Department of Planning and Investment of Ho Chi Minh City, registered for the third change on 15/12/ 2020.

mAc has a history of formation and development for more than 12 years operating in the field of investment and environment. From the early days of establishment until now, we have always oriented the development strategy of the business to always be closely associated with the stable and sustainable development of the community and society.

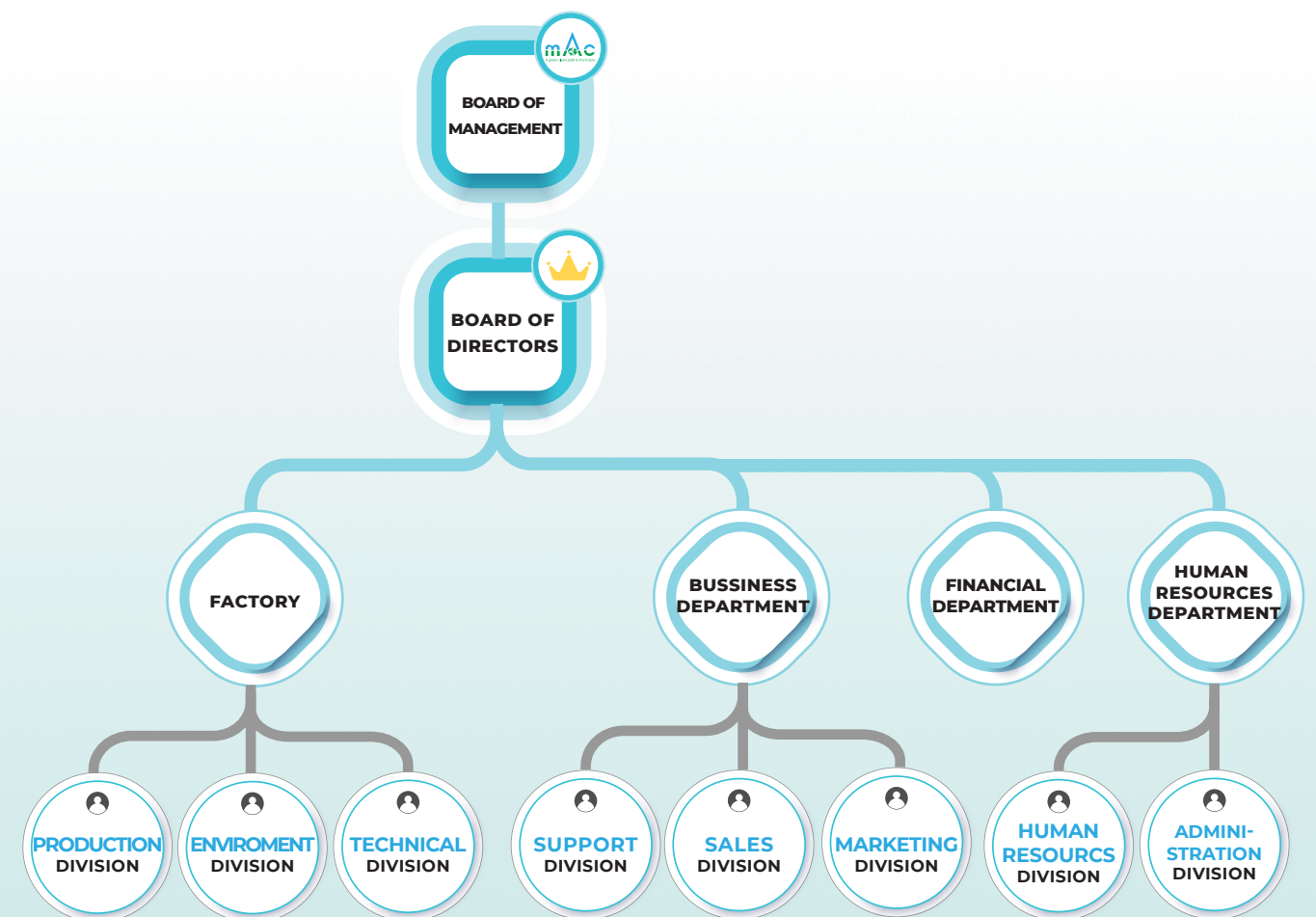


COMPANY OVERVIEW

VISION - MISSION - ACTION GUIDELINES



COMPANY ORGANIZATION



WHAT ARE WE COMMITTED TO?

INFORMATION SECURITY;

WASTES TREATMENT PROCESS MEETS THE STANDARDS, PROCEDURE AND SUFFICIENT VOLUME;

COOPERATION, MAXIMUM SUPPORT AND CREATE LONG-TERM VALUE FOR CUSTOMERS.



Through many years of operation, the company has built up a team of experienced environmental technology experts, professional, dynamic and enthusiastic staffs ready to assist businesses in making the best choice.

ACTIVITY FIELDS



1.1. Recycle and treatment of industrial waste

- Sanitary landfill: non-hazardous wastes;
- Composting Plants for biodegradable organic waste such as waste sludge from the food industry, expired food, etc;
- Recycling Plants.

1.2. Recycle and treatment of hazardous waste

- Recycling waste oil, lubricant and waste plastic;
- Incinerator (combustion with two chambers): Hazardous sludge, solder, photoresist waste, paint and ink waste, cloud contaminated hazardous components, etc;
- Wastewater treatment: wastewater contaminated oil, heavy metals, chemical, acid wastewater, base waste water, etc;
- Stabilization/solidification: ash from the incinerator, cinders, abrasive powder from metal abrasive, glass contaminated hazardous components, etc;
- E-waste preliminary treatment: disassemble E-waste, shredding, cutting, grinding, etc;
- Batteries preliminary treatment: disassemble the battery into many components such as lead sheet, plastic, and acid solution. Each component is treated or recycled by sustainability hazardous recycling facilities;
- Cleaning system of container-contaminated hazardous components: semi-automatic washing technology;
- Waste fluorescent lamp and other lamps: crushing and sieving system;
- Handling metals contaminated with hazardous components, cleaned metals are transferred to recycling units.



2. Collecting & transporting

- Non-hazardous wastes (solid/liquid/semi-solid/ liquid) and scrap;
- Hazardous wastes (solid/liquid/sludge);
- Waste sludge (non-hazardous) from wastewater treatment systems;



3. Destruction of merchandise

- Destruction of merchandise at the request of agencies: fake goods, unknown-origin merchandises, expired merchandise, imported merchandise that failed to meet import standards, etc;
- Destruction of expired foods, commodities, pharmaceuticals products, etc;
- Providing services for the destruction of documents, CDs, DVDs kept by agencies, schools, hotels, banks, etc.
- Our services ensure that the information of customers is not leaked with absolute secrets.



4. Scrap purchasing

- Metal: Iron and steel, aluminum, copper, etc;
- Plastics;
- Paper and cardboard;
- Textile;
- Barrels;
- Other.



5. Consultants

- Carrying out bidding documents and assessing tender documents on waste treatment facilities;
- Carrying out reports on environmental construction investment projects;
- Carrying out environmental impact assessment, plan of environmental protection and environmental protection document;
- Carrying out environmental quality monitoring;
- Other environmental documents.



- Consulting, designing, constructing, installing and operating supply water, wastewater and air pollution treatment facilities
- Operating, training and transferring technology of environment treatment systems.
- Designing, installing and constructing hazardous waste storage depots in accordance with current regulations.

MOC AN CHAU WASTE TREATMENT FACTORY

500 Ton / Day



Goal

Recycling and treating industrial-hazardous waste for the following subjects:

1. Industrial facilities (inside and outside the Industrial Park, Export Processing Zone, Hi-Tech Park & Industrial Cluster);
2. Laboratory of Analytical Centers, Institutes and Universities;
3. Supporting medical facilities (hospitals, polyclinics, etc) in cases of epidemics;
4. Supporting farms in case of epidemics (Bird flu, foot-and-mouth disease, etc.);
5. Supporting emergency cases (contaminated soil, chemical spill, etc.);
6. Supporting Ho Chi Minh City's program: "Waste segregation at source";
7. Serving the Program: "Recalling vehicles beyond the expiry date of the country".



Operating Principles

1. Treatment of pollutants in order to protect the environment meets the national standards at the highest level;
2. Recycling waste into materials or products at the highest rate;
3. Using energy and natural resources (water, land) effectively, towards low carbon emissions, green growth, adaptation to climate change and sustainable development.

FACTORY OVERVIEW



Project Location

The factory is located at Da Phuoc Solid Waste Treatment Complex, Da Phuoc Commune, Binh Chanh District, Ho Chi Minh City, Viet Nam. The factory is contiguous to:

- + North – Green Sai Gon Sludge Treatment Plant;
- + East – Green Sai Gon Sludge Treatment Plant;
- + South - Nga Cay Canal ;
- + West - Chieu Canal.



Scale

The factory has an area of 169,142.2m² (nearly 17 hectares), in which:

- Land used for waste treatment – 5.8 ha;
- Land used for incinerator – 0.84 ha;
- Land used for laboratory applications and new technologies – 1.96 ha;
- Land used for operating office – 0.5 ha;
- The security landfill – 2 ha;
- Land used for infrastructure, parking, and transportation – 3.41 ha;
- Green area - water surface – 2.4 ha.



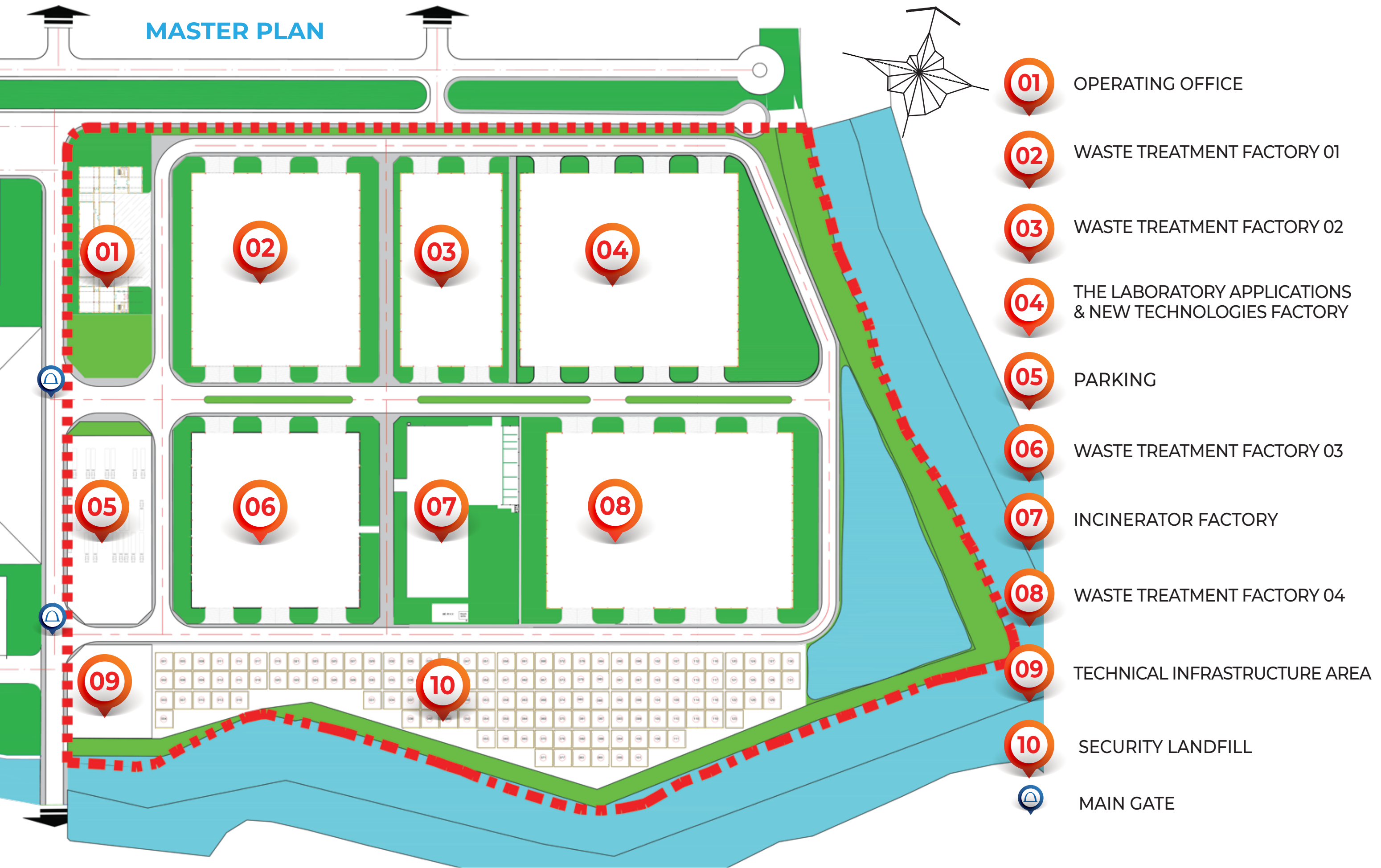
Total Investment

- Stage 1: 656,935,000,000 Viet Nam dong;
 Stage 2: 369,313,400,000 Viet Nam dong;
 Stage 3: 438,096,600,000 Viet Nam dong;
Total : 1,464,345,000,000 Viet Nam dong.

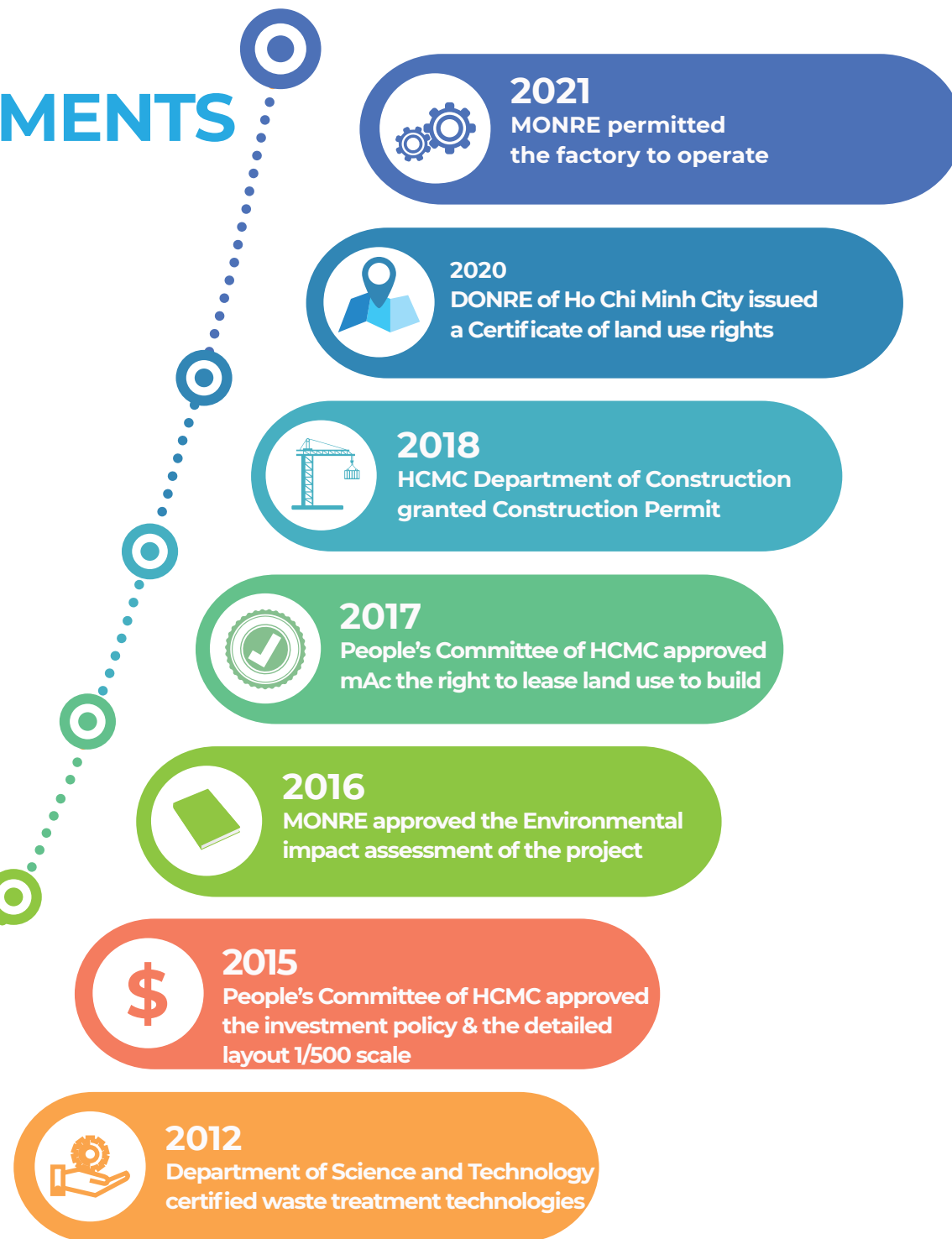
10 YEARS of
ENTHUSIASM

“

Pursuing the Project since 2011 with the desire to be able to provide more solutions for Ho Chi Minh City in environmental protection for the community, promote local economic development, call for investment but always ensure sustainability and stability for society. This orientation is consistent with the tasks set by the Prime Minister in Decision No. 491/QĐ-TTg dated 07/05/2018, together with Resolution No. 03 on urban environmental protection, residential areas and waste management in the city.



LEGAL DOCUMENTS

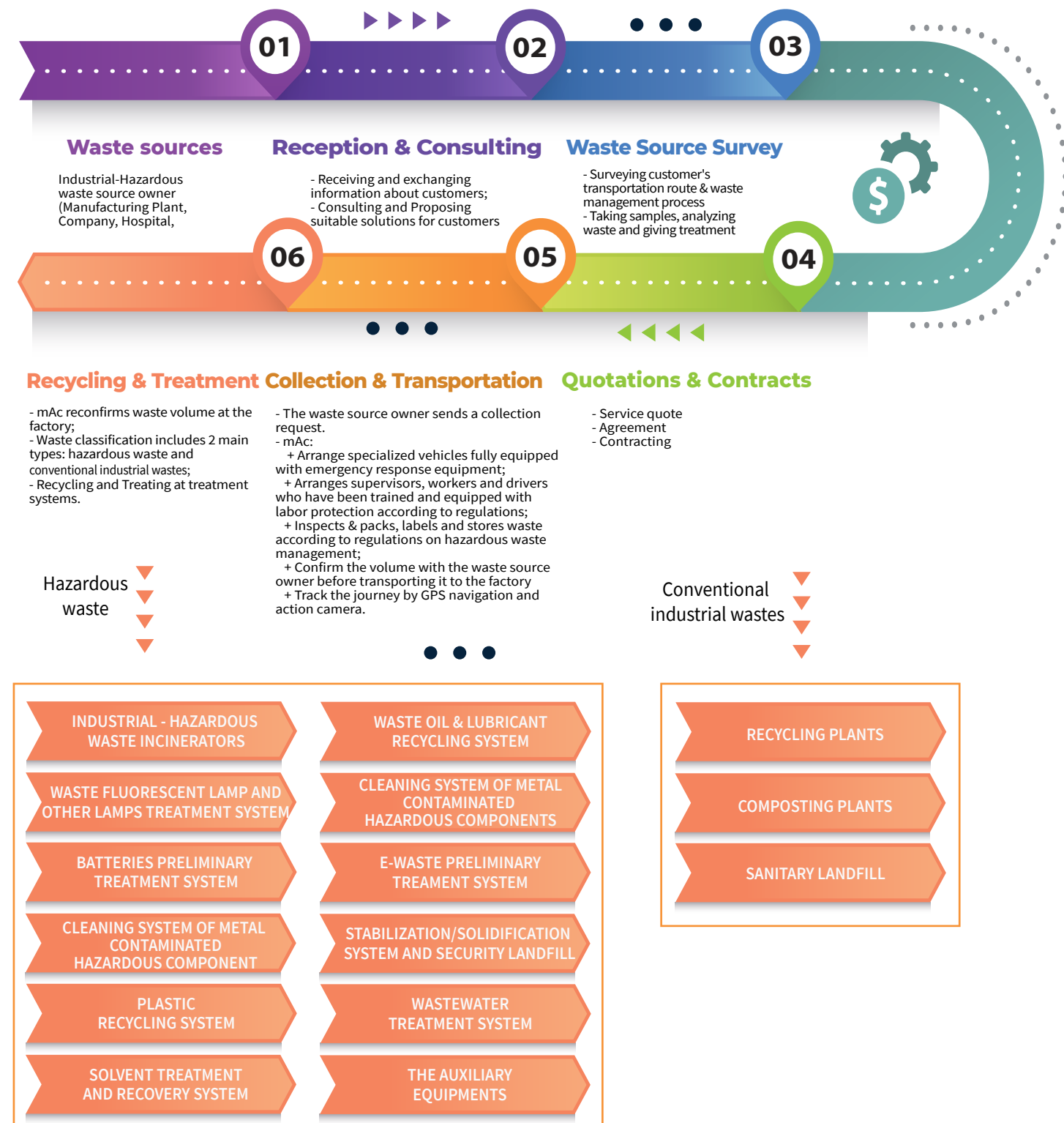


THE LEGAL BASIS IS FULL AND TRANSPARENT

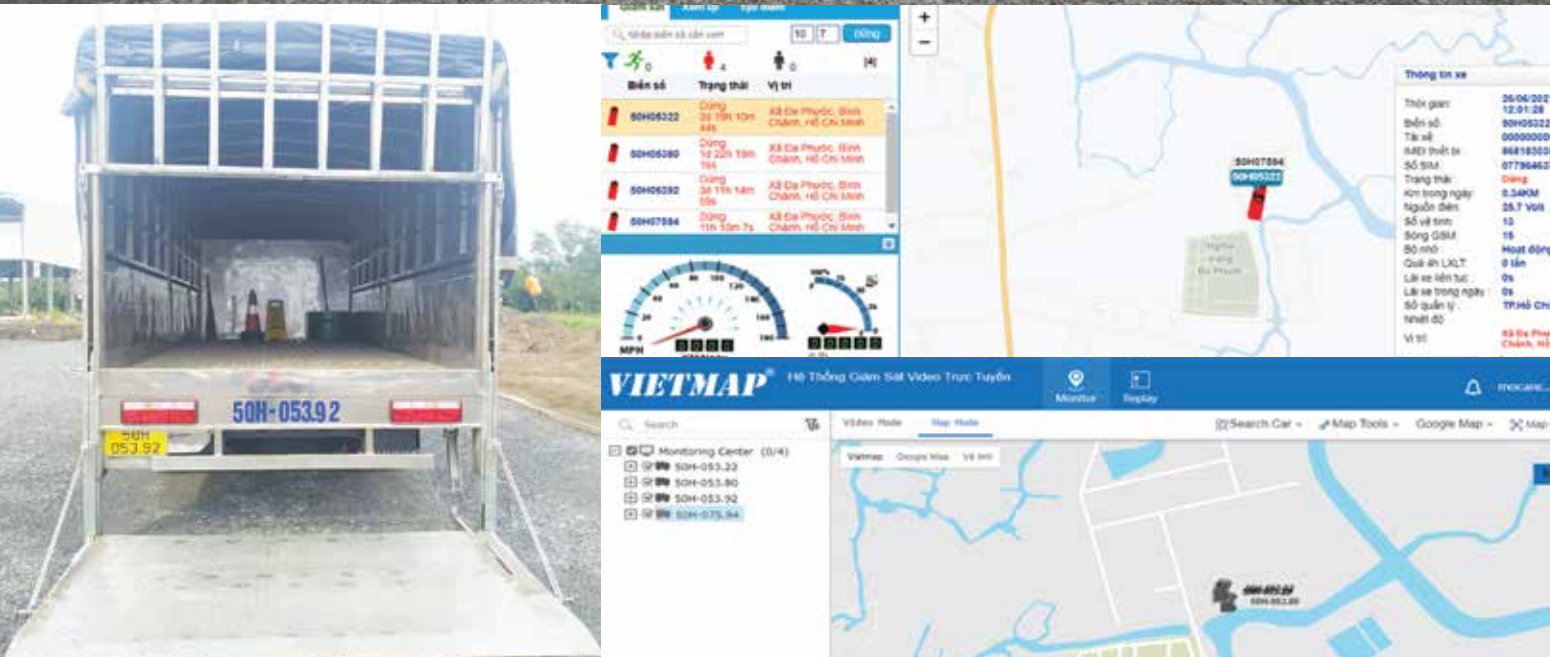
(Scan the QR code to download the legal documents)



INDUSTRIAL - HAZARDOUS WASTE TREATMENT PROCESS



SPECIALIZED TRANSPORTATION VEHICLES



Specialized collection and transportation vehicles are designed to prevent spills and are equipped with GPS global monitoring equipment, dash cams, signs, emergency response equipment,...

06 COLLECTION AREAS

The collection area licensed by MONRE according to regions and area codes include:

- Northern midland and Mountainous
- Red River Delta and Central Coast;
- North Central & Central Coast;
- Highlands;
- Southeast;
- Mekong Delta.

67.280.000 KG WASTE/ YEAR
(Stage 1)

mAc applies for a license for all hazardous waste codes according to Circular 02/2022/TT-BTNMT, except for halogen codes, and PCBs, .. with the licensing capacity corresponding to each waste treatment system as follows:

- Industrial - Hazardous Waste Incinerators: 14,400,000 kg/year;
- Wastewater Treatment System: 34,880,000 kg/year;
- Cleaning System Of Metal Contaminated Hazardous Component: 2,700,000 kg/year;
- Plastic Recycling System: 1,500,000 kg/year;
- Waste Oil And Lubricant Recycling System: 4,500,000 kg/year;
- Solvent Treatment And Recovery System: 1,500,000 kg/year;
- Cleaning System Of Metal Contaminated Hazardous Components : 1,500,000 kg/year;
- Waste Fluorescent Lamp And Other Lamps Treatment System: 300,000kg/year;
- Batteries Preliminary Treatment System: 1,500,000 kg/year;
- E-Waste Preliminary Treatment System: 600,000 kg/year;
- Stabilization/Solidification System: 3,900,000 kg/year;



The project is large-scale, capable of development and expansion when social needs increase; The project is well-invested, with appropriate treatment technologies, the project is capable of handling most types of industrial and hazardous waste according to regulations.

INDUSTRIAL - HAZARDOUS WASTE INCINERATORS



Automatic Waste Loading

Two solid waste and liquid waste feeding inlets are located separately and automatic shutdown control when goes wrong.

Rotary Kiln Incinerator

The wastes are mixed evenly, which helps the combustion process to take place completely.

Negative Pressure Combustion Chamber

Covering the exhaust gas doesn't escape during the treatment process.

Monitoring Camera

Monitoring the combustion of waste in the incinerator systems.

Dust & Emissions Treatment

Dust (combined treatment of dry and wet methods) and emission are quickly cooled by water and by indirect gas to reduce the emission's temperature quickly from about 1,050°C to 250°C, preventing the re-formation of harmful substances in the emission and increasing the treatment efficiency of the equipment.

Automatic Emission Monitoring System

Transmitting data directly to the monitoring system of the DONRE.

Ash & Slag Collection Device

Ash and Slag are Removed by a sealed scraper conveyor into a covered container, which doesn't release dust.



Rotary Kiln incinerator use rotary barrel-type two-stage pyrolysis combustion technology. The system consists of 3 main parts: 1) Waste loading unit; 2) Primary combustion chamber (stationary part connected to secondary furnace and Rotary Kiln) and secondary combustion chamber (stationary chamber); and 3) Emission treatment system.



Technology: ROTARY KILN
Total capacity: 192 tons/day
Quantity: 04 Incinerators

Stage 1: 02 Incinerators – 1 ton/hour/Incinerator
Stage 2: 01 Incinerator – 2 tons/hour/Incinerator
Stage 3: 01 Incinerator – 4 tons/hour/Incinerator





FLUORESCENT LAMP TREATMENT SYSTEM

Handling fluorescent lamps, compact light bulbs, filament bulbs, etc., and recovering components after destruction and avoiding dust and emissions into the environment.

Quantity : 02 systems
 Stage 1 : 01 ton/day
 Stage 2 : 01 ton/day
Total capacity : 02 tons/day



BATTERIES PRELIMINARY TREATMENT SYSTEM

Separating lead and plastic components of waste batteries.

Quantity : 01 system
 Stage 1 : 05 tons/day
Total capacity : 05 tons/day



CONTAINERS CLEANING SYSTEM

Removing the sticky components inside, cleaning the outer surface and correcting the shape of the containers. Containers can be painted according to the customer's needs. Reusing products after cleaning for storage or scrap purposes.

Quantity : 02 systems
 Stage 1 : 09 tons/day
 Stage 2 : 09 tons/day
Total capacity : 18 tons/day





PLASTIC RECYCLING SYSTEM

Recycling used plastic products and waste plastic contaminated with hazardous components.

Quantity : 02 systems
 Stage 1 : 05 tons/day
 Stage 2 : 05 tons/day
Total capacity : 10 tons/day



SOLVENT RECOVERY SYSTEM

Distillation of waste solvents to recover valuable solvents for other industrial purposes.

Quantity : 01 system
 Stage 1 : 05 tons/day
Total capacity : 05 tons/day



WASTE OIL & LUBRICANT RECYCLING SYSTEM

Treatment/recycling of waste oils and lubricants of all kinds by separation process.

Quantity : 02 systems
 Stage 1 : 15 ton/day
 Stage 2 : 15 ton/day
Total capacity : 30 ton/day

METAL CLEANING SYSTEM

Chemical cleaning of metal, greasy materials and other hazardous components on surfaces.

Quantity : 02 systems
 Stage 1 : 05 tons/day
 Stage 2 : 05 tons/day
Total capacity : 10 tons/day



STABILIZATION/SOLIDIFICATION SYSTEM

Stabilization and solidification is a process that increases the physical properties of the waste, reduces the leakage or dissolution of the pollutant into the environment, and improves the physical properties of the waste. Stabilization and solidification processes that use additives to change the physical properties of the waste (change in tensile, compressive or permeable properties).

Quantity : 01 system
 Stage 1 : 15 tons/day
Total capacity : 15 tons/day



E-WASTE PRELIMINARY TREATMENT SYSTEM

Separating and Disassembling the components of E-waste before transferring to the factory's recycling systems or functional units.

Quantity : 02 systems
 Stage 1 : 02 tons/day
 Stage 2 : 08 tons/day
Total capacity : 10 tons/day



SECURITY LANDFILL

A place to store and isolate hazardous wastes that are no longer capable of being recycled or treated by other methods.

Size a tank : 10m x 10m x 5m
 Stage 1 : 02 tanks
 Stage 2& 3 : invest when demand increases
Total : 131 tanks

WASTEWATER TREATMENT SYSTEM



The system was designed and constructed with 02 Modules:
 + Module 01: Capacity 110 m³/day. Module 01 will receive and treat wastewater, which is collected from outside the Factory. Wastewater after the treatment process in Module 1 will be passed through Module 02 for treating in accordance with the National Technical Regulation QCVN 40:2011/BTNMT, Column B (Kq=0,9, Kf=1,1) before entering the receiving source.



Module 2: Total capacity 203 m³/day. Module 2 will receive and treat wastewater after the treatment process of Module 1 and wastewater arising from the operation of the factory. Wastewater at module 2 is treated to meet QCVN 40:2011/BTNMT standards, column B (Kq=0.9, Kf=1,1) before entering the receiving source.

CLASSIFICATION AREA



2-AXIS SHREDDER



WASTE BALER

PRE-
TREATMENT
DEVICES



VIBRATING SCREEN



CONVEYOR MAGNETIC SEPARATOR



Wastes are transported to the treatment factory No. 03 to classify into ordinary waste and hazardous waste. Ordinary waste with the ability to be recycled such as metal, paper,... will be transferred to recycling facilities. Non-recyclable waste and hazardous waste are handled at the factory's system.



Wastes are put into pre-treatment equipment (if necessary) such as Conveyor magnetic separator, 2-axis shredder, vibrating screen at the auxiliary area before being transferred to treatment systems. Wastes and products (metal cans, paper, etc.) are baled by a waste baler located at the treatment factory No. 03. before being transported.

MEDICAL WASTE STORAGE AREA



FORKLIFT

AUXILIARY
DEVICES

ROTATING CRANE FRAME



DOCK CONTAINER

HAND PALLET TRUCK



Medical wastes are temporarily stored in a 20-feet container with doors, air-conditioners, ceilings, walls, electrical systems, galvanized tole floors with 2cm high edges to ensure watertightness, and no leakage, thermometer in the room.
Room size: 6,06 m x 2,44 m x 2,59m.



Equipment such as forklift, rotary forklift, rotary winch, container dock, portable load scale, storage device, electronic table scale,... are equipped for the factory, supporting the unloading, classifying, moving between systems to ensure a quick treatment process. In addition, the systems are equipped with fire extinguishers, sand barrels, shovels, instructions for operation, maintenance and occupational safety when operating the machine.

SOLAR POWER SYSTEM



Monocrystalline panels (rated capacity 440Wp) are installed on the corrugated iron roof and tilted according to the inclination angle of the factory roof. The solar panels are installed on specialized aluminum rails and linked to the corrugated iron roof by specialized aluminum clamps for Kliplok corrugated iron roofs.

SUPPLY WATER TREATMENT SYSTEM



The water supply system is designed with a capacity of 190m³/day and the water quality after treatment meets National technical regulations on drinking water quality QCVN 01:2009/BYT.