RA MEDICAL CENTER

PROJECT SUMMARY

Developer/Company: RAFFIK AND SONS CONSTRUCTION INC

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Table of Contents

Site Description

Location

Address: Lot 1A 1/2B South Public Road, Rosehall, Corentyne, Berbice.

Area of Influence

Spatial Boundaries: **RA Medical Center** is situated on Subplot 'a' (0.108 acres), Plot 'MM' (0.114 + 0.071 acres); a total of 0.293 aces in Rosehall Town, Berbice, includes the concrete apron around the building with the land being encased with chain-link and zinc sheet fence, Northern Boundary being enclosed by a drain and public road, Eastern Boundary being enclosed by a drain and roadway, Southern Boundary being enclosed by residential buildings and Western Boundary being enclosed by residential buildings (refer to Figure 1).

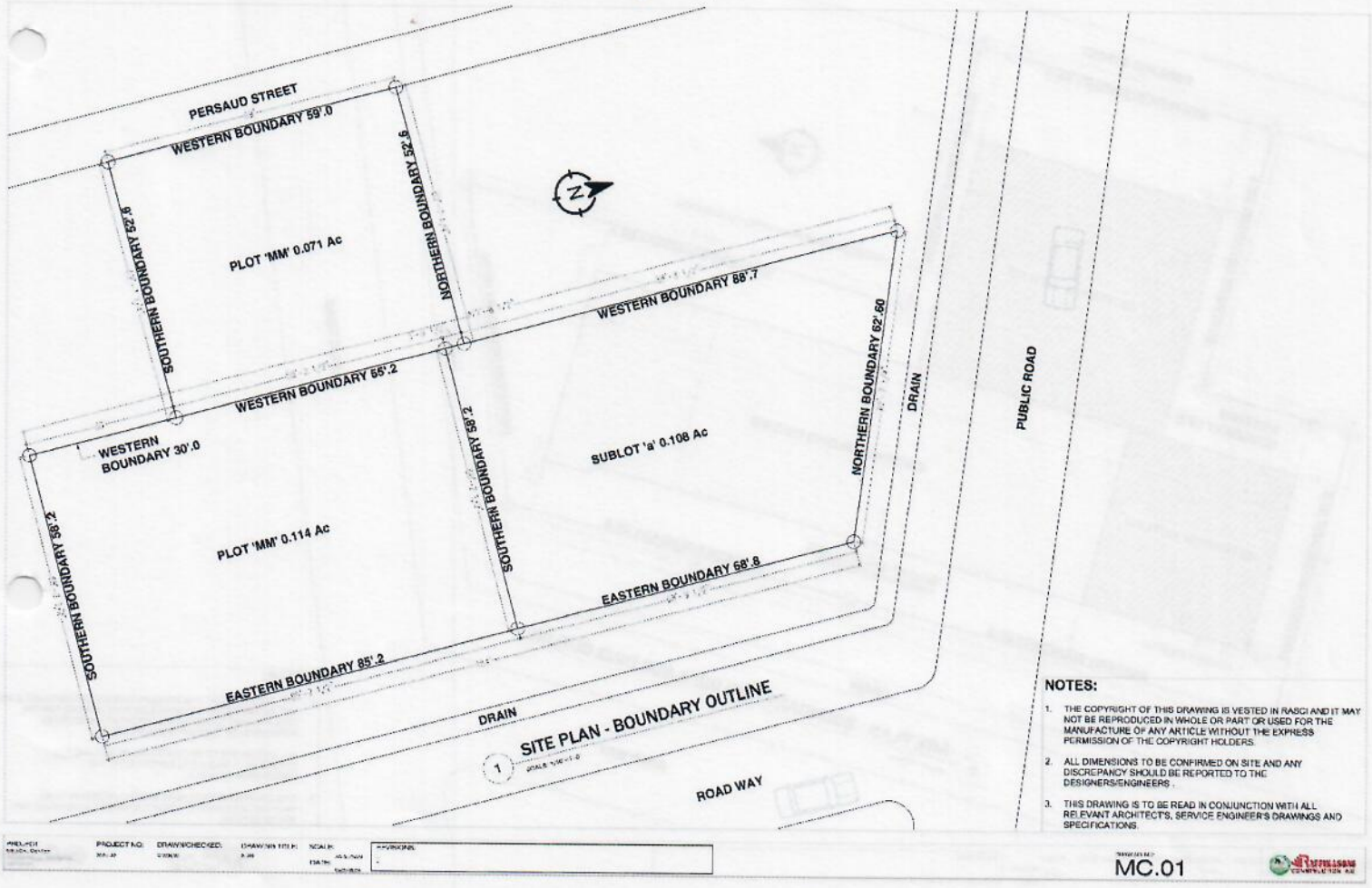

Figure 1: Showing Spatial Boundaries of RA Medical Center

Temporal Boundaries: The time frames encompass the Medical Center's whole operational lifecycle, from the first planning and building stages to full operation, as well as any prospective future additions or upgrades.

Land Requirements

Area Occupied: RA Medical Center renovated the existing 2-storey building (previously used for commercial purposes), occupying approximately 0.089 acres of land. The ground floor was equipped with all necessary facilities and is currently operational, providing medical services to the community. Additionally, the building is currently being extended on the South Western side, occupying approximately 0.052 acres of land (refer to Figure 2).

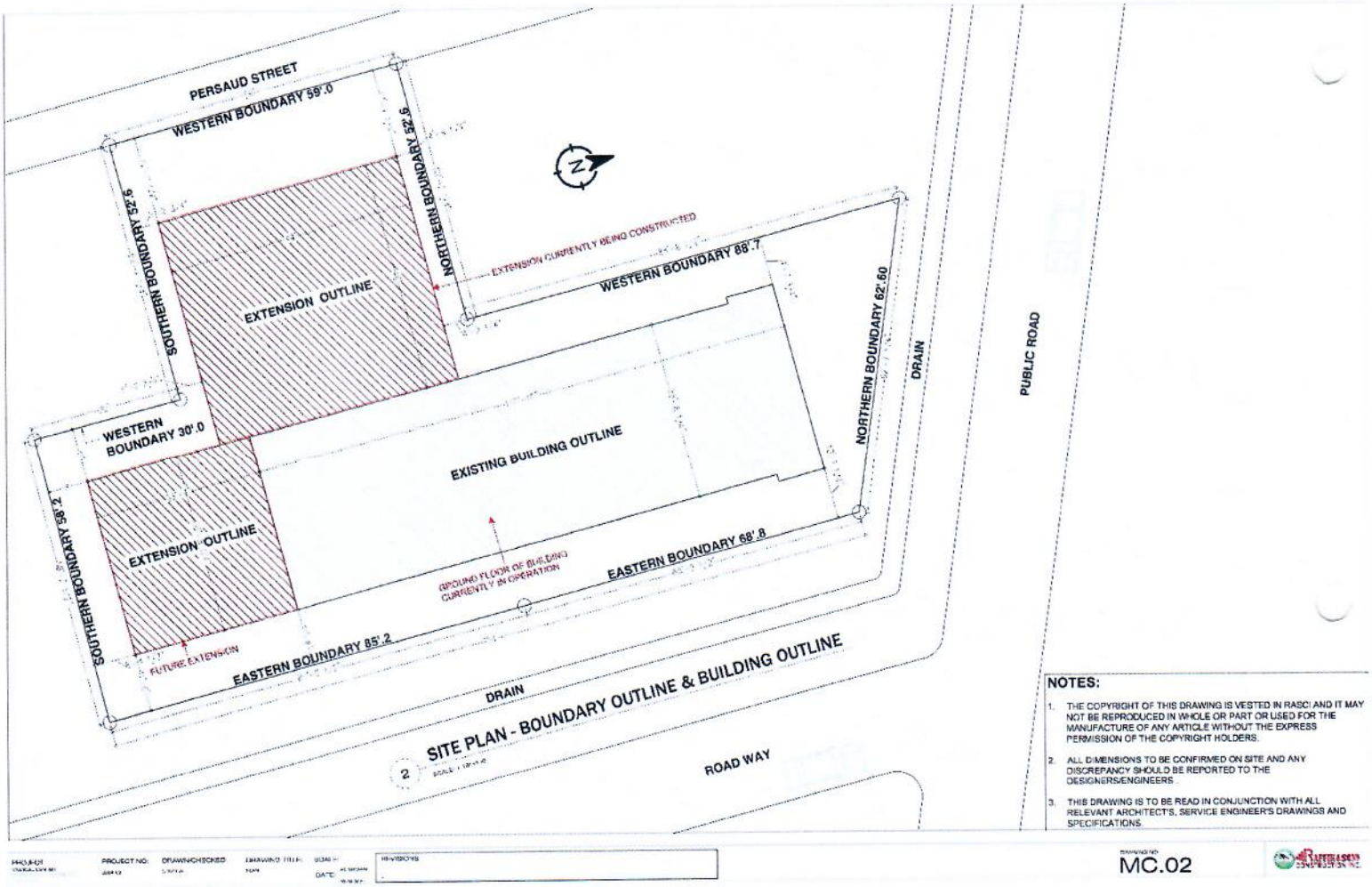

Figure 2: Showing Area Occupied By The Building

Layout:

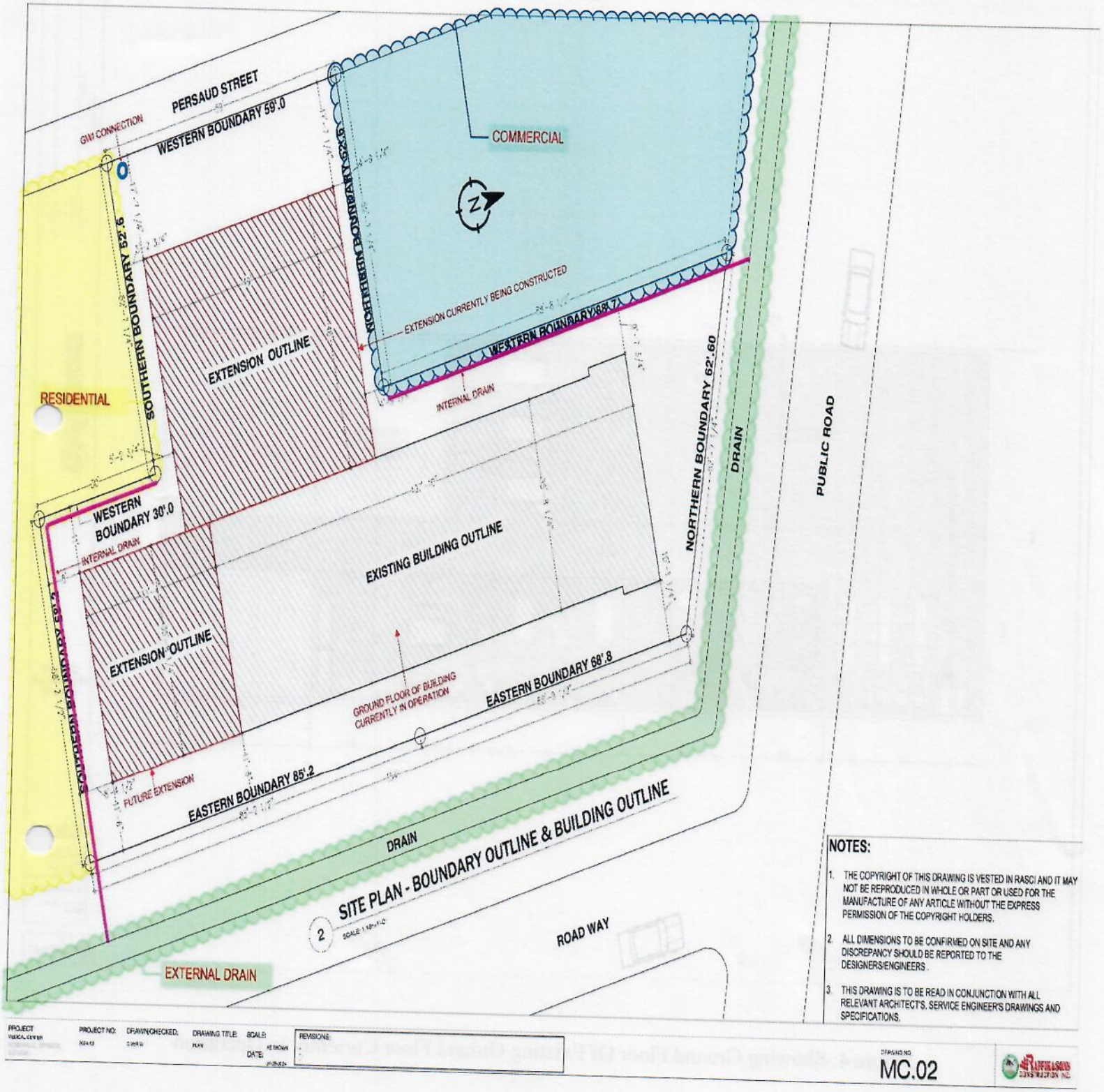

Figure 3: Showing Current Land Use, Drainage (Internal & External), Water Intake Connection And Surrounding Land Use

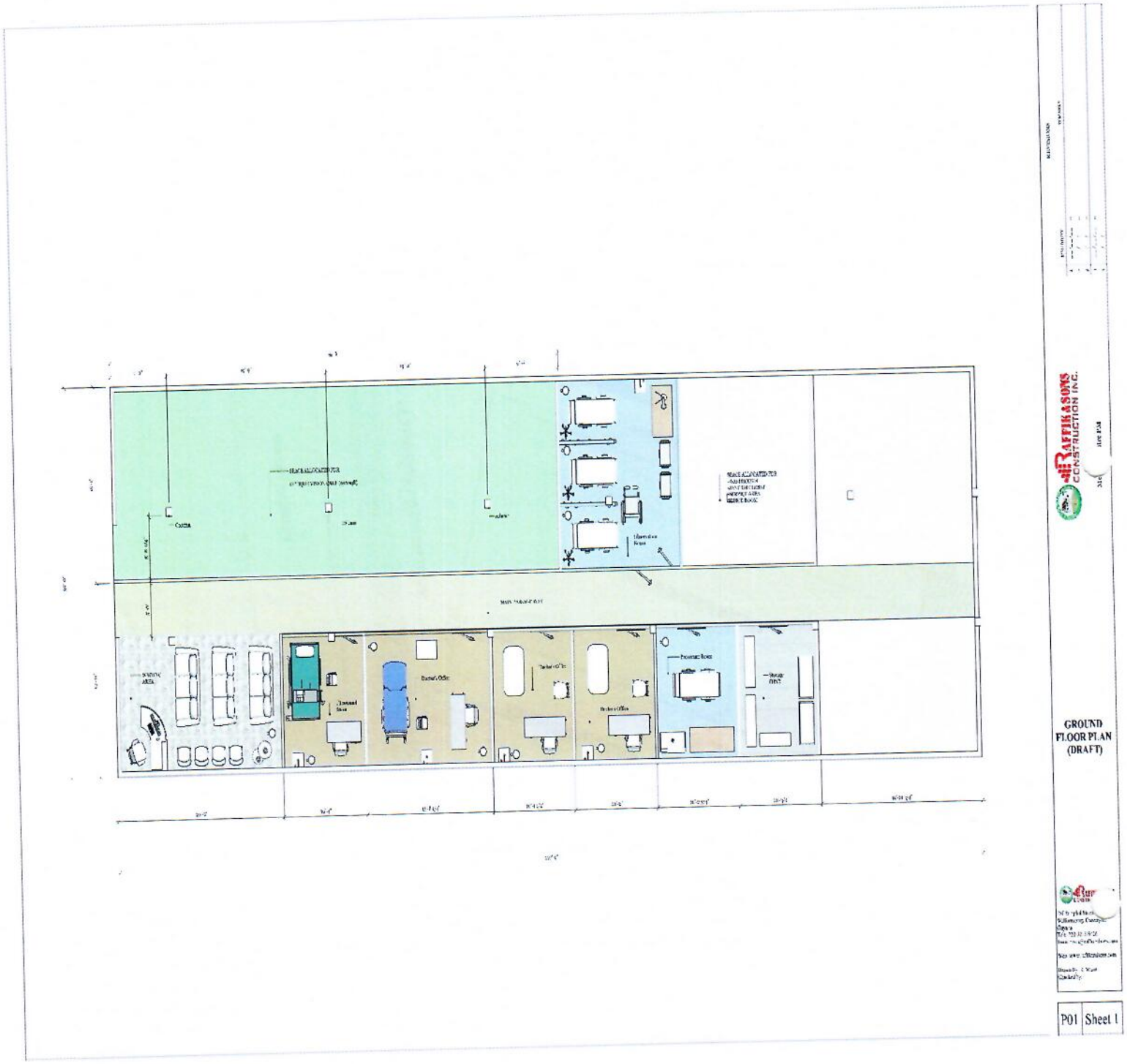

Figure 4: Showing Ground Floor Of Existing Ground Floor Currently In Operation

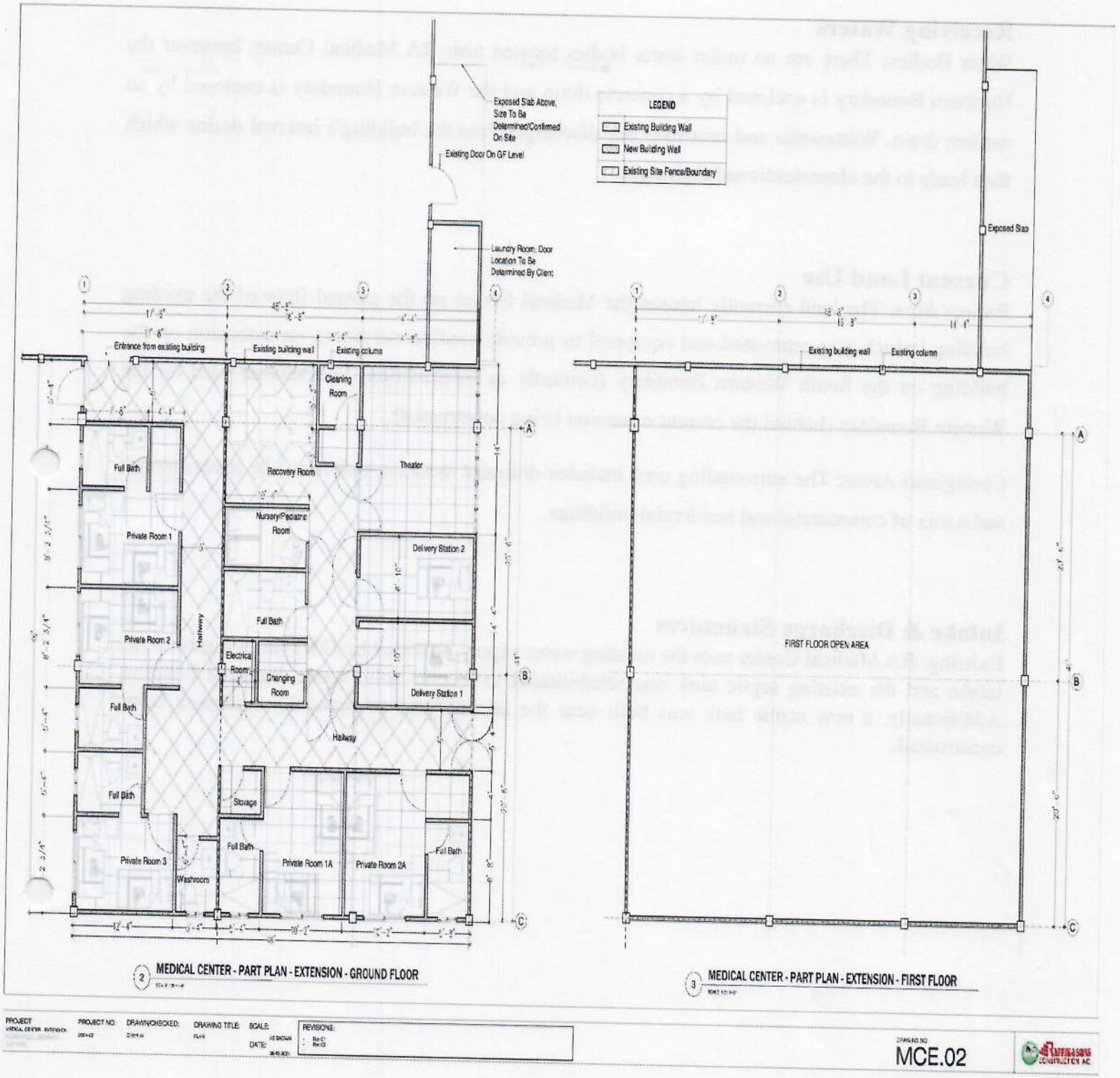

Figure 5: Showing Extension Currently Being Constructed

Receiving Waters

Water Bodies: There are no major water bodies located near RA Medical Center, however the Northern Boundary is enclosed by a concrete drain and the Western Boundary is enclosed by an earthen drain. Wastewater and rainwater are discharged into the building's internal drains which then leads to the aforementioned drainages.

Current Land Use

Project Area: The land currently houses the Medical Center on the ground floor of the existing building (which was renovated and equipped to provide medical services), an extension on the building on the South Western Boundary (currently in construction) and service yard on the Western Boundary (behind the current extension being constructed).

Contiguous Areas: The surrounding area includes drainage systems, public roads, access streets and a mix of commercial and residential buildings.

Intake & Discharge Structures

Existing: RA Medical Center uses the existing water supply provided by GWI for domestic water intake and the existing septic tank was rehabilitated to receive solid waste from the building. Additionally, a new septic tank was built near the service yard to serve the extension being constructed.

Project Design

Description

We are currently in construction of an expansion wing of the medical center where we plan to have in patient settings for conversion to a 24-hour hospital service. We will offer delivery suites as well as caesarean deliveries and other surgeries in our new fully equipped operating theatre. This project is expected to completed late March 2025.

Sources of Utility Services

Energy/Electricity - Guyana Power Light / Generator when there is power outage

Water Supply – Guyana Water Inc

Communication – Telephone - Guyana Telephone and Telegraph

Communication – Internet - E-Network

Waste Management

Effective waste management is crucial in medical facilities to prevent contamination, ensure safety, and comply with environmental regulations. Medical waste is classified into several categories, each requiring specific disposal and treatment methods. Here's an overview of the types of waste in medical facilities and the recommended waste disposal/treatment methods:

1. Types of Medical Waste

Medical waste can be broadly classified into the following categories:

a. General Waste (Non-Hazardous)

- **Examples**: Office waste, food packaging, paper towels, plastics.
- **Disposal/Treatment**: Typically disposed of in regular waste bins and sent to landfills or incineration facilities. This type does not require special handling.

b. Infectious Waste

- **Examples**: Used bandages, dressings, gloves, and other materials contaminated with blood or bodily fluids.
- **Disposal/Treatment**:
    - **Autoclaving**: The waste is sterilized by steam under pressure to kill pathogens.

- **Incineration**: High-temperature incineration is used for waste that cannot be treated by autoclaving.
- **Microwave Treatment**: Some medical facilities use microwave technology to treat infectious waste by sterilizing it.

c. Pathological Waste

- **Examples**: Human tissues, organs, body parts, blood, and other body fluids.
- **Disposal/Treatment**:
  - **Incineration**: Preferred method for disposing of pathological waste due to its high potential for disease transmission.
  - **Burial**: In some cases, burial in designated areas may be necessary, depending on regulations and the nature of the waste.

d. Pharmaceutical Waste

- **Examples**: Expired or unused medications, vaccines, and other pharmaceutical products.
- **Disposal/Treatment**:
  - **Incineration**: Most pharmaceutical waste should be incinerated to ensure it is destroyed.
  - **Reverse Distribution**: Some pharmaceutical products can be returned to the manufacturer for safe disposal.
  - **Landfilling**: In some cases, pharmaceutical waste may be disposed of in specific landfills designed to handle such materials.

e. Chemical Waste

- **Examples**: Hazardous chemicals used in laboratories, cleaning agents, and reagents, as well as waste from diagnostic equipment (e.g., X-ray chemicals).
- **Disposal/Treatment**:
  - **Neutralization**: Some chemicals can be neutralized using safe chemical reactions.
  - **Incineration**: High-temperature incineration is used for hazardous chemicals that cannot be neutralized.
  - **Specialized Landfills**: For non-combustible chemicals, disposal in regulated landfills designed for hazardous waste is required.

f. Sharps Waste

- **Examples**: Needles, syringes, scalpels, broken glass, and other sharp objects that can cause injury or infection.

- **Disposal/Treatment**:
    - **Sharps Containers**: Sharps must be disposed of in puncture-resistant, labeled containers.
    - **Incineration**: After collection, sharps waste is often incinerated to prevent further risk of contamination.

2. Methods of Waste Disposal and Treatment

a. Incineration

- **Purpose**: High-temperature burning of medical waste to reduce volume and destroy pathogens, chemicals, and pharmaceuticals.
- **Applications**: Infectious waste, pharmaceutical waste, pathological waste, sharps, and some chemical waste.
- **Considerations**: Requires proper equipment and controls to minimize harmful emissions.

b. Autoclaving (Steam Sterilization)

- **Purpose**: Sterilizes waste by using pressurized steam to kill bacteria, viruses, and other pathogens.
- **Applications**: Infectious waste, such as contaminated textiles, gloves, and certain medical instruments.
- **Considerations**: Suitable for biodegradable and non-sharp waste.

c. Microwave Treatment

- **Purpose**: Uses microwave energy to generate heat, killing pathogens in the waste.
- **Applications**: Infectious waste, typically in large quantities.
- **Considerations**: It requires specialized facilities for efficient waste treatment.

d. Chemical Disinfection

- **Purpose**: Chemical agents are used to disinfect certain types of waste, particularly liquid waste.
- **Applications**: Liquid waste, including contaminated blood or body fluids.
- **Considerations**: Effective in specific cases, especially where the waste is non-incinerable.

e. Deep Burial

- **Purpose**: Safe disposal of certain types of pathological waste and some chemical waste.
- **Applications**: Some forms of pathological and pharmaceutical waste.
- **Considerations**: Requires regulatory approval and should be done in designated areas to prevent contamination of soil or water.

f. Waste Minimization and Segregation

- **Purpose**: Prevent mixing hazardous and non-hazardous waste and reduce overall waste production.
- **Applications**: Ongoing practice in medical facilities for handling waste at the source.
- **Considerations**: Proper training for staff is required to ensure correct waste segregation

3. Regulatory Compliance

Medical waste disposal must comply with local, national, and international regulations to ensure safe and proper management

4. Training and Safety

Medical facility staff must be trained in proper waste segregation, handling, and disposal to prevent exposure to hazardous materials. Personal protective equipment (PPE) such as gloves, masks, and gowns should be worn when handling potentially infectious or hazardous waste.

Environmental Effects & Mitigation Measures

Potential Effects on the Environment & Mitigation Measures

The establishment of a medical facility can have various potential effects on the environment, depending on its size, location, and operations. Some common environmental impacts and mitigation strategies include:

1. Energy Consumption and Greenhouse Gas Emissions

Potential Impacts:

- High energy demand for lighting, heating, cooling, medical equipment, and other operations.
- Increased greenhouse gas emissions due to energy consumption, especially if the facility relies on non-renewable energy sources.

Mitigation Measures:

- Implementing energy-efficient technologies (e.g., LED lighting, HVAC systems).
- Utilizing renewable energy sources, such as solar or wind power.
- Investing in energy conservation measures and promoting energy-saving behaviors.

2. Water Usage and Wastewater Generation

Potential Impacts:

- Significant water consumption for patient care, sanitation, and operations.
- Production of wastewater, which may contain chemicals, pharmaceuticals, or pathogens if not properly managed.

Mitigation Measures:

- Installing water-efficient plumbing fixtures and systems.
- Implementing wastewater treatment processes to ensure that contaminants are removed before discharge.

- Encouraging water conservation practices within the facility.

3. Waste Generation

Potential Impacts:

- Medical facilities generate a variety of waste, including hazardous waste (e.g., sharps, chemicals), biohazardous waste (e.g., used medical equipment), and non-hazardous waste (e.g., general trash).
- Improper disposal of waste can lead to environmental contamination.

Mitigation Measures:

- Implementing proper waste segregation and disposal protocols.
- Partnering with certified hazardous waste disposal companies.
- Promoting recycling and reducing non-hazardous waste production.
- Developing programs for the safe disposal of pharmaceuticals and chemicals.

4. Air Pollution and Odor Emissions

Potential Impacts:

- Emissions from medical incinerators, heating systems, and backup generators may contribute to air pollution.
- Possible odors from waste handling, particularly biohazardous materials.

Mitigation Measures:

- Installing air filtration systems and scrubbing devices to reduce emissions.
- Proper maintenance of incinerators and backup generators to reduce emissions.
- Managing waste handling areas to minimize odors, including using proper containment systems.

5. Noise Pollution

Potential Impacts:

- High levels of noise from medical equipment, ventilation systems, and emergency sirens can disturb the surrounding community.

Mitigation Measures:

- Soundproofing medical equipment rooms, ventilation ducts, and emergency areas.
- Implementing quiet zones and noise-reducing technologies.
- Scheduling operations and maintenance to minimize noise during night hours.

6. Impact on Local Ecosystems (Land Use)

Potential Impacts:

- Land development for a medical facility can lead to habitat destruction or fragmentation.
- Disruption to local wildlife and biodiversity, particularly if the facility is built in or near environmentally sensitive areas.

Mitigation Measures:

- Conducting an environmental impact assessment before construction to evaluate potential impacts on local ecosystems.
- Adopting sustainable land-use practices, such as preserving green spaces, planting native vegetation, and incorporating green roofs.
- Creating wildlife corridors or buffer zones to protect local habitats.

7. Transportation and Traffic Impacts

Potential Impacts:

- Increased vehicle traffic to and from the facility can lead to air pollution and congestion.
- Higher demand for parking spaces, increasing the footprint of the facility.

Mitigation Measures:

- Encouraging the use of public transportation, biking, and carpooling for staff and patients.
- Providing electric vehicle charging stations.
- Implementing efficient traffic management plans to reduce congestion and emissions.
- Providing adequate green space and landscaping to minimize the visual and ecological impact of parking lots.

8. Chemical and Pharmaceutical Pollution

Potential Impacts:

- Improper disposal of pharmaceuticals and chemicals can contaminate local water systems and soil.
- Runoff from hospital grounds may carry hazardous substances into nearby water bodies.

Mitigation Measures:

- Proper management of pharmaceutical waste through take-back programs and disposal services.
- Implementing best practices for chemical storage and handling to avoid spills or leaks.
- Regular monitoring and testing of water sources for contamination.

9. Climate Resilience

Potential Impacts:

- Medical facilities may face challenges due to climate-related events like floods, heatwaves, or extreme weather conditions.

Mitigation Measures:

- Designing buildings to withstand extreme weather events (e.g., flood-resistant structures, heat mitigation).
- Integrating climate adaptation strategies in facility planning and operation.
- Developing emergency preparedness plans for climate-related risks.

By carefully assessing and addressing these potential environmental impacts, medical facilities can minimize their negative effects and operate in an environmentally sustainable manner. Environmental stewardship is essential for both the health of the planet and the well-being of the surrounding communities.

SERVICES OFFERED

WE OFFER DOCTOR'S CONSULTATION IN NUMEROUS SPECIALTIES WHICH INCLUDE THE FOLLOWING:

- GENERAL OUTPATIENT CLINIC
- OBSTETRICS AND GYNAECOLOGY
- PAEDIATRICS
- CARDIOLOGY
- UROLOGY
- NEUROLOGY
- GENERAL SURGERY
- ORTHOPAEDICS
- DERMATOLOGY
- PSYCHIATRY
- GASTROENTEROLOGY
- ANAESTHESIOLOGY

OUR CURRENT FACILITIES INCLUDE:

- STATE OF THE ART LABORATORY
- X RAY MACHINE
- ULTRASONOGRAPHY MACHINE
- ELECTROCARDIOGRAM (ECG) MACHINE
- PHARMACY
- THREE WELL EQUIPPED DOCTOR'S EXAMINATION ROOMS
- OBSERVATION ROOM
- PROCEDURE ROOM
- PHLEBOTOMY ROOM

LIST OF RAW MATERIALS

- ✓ BANDAGES
- ✓ MEDICAL INSTRUMENTS
- ✓ SYRINGES
- ✓ GLOVES
- ✓ MEDICATIONS
- ✓ INFUSIONS