GROVE DIALYSIS BUILDING AND OPERATIONS PROJECT

COMPANY:	**Grove Dialysis and Kidney Center Inc**
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GROVE DIALYSIS AND KIDNEY CENTER

2- SITE DESCRIPTION

The building project is located at Lot 66 Golden Grove and encompasses a spatial boundary defined by common community drainage on the East, the Grove Public Road on the West, and stores located at Lots 65 and 67 to the North and South, respectively. The temporal boundaries for the project were from October 2021 to June 2023. The site is situated in proximity to Demerara River located about 150 yards to the west which plays a minimal role in the project's environmental considerations.

At the start of the project, the designated area was vacant, and provided a blank canvas for the intended development. Surrounding the site are neighboring lots occupied by stores, indicating a mix of commercial and residential spaces in the vicinity. It is important to note that the proximity of these neighboring lots influenced the project in terms of aesthetics, size, parking, and overall integration with the existing landscape.

Furthermore, the location of existing and proposed discharge draining structures within the site was carefully considered to ensure proper management of rainwater runoff and wastewater from dialysis services. The integration of these structures into the overall design plan was essential for the project's environmental sustainability and regulatory compliance.

3 - PROJECT DESIGN

The building project design for the Grove Dialysis and Kidney Center encompasses a comprehensive approach that involves various activities across all stages of development, from planning, the acquisition of building materials to the finished building. The design process began with meticulous planning and conceptualization, considering the specific requirements and functional needs of a medical facility specializing in dialysis and kidney care.

1. Planning and Conceptualization:
- Detailed analysis of the site, including spatial considerations, environmental impact assessment, and Central Housing and Grove/Diamond Regional authority regulations.
- Collaboration with healthcare professionals to understand operational workflows and spatial requirements for patient care areas, treatment rooms, administrative spaces, and support facilities.

2. Architectural Design and Engineering:
- Development of architectural drawings, floor plans, elevations, drawings to visualize the building layout and design aesthetics.
- Integration of sustainable design principles to optimize energy efficiency, natural lighting, and indoor air quality.
- Structural engineering analysis to ensure the building's structural integrity and compliance with safety standards.

3. Material Selection and Procurement:
- Identification of high-quality materials suitable for healthcare environments, considering factors such as durability, infection control, and maintenance requirements.

- Procurement of raw materials, finishes, fixtures, and equipment from reputable suppliers and manufacturers to meet the project's specifications and standards.

4. Construction and Implementation:
- Coordination of construction activities, including site preparation, foundation work, structural framing, mechanical and electrical installations, and interior finishes.
- Quality control inspections at each construction phase to ensure adherence to design specifications, building codes, and safety protocols.
- Commissioning of medical equipment and systems, such as dialysis machines, water treatment systems, and HVAC units, to ensure proper functionality and compliance with healthcare regulations.

5. Finishing and Commissioning:
- Installation of interior finishes, furniture, signage, and medical equipment to create a welcoming and functional healthcare environment.
- Final inspections, testing, and certification of building systems to verify compliance with regulatory requirements and operational readiness.
- Handover of the finished building to the client for occupancy and commencement of healthcare services.

The building project design for the Dialysis Center incorporates a comprehensive plan for sourcing utility services to ensure the facility's operational requirements for water supply, water treatment, electricity, and backup power generation are met effectively and reliably.

6. Water Supply and Water Treatment:
- Source of Water Supply: The Dialysis Center's water supply is sourced from the Guyana Water Inc, Samatta Point Well utility. That water is stored in large water tanks to ensure a consistent and regulated water source for medical procedures and facility operations.
- Water Treatment: A dedicated water treatment system is installed within the facility to purify and deionize water to meet the stringent quality standards required for dialysis treatments. This system includes reverse osmosis (RO) technology and water softening processes to remove impurities and minerals from the water supply.

7. Electricity Supply:
- Guyana Power and Light Service: The Dialysis Center is connected to the public electricity grid via a dedicated transformer to provide the primary source of power for daily operations, lighting, medical equipment, HVAC systems, and other electrical requirements.
- Standby Generator: To ensure uninterrupted power supply during electrical outages or emergencies, a standby generator was installed on-site. The generator is equipped with an automatic transfer switch to seamlessly transition the facility to backup power in the event of a power failure, ensuring continuous operation of critical systems and equipment.

8. Design Considerations:
- Redundancy and Reliability: The design of the utility services system prioritizes redundancy and reliability to minimize disruptions to patient care and ensure the safety and comfort of staff and patients.
- Compliance and Safety: All utility services installations, including water treatment systems and standby generators, adhere to regulatory standards and guidelines to ensure compliance with Ministry of Health regulations and regulatory government agencies best practices.

- Maintenance and Monitoring: Regular maintenance schedules and monitoring systems are implemented to oversee the performance and efficiency of utility services, ensuring optimal functionality and risk mitigation.

Effective waste management is crucial for maintaining a safe and hygienic environment in Grove Dialysis and Kidney Center. The waste generated in our facility can be diverse in nature and requires specific handling and disposal methods to ensure compliance with regulations and minimize environmental impact.

Types of Waste:
1. Biomedical Waste: This includes contaminated items such as used dialyzers, needles, tubing, and other medical supplies that come into contact with blood or bodily fluids during dialysis treatments.
2. Hazardous Waste: Chemicals, disinfectants, and other hazardous materials used in the dialysis process that require special handling and disposal procedures.
3. General Waste: Non-hazardous waste generated in the facility, such as packaging materials, office waste, and other non-medical items.

Methods of Disposal:
1. Biomedical Waste Disposal:
- Segregation: Waste is segregated at the point of generation into different categories (e.g., sharp waste, infectious waste) to facilitate safe handling and disposal.
- Treatment: Biomedical waste is treated through chemical disinfection to render it safe for disposal.
- Disposal: Treated biomedical waste is disposed of in accordance with MOH regulation in specialized medical waste disposal services.

2. Hazardous Waste Disposal:
- Collection and Storage: Hazardous waste is collected in designated containers and stored securely to prevent leaks or spills.
- Transport: Hazardous waste is transported by licensed waste management companies to authorized treatment or disposal facilities.

3. General Waste Disposal:
- Collection – General waste materials such as paper, plastics, and cardboard are collected in special garbage containers which are covered to reduce negative environmental impact.
- Disposal: General waste is collected by the Grove/Diamond Sanitation Authority for disposal in accordance with local waste management regulations.

Compliance and Training:
- Staff Training: All healthcare personnel are trained in proper waste segregation, handling, and disposal procedures to ensure compliance with regulations and best practices.
- Regulatory Compliance: The Dialysis Center adheres to local and Ministry of Health regulations governing waste management to protect public health and the environment.

environment for patients, staff, and the community while ensuring compliance with regulatory requirements and environmental standards.

4 – PROJECT SIZE

- Capital Investment- GUY $ 38M
- Employees 10-including CEO, Practice Manager, Dialysis Nurse Manager, Nephrologist, Water treatment and dialysis machine technician, 3 Dialysis Technicians, Receptionist and Cleaner.
- Production - 20 dialysis treatments per day (5,000 per annum)

5. SUMMARY OF SERVICES PROVIDED.

1. **Hemodialysis**: This is the most common type of dialysis where a machine filters the blood outside the body. The center would offer hemodialysis services with state-of-the-art machines and skilled medical staff to ensure patients receive effective treatment.

2. **Medical Consultation**: The center would have nephrologists, registered nurse and dialysis technicians and other medical professionals available for consultations, treatment planning, and ongoing care for patients with kidney disease

4. **Renal Nutritional Counseling**: Proper nutrition is crucial for patients undergoing dialysis. The center will offer services to help patients plan their diets to manage their condition and stay healthy.

5. **Educational Programs:** The center could organize educational programs and workshops for patients and their families to enhance their understanding of kidney disease, dialysis treatment, and self-care practices.

6. **Support Groups:** The center will provide opportunities for patients to connect with others facing similar challenges and share experiences.

6- PROJECT DURATION – 20 Months

- Building Construction- 12 months
- Electrical, Plumbing 2
- Tiling and painting 2
- Equipment 1
- Furnishing and fittings 2
- Supplies and finishing 1

7. POTENTIAL ENVIRONMENTAL IMPACT

The operations of a Dialysis Center have the potential to impact the environment in various ways, and we have identified and addressed these potential impacts to minimize negative consequences. Some of the key environmental impacts associated with the operations of a Grove Dialysis and Kidney Center include:

1. Water Usage and Wastewater Discharge:
- High water consumption for dialysis treatments and equipment operation.

- Generation of wastewater containing contaminants from dialysis processes.
- Potential discharge of chemicals and pollutants into the wastewater system if not properly managed.

2. Energy Consumption:
- Significant energy usage for powering medical equipment, HVAC systems, lighting, and other facility operations.
- Carbon emissions and air pollution from energy generation from the standby generator that operates with diesel.

3. Waste Generation:
- Generation of biomedical waste, hazardous waste, and general waste from dialysis treatments and facility operations.
- Improper disposal of waste materials can lead to environmental contamination and health risks.

4. Chemical Usage:
- Use of disinfectants, cleaning agents, and medical chemicals in dialysis procedures and cleaning procedures.
- Improper handling or disposal of chemicals can contribute to water and soil pollution.

5. Noise and Air Quality:
- Noise pollution from generators and air conditioning systems.
- Potential emission of airborne pollutants from air conditioning systems and diesel generators.

8- MITIGATION STRATEGIES:

To address these potential environmental impacts, The Center will implement various mitigation strategies, such as:
- Implementing water conservation measures and efficient water management practices. Water will be used directly from storage tanks rather than from the Guyana Water Inc system.
- Installing water treatment systems to treat wastewater before discharge.
- Implementing energy-efficient practices by shutting off systems until absolutely necessary
- Proper segregation, handling, and disposal of waste materials following regulatory guidelines.
- Using environmentally friendly air conditioning equipment, cleaning products and chemicals.
- Implementing "quiet" air conditioning equipment for noise reduction measures and air quality control systems.
- Incorporating green building practices and sustainable design features into facility construction and operations.