Design Recommendations and Restrictions Document

1. Introduction:

This document outlines the recommendations and restrictions for the design based on the client's requirements and the provided design constraints. When determining equipment sizes, it's important to understand that the provided sizes are approximate estimates only, as the project specifics that could impact these systems have not yet been fully determined or confirmed.

2. Land Usage and Future Development:

2.1 Efficiently utilize the 10-acre land for the first building while considering future expansion for additional buildings.
2.2 Plan for shared utility connections for all future installations to minimize costs and streamline infrastructure development.

3. DESIGN STANDARDS

3.1 The electrical systems will be planned and constructed in compliance with the most recent version of the specified Codes and Standards:

- National Building Code 2019 – Alberta Edition
- Canadian Electrical Code 2021
- Emergency Power for Buildings – C282:19
- All related and referenced standards from NBC 2019 (such as S524:14)

4. Renewable Energy Integration:

4.1 Allocate a portion of the land for renewable energy sources such as solar panels to meet the owner's sustainability goals.
4.2 Ensure compatibility and integration with the overall building design and utility connections.

5. Uptime and Reliability:

5.1 Design with redundancy and backup systems to ensure minimal downtime, especially for critical operations.
5.2 Consider backup power solutions such as generators or battery backups to mitigate the impact of utility outages.

6. Data Services Room:

6.1 Designate a dedicated room for data services with appropriate cooling and security measures.

6.2 Coordinate with the architect for sizing and placement to ensure efficient operation and accessibility.

7. Utility Connections:

7.1 Avoid overhead connections between buildings and to the utility as per the owner's preference.
7.2 Coordinate with civil engineers to determine optimal placement of incoming main service considering existing infrastructure and future development plans.

8. Building Usage Requirements:

8.1 Design the building to serve as a multi-use community space, educational hub, and art gallery, with flexibility for hosting events.
8.2 Ensure adequate power supply and distribution for various activities, including rentals and commercial kitchen operations.

9. Power/Data Monitoring and Control:

9.1 Implement metering for power usage in different areas of the building to enable monitoring and optimization.
9.2 Provide flexibility for equipment layout in common areas and ensure seamless wireless data connectivity throughout the building.

10. Lighting and Security:

10.1 Maximize the use of daylighting while incorporating energy-efficient lighting fixtures and controls.
10.2 Integrate access control systems and security cameras to ensure the safety and security of staff and visitors.

11. Mechanical and Electrical Considerations:

11.1 Collaborate with mechanical engineers to ensure proper cooling for data and electrical rooms.
11.2 Confirm sizing and cooling requirements for electrical equipment and coordinate with architects for optimal placement.

12. Project Restrictions and Notes:

12.1 Account for monthly utility outages and plan for backup power solutions to maintain operations.
12.2 Consider the local utility specifications and regulations, such as the voltage and transformer options provided.

12.3 Ensure compliance with local codes and regulations regarding fire safety, utility connections, and building construction.

13. Security Requirements:

13.1 Implement access control using keypads or ID cards for staff.
13.2 Ensure data, electrical, and mechanical rooms are secure from the rest of the building using ID cards or keypads.
13.3 Install security cameras to monitor public spaces.

14. Other Design Restrictions:

14.1 Ensure provision of a 30 HP electrical fire pump due to insufficient water pressure.
14.2 Note that the building is sprinklered.
14.3 Coordinate with the architect regarding room names, sizes, and placement of equipment such as data and electrical rooms.
14.4 Consider the placement of incoming main service, considering existing infrastructure and site constraints.
14.5 Install an exterior transformer and provide an exterior demarcation for communication services.

15. General Project Restrictions and Notes:

15.1 Account for monthly utility outages.
15.2 The project is located in southern Alberta, near Lethbridge.
15.3 The local utility voltage is 25 kV, delta ungrounded.
15.4 The utility will supply a single 112.5 kVA transformer for secondary (cold sequence) metering, or permit primary metering using medium voltage switchgear.