PEI
Energy From Waste
Renewal & Expansion

Town Hall Presentation

April 25, 2023

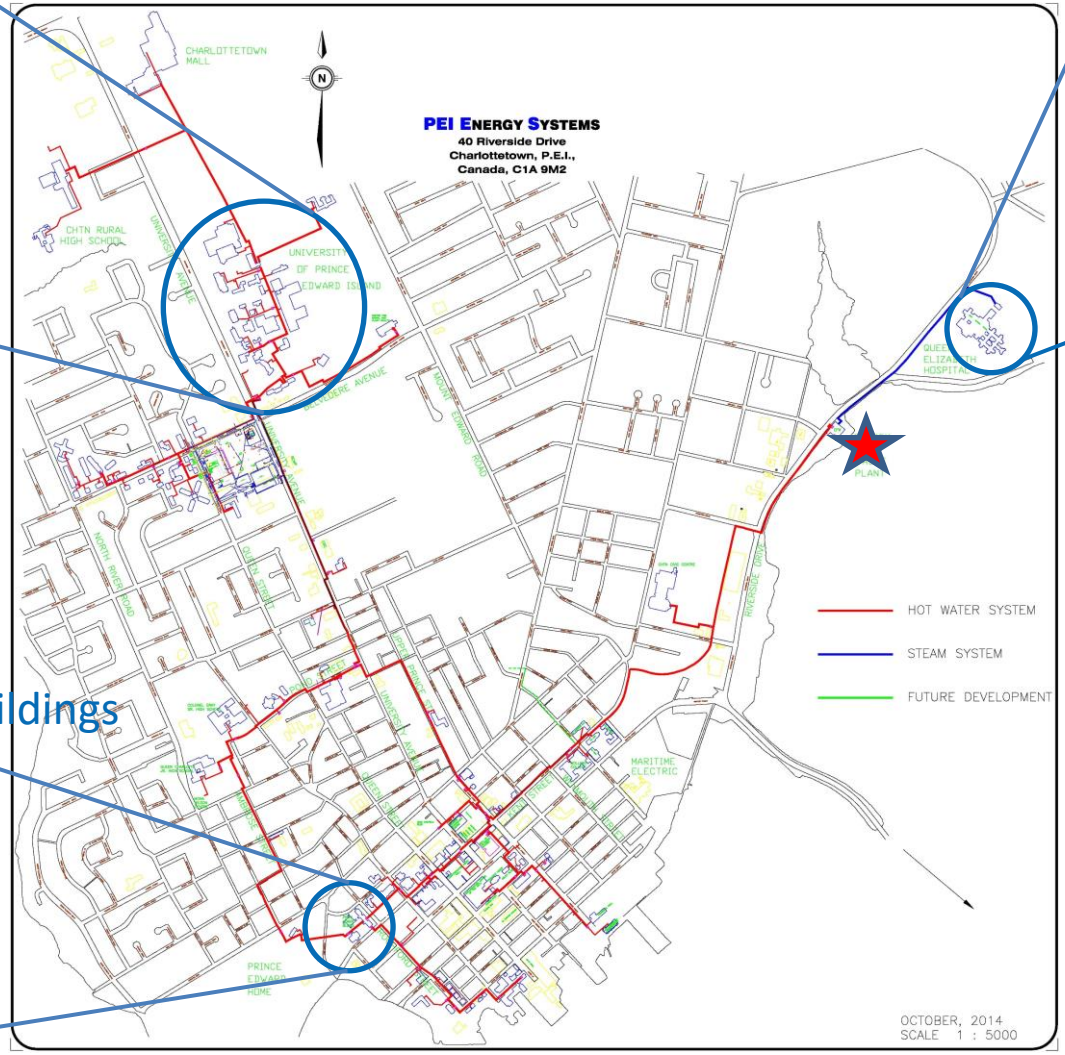
Executive Summary

This project replaces the existing 40 year old end of life waste energy recovery processing system with new waste processing facility in PEI. The new facility will enable Charlottetown to decrease our oil usage by taking on additional waste from the Province, thereby reducing our carbon emissions and avoiding GHGs from methane created by decomposition of the waste in PEI's only landfill.

- ✓ Modernized facility will feature new building structure (on existing site) and equipment capable of doubling the current amount of waste energy recovered, thereby reducing Province emissions from landfill and Enwave emissions from peak and back up oil use.
- ✓ Continue the long-term relationship with Charlottetown, providing a solution that aids their CEP, decarbonization, energy transition and climate resiliency.
- ✓ Supports a Sustainable energy future with predictable costs that provides a path to supporting energy efficiency improvements in Municipal buildings.
- ✓ Renews large-scale storage of renewable thermal energy water tank.
- ✓ Promotes a common-sense approach to current and future waste reduction strategies.
- ✓ Provides re-investment in Charlottetown in the economic tax base, job,s consumable materials with services and energy dollars staying in the community.

Who we serve

University of PEI



Queen Elizabeth Hospital

18 km of hot water heating and 1.2km of steam pipes

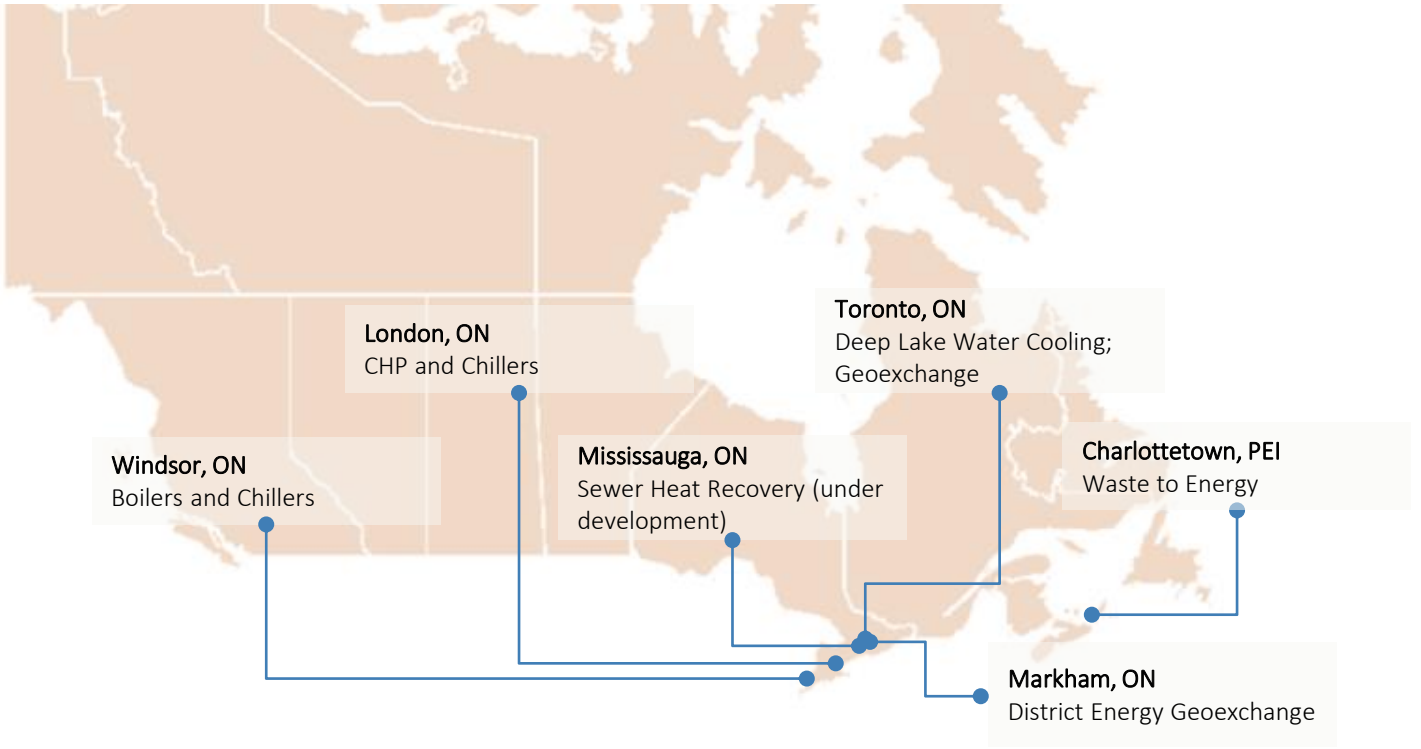
Provincial Administration Buildings

Other Customers

- Residential & Seniors
- Schools
- Holland College
- Commercial / Retail
- Sports venue
- Places of worship

Who we are

- Enwave owns and operates six district energy systems across Canada; our extensive operational expertise with leading edge technologies and in-house development capabilities make Enwave a trusted partner of public and private customers



SPONSORS

•In February 2021, Enwave was purchased by the Ontario Teachers' Pension Plan Board ("OTPP") and IFM Investors ("IFM")

•OTPP is **Canada's** largest single-profession pension plan with **$184 billion in net assets**

IFM is owned by a group of Australian pension funds and has **$128 billion under management**

OTPP and IFM have aggregate assets under management of **$72.8 billion in the energy and infrastructure sector** alone and who are highly committed to financing Enwave's development opportunities

Project Overview

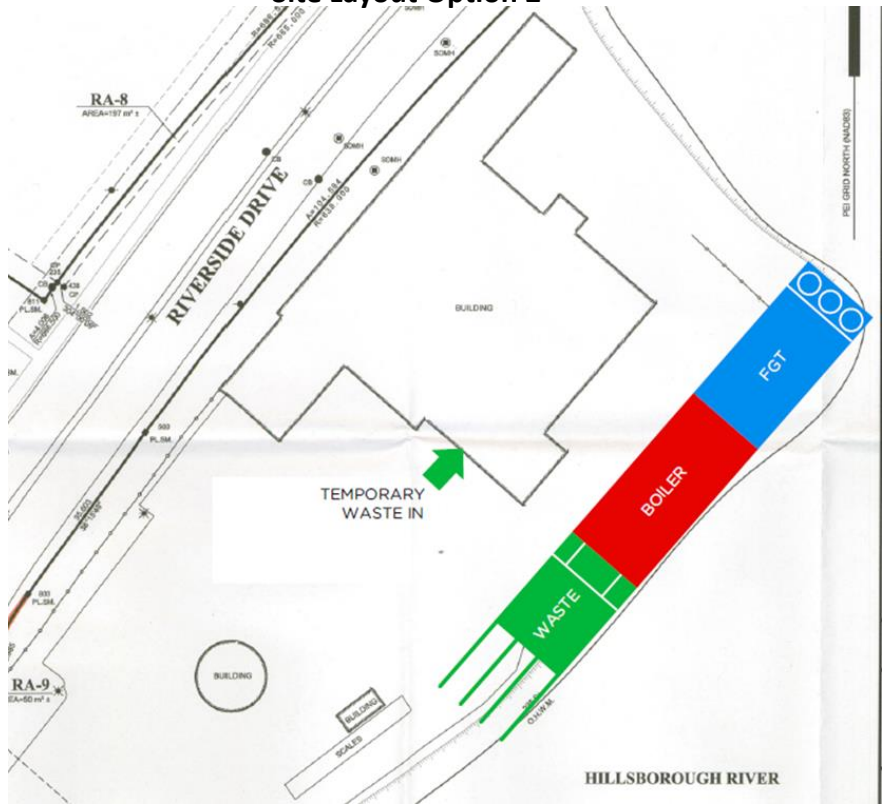
Site Layout Options

Site Layout Option 1

This option and variations of it increased the Riverside Drive TCH corridor “wall” effect from the existing plant and adds additional blockage of the water front

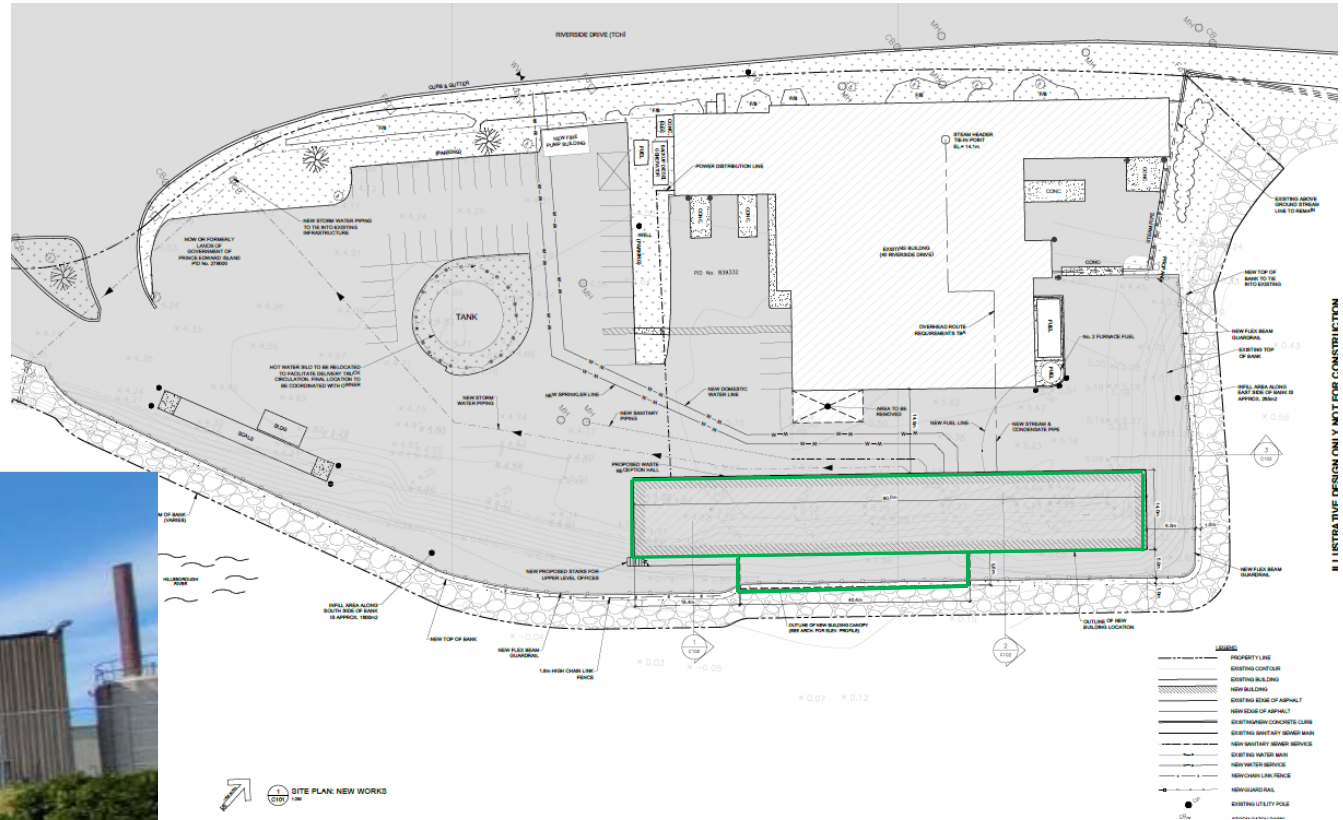
Chosen Option

Site Layout Option 2



This option has a significant capital investment and time addition due to the necessary permits, approvals, consultations and future construction efforts

Site Plan & low tide view

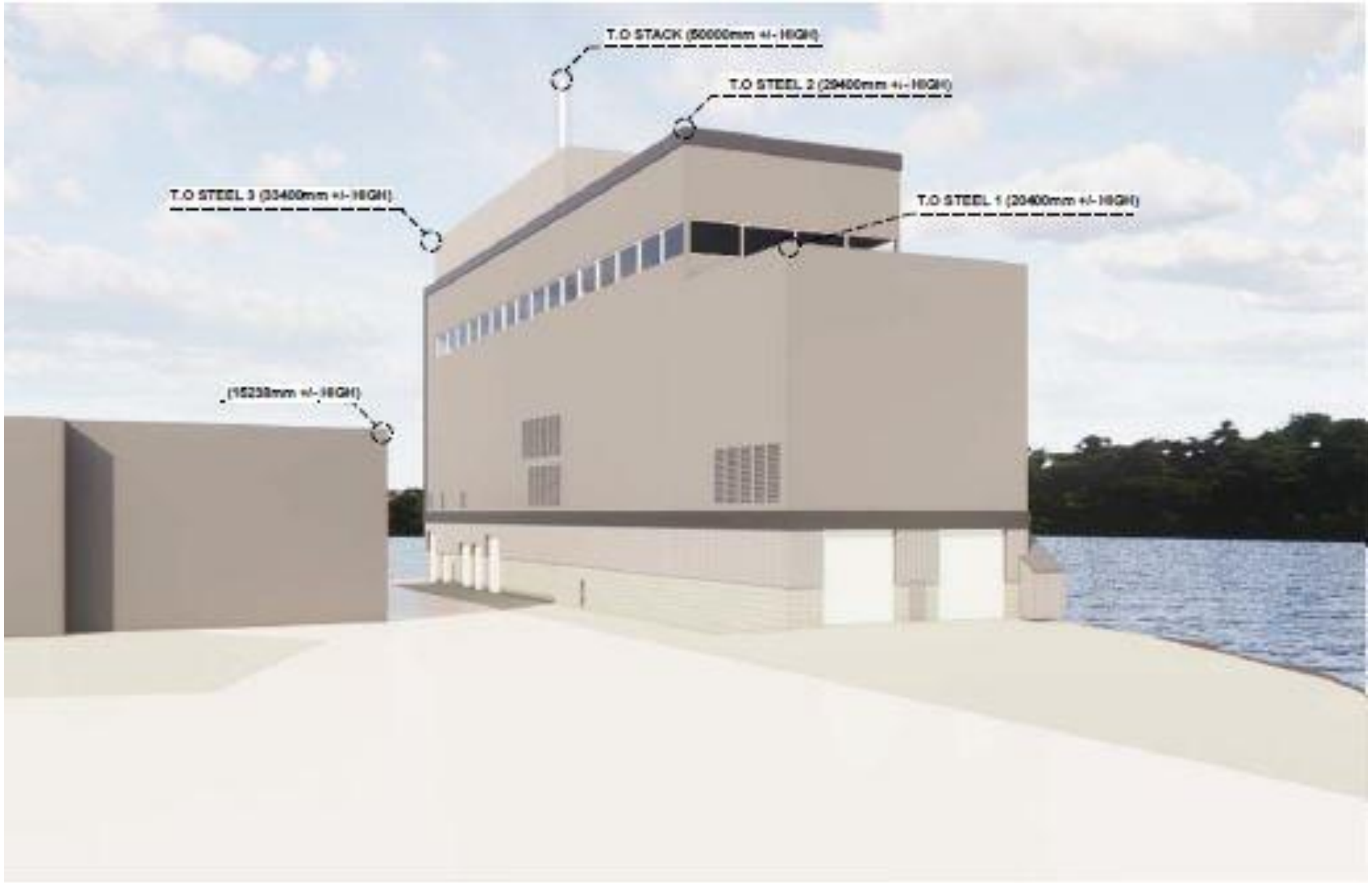


View from true West

Height relative to surrounding ground
- Front existing plant 13m, 43ft
- Existing stacks 26.11m, 86ft
- Existing hot water tank 20m, 66ft

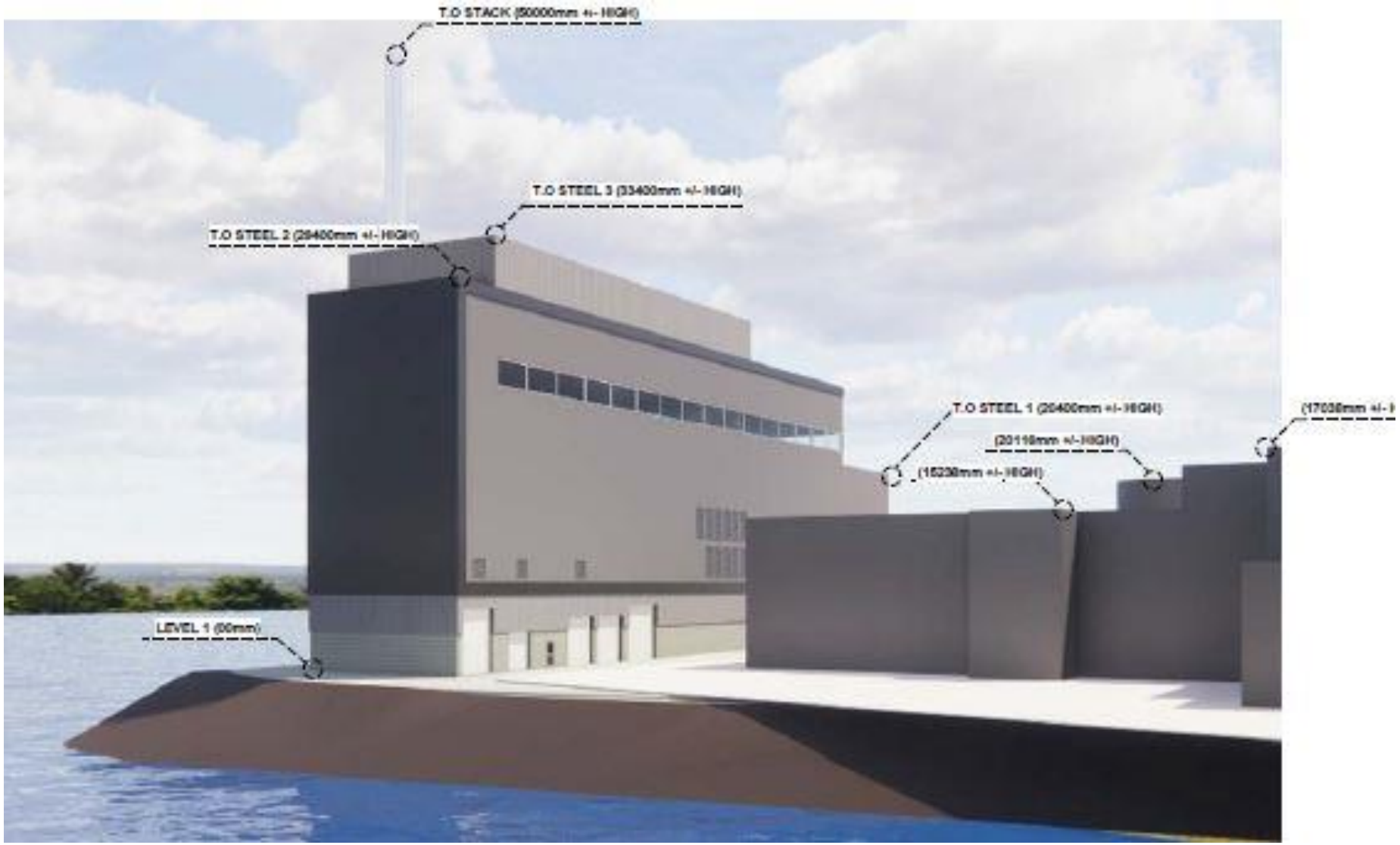
New Processing line building
- Receiving Floor 20.4m, 67ft
- Waste bunker 29.4m, 96ft
- Boiler 33.4m, 110ft

Comparable Charlottetown landmarks
- UPEI Canada Games 35.4m, 116ft
- Delta 36.6m, 120ft
- Holman Grand 38.7m. 127ft
- St. Dunstan's Basilica spires 50m



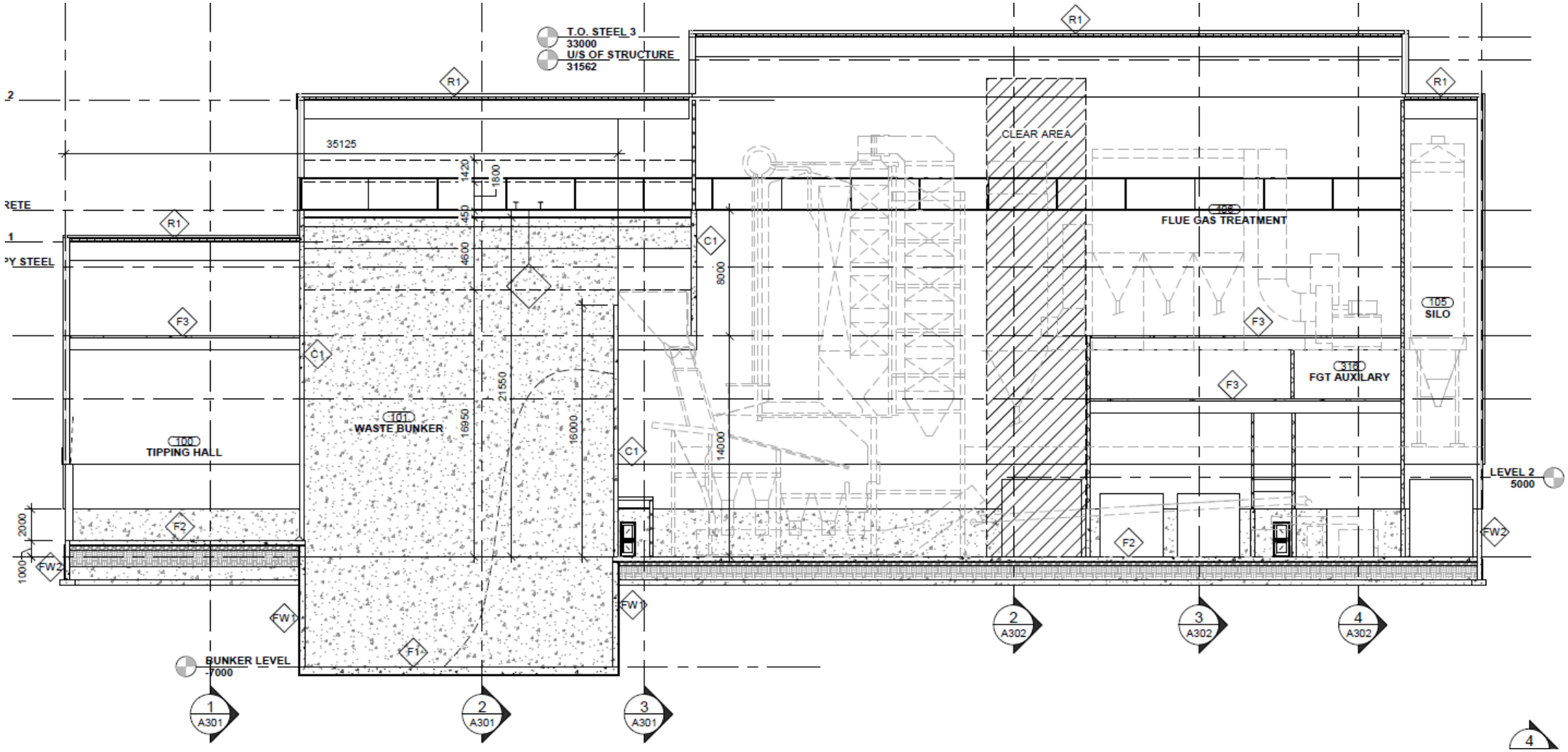
View from true South

View from true North



View from true East

Interior shadow view



“Community Vision for a Sustainable Energy Future”

Community Vision for a Sustainable Energy Future

Charlottetown aims to quickly reduce community GHG and air pollutant emissions while securing reliable affordable energy locally, increasing efficiency energy, and creating jobs and economic growth. The City envisions exceeding current targets in 2030 and transitioning all energy for homes, businesses, cars, and trucks to clean, renewable sources before 2050. In short, the City’s vision is:

“By 2050, Charlottetown is a carbon neutral, diverse and economically strong community, powered only by renewable energy.”

Energy Sources

A number of renewable energy sources will be used in 2050 to meet the community’s energy demand across the four main sectors. **Table 7** shows a possible supply mix, including wind (50%), solar (30%), hydro (9%), biomass (5%), municipal solid waste (5%), and biogas (1%).

Table 7: City of Charlottetown Community End-Use Energy, 2050 Possible Supply Mix

	GJ	Shares %
Wind	1,499,789	50%
Solar	910,586	30%
Hydro	267,819	9%
Biomass	156,761	5%
MSW	144,258	5%
Biogas	24,015	1%
	3,003,229	

“Community Vision for a Sustainable Energy Future”

Objective: To significantly improve energy efficiency in buildings

1. Establish a financing mechanism for energy upgrades.
2. Complete comprehensive energy audits and retrofits of City-owned buildings and infrastructure.
3. Construct all new City buildings to Passive House and Zero Carbon Building Standards.
4. Support Passive House and Zero Carbon multi-storey affordable housing developments.
5. Develop strategies to entice greater use of high efficiency heat pumps, thermal energy storage, solar PV, and other cleantech in retrofits plus new construction.
6. Increase collaboration with efficiencyPEI and the Province of PEI to encourage incentives for GHG reduction measures and technologies.

Objective: To transition to clean renewable energy

19. Work with the Province of PEI to explore more wind and solar capacity beyond current plans.
20. Increase the deployment and integration of renewable energies with smart technology and new market designs in the electricity sector.
21. Encourage a solar incentive program in the City.
22. Support private enterprise in the shift away from fossil fuels.
23. Examine the potential of large-scale cost-effective thermal energy storage of renewable energy.

"Community Vision for a Sustainable Energy Future"

Objective: To foster sustainable community development

24. Support retraining of affected workers and training the future workforce.
25. Invest in City staff capacity to implement this plan.
26. Incorporate a Green Procurement Policy with lifecycle assessment for the City of Charlottetown.
27. Incorporate measures and technologies into existing and new City zoning and development bylaws and relevant plans and strategies.
28. Develop and implement a corporate energy policy applicable to all City assets and services.
29. Improve data collection for tracking community energy, expenditures, and emissions.
30. Encourage greater residential and commercial density.
31. Support community bulk buys and neighbourhood approaches when practical to help reduce costs and fast-track the energy transition.
32. Collaborate with partners on the implementation of actions so they are as effective as possible.
33. Demonstrate low-carbon technology at all scales of City operations.
34. Continue implementing sustainability initiatives including those that help the private sector.
35. Promote common-sense approaches to waste reduction.
36. Foster entrepreneurship, innovation, and emerging technologies in the growing cleantech sector.