

Nanaimo Operations Centre Project

BUSINESS CASE



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Executive Summary

The City of Nanaimo's (The "City") Public Works Yard, located on a 6-hectare site at 2020 Labieux Road was originally constructed in the mid 1960's. Since then, the City's boundary expanded to include the Improvement Districts of Harewood, Chase River, Northfield, Departure Bay, Wellington and Protection Island and the population increased from 14,950 in 1971 to 40,340 in 1976 and is now over 100,000.

Over the years, the City's Public Works Yard has evolved on a piecemeal basis in response to the growth and changing needs of the City, and currently houses offices, storage and various maintenance facilities for the Public Works, Construction, and Purchasing Departments. The City's Public Works Yard is a highly activated Departmental Operations Center, activated for flooding and heat events, windstorms, snow events, and other weather events that are becoming more and more prevalent with climate change. The Public Works Yard is the backup Emergency Coordination Centre to Fire Station 1, 666 Fitzwilliam Street.

The current facilities are no longer fit for purpose - they do not meet operational capacity needs, they are characterized by cramped modular office buildings originally intended for temporary use which are not up to current building code requirements. The yard has inefficiently laid out storage spaces and lay down areas and the waste handling facilities are unsuitable.

Considering this, The City Finance and Audit Committee directed that a technical and financial analysis be conducted in order to present a costed and time-bound implementation plan for consideration.

This report presents that analysis and implementation plan together with a recommendation to proceed with the redevelopment of the Public Works Yard as the Nanaimo Operations Centre Project and relocating certain Parks Operations & Facilities within the Nanaimo Operations Center Project for better operational efficiencies and use of space. Parks Operations & Facilities move will free up Nanaimo Annex site at 1151 Nanaimo Lakes Road for other uses as well as eliminate current capacity issues at another site, 89 Prideaux Street, which would be renovated to retain certain Park operations that frequently serve the City's downtown area. Nanaimo Fire Rescue's Fire Station 2, a property adjacent to the Public Works Yard, delivers live fire training on an on-going basis. Converting the Fire Training Tower from wood burning to natural gas is necessary to avoid continued air quality concerns for the Nanaimo Operations Center and surrounding neighborhood.

With these objectives in mind, the scope, cost and time parameters were set out in the following sections of this document.

- **Section 2** of this report sets out the Project Objectives, alongside the Mission Statement for the Project, which is to address the long-standing and increasingly unsustainable health, safety, environmental and operational shortcomings of the Site in a fiscally responsible manner.

- **Section 3** sets out the Needs Assessment, highlighting the condition of the various facilities, critical issues surrounding resiliency and emergency preparedness, capacity and operational inefficiencies, safety and security, workforce equity and environmental considerations.
- **Section 4** sets out the Technical Analysis performed under the oversight of the Project Steering Committee chaired by the City's Chief Administrative Officer. A multi-disciplinary team was assembled to conduct the technical analysis - this Project Team worked to develop a master plan and conceptual design, drawing on condition and operational space needs assessments, and bounded by site development constraints.
- **Section 5** sets out the Financial Analysis, including a baseline cost estimate developed by a specialist cost consultant, which informs the fully-inclusive Project Budget of \$125M with a degree of confidence at this early stage of development of +30% / -20%, in accordance with the City's Project Management Framework.
- **Section 6** sets out the Implementation Plan, complete with a proposed project delivery model, risk management plan, and a Project Schedule spanning from 2023 to 2029.
- The recommendation resulting from this report is presented below.

Recommendation

That Council approves in principle the Nanaimo Operations Centre Project as defined below, and proceeds with the necessary steps to secure the required funding.

The Nanaimo Operations Centre Project consists of:

- the redevelopment of the Public Works Yard located at 2020 Labieux Road per the Site Master Plan and Concept Design (Refer to Appendices E and F),
- upgrading of adjacent Fire Training Tower operations,
- relocation of Parks Operations & Facilities,
- renovation of the Parks Prideaux Yard located at 89 Prideaux Street, and
- freeing up Nanaimo Annex site at 1151 Nanaimo Lakes Road for other uses.

The Nanaimo Operations Center Project will be developed over a period of 6 years starting in 2023 with a Project Budget of \$125M, which amount is assigned a degree of confidence of +30%/-20%.

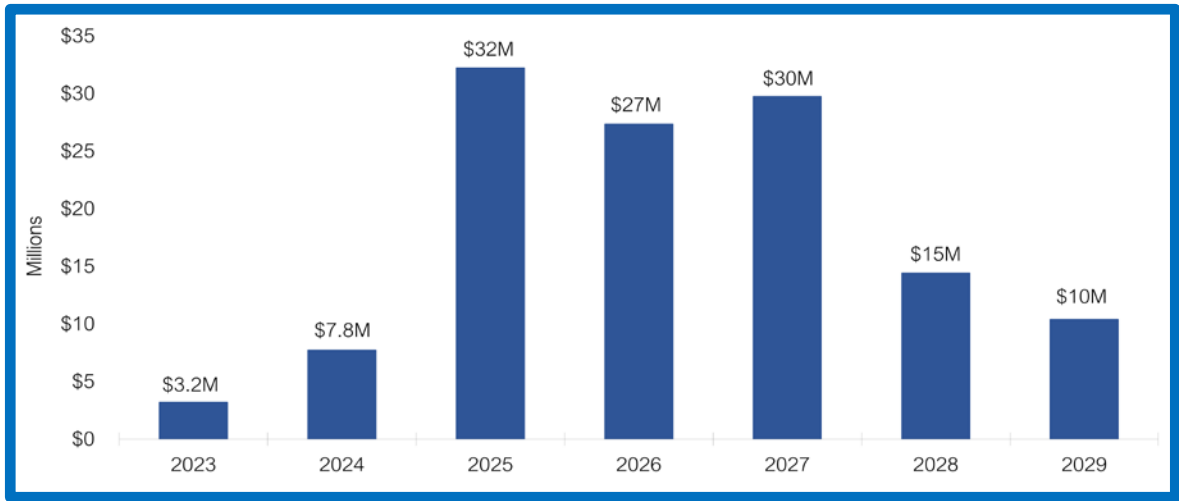


Fig. I Project Budget Cash Flow (from Fig. 3, Section 5.2 of this report)

1. Introduction

1.1 The Site

The City owns a parcel of approximately 6 hectares of land (the “Site”) at 2020 Labieux Road fronting Beban Park which is primarily used by Public Works Department and the Purchasing Department for the accommodation of administrative functions, storage of equipment, vehicles and bulk materials, and various maintenance activities, and includes buildings housing the following functions:

- Public Works Administration
- Public Works Crew Operations
- Workshops & Emergency Operations Centre
- Fleet Maintenance Facility
- Purchasing Offices & Stores

In addition, a portion of the site to the northwest is currently leased to the Province (BC Housing) for use in the provision of temporary housing and Nanaimo Fire Rescue’s Fire Station 2 and the Fire Training Tower occupy the area to the southeast. These land uses are anticipated to be unchanged for the foreseeable future¹.



Fig. 1 Current Site Plan (Google Maps, 2021)

¹ It is anticipated that in the near future, the land occupied by temporary housing will become available for site development; however, it is understood that the lease is likely to be extended until such time as suitable alternative arrangements have been made for the residents.



Image 1 Typical Public Works Office Accommodation at the Site

1.2 The Project

The Nanaimo Operations Centre Project (the “Project”) is the master planned redevelopment of the Site, the Objectives for which are set out under Section 2 of this document. The Project is required to address a wide range of complex challenges the Site presents, and these challenges are set out under Section 3 (Needs Assessment).

1.3 The Solution

To begin to understand the problem, the City worked with consultants to understand the condition of the facilities and the space needs required for teams within Public Works, Engineering, Parks Operations & Facilities currently operating out of five different locations.

Seismic and building code compliance assessments of facilities at 2020 Labieux were completed in 2012 and 2018; an Operational Space Needs Assessment was completed in 2019; and further Condition Assessments were carried out in 2020. Through this work it was determined that the buildings at 2020 Labieux were at the end of their service life both in terms of condition and capacity, and significant renewal and/or rehabilitation would be required to provide adequate facilities.

Council previously authorized \$200k of funding from the existing 2020 - 2024 Financial Plan to conduct technical and financial analysis in relation to the Project, and the outcome of this work is presented within this report, in Section 4 onwards. Part of this technical and financial analysis was an evaluation of the various options for meeting the needs of the City’s operations, including but not limited to the purchase or lease of land and facilities adjacent to 2020 Labieux; renovation of existing buildings; replacement of existing buildings; and combining operations to operate out of new consolidated facilities.

The solution that has been identified to be of best value to the City is the redevelopment of the property at 2020 Labieux, incorporating the co-location of certain Parks Operations & Facilities at the Site.

By co-locating certain Parks Operations & Facilities at 2020 Labieux Road, the Nanaimo Annex site at 1151 Nanaimo Lakes Road would be freed up for other uses and capacity issues at the Prideaux Parks Operations Yard located at 89 Prideaux Street would be alleviated. The 89 Prideaux Street Yard will be renovated to retain operations that frequently serve the City's downtown area. Co-locating Parks Operations & Facilities at Site also brings efficiencies of scale, and better interdepartmental communications.

2. Project Objectives

2.1 Mission Statement

To address the long-standing and increasingly unsustainable health, safety, environmental and operational shortcomings of the Site in a fiscally responsible manner.

2.2 Objectives

1. Provide safe and gender appropriate code-compliant office accommodation
2. Address the unsustainable shortage of office, workshop, and storage space
3. Provide a compound secured from unauthorized access
4. Improve the operational efficiency of Public Works, Parks & Engineering
5. Address the regulatory compliance of vehicle wash-down areas
6. Address traffic segregation issues on the Site to improve safety
7. Provide a code-compliant (post disaster) Departmental Operations Center (DOC) and backup Emergency Coordination Centre (ECC)
8. Reconfigure the Site to allow for planned future expansion
9. Rationalizing operations facilities across the City

3. Needs Assessment

3.1 Facility Condition

The 2020 Labieux Road Site was originally developed in the mid-1960s prior to the property being amalgamated under the control of the City and has been added to over time on a piecemeal basis in an attempt to accommodate changing needs.



Image 1 Construction Supervisor's Office



Image 2 Public Works First Aid Room

Much of the office accommodation at the Site takes the form of temporary modular trailers of the type typically used on construction sites, the use of which has been expanded over the decades.

Despite having been in use for many years already, these facilities are unsuited to long term occupation, they fall well below code-compliance, they are well beyond their useful life, and cannot be maintained indefinitely. Further information is provided under Section 4 (Technical Analysis).

3.2 Resiliency & Emergency Preparedness

The City of Nanaimo Emergency Response and Recovery Plan 2018 sets out guidance for effective response and recovery from major emergencies or disasters in the City of Nanaimo, reflecting the requirements of the British Columbia Emergency Management System (BCEMS). This plan designates the City's primary Emergency Coordination Centre (ECC)², as well as alternate ECCs. Each ECC is critical to the City's response to, and management of, a major emergency.

The City's designated primary ECC is located at Fire Station 1, 666 Fitzwilliam Street - this facility is currently being rebuilt to meet the post-disaster requirements of section 4.1.2.1.(3) of the British Columbia Building Code 2018 ("BCBC"), which designates emergency response facilities as post-disaster buildings. A post-disaster building is one which is essential to the provision of services in the event of a disaster, and as such must be designed and built to withstand higher loading, including earthquake loads.

The City's first alternate ECC is located at the Public Works Yard, which means that the City will rely on this designated facility in the event that the primary ECC is either unavailable, or is less suited to a particular emergency situation. In addition, the City has identified the Public Works Yard as a Departmental Operations Centre ("DOC"), which is a location concerned with supporting the emergency activities of the City in certain prescribed situations and ensuring that regular business activities continue.



² Referred to in BCEMS as the Emergency Operations Centre ("EOC")

Image 3 Exterior of the City's first alternate Emergency Coordination Centre (Modular Building)

The facility currently housing the Public Works DOC / alternate ECC is an aging modular facility that is far from the post-disaster facility that the City needs to provide assurance that it will actually be available and operational in an emergency. Over the past few years, the Public Works Yard DOC / alternate ECC has been frequently activated, with 5 activations in total. The frequency of activations highlights the critical role of Public Works as first responders in the case of many types of emergency situations.

In addition to the shortcomings of the Public Works DOC / alternate ECC, the City's emergency response is further compromised by the fact that none of the buildings are rated for post-disaster service, especially the fleet maintenance facility.

The current situation with the lack of post-disaster facilities is an on-going risk for the City to provide core services after a disaster potentially affecting the health and wellbeing of the community.

3.3 Capacity & Operational Efficiency

Over the 10 years to 2020, the City's population grew by 35%³. This growth in turn increased the need for additional staff within the Public Works, Engineering and Purchasing Departments located at the Site.

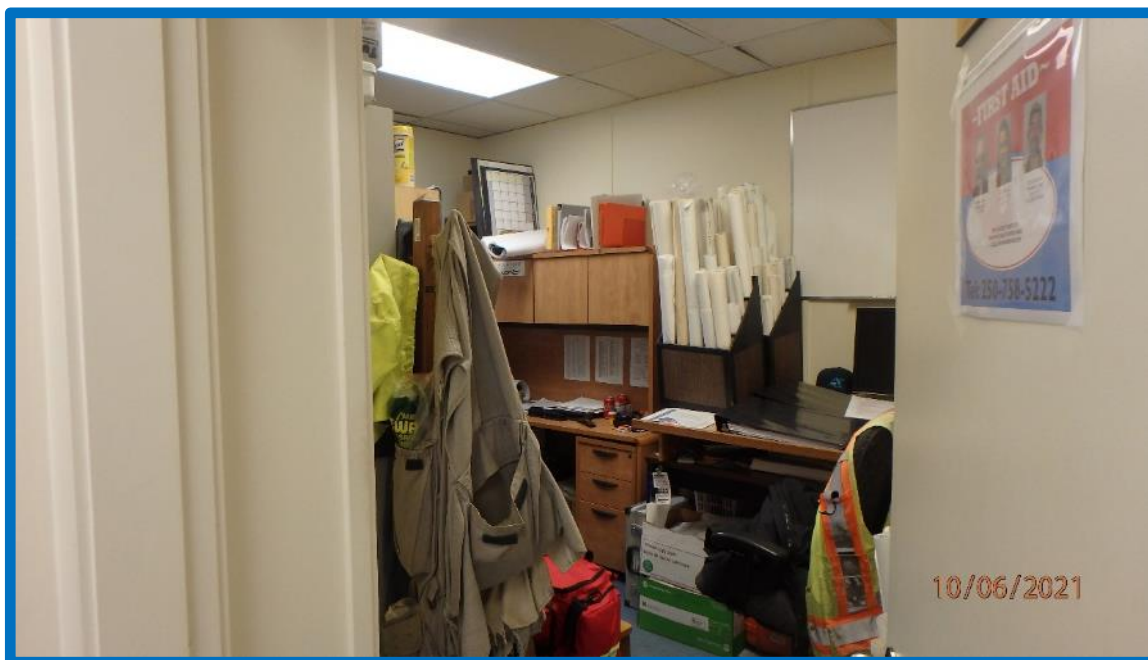


Image 4 Inadequate Work Environment

³ 2020 State of the Nanaimo Economy, City of Nanaimo Economic Development

Existing office accommodation has long been exhausted, with the City now resorting to renting trailers and converting unsuitable spaces such as closets or storage rooms into offices to accommodate staff, as well as basing staff who should be co-located for operational efficiency reasons, at other City locations.



Image 5 Corridors in Use as Workplaces

City staff have worked out of temporary facilities at the Site for decades, and with the passage of time, this situation is becoming more and more untenable. Not only is there not enough space, but the condition and suitability of the space that is available is so poor that it impacts the efficiency of staff as well as the City's ability to attract and retain our workforce.



Image 6 Exterior Storage Area

Exterior areas are also unsuitable, with inadequate and poorly laid out storage and laydown areas.

The heavy duty mechanic bays in the existing fleet maintenance building are not large enough to house existing vehicles over 40ft in length. This requires the bay doors to be open while working on fire trucks, garbage trucks, dump trucks, and other vehicles over 40ft in length.

It is expected that the City's population will continue to grow, estimated to reach 141k over the next couple decades. This in turn means the need for adequate facilities for provision of services and room for growth.

3.4 Safety & Security

The Site presents a range of safety and security issues to City staff and the public.



Image 7 First Aid Office

Public Works employees are currently working out of aging facilities which were never designed to be permanent structures and are deficient in many respects relative to current Building Code.



Image 8 Cramped Working Conditions

In addition to issues such as cramped working conditions, poor ventilation and lighting, there are more significant concerns such as combined kitchen / lunchroom facilities that lack safe access and egress as required by WorkSafe BC standards.



Image 9 Inadequate Pedestrian and Vehicular Traffic Segregation

A Security Review Assessment⁴ was conducted in 2014, which highlighted a number of important considerations pertaining to the safety and security of both City assets and City staff, with areas of concern including:

- Lack of vehicle and pedestrian access control provides open access to the Site by unauthorized individuals;
- Shortcomings in the CCTV system at the Site; and
- Lack of both signage and actual physical segregation of operational and personal vehicles and pedestrians.



Image 10 Uncontrolled Main Gate Entrance

3.5 Workforce Equity

The profile of our workforce has changed substantially since the facilities were first installed on the Site, and in particular we now have a significant and increasing proportion of female workers based at the Site who currently lack access to suitable shower and changing facilities.

⁴ Public Works Yard Security Assessment Review, Liahona Security Consortium Inc.

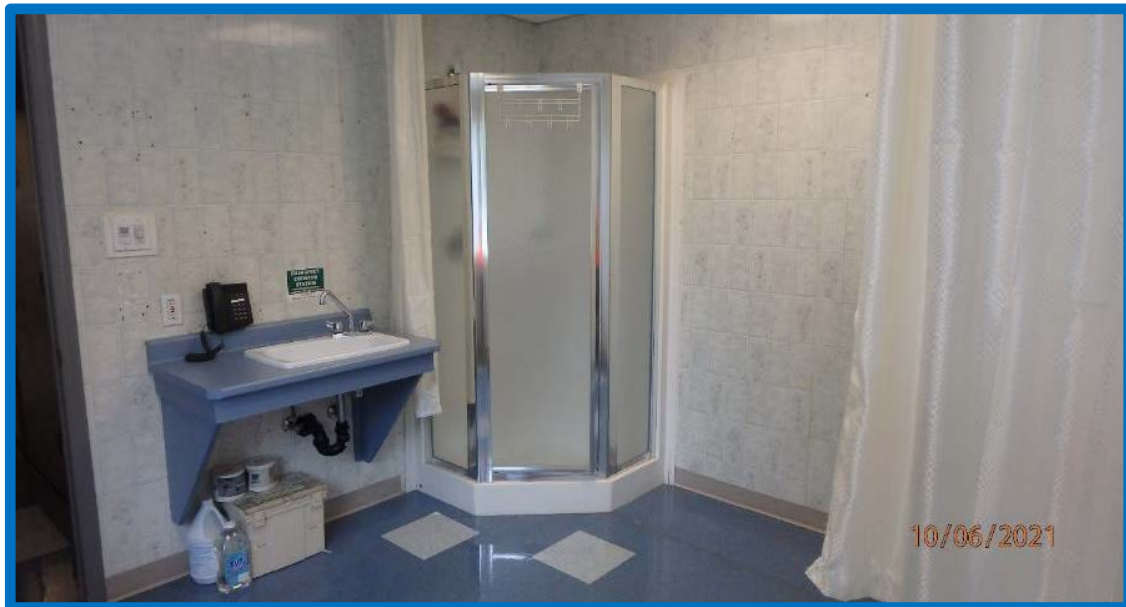


Image 11 Lack of Suitable Facilities

The City has a responsibility to provide access to persons with disabilities; however, the facilities at the Site do not adequately accommodate the needs of disabled staff or visitors, with barriers to access including stairs, inadequate door clearances, and a lack of accessible washroom facilities.



Image 12 Inaccessible Office Facilities



Image 13 Inaccessible Workplace

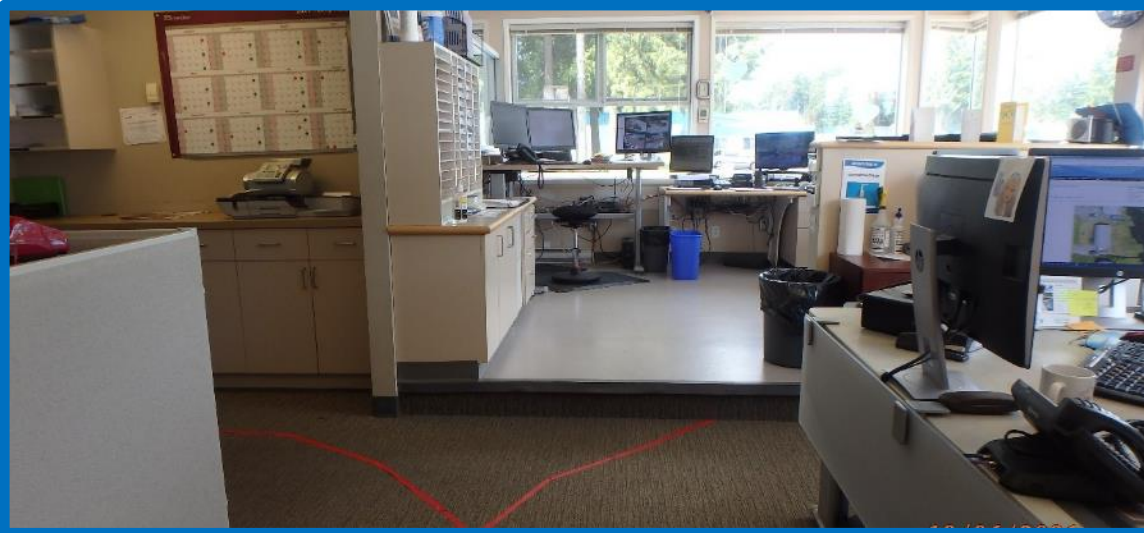


Image 14 Inaccessible Workplace



Image 15 Inaccessible Workplace

3.6 Environmental Impact

Public Works operations conducted at the Site include the vehicle washout for garbage trucks and the disposal of waste from vacuum trucks. Currently these operations result in effluents discharging directly to Northfield Creek. Although the washout and disposal facility were created many years ago, they no longer meet environmental regulations or community expectations. This situation needs to be addressed whether or not the Project proceeds. Further information is provided under Section 4.3 (Background Information)



Image 16 Garbage Truck Washdown



Image 17 Garbage Truck Wash Down Area Drainage



Image 18 Vacuum Truck Dewatering Area

In 2020, the City adopted a Green Fleet Strategy⁵ which sets out measures to reduce Greenhouse Gas emissions from the City's fleet and to improve fuel efficiency. The redevelopment of the Site presents an opportunity to provide alternative fuel infrastructure to help deliver on this strategy.

⁵ City of Nanaimo Green Fleet Strategy 2020



Image 19 Inadequate Alternative Fuel Infrastructure

The modular and aging office buildings on the Site create very inefficient spaces to heat and cool. This not only results in an avoidable operational cost to the City, but it also generates greenhouse gas emissions far in excess of those that would result from similarly sized modern facilities.

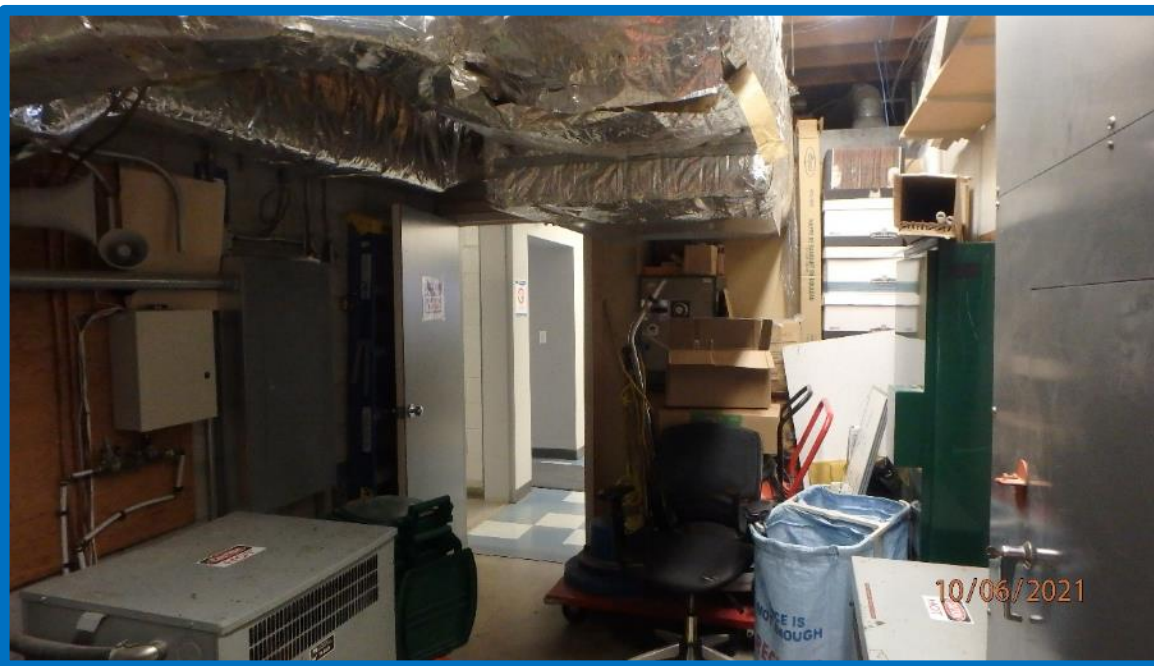


Image 20 Inefficient Heating and Cooling

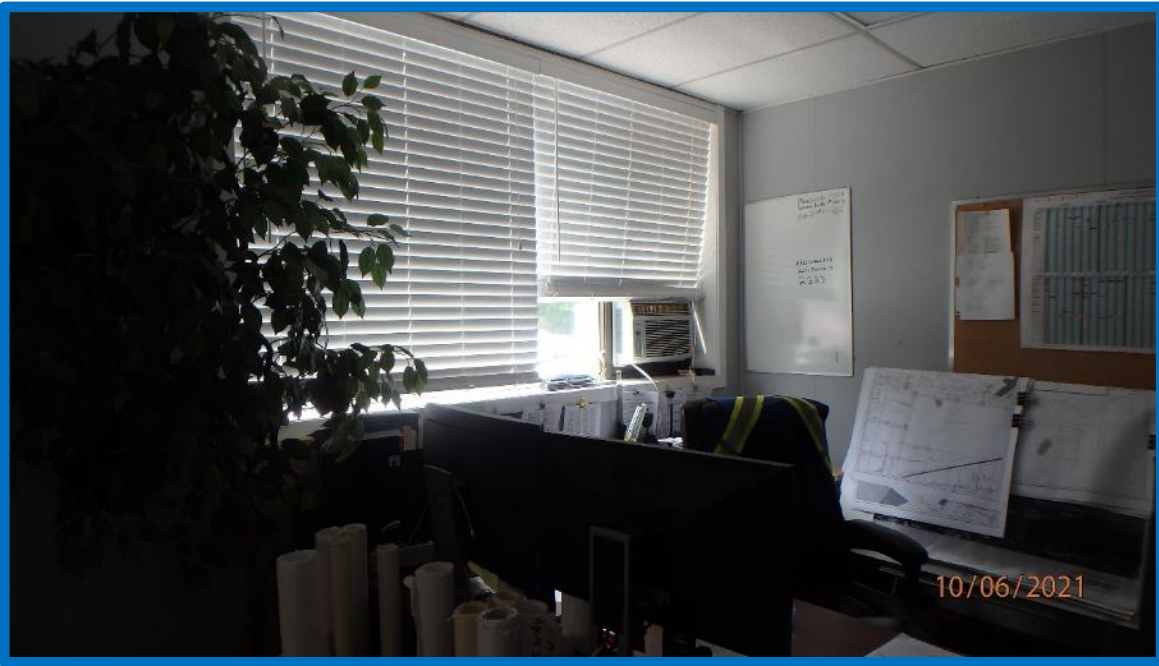


Image 21 Inefficient Heating & Cooling

3.7 Parks Facilities

The 89 Prideaux Street Site was the original Public Works yard for the Corporation of Nanaimo, and later became the Parks Operations Yard after amalgamation in 1975. When the Parks Department outgrew the yard, it expanded to 1151 Nanaimo Lakes Road (Nanaimo Annex), where the GNWD Board Offices were converted into an office facility to accommodate staff. The facilities at 89 Prideaux Street and 1151 Nanaimo Lakes Road are of similar vintage to that of the Public Works at 2020 Labieux Road, and have similar issues in terms of condition, capacity, operational efficiency, safety, security, and workforce equity. The existing Parks Yard is operating in excess of its staff capacity, with offices crammed into an old kitchen area, and others with poor access. The Nanaimo Lakes property is acting as an operations facility for which it was never intended. The parks facilities and operations at 89 Prideaux and 1151 Nanaimo Lakes should be incorporated in the Nanaimo Operations Center Project for operational efficiencies and provision of appropriate level of services on an on-going basis as well as disaster response.

This would free up Nanaimo Annex for other suitable uses and provide the much-needed capacity at 89 Prideaux Street Yard for certain operations that frequently provide services to the downtown area.

4. Technical Analysis

The City has built on previous work undertaken to analyze the space requirements for the Site and has conducted a feasibility study for the Project which includes a concept master plan.

4.1 Steering Committee

Following the September 16, 2020, meeting of the City Finance and Audit Committee at which a motion was passed to further develop an architectural concept and cost estimate⁶ for renewal of the Site, a Steering Committee was established in line with the City's Project Management Framework to oversee this work.

The membership of the Steering Committee is as follows:

Jake Rudolph (Chair)	Chief Administrative Officer
Bill Sims	General Manager, Engineering and Public Works
Art Groot	Director, Facilities and Park Maintenance
Poul Rosen	Director, Engineering
John Elliot	Director, Public Works

⁶ See Section 5 for the Project cost estimate

The Steering Committee has met on a regular basis to ensure that the work was completed on time and within the allotted budget; that all relevant stakeholders were engaged at the appropriate time; and that key decisions were taken in a timely manner.

4.2 Project Team

The Project has been managed by Mike Strain, Senior Project Manager with the involvement of the following consultant team: *Capex Project Advisory Services* (Business Case and Project Advisory Services); *Kasian Architecture + WSP* (Architectural Master Plan and Conceptual Design); *BTY Group* (Cost Estimation Services), *SLR Consulting* (Environmental Assessment Services); *WSP* (Geotechnical Investigation Services); *Toth and Associates Environmental Services* (Tree Assessment Services); and *Herold Engineering* (Fire Training Tower Condition Assessment Services).

4.3 Background Information

The work undertaken by the Project Team builds on work previously undertaken to evaluate the condition of facilities on the Site, as well as a recent review of operational space needs.

4.3.1 Seismic Assessment (Refer to Appendix A – Condition Assessments)

Seismic assessments were carried out for the various buildings, and are contained in the following reports:

- 2012.04.12 – 2020 Labieux Garage and Vehicle Repair Shops
- 2012.04.13 – 2020 Labieux Vehicle Storage & Sign Shop
- 2012.04.13 – 2020 Labieux Purchasing & Stores
- 2018.01.19 – Vehicle Repair Shop (RJC)
- 2012.04.16 - Seismic Assessment 89 Prideaux Parks and Rec Workshop
- 2012.04.17 - Seismic Assessment 89 Prideaux Parks and Rec Admin
- 2012.14.17 - Seismic Assessment 89 Prideaux Parks and Rec Equipment Bays

The seismic assessment of the vehicle repair shop in 2018 found that the building was deficient, in poor condition requiring significant renewal or rehabilitation work.

4.3.2 Condition Assessment (Refer to Appendix A – Condition Assessments)

RJC Engineers (RJC) was engaged to conduct a condition assessment of the various buildings, structures and associated infrastructure on the Site. Further details are set out in the following report:

- 2020.12.31 – CON Public Works Yard Condition Assessment

This condition assessment identifies readily observable deficiencies along with their remedial costs (as a rough order of magnitude, or Class D) prioritized over time, using a risk-based methodology. The assessment identified an immediate need for an investment of \$2.6m, with an inflation-adjusted cost of \$7.5m over a 10 year timeline and \$16.2m over a 30 year timeline to return the facilities to a condition suitable for their current uses. The costs reflect replacing “like with like” and do not account for Building Code or other regulatory upgrades, or address any space utilization improvements required.

In addition to RJC’s assessment and to keep 2020 Labieux Yard operational as is, the City will have to invest another \$2.7m to \$3m over the next 10 years in storm management system, fuel tanks, roofing, heating & cooling, and other key infrastructure on this site that is in an immediate need of replacement.

4.3.3 Operational Space Requirements (Refer to Appendix B – Operational Space Needs Analysis)

Resource Planning Group Inc. (RPG) was engaged in 2019 to conduct a review of operational space needs for Public Works, Engineering, Parks Operations & Facilities based on a population growth forecast over a 20-25 year time frame.

RPG’s deliverables were set out in the following two reports:

- 2019.07.11 – Operational Space Needs Review Redevelopment Options
- 2020.02.04 – Operational Space Needs Review Phased Redevelopment Options

4.4 Adjacent Site Uses (Refer to Appendix C – Current Site Plan)

The Project Site occupies the majority of the 2020 Labieux Road land parcel, the remainder of which is currently set aside for other uses.

The portion of the land parcel to the north west of the Project Site is leased by the Province for use in the provision of temporary housing, and is expected at some point in the future to be made available for incorporation into the future Nanaimo Operations Centre. The portion of the

and to the southeast is occupied by Nanaimo Fire Rescue's Fire Station 2 and a Fire Training Tower that is used in live fire training.



Image 22 Aerial View of the Project Site

4.5 Site Uses (Refer to Appendix D – Existing Site Uses)

The Site is accessible from 2 gates on Labieux Road. The southernmost gate is the main access point to the Site, and is located adjacent to the staff parking area near the majority of office accommodation facilities, interior storage structures and workshops. The northernmost gate is normally closed and intended for secondary access as an emergency exit or to be used when required to facilitate movement of larger bulk material.

4.6 Master Planning Process (Refer to Appendix E – Master Plan)

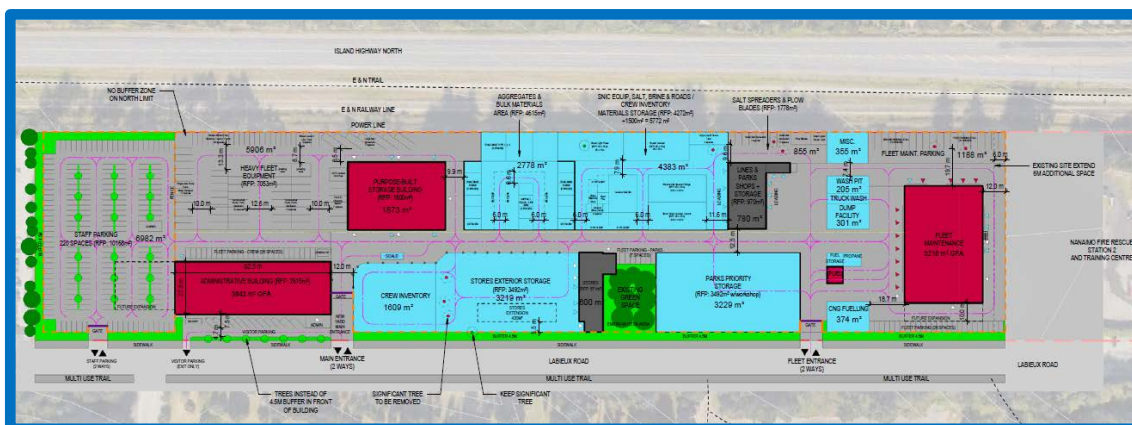


Image 23 Extract from Master Plan

Through a public request for proposal, the City engaged Kasian Architecture, Interior Design and Planning Ltd (Kasian), who proceeded to work with the City to develop a master plan for the Site and a concept design for the Fleet Maintenance Building and the Administration Building.

The primary direction of the consultant team was to develop designs of a utilitarian and practical nature, durable and efficient to ensure that the master plan would be as cost effective as possible.

Kasian worked with City stakeholders to understand their needs, and researched a wide range of factors, including zoning, parking regulations, landscaping requirements, easements and rights of way, setbacks, the City of Nanaimo Official Community Plan, transportation, topography, existing utilities, as well as geotechnical and environmental assessments carried out by WSP and SLR Consulting, respectively.

As part of this process, Kasian worked with the City to review the previous work by RPG Operational Space Requirements to ensure that the scope of the Project was correctly defined and validated. This led to a number of improvements to the space program, with the following key changes:

- Engineering Projects & Inspections is based at the Site; however, the majority of Engineering department functions are located at the Service and Resource Centre (SARC), which had been experiencing its own space constraints. Recent renovations at SARC have addressed the space constraints and due to the important functional relationships between Engineering and other departments at SARC, it was decided not to consider relocation of these functions to the Site, which decreased the Project space requirements.
- Another reduction in Project space requirements resulted from the decision to maintain certain Parks Maintenance operations at the 89 Prideaux Street location. This facility has also been experiencing space pressures; however, by transferring select operations from this location to the Site, it is possible to address those issues, maintain key operations in proximity to the downtown area, and at the same time decrease Project space requirements in the planned Administration Building by approximately 2,000m² to around 6,000m².

Additionally, moving all of the staff from the Nanaimo Annex would 1151 Nanaimo Lakes Road to be repurposed in the future. Demolition of the Nanaimo Lakes office and storage building are included in the scope of this project.

With the space program refined, validated, and approved by the Steering Committee, the Project Team then began to review the RPG layouts for the Site.

Taking into consideration the reduced space requirements, and with the objective of ensuring workable construction phasing, cost effectiveness and overall operational efficiency, several block plan iterations were developed for review by the Steering Committee before a preferred block plan was identified. The selected option would eliminate the need for costly temporary facilities which had previously been an expected necessity. Due to the live fire training that occurs on the adjacent site, up fitting of the Fire Training Tower with natural gas is required to improve air quality concerns on the Site and is added to the scope of this project.

The selected block plan was then further optimized and developed into a Site Master Plan through a collaborative and iterative process which resulted in additional efficiencies, including a further reduction in the space requirements for the planned Administration Building by approximately 1,900m² to around 4,000m² by relocating crew storage to a separate and lower cost purpose-built storage facility on the Site and renovating the existing Stores Building and the

Lines and Parks Shop and Storage Building to meet the new program requirements. BTY Group estimated these cost savings to be in the order of magnitude of \$4.5M to \$5M.

The Site Master Plan (refer to Appendix E) was subsequently reviewed and approved by the Steering Committee in conjunction with the capital cost estimate (refer to Section 5).

4.7 Concept Designs (Refer to Appendix F – Concept Design)

With the Site Master Plan approved, Kasian continued their work with City stakeholders to develop floorplans and concept designs for each building based on the stipulated program areas, workflows, adjacencies, and BC Building Code requirements.

The concept design for the Fleet Maintenance Building is a simple and functional post disaster two-story building design comprised mainly of vehicle repair and welding bays, equipment and parts storage areas to support the maintenance of City fleet vehicles, together with associated administrative areas.



Image 24 Concept Rendering of Fleet Maintenance Building

The Master Plan locates the Administration Building along Labieux Road to serve as a prominent public entry point marker to the new Nanaimo Operations Centre with the building accessible via a dedicated public area separate from other secured entrances. The concept design for the Administration Building is a post disaster two-story building with the main level featuring the new DOC and EOC and providing accommodation for crew operations with easy access to the yard, with offices and meeting facilities located on the second level of the building.



Image 25 Concept Rendering of Administration Building

A Purpose-Built Storage Building (PBSB) will be located centrally on the Site to provide the required interior storage space for the Nanaimo Operations Center, consolidating a range of storage facilities currently located throughout the Site.



Image 26 Concept Rendering of Purpose-Built Storage Building

The concept design for the PBSB has a central drive through aisle for ease of access, loading / unloading, and exit by crew vehicles.

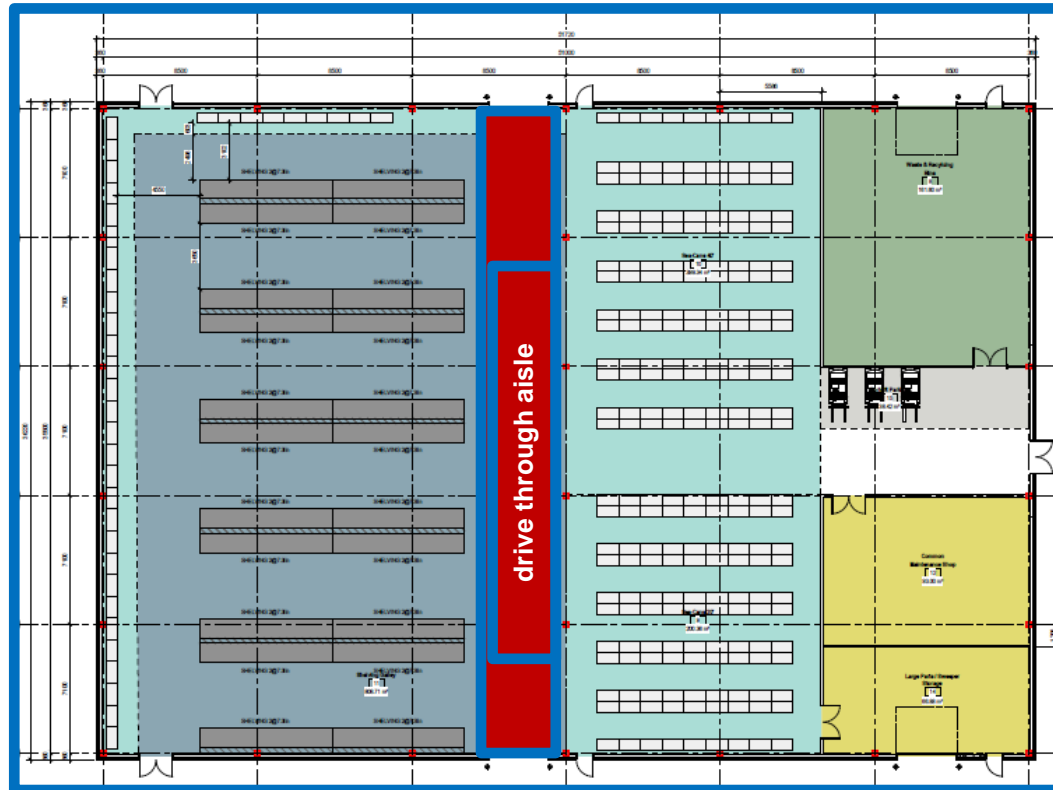


Image 27 Floor Plan of Purpose-Built Storage Building with drive through aisle

Offices currently located within the Purchasing and Stores Building and Lines and Park Shop Building (also known as the Truck Barn) will be relocated to the new Administration Building. The Lines and Park Shop Building and the Purchasing and Stores Building will remain at their current locations but will be renovated to current Building Code standards with interior walls, finishes, lighting changes and other simple and functional renovations. These facilities will be dedicated to housing the line shop, carpentry shop, utility shop and material storage, which will improve operational and space planning efficiency across the Site. The strategic decision to retain and upgrade these two existing buildings are further cost savings measures taken for the Project.

Two buildings at the 89 Prideaux Street Yard, the Administration Building and the Carpenter's Shop, will undergo renovations to current Building Code standards with interior walls, finishes, lighting changes and other simple and functional renovations for better functionality, add flex space, and address workplace equity. The Carpenter's shop will be repurposed to storage for items that are required by the operations teams servicing the City's downtown area.

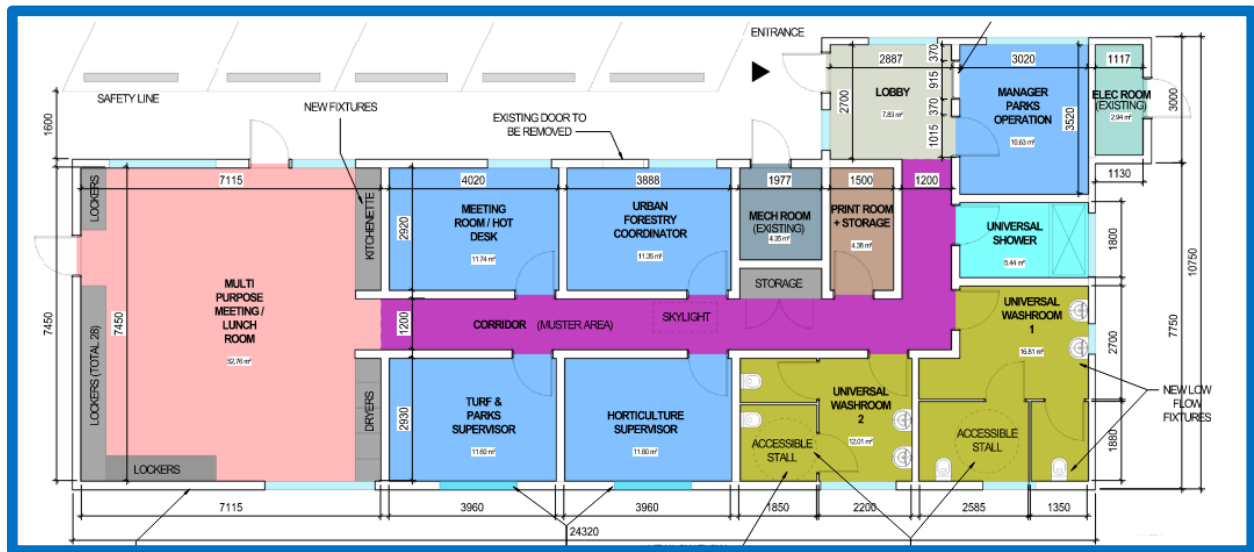


Image 28 Proposed Floor Plan of Parks Administration

5. Financial Analysis

Staff developed a construction cost estimate and Project Budget to implement the concept master plan for the Site.

5.1 Construction Cost Estimate (Refer to Appendix G – Construction Cost Estimate)

In accordance with the City's Project Management Framework, a cost consultant (BTY Group) worked as part of the Project Team to advise on strategies to minimize the capital construction cost of the Project and delivered a Construction Cost Estimate based on the approved Site Master Plan and Concept Design. A comprehensive review of the design and Construction Cost Estimate was undertaken with the Project Team prior to finalizing the Project Budget, discussed further in following Section 5.2 of the report.

The Construction Cost Estimate accounts for all of the following:

- Labour & Material Estimates
- Recent Market Pricing Data
- Project Schedule / Duration
- Location Specific Conditions
- Current Year Rates for Labour & Materials (based on historic analysis)
- Escalation Costs
- Permitting Costs

5.2 Baseline Cost Estimate and Project Budget

In addition to the Construction Cost Estimate developed by BTY, Staff estimated soft costs such as Professional Consulting Fees including Design, Project Management, Legal, Cost Consulting, as well as assigning allowances for Third-Party Costs (e.g. utilities), Furniture, Fixture and Equipment (FFE), Public Art, Insurance, and Move Costs. These costs were added to the Construction Cost Estimate and form the Baseline Cost Estimate.

The Baseline Cost Estimate for the Project is shown in Table 1, together with the stipulated contingency allowances in accordance with the City's Project Management Framework to arrive at the Project Budget. The scope, size and complexity of the proposed construction at 2020 Labieux gives its classification of a Special Project per the City's Project Management Framework which in turn requires the Project Budget carry a Risk-Based Contingency.

Sites	2020 Labieux	89 Prideaux Street	Fire Training Tower	1151 Nanaimo Lakes Road	Nanaimo Operations Center Project
Professional Fees (Soft Cost)	\$11,085,500	\$619,500	\$97,000	\$0	\$11,802,000
Construction (Hard Cost)	\$59,547,800	\$2,597,400	\$645,000	\$143,400	\$62,933,600
Off Site Works (Hard Cost)	\$1,000,000	\$0	\$0	\$0	\$1,000,000
Escalation (Hard Cost)	\$16,328,000	\$856,100	\$0	\$47,300	\$17,231,400
Permits	\$1,785,800	\$77,900	\$20,000	\$4,300	\$1,888,000
Third-Party Utilities	\$300,000	\$30,000	\$0	\$0	\$330,000
Furniture, Fixtures & Equipment	\$3,600,000	\$400,000	\$0	\$0	\$4,000,000
Public Art	\$225,000	\$30,000	\$0	\$0	\$255,000
Insurance	\$788,000	\$118,000	\$60,000	\$10,000	\$976,000
Move Costs	\$120,000	\$60,000	\$0	\$0	\$180,000
Baseline Cost Estimate	\$94,780,100	\$4,788,900	\$822,000	\$205,000	\$100,596,000
+ Flat Rate Contingency (~10%)	\$9,500,000	\$500,000	\$83,000	\$21,000	\$10,104,000
+ Risk-Based Contingency (~15%)	\$14,300,000	\$0	\$0	\$0	\$14,300,000
Project Budget	\$118,580,100	\$5,288,900	\$905,000	\$226,000	\$125,000,000

Table 1 Baseline Cost Estimate and Project Budget

All projects progress naturally through a series of stages. The Site Master Plan and Concept Design for Nanaimo Operations Center Project is in line with the stages within City's Project Management Framework. It is reasonable to expect that at this early stage of design the Project could cost up to 30% more or 20% less than the Project Budget value cited the Table 1 on the previous page. Figure 2 below is the degree of confidence chart from the City's Project Management Framework and the Nanaimo Operations Center, a Special Project, completed the Concept Design stage. As the Project is further developed, decisions may need to be taken to keep the Project on track in respect of the Project Budget.

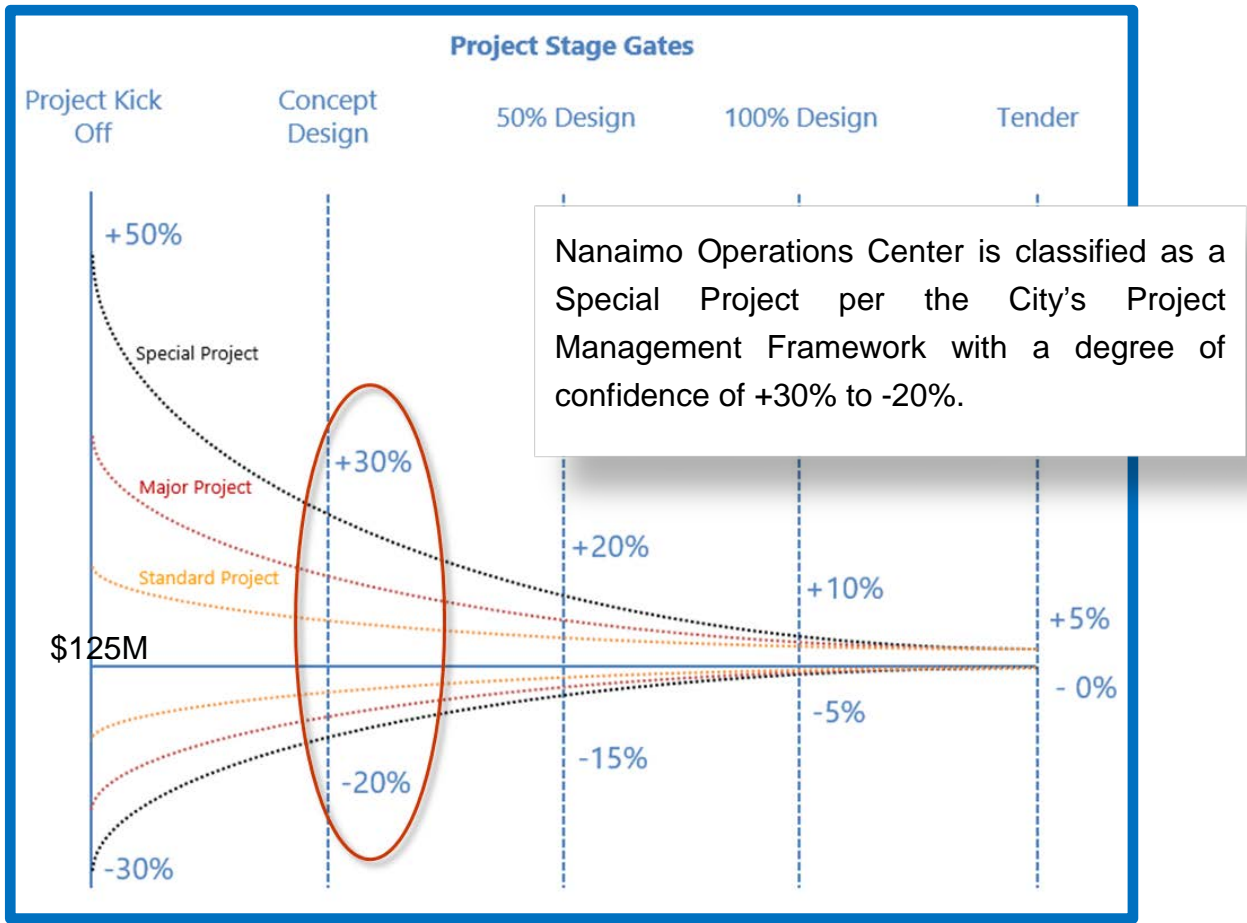


Fig. 2 Degree of Confidence Chart per City's Project Management Framework

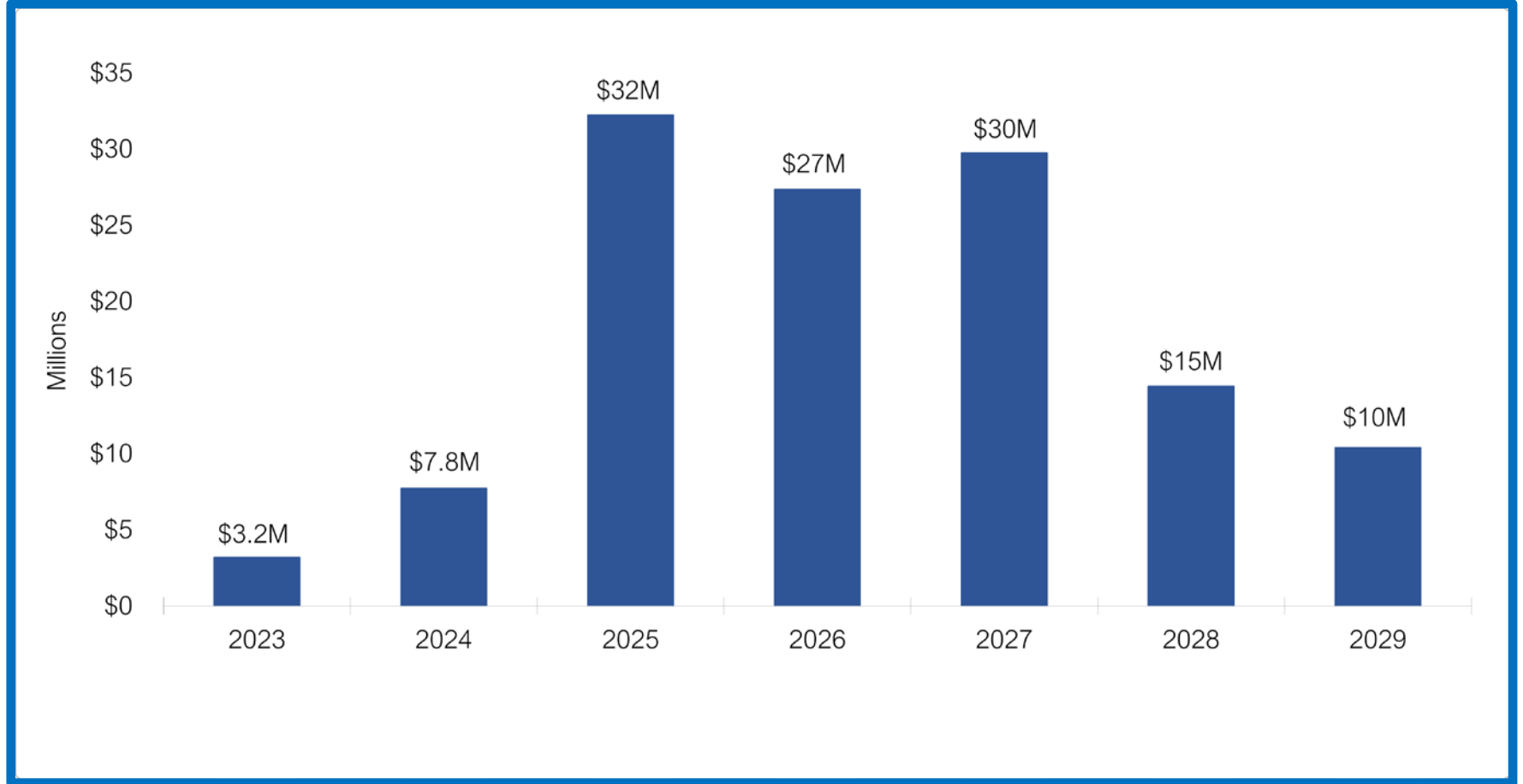


Fig. 3 Project Budget Cash Flow

5.3 Operational Implications

5.3.1 Maintenance & Renewal Costs

While the proposed facilities are larger in size than the facilities currently located at the Site, existing facilities (including facilities located at the Nanaimo Annex which will be demolished) represent a significant maintenance and renewal liability to the City and by undertaking the Project, the City will no longer need to fund this liability. Of course, should the Project proceed, the new facilities will need to be maintained in good order in line with the City's Asset Management Plan to prevent deterioration in future years.

5.3.2 Energy Cost Savings

The facilities currently located at the Site are highly inefficient in respect of heating and cooling costs. Should the Project proceed, the new facilities will meet modern standards of insulation with efficient energy systems incorporated, and should result in a notable reduction in heating and cooling costs per unit of area.

6. Project Implementation Plan

The City selected a Project Delivery Model and developed a Project Schedule for implementation of the Project.

6.1 Project Delivery Model

The Contract Strategy for a capital project is sometimes referred to as the Project Delivery Model and describes how the design and construction will be procured and delivered.

Project Delivery Models are grouped into categories which summarize the high-level risk allocation, and the most used categories include the following:

- Design-Bid-Build ("traditional")
- Design-Build
- Construction Management at Risk

The City's Project Management Framework requires that Special Projects such as this project undergo a Project Delivery Model Evaluation, which consists of a structured discussion in a workshop format, the outcome of which is a documented rationale for selecting one of the categories of Project Delivery Models listed above.

The Project Team undertook a Project Delivery Model Evaluation and determined that the option best suited to address the specific risks and constraints identified, and to meet the defined objectives of the Project was Design-Bid-Build, but that the construction work be procured as

two separate contracts due to the duration of time between the anticipated start of construction and the end (refer to Section 6.3).

6.2 Implementation Strategy

Kasian were tasked to develop a Site Master Plan that could be implemented in phases with minimum disruption to on-going operations. Through extensive engagement with operations and the Project Team, Kasian were able to achieve this objective and presented a Master Plan that can be readily executed in four separate phases.

Phase 1: Repurpose the temporary housing site area* for temporary staff and fleet equipment parking, build the Fleet Maintenance Building and Purpose-Built Storage Building, build supporting site infrastructure. Retrofitting the existing Fire Training Tower with natural gas burners will also be required in this phase.

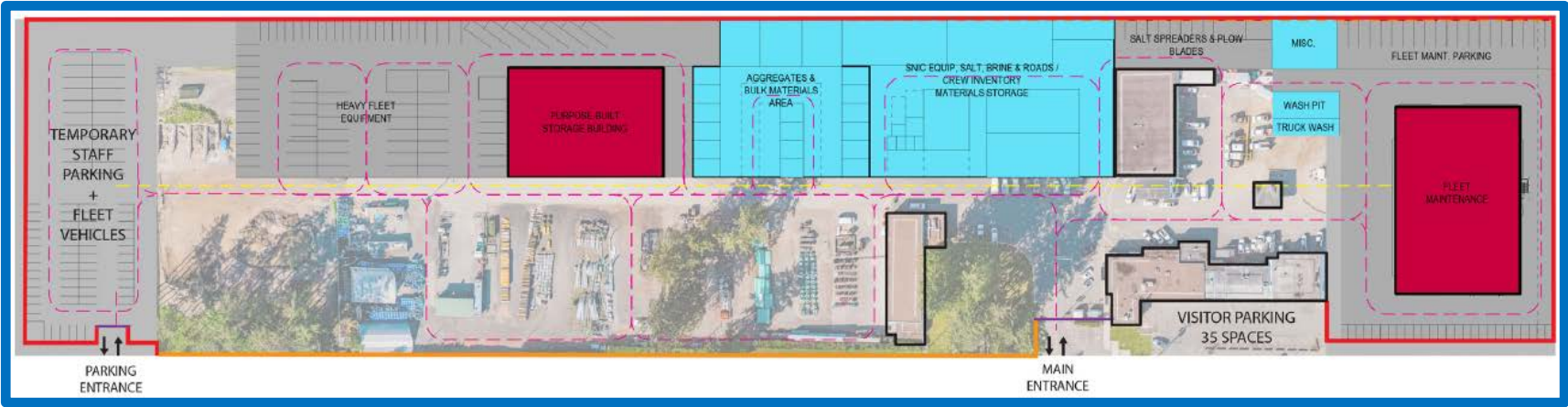
*Note that temporary parking at the existing fire station lot could be an alternate option if the lease on the temporary housing site is extended beyond the anticipated commencement of the Project.



(Kasian Architecture, 2021)



Phase 2: Demolish existing fleet maintenance building, relocate storage and aggregates and complete site works for fleet equipment parking



(Kasian Architecture, 2021)



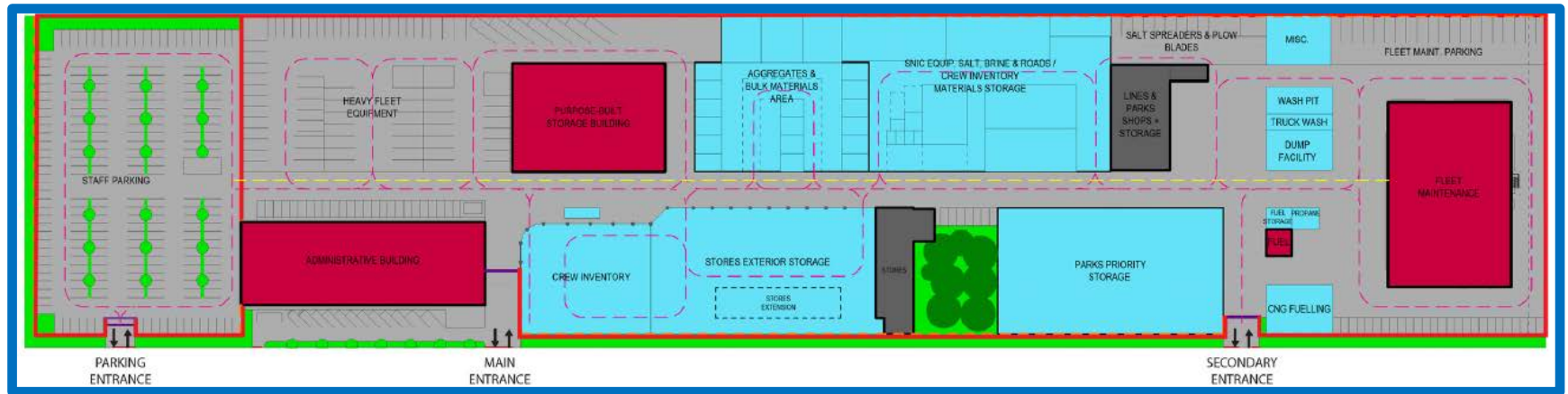
Phase 3: Construct the new Administration Building, demolish the existing administration building, establish the new site entrances, build out additional site infrastructure.



(Kasian Architecture, 2021)



Phase 4: Renovate existing Lines & Parks Shops and Stores Building, complete remaining site infrastructure works. Complete renovations at 89 Prideaux and demolition at Nanaimo Annex at 1151 Nanaimo Lakes Road.



(Kasian Architecture, 2021)



6.3 Implementation Schedule (Refer to Appendix H – Project Schedule)

Due to the extended duration of the Project (approximately 6 years), it is not considered commercially feasible to obtain a fixed price from contractors at the outset to cover the entire duration of construction. Because of this, but also due to the scale of the Project, the scope of construction has been packaged in to two separate contract stages – the first Stage consists of Phases 1 and 2, and the second Stage consists of Phases 3 and 4. Each Stage would be procured separately at the appropriate time.

To develop schedules and cash flow models, it was assumed the project could start in Q1 2023.

6.4 Project Risks (Refer to Appendix I – Risk Management Plan)

Projects of this size and complexity carry significant inherent risk and it is important to adopt a structured and documented approach to management of those risks. This involves a continual process of identifying risks, evaluating impact and likelihood, and planning implementing mitigation measures.

The Project Team engaged in a multi-disciplinary risk workshop to discuss events or conditions that may occur and could impact the Project negatively. A Risk Management Plan was developed recording actions to mitigate the likelihood and impact of each risk identified.

Highlighted below is a discussion of some of the key Project risks and planned mitigation measures.

- Escalation cost estimates are based on the assumption that the Project would commence in early 2023. A delay to the start date would increase escalation costs. BTY Group estimates that it would cost additional \$4M-\$5M each year the Project delayed. To mitigate unnecessary escalation cost, it is important that funding be in place for Q1 2023.
- The successful contractor(s) may not perform in accordance with the contract schedule. An experienced Project Manager must be in place to first establish realistic timelines and robust contract terms and conditions, then to manage the contracts, including holding the City accountable for retained risk.
- In addition to escalation, it is possible that tenders will not be received within budget. An experienced Project Manager should implement a market engagement exercise to raise the profile and interest in the Project and also to capture input from the contracting community
- Design must be managed to ensure that they remain practical, durable, and utilitarian, implementing value engineering as necessary.

- Pandemic risk has not been eliminated yet, and shortages of materials and labour could impact Project costs. Engagement with the market, combined with clear and appropriate contract risk allocation are essential mitigations.
- Utility work on and off-site could be extensive to keep this site operational during construction and to transfer to a fully operational site. An experienced design team following a clear & well-researched site development plan is required.
- Early-stage environmental assessment indicates four locations that require some form of environmental remediation work. Further investigation will be necessary to firm up this scope and the associated risk.
- The Project is complex – it will be implemented in a number of phases, with potentially more than one general contractor, various and overlapping design and permitting activities, and the involvement of a range of internal stakeholders. This will require strong leadership from the Project Steering Committee and Project Manager.
- If the lease on the land currently being used for temporary housing has not ended and the building not removed from the Site prior to the start of this Project in early 2023, the site development strategy will need to be revised.

Management of risk is an on-going process, and the Project Team is aware of their commitment to review and update the Project Risk Management Plan on a regular basis to reflect changing events and conditions.

Appendix A – Condition Assessments

See separate documents:

- 2012.04.12 – 2020 Labieux Garage and Vehicle Repair Shops
 - 2012.04.13 – 2020 Labieux Vehicle Storage & Sign Shop
 - 2012.04.13 – 2020 Labieux Purchasing & Stores
 - 2018.01.19 – Vehicle Repair Shop (RJC)
 - 2012.04.16 – Seismic Assessment 89 Prideaux Parks and Rec Workshop
 - 2012.04.17 – Seismic Assessment 89 Prideaux Parks and Rec Admin
 - 2012.14.17 – Seismic Assessment 89 Prideaux Parks and Rec Equipment Bays
 - 2020.12.31 – CON Public Works Yard Condition Assessment
-

Appendix B – Operational Space Needs Assessment

See separate documents:

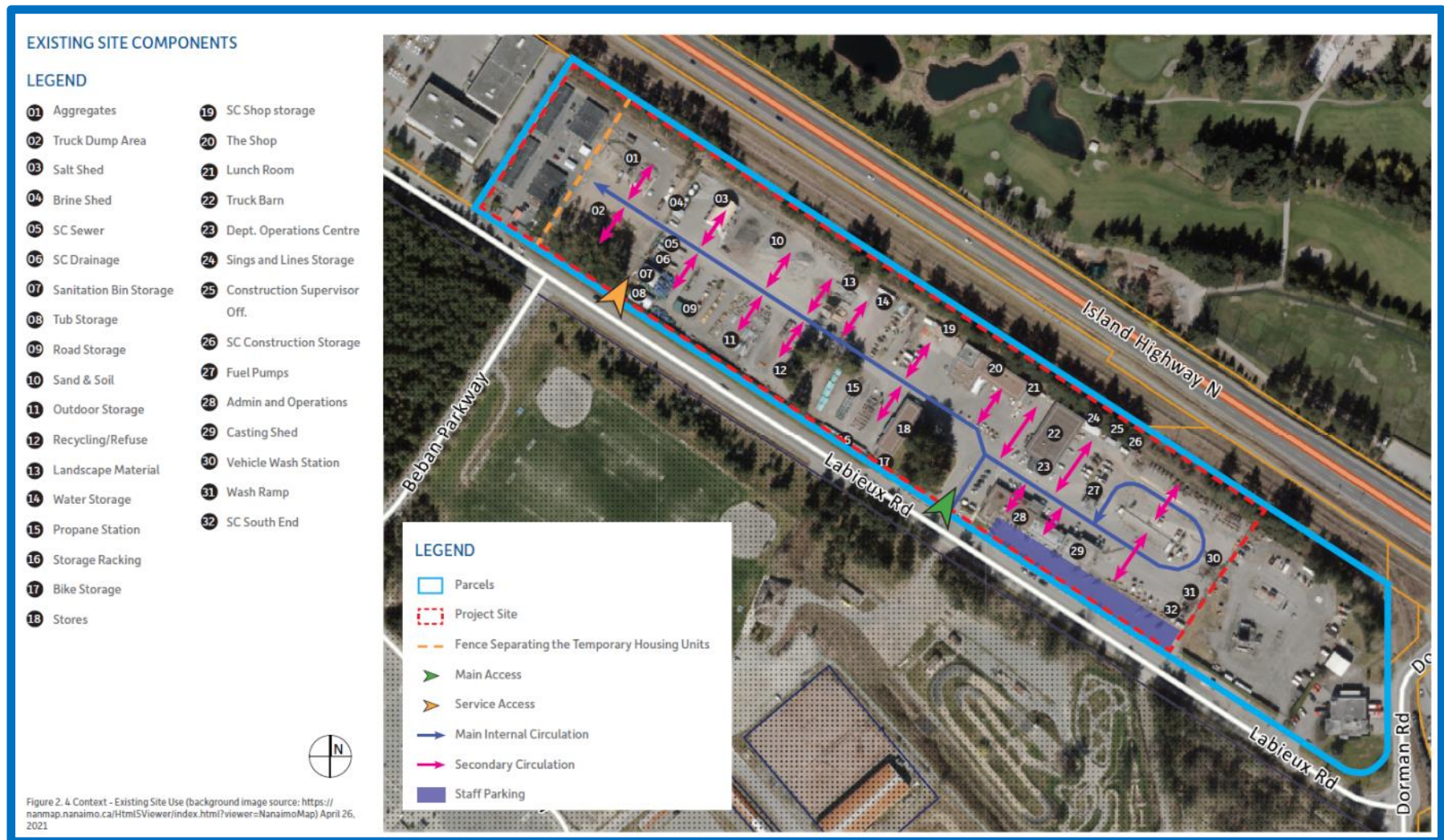
- 2019.07.11 – Operational Space Needs Review Redevelopment Options
- 2020.02.04 – Operational Space Needs Review Phased Redevelopment Options

Appendix C – Current Site Plan



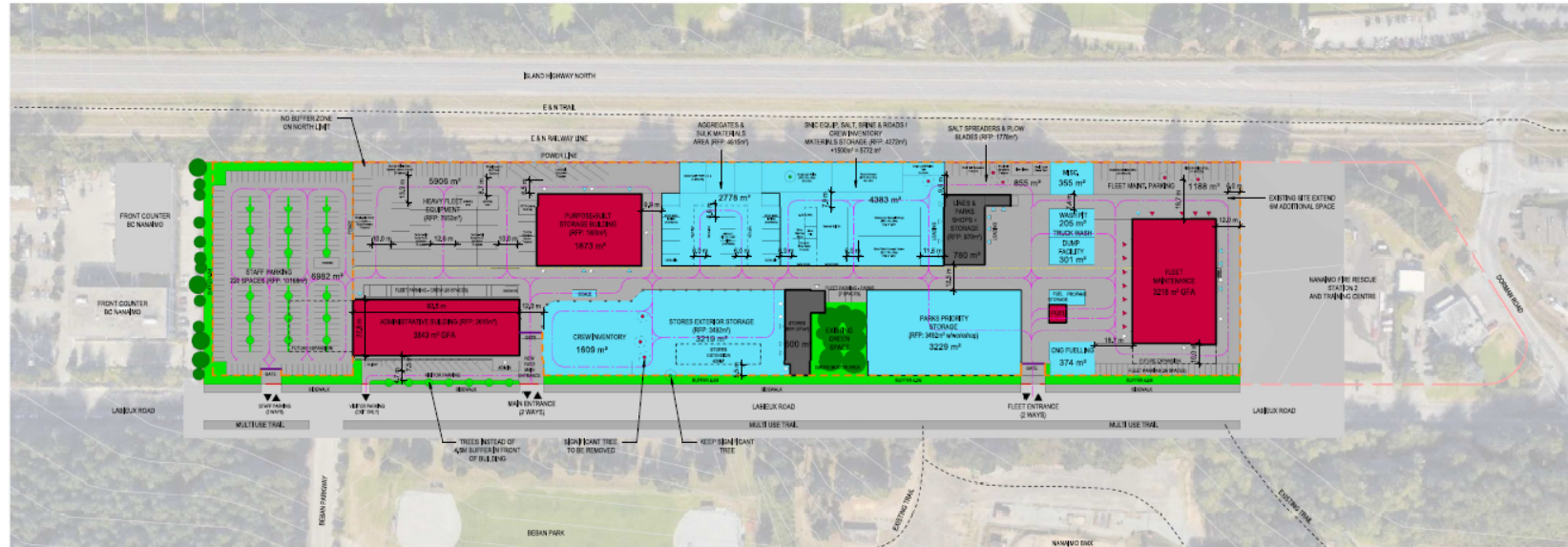
(Google Maps, 2021)

Appendix D – Existing Site Uses



(Kasian Architecture, 2021)

Appendix E – Site Master Plan



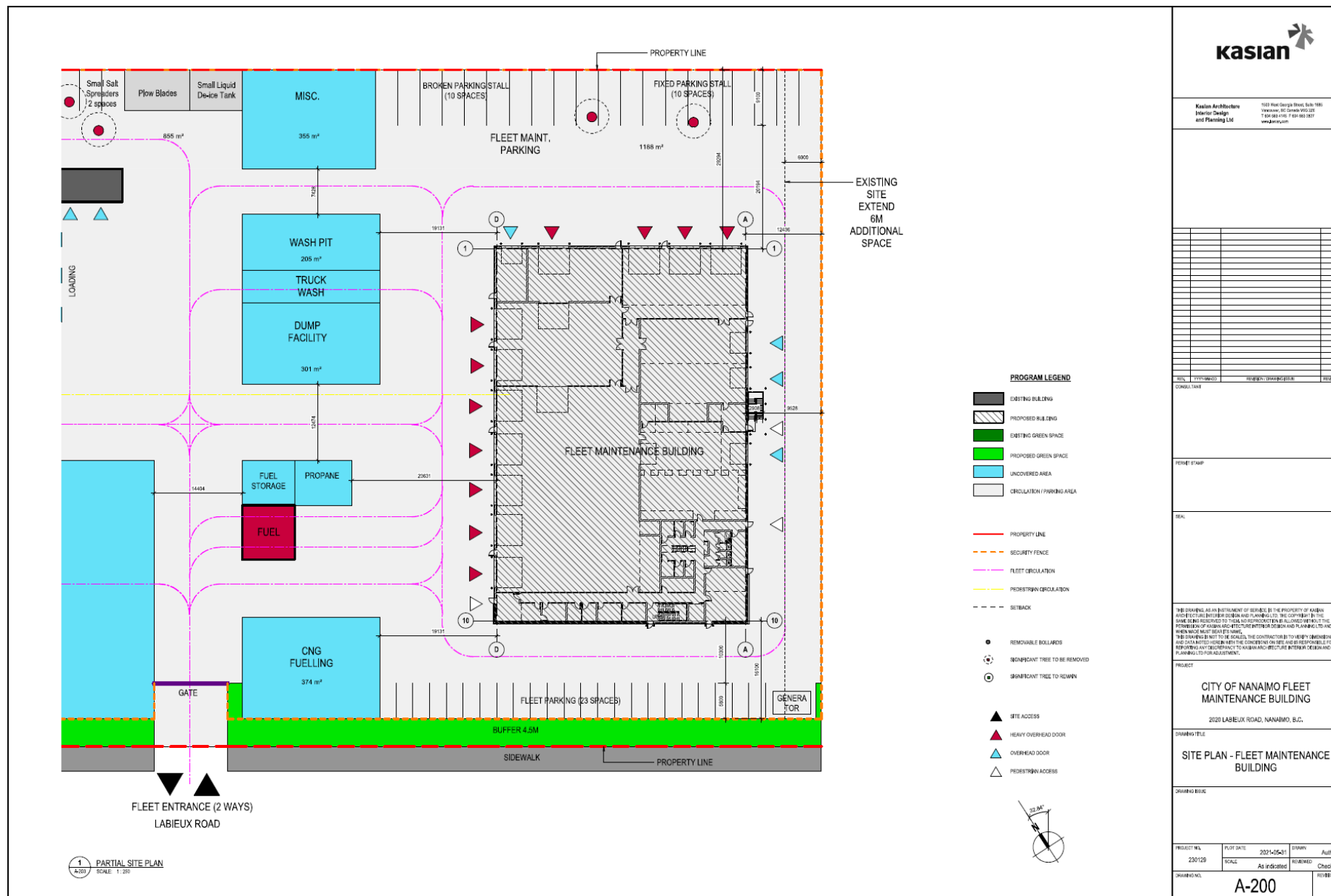
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SCALE: 1:100

PROGRAM LEGEND

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	PROPOSED BUILDING		SECURITY FENCE		SIGNIFICANT TREE TO BE REMOVED		HEAVY OVERHEAD DOOR
	EXISTING GREEN SPACE		FLEET CIRCULATION		SIGNIFICANT TREE TO REMAIN		OVERHEAD DOOR
	PROPOSED GREEN SPACE		PEDESTRIAN CIRCULATION				PEDESTRIAN ACCESS
	UNCOVERED AREA		SETBACK				
	PARKING AREA						



Appendix F – Concept Design





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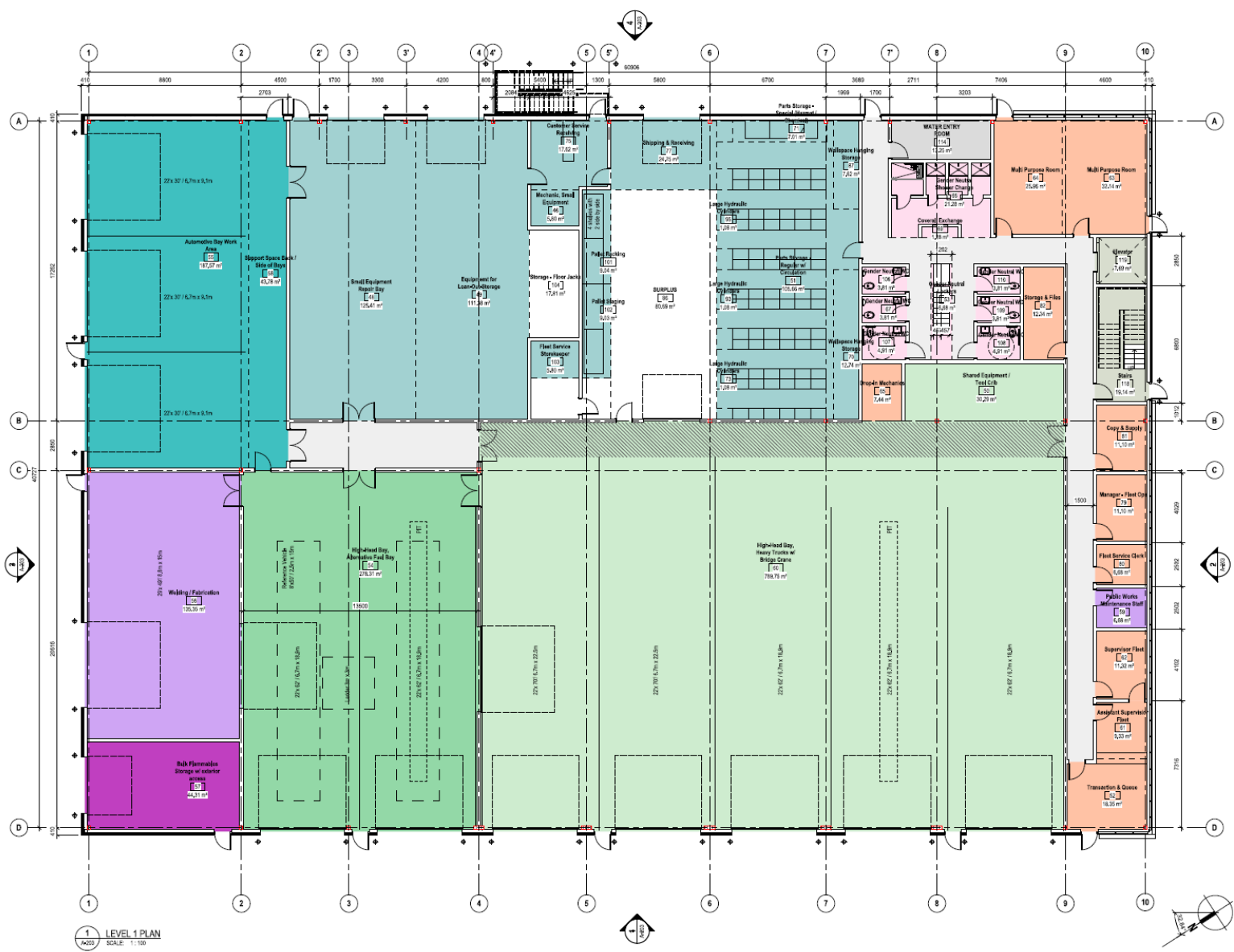
CITY OF NANAIMO FLEET
MAINTENANCE BUILDING
2020 LAUREL ROAD, NANAIMO, B.C.

LEVEL 1 PLAN

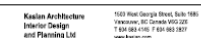
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A-201



1 LEVEL 1 PLAN
SCALE: 1:100
AREA 2,593 SQM



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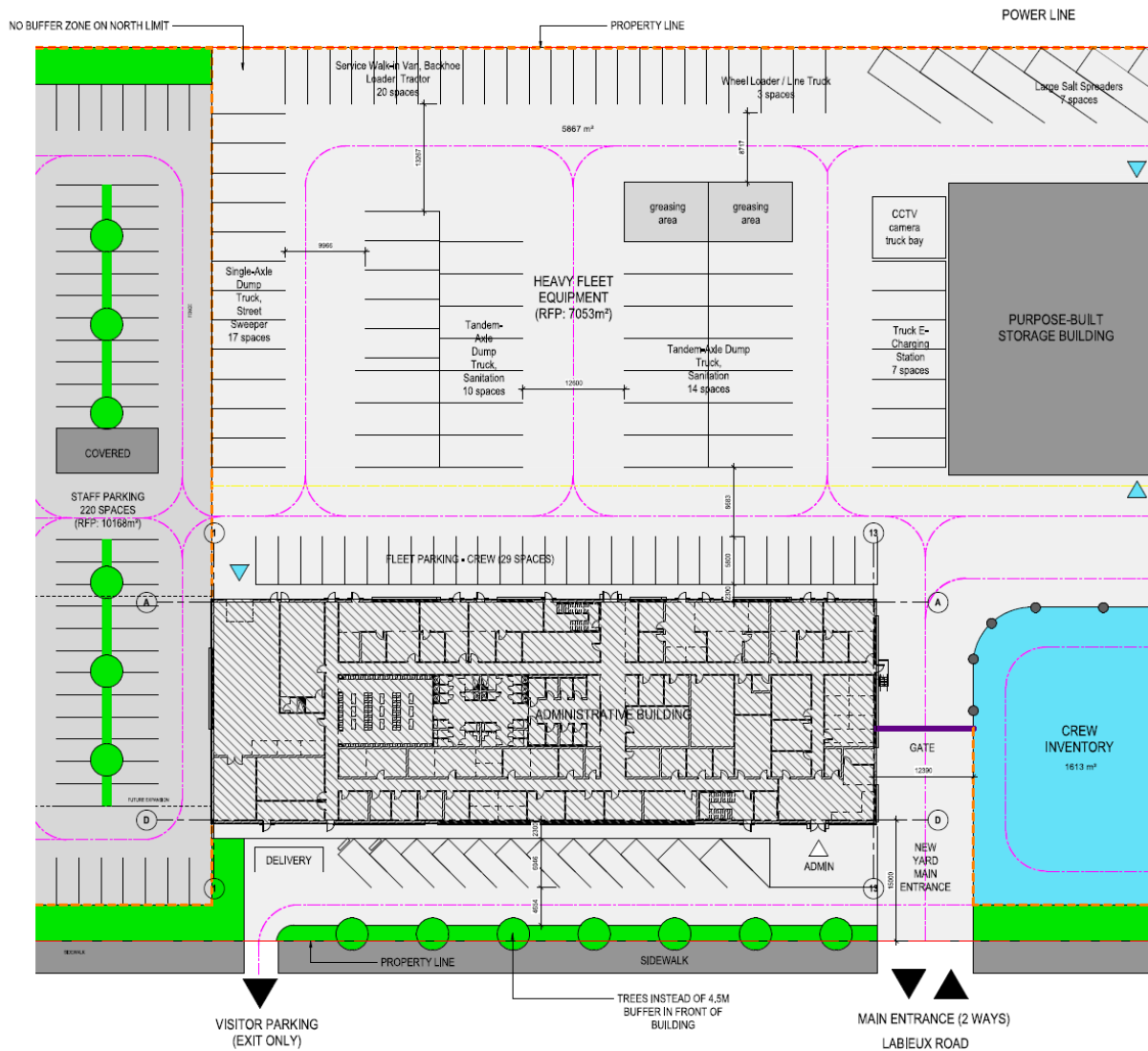
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A-203



1 PARTIAL SITE PLAN
SCALE: 1:250

PROGRAM LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING
- EXISTING GREEN SPACE
- PROPOSED GREEN SPACE
- UNCOVERED AREA
- CIRCULATION / PARKING AREA
- PROPERTY LINE
- SECURITY FENCE
- FLEET CIRCULATION
- PEDESTRIAN CIRCULATION
- SETBACK
- REMOVABLE BOLLARDS
- NON-SIGNIFICANT TREE TO BE REMOVED
- SIGNIFICANT TREE TO BE REMOVED
- BIKE ACCESS
- HEAVY OVERHEAD DOOR
- OVERHEAD DOOR
- PEDESTRIAN ACCESS



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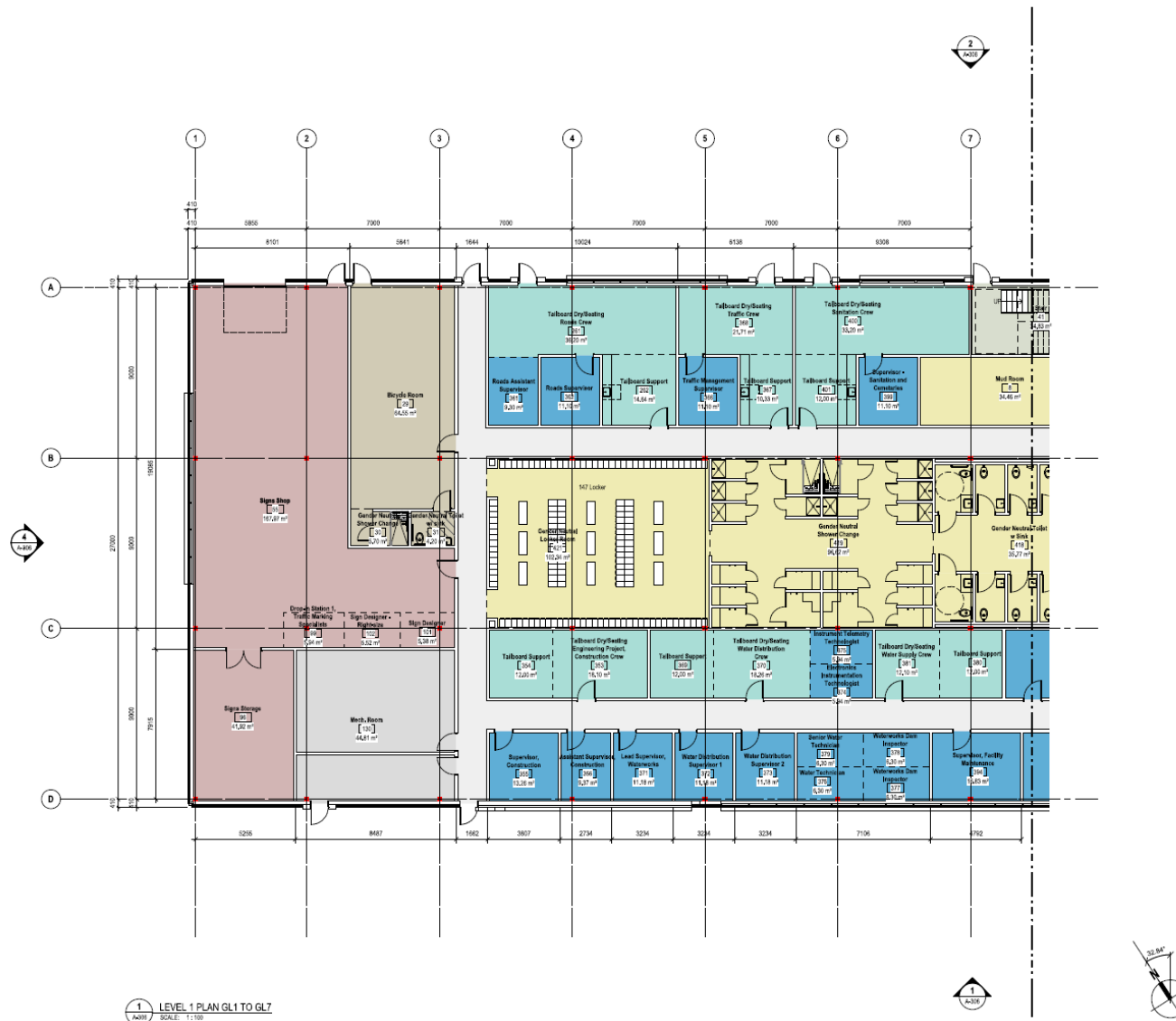
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LEVEL 1 PLAN GL1 TO GL7

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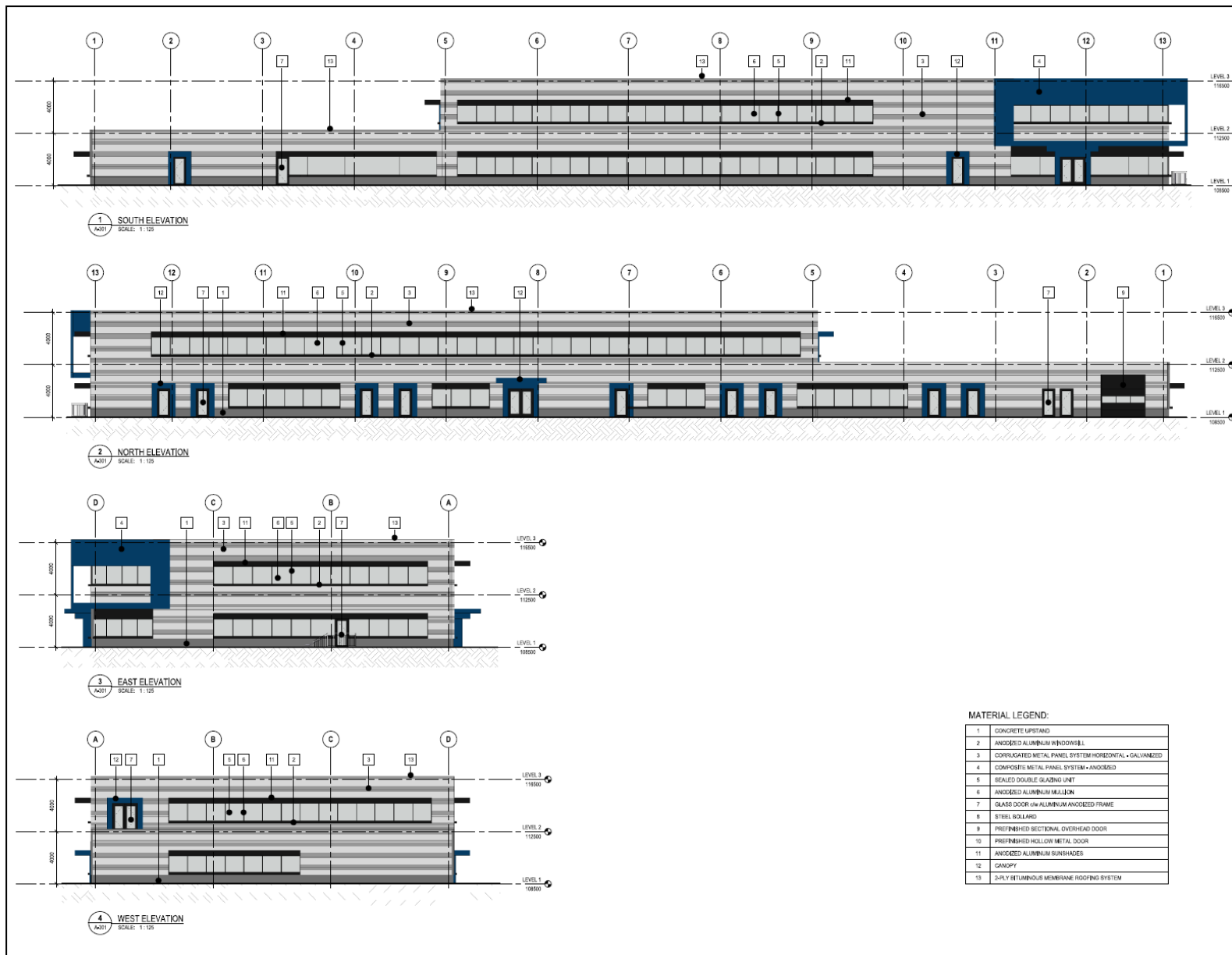
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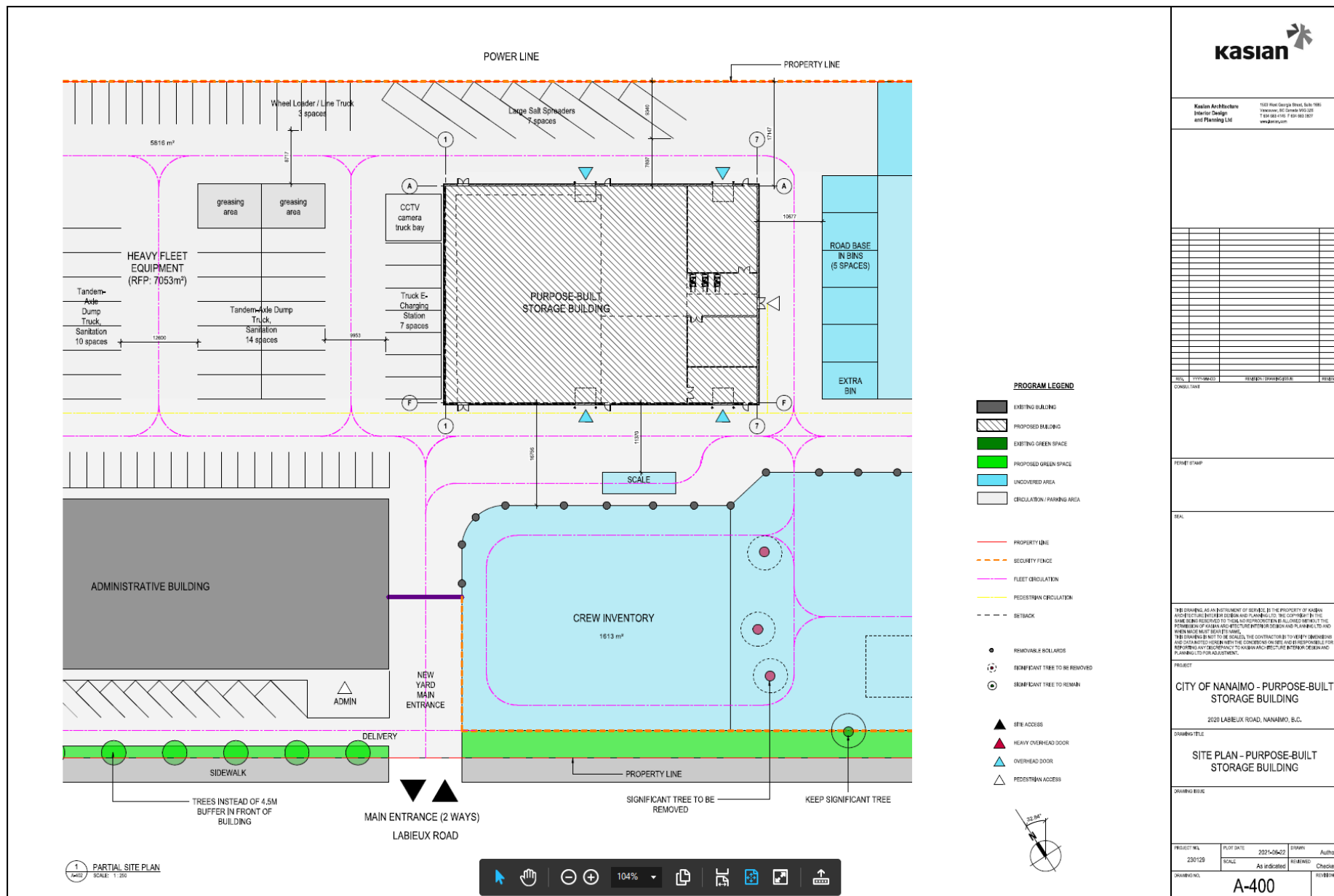
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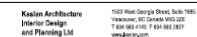
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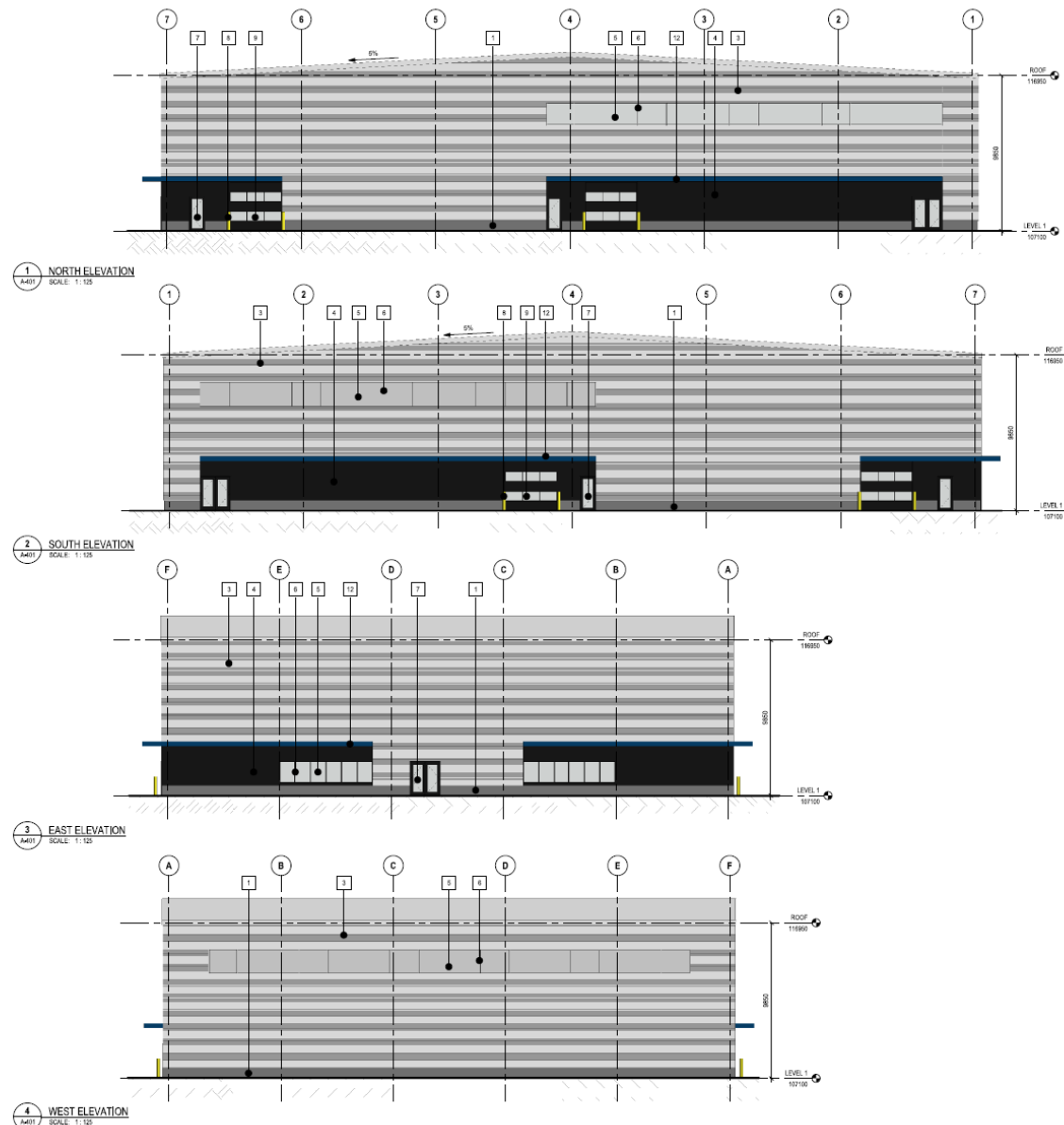
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EXTERIOR ELEVATIONS

CREATING ISSUE

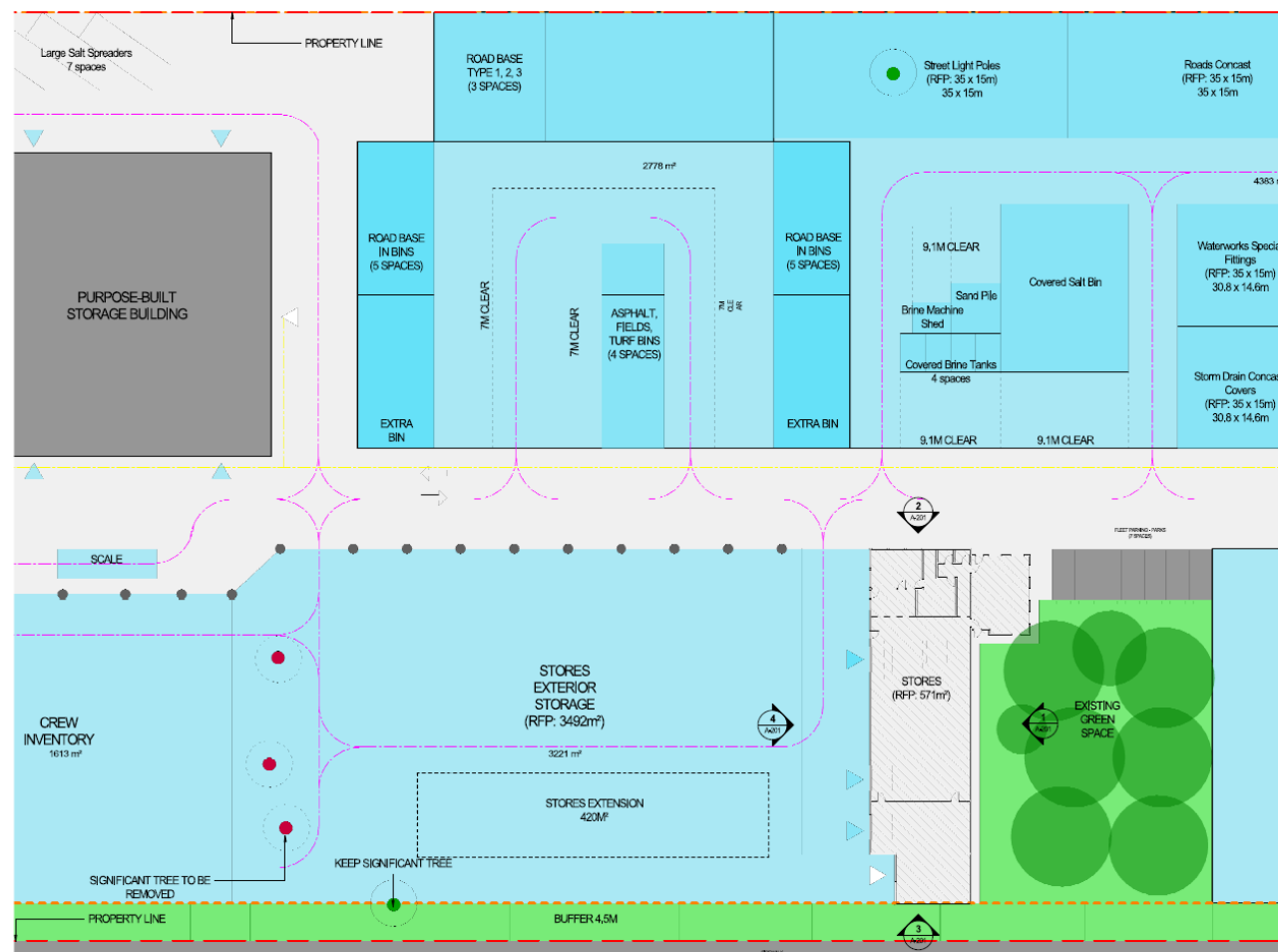
PROJECT NO.	PLOT DATE	DRAWN
230129	2021-06-22	Aut
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A-402



MATERIAL LEGEND:

1	CONCRETE UPSTAND
2	ANODIZED ALUMINUM WINDOW/VELL
3	CORRUGATED METAL PANEL SYSTEM HORIZONTAL • GALVAN
4	COMPOSITE METAL PANEL SYSTEM • ANODIZED
5	SEALED DOUBLE GLAZING UNIT
6	ANODIZED ALUMINUM MULLION
7	GLASS DOOR c/w ALUMINUM ANODIZED FRAME
8	STEEL ROLL-UP
9	PREFINISHED SECTIONAL OVERHEAD DOOR
10	PREFINISHED HOLLOW METAL DOOR
11	ANODIZED ALUMINUM SUNSHADES
12	CANOPY
13	FLY-BITUMENOUS MEMBRANE ROOFING SYSTEM



PROGRAM LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING
- EXISTING GREEN SPACE
- PROPOSED GREEN SPACE
- UNCOVERED AREA
- CIRCULATION / PARKING AREA

- PROPERTY LINE
- SECURITY FENCE
- FLEET CIRCULATION
- PEDESTRIAN CIRCULATION

SETBACK

- REMOVABLE BOLLARDS
- SIGNIFICANT TREE TO BE REMOVED
- SIGNIFICANT TREE TO REMAIN

- SET ACCESS
- HEAVY OVERHEAD DOOR
- OVERHEAD DOOR
- PEDESTRIAN ACCESS



1 PARTIAL SITE PLAN
SCALE: 1:250

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PROJECT

CITY OF NANAIMO - STORES BUILDING

2020 LABELUX ROAD, NANAIMO, B.C.

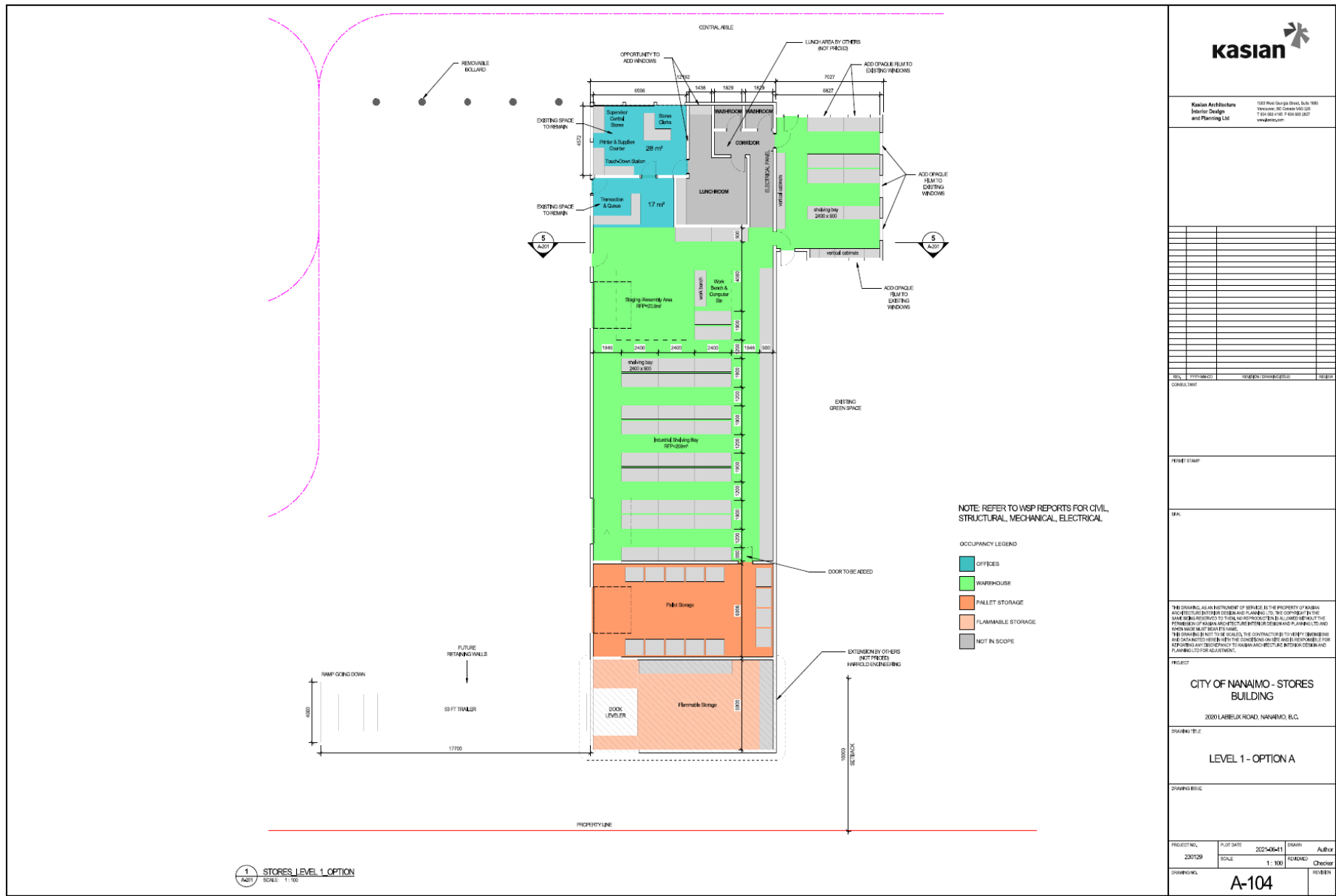
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SITE PLAN

DRAWING DATE

PROJECT NO.	DATE	DESIGN	AUTHOR
202128	2021-06-11	REVISION	CHECKER

DRAWING NO. **A-101**



Kasian Architecture
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REV.	DESCRIPTION	DATE
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DATE

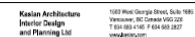
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PROJECT
CITY OF NANAIMO - STORES BUILDING
3000 LABELLE ROAD, NANAIMO, B.C.

DRAWING TITLE
LEVEL 1 - OPTION A

DRAWING DATE

PROJECT NO.	230729	PLAT DATE	2023-06-11	DRAWN	Author
DRAWING NO.	A-104	SCALE	1:100	FORWARDED	Checker
				REBORN	



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PROJECT	
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CITY OF NANAIMO - STORES
BUILDING

2020 LABIEUX ROAD, NANAIMO, B.C.

DRAWING TITLE

EXTERIOR ELEVATIONS

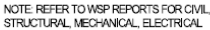
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CHANGING ISSUE

PROJECT NO.	PLOT DATE	DRAWN
230129	2021-06-11	Author

SCALE	1 : 100	REVIEWED	Checked
DRAWING NO.			REVISION

A-201	
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1 DEMO PLAN
A-105 SCALE: 1:100

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PROJECT

CITY OF NANAIMO - LINES & PARK -
SHOP & STORAGE BUILDING

2020 LABIEUX ROAD, NANAIMO, B.C.

DRAWING TITLE

LEVEL 1 - DEMO PLAN

DRAWING ISSUE

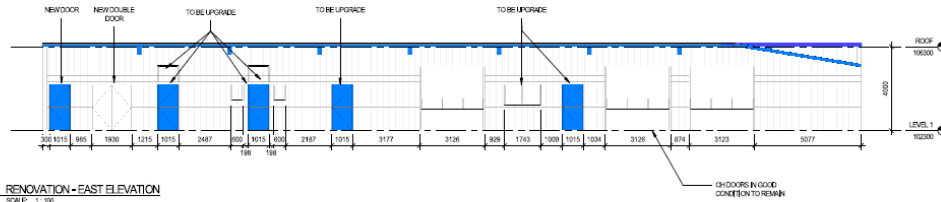
PROJECT NO. 230129	PLOT DATE 2024-06-11	DRAWN Author
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A-102

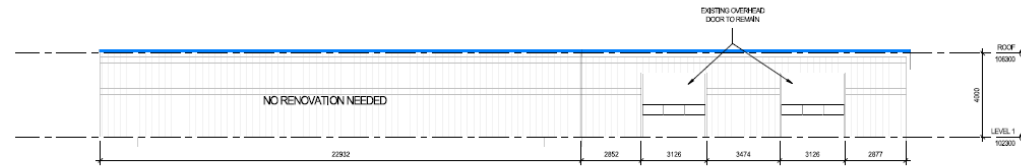
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SCALE: 1:100



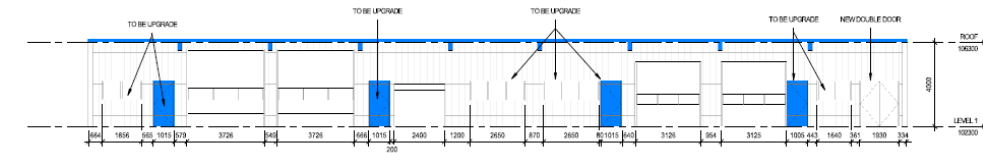
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SCALE: 1:100



4 RENOVATION - SOUTH ELEVATION
SCALE: 1:100



2 RENOVATION - WEST ELEVATION
SCALE: 1:100



5 SECTION
SCALE: 1:100



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PROJECT

**CITY OF NANAIMO - LINES & PARK -
SHOP & STORAGE BUILDING**

2000 LABELUX ROAD, NANAIMO, B.C.

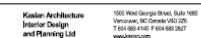
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EXTERIOR ELEVATIONS - PROPOSED

DRAWING SCALE

PROJECT NO.	230729	PLUT DATE	2023-06-11	DRAWN	Author
SCALE	1:100	REVIEWED	Checker	REVISION	

A-106



**Kasken Architecture
Interior Design
and Planning Ltd**

2 EXISTING - EAST ELEVATION
SCALE: 1:100

3 EXISTING - SOUTH ELEVATION
A-101 SCALE: 1:100

4 EXISTING - WEST ELEVATION
SCALE: 1" = 100'

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PROJECT _____

CITY OF NANAIMO - LINES & PARK -
SHOP & STORAGE BUILDING

novelty effect

EXTERIOR ELEVATIONS - EXISTING

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PROJECT NO.	PLT DATE	DRAWN
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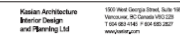
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A-201

APPENDIX B / Architectural Drawing Set





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PROJECT

PARKS OPERATIONS YARD • 89 PRIDEAUX ST., NANAIMO, B.C.

CPV40-101

1

EXTERIOR ELEVATIONS -
ADMINISTRATION BUILDING

DRAWING-88

PROJECT NO.	PLOT DATE	DRAWN
230129	2021-06-09	Author
	SCALE	REVIEWED
	1 : 50	Checker
DRAWING NO.		REVISION

A-107

A-107

Prepared by: Kaslan Architecture, Interior Design and Planning 67



-  EXISTING TO BE REMOVED
 EXISTING TO BE UPGRADED
 EXISTING TO REMAIN
 NEW WINDOWS / DOOR



 EXISTING WALL TO REMAIN
 EXISTING WINDOWS TO REMAIN

 EXISTING WALL TO BE DEMOLISHED
  EXISTING WINDOWS TO BE UPGRADED

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PROJECT

PARKS OPERATIONS YARD • 89 PRIDEAUX ST. NANAIMO, B.C.

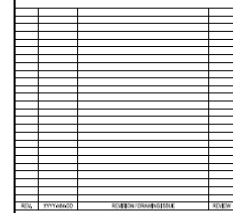
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ADMINISTRATION BUILDING - DEMO
PLAN

DRAWING ISSUE

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	SCALE	REVIEWED
	1 : 50	Check

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PLANNING	
PLANNING	

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DRAINING TIME

ADMINISTRATION BUILDING

DRAWING 138

PROJECT NO. 230129	PLOT DATE 2021-05-09	DRAWN Author
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PROJECT	
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PARKS OPERATIONS YARD-89 PRIDEAUX ST. NANAIMO, B.C.

DRAWING TITLE

STORAGE BUILDING - DEMO PLAN

DRAWING ISSUE

PROJECT NO. 230129	PLOT DATE 2021-06-09	DRAWN Aulin
	SCALE 1:50	REVIEWED Check

DRAWING NO.	A 102	REVISION
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A-103



 EXISTING WALL TO REMAIN
 EXISTING WINDOWS TO REMAIN

 EXISTING WALL TO BE DEMOLISHED
 EXISTING WINDOWS TO BE UPGRADED





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 EXISTING TO BE REMOVED
 EXISTING TO BE UPGRADED
 EXISTING TO REMAIN
 NEW WINDOWS / DOOR

A-106

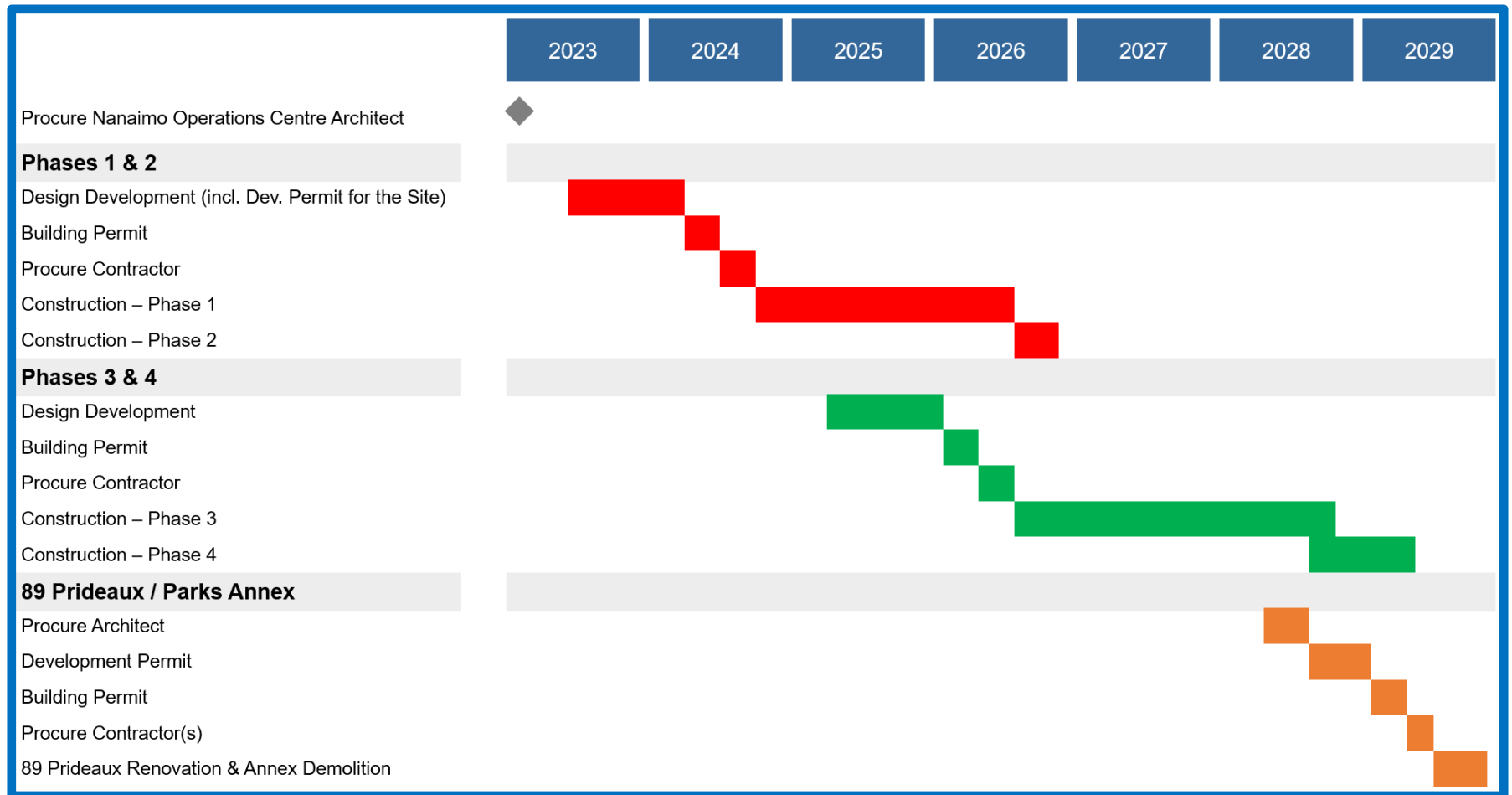
Appendix G – Construction Cost Estimate

	Phase 1	Phase 2	Phase 3	Phase 4	Total
A. LAND COST (Excluded)	\$0	\$0	\$0	\$0	\$0
A1 Land	0	0	0	0	0
A2 Legal Fees	0	0	0	0	0
B. CONSTRUCTION	\$28,737,250	\$4,594,750	\$20,755,050	\$8,846,550	\$62,933,600
B1 Labieux Works Yard	28,092,250	4,594,750	20,755,050	6,105,750	59,547,800
B2 89/91 Prideaux	0	0	0	2,597,400	2,597,400
B3 Nanaimo Parks Annex	0	0	0	143,400	143,400
B4 Fire Training Tower	645,000	0	0	0	645,000
C. INFRASTRUCTURE / OFF SITE WORKS	\$500,000	\$0	\$250,000	\$250,000	\$1,000,000
C1 Roadwork and utilities outside the property lines - Cash Allowance	500,000		250,000	250,000	1,000,000
D. PROFESSIONAL FEES (Excluded)	\$0	\$0	\$0	\$0	\$0
D1 Programming					0
D2 Architectural					0
D3 Structural					0
D4 Mechanical					0
D5 Electrical					0
D6 Quantity Surveying					0
D7 Acoustic					0
D8 Equipment Consultant					0
D9 Code Consultant					0
D10 Other Consultants and Disbursements					0
E. CONNECTION FEES & PERMITS	\$862,100	\$137,800	\$622,700	\$265,400	\$1,888,000
E1 Rezoning Cost (Excluded)	0	0			0
E2 DCC & Building Permits	862,100	137,800	622,700	265,400	1,888,000
F. MANAGEMENT & OVERHEAD (Excluded)	\$0	\$0	\$0	\$0	\$0
F1 Project Management Fee					0
F2 Owners Planning and Administrative Cost					0
F3 Project Insurance					0
F4 Project Commissioning, Move-In					0
G. FURNISHINGS, FITTINGS & EQUIPMENT (Excluded)	\$0	\$0	\$0	\$0	\$0
H. FINANCING COSTS (Excluded)	\$0	\$0	\$0	\$0	\$0
I. GOODS & SERVICES TAX (Excluded)	\$0	\$0	\$0	\$0	\$0
J. Contingency Excluded	\$0	\$0	\$0	\$0	\$0
SUB-TOTAL PROJECT COST	\$30,099,350	\$4,732,550	\$21,627,750	\$9,361,950	\$65,821,600
K. ESCALATION	\$0	\$7,314,700	\$0	\$9,916,700	\$17,231,400
TOTAL PROJECT COST (2021 Dollars)	\$30,099,350	\$12,047,250	\$21,627,750	\$19,278,650	\$83,053,000

(BTY Group, 2021)

In BTY's Construction Cost Estimate document, 2020 Labieux site is referred to as Labieux Works Yard, 89 Prideaux Street site is referred to 89/91 Prideaux Street, Nanaimo Annex is referred to as Nanaimo Parks Annex.

Appendix H – Project Schedule



Appendix I – Risk Management Plan

Risk Management Plan

Project Name	Nanaimo Operations Center
CPMS #	Pending
Project Class	Special
Project Manager (PM)	Pending
Document Revision #, Revision Date	Draft for Discussion June 2021



Risk ID	Project Phase	Category	Risk	Pre-Mitigation			Mitigation / Response	By (Owner)	Post-Mitigation		
				Likelihood	Severity	Rating			Likelihood	Severity	Rating
1	Design & Planning	Cost	Unforeseen Ground Conditions	3	4	12	Schedule geotechnical assessments during Design Development (DD) phase. Early coordination between structural and geotechnical consultants.	PM	1	4	4
2	Design & Planning	Cost	Unforeseen scope of remediation work at APECs identified within ESA Ph 1 investigation	4	4	16	Schedule ESA Ph 2 and additional investigations during DD phase	PM	3	3	9
3	Design & Planning	Cost	Risk of under estimates within the allocated Project Budget.	3	4	12	Engage Quantity Surveyor to provide cost advice and to price design as it develops.	PM	2	3	6
4	Design & Construction	Costs	Costs increase after approval for funding. Market uncertainty risks, escalation.	3	4	12	Reassess cost and scope periodically (class estimates). Careful estimation of contingency to address this risk. Request approval for this project in conjunction with RCMP project to spread the risk. Consult with QS on market conditions prior to business case, and again prior to tendering.	PM	2	3	6
5	Design & Planning	Cost	Risk of increase in cost for temporary facilities and moves.	2	4	8	Early coordination of construction phasing to reduce cost of temporary activities.	PM	2	2	4
6	Design & Planning, Construction	Operation Continuity / Stakeholder Management	Disruption or delay due to poor move planning	2	4	8	Appointment of staff member / committee to manage transitions	City	1	2	2
7	Design & Planning, Construction	Operation Continuity	Site support infrastructure design errors is a risk to on-going operations of yard during construction	3	4	12	Engage experienced Prime Consultant; develop design (temporary & permanent) in alignment with phases; experienced PM to oversee the DD	City	2	3	6
8	Design & Planning, Construction	Operational Continuity	Construction phases poorly planned, impacts to yard operations.	3	4	12	Work closely with various yard stakeholders to develop a well-defined construction phasing strategy to ensure minimal disruption. Engage user group to ensure requirements are met. Develop yard committee and hold monthly or as required meetings.	PM	2	3	6
9	Design & Planning	Scope	The requirements gathering and design validation process is not robust.	3	3	9	Engage experienced Prime Consultant; establish a user group and capture and document their input as DD progresses	PM	1	2	2
10	Design & Planning	Scope	Certain scope items like EV stations, fueling options (slow & fast fill), CNG requirements are missed	2	4	8	Engage experienced Prime Consultant; re-validate concept phase program with user group and capture and document their input as DD progresses. Ensure flexibility in design for potential future change in programming.	PM	1	2	2
11	Design & Planning	Scope	Development in BC Hydro and E&N rail right of way is not acceptable. Unforeseen scope requirements from BC Hydro and E&N rail, e.g. safety barriers constructed on site to reduce the risks to both people and properties on the site as the result of derailment.	3	4	12	Early engagement with BC Hydro and E&N rail soliciting their preliminary review of design. Early submission of ROW application for approval	PM	3	3	9

Risk Management Plan

Project Name	Nanaimo Operations Center
CPMS #	Pending
Project Class	Special
Project Manager (PM)	Pending
Document Revision #, Revision Date	Draft for Discussion June 2021



Risk ID	Project Phase	Category	Risk	Pre-Mitigation			Mitigation / Response	By (Owner)	Post-Mitigation		
				Likelihood	Severity	Rating			Likelihood	Severity	Rating
12	Design & Planning	Scope	Provincial temporary housing lease extended beyond start of construction date	4	4	16	Confirmation from City's real estate group on lease timelines. Early engagement with neighbouring business for temporary parking (e.g. BMX facility). Consider other temporary options in the phasing for each year construction progresses. Early engagement with fire department for use of land for temporary parking.	City	3	4	12
13	Design & Planning	Scope	The Fire Station 2 land is not available for development	2	4	8	Early engagement with fire department on development plans. Support Fire Station 2 with operational changes.	PM	1	2	2
14	Design & Planning	Human Resources	Project leadership team resourcing and availability is limited. Consistency is lacking throughout duration of the project.	2	4	8	Establish Steering Committee. Consideration of capacity when assigning internal resources. Consideration of external resources.	City	1	2	2
15	Design & Planning	Stakeholders	Shortage of qualified resources and conflicting priorities may result in underperformance by the design consultant resulting in errors and omissions and uncoordinated drawings submission. Impacting project cost and schedule.	4	4	16	Engage qualified Project Manager and support team. Appropriate vetting of design consultant. Evaluate consultant at stage gate before detailed design.	City	2	3	6
16	Design & Planning	Human Resources	City resources are constrained. As a result city resources may not be full engaged with the project. This may impact project schedule.	4	4	16	Engage qualified Project Manager and support team.	City	1	2	2
17	Design & Planning	Scope	Inefficient building electrical and mechanical systems, space allocations and uses	3	3	9	Engage user groups in development of the design and specifications; define sustainability and post disaster requirements; appoint independent commissioning agent; value engineering as required.	PM	2	2	4
18	Design & Planning	Scope	Undersized storage building, exterior storage and material areas, and parking spaces	3	3	9	Engage an experienced Prime Consultant. Engage qualified PM and support team. Engage user groups in development of the design and specifications.	City / PM	2	2	4
19	Design & Planning	Scope	Land use regulations and design guidelines not addressed	3	3	9	Engage Planning Department early on in the process	PM	2	2	4
20	Design & Planning	Cost	Unforeseen off-site public work requirements	3	4	12	Engage Planning Department and Development Services early on in the process	PM	2	2	4
21	Design & Planning	Schedule	Late receipt of required building permits delays the project	3	4	12	Early understanding of permitting requirements and timelines. Account for timeline in project schedule. Engage qualified Project Manager and support team.	City	3	3	9
22	Construction	Cost	Tenders are unaffordable, or no bids received	4	4	16	Appoint qualified PM and support team. Engage qualified and experienced cost consultant. Market information session. Ensure appropriate risk allocation in contract. Look at contingency plan from other funding sources. Consideration to project delivery in risk allocation - host project delivery workshop.	PM	3	4	12

Risk Management Plan

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Risk ID	Project Phase	Category	Risk	Pre-Mitigation			Mitigation / Response	By (Owner)	Post-Mitigation		
				Likelihood	Severity	Rating			Likelihood	Severity	Rating
23	Design & Planning, Construction	Operational Continuity	Risk of downtime of public works business continuity (one example is public work as secondary EOC and primary DOC).	3	4	12	Engage user groups early in design development and phasing strategy; work closely with IT; develop a detailed plan to ensure operations are maintained; consult with user groups as required.	PM	2	3	6
24	Design & Planning, Construction	Operational Readiness	Post construction documentation is not delivered (e.g. OM manuals; as-built drawings) or handover process from construction to owner is unclear	2	4	8	Engage qualified Project Manager and support team.	City	1	2	2
25	Construction	Operational Readiness	Commissioning Issues (delays, impact on operations)	2	3	6	Appoint Independent Commissioning Agent	PM	1	2	2
26	Design & Planning, Construction	Stakeholders	Unnecessary construction impact on surrounding neighbours and community in general	2	3	6	Strong comms plan, social media, senior leadership, mayor and council	City	2	2	4
27	Design & Planning, Construction	Stakeholders	Unnecessary disruption of traffic on adjacent roads	2	3	6	Consult with traffic and public works for strategies and involvement	City	2	2	4
28	Design & Planning	Cost	Consultant fees exceed their budget allocations	4	4	16	Restructure the Project Budget based on most recent and accurate information and maintain an up to date cost forecast	PM	2	4	8
29	Design & Planning, Construction	Schedule	Uncharted utilities	4	4	16	Engage with City SMEs to obtain full and complete records	PM	2	4	8
30	Design & Planning, Construction	Schedule	City delays submittal reviews	3	4	12	Establish Steering Committee to ensure to track and ensure timely approvals and decisions	PM	1	4	4
31	Design & Planning	Schedule	Appointment of consultants and contractors may be delayed by approval	3	4	12	Establish Steering Committee to ensure to ensure timely approvals and decisions	PM	1	4	4
32	Construction	Schedule	The demolition or construction contractor may not perform in accordance with the contract schedule	4	4	16	Appoint qualified PM and support team. Ensure we establish realistic schedule.	City	2	4	8
33	Design & Planning	Scope	The City changes the scope of the project	4	4	16	Early engagement of user groups for scope definition. Establish Steering Committee to enforce scope discipline; any changes to the scope of the project to be approved by the Steering Committee and through revision to the project charter	City	2	4	8
34	Design & Planning	Scope	Prime Consultant fails to capture complete and accurate user requirements. User group fatigue from engagement process re-occurrence.	4	4	16	Engage a qualified, experienced Prime Consultant with positive references; Bi-weekly project meetings chaired by the prime consultant; Engage with user groups.	PM	3	3	9
35	Design & Planning, Construction	Stakeholders	Budget request is denied by Council effectively cancelling the project. Change in council could impact project support.	2	4	8	Ensure Council is kept apprised of project progress to ensure continuous support.	City	1	4	4
36	Construction	Schedule	Labour disruption	2	4	8	Ensure appropriate contract language to cover labour disruptions.	PM	2	2	4
37	Construction	Safety	Death on the worksite	2	4	8	Select qualified GC to act as prime contractor. Ensure GC has good standing with WorksafeBC. Ensure GC has safety program. Ensure that the City notifies of all known hazards on the site.	City	1	4	4
38	Construction	Environmental	Natural Disaster	2	4	8	Ensure appropriate insurance. Involve MIABC in insurance requirements. Force majeure clause in contract.	City	2	3	6

Appendix J – Concept Designs and Master Plan Reports

See separate documents:

- 2021.07.23 – Prideaux Satellite Parks Operations Yard (Kasian)
- 2021.07.23 – Nanaimo Operations Center 2021 Master Plan and Conceptual Plan (Kasian)