

COUNCIL REPORT

Date: September 5, 2024
 File: 10.6.0.443
 To: Warren Waycheshen, CAO - for Mayor and Council
 From: Kevin Carlson, Project Manager
 Alex Ramos-Espinoza, Director of Engineering Services
 Re: Project Update – Spray Park Feasibility Study
 Applicant: N/A
 Location: City Centre – Lion's Park



Recommendation:

Action: Council receive this report for information and provide motions selecting the preferred spray park layout option and wastewater management system.

Recommended Motions:

THAT spray park option (1, 2, or 3 to be determined) is selected as the basis for public consultation and design development.

AND THAT the spray park wastewater management is designed to have a disinfection to disposal system.

Background:

This report provides Council with an update on the Spray Park Feasibility Study that assesses the viability of constructing a spray park at Lion's Park in Kitimat's City Centre. Staff and the Consultant will be presenting during the September 9, 2024 meeting, the presentation and conceptual plan options developed. (Attachment A & B).

Feasibility Study:

McElhanney was selected as the consultant through a Request for Proposals to complete a study to determine the feasibility of integrating a spray park into Lion's Park. A two-phase approach was conducted to review the park's feasibility.

The first phase consisted of a multidisciplinary approach to confirm the site's technical feasibility with respect to environmental and physical considerations, water supply and disposal systems, electrical infrastructure, and structural and mechanical requirements. These technical aspects were reviewed and it was determined that a spray park can be integrated into Lion's Park.

The second phase reviewed high level project requirements regarding infrastructure and site improvements to develop three conceptual spray park layouts for consideration. The three options are all accessible and categorized into small, medium, and large designs, each optimized for effective space utilization (refer to Attachment B for conceptual plans). Cost estimates for capital construction costs were produced for each option and a schedule was developed for project delivery.

Maximum instantaneous water demand is estimated to be 190 litres per minute, 380 litres per minute, and 570 litres per minute for the small, medium, and large sized parks respectively.

Assuming 50% peak instantaneous demand for a day where the park is open for seven hours results in a total water volume of 40,000L, 79,000L, and 119,000L for the small, medium, and large parks respectively.

Wastewater management can be achieved by either a disinfection to disposal system where water runoff is directed to the sanitary system, stormwater system, or ground dissipation, or a recirculation system. These options would be explored in further detail during the design phase. However, a recirculation system requires additional space for mechanical equipment to treat the water at significant capital and operating costs. A negative payback was calculated for the recirculation system using the District's current bulk water rate escalated 2.5% per annum over a 25-year life cycle. It was calculated that the bulk water rate would need to be increased by more than double for a recirculation system to provide a positive financial return. A recirculation system is not recommended considering that the spray park water demand is small relative to the community's water demand, results in a negative financial return, and causes additional strain on resources for maintenance and repairs.

Anticipated schedule durations for project milestones:

- Public Consultation: 1 month
- Design: 6 months
- Construction Tender & Contract Award: 2 months
- Construction: 5 months
- Commissioning: 1 month

The small spray park (Option 1) has the lowest cost with minimal environmental and spatial impact but offers limited community engagement and future growth potential. The medium spray park (Option 2) is a balanced option with moderate impacts and benefits across all criteria considered. The large spray park (Option 3) offers the most significant community impact and future flexibility but at the highest cost and environmental trade-offs.

Public consultation via an online survey from the District's website is proposed as the next step prior to beginning design. Engaging the community will provide a better understanding of their needs, preferences, and concerns to guide the design process as well as fostering a sense of ownership and satisfaction among residents. Staff propose that Council select a preferred spray park layout option in advance of the community survey to receive more focused feedback.

Estimate to Reconstruct Existing Wading Pools:

McElhanney has been engaged to prepare a cost estimate to remove and replace the two existing wading pools. The cost estimate is not available at the time of this report but Staff estimate the cost to be in the order of \$300,000 per wading pool.

Alternative Options:

1. Another option as developed through discussion of Council.

Budget Implications:

The following table summarizes the estimated capital construction costs for the three spray park options developed for the two wastewater management systems.

Option	Cost Estimate	
	Disinfection to Disposal	Recirculation System
1 (Small)	\$1,100,000	\$1,400,000

2 (Medium)	\$1,500,000	\$1,900,000
3 (Large)	\$2,400,000	\$2,900,000

The estimated costs above include engineering design which is broken down as \$75,000, \$105,000, and \$165,000 for the small, medium, and large size options respectively with a disinfection to disposal system.

Of the \$100,000 currently budgeted, \$73,265 has been committed to complete the feasibility study. Staff can explore how the remaining budget can be used to progress the project at Council's discretion.

"SLT"

Director of Finance Initials

Budgeted: \$100,000

Unbudgeted: Design & Construction

Council Initiative/Other Relevant Plans:

Strategic Plan (2023-2026)

Priority 1 – Economic Development: Goal to create vibrant public spaces

Priority 5 – Social Well Being: Goal to have a healthy community with strong social bonds and services that meet community needs

District of Kitimat and Haisla Council Friendship Agreement - gi guálap ni

Not Applicable

Community Energy and Emissions Plan

Not Applicable

Housing Action Plan and Needs Assessment

Not Applicable

Kitimat Age-Friendly Assessment Report and Action Plan

Not Applicable

Kitimat Cycle Network Plan

Not Applicable

Kitimat Poverty Reduction Strategy

Not Applicable

Leisure Services Master Plan

- Section 3.2 Table 1 – Summary of Input from Workshops: Recommendation for feasibility of a local spray park

- Table 3. Implementation Table for Parks & Playground Item 1.11: Convert wading pools into spray parks or other water feature

Minette Bay West Concept Plan

Not Applicable

Official Community Plan (and Downtown Design Guidelines)

Not Applicable

Solid Waste Action Plan

Not Applicable

Water Conservation Plan

- Section 4.1 – Future Water Needs and Conservation Objectives:

- 15% reduction in the average annual water usage per person by 2027
- 15% reduction in water demand peak factor during summer months by 2025

BC Transit Future Services Plan

Not Applicable

Economic Development Strategic Plan (2023-2029)

- Goal 3 – Boldly revitalize downtown

Submitted by
Alex Ramos-Espinoza, P.Eng.
Director of Engineering Services

Submitted by
Kevin Carlson
Engineering Services Project Manager

Approved for Submission
Warren Waychesen, CAO

Attachment(s): A – Kitimat Spray Park Feasibility Study Presentation
B – Spray Park Conceptual Plan Options

Attachment A

Kim Unger B.A., M.L.Arch., CSLA, PMP
Senior Landscape Architect
Mathias Tait P.Eng., AScT
Nicholas Bruce P.Eng
Tiffany Yae P.Eng. Electrical Engineer
Hossam Ammar P.Eng. Structural Engineer
John Share P.Eng C.Eng PMP

Kitimat Spray Park Feasibility Study



Introduction

Kitimat Spray Park Feasibility

- This initiative recognizes the vital role public parks play in enhancing community life, providing spaces that promote active living and foster meaningful connections among residents. The Spray Park Feasibility Study marks the first step in assessing Lions Park's potential to host this new amenity, aiming to create a central hub accessible to all ages and abilities. Both engineering and landscape architectural investigations have been integrated into the feasibility study, ensuring a comprehensive evaluation of the site's suitability.

Site Analysis Considerations



Background

- Objective: Assess Lions Park for suitability as a spray park location.
- Approach: Conducted a site suitability review focusing on environmental, physical, and accessibility factors.
- Goal: Ensure the site is safe, sustainable, and aligns with community needs.

Environmental and Physical Considerations



Topography:

- Gentle slopes, no significant barriers for installation.
- Note: Grade change between proposed spray park and aquatic center.

Soil Type and Drainage:

- Suitable for construction and pedestrian use.

Recommendation: Geotechnical investigation with test pits to confirm soil stability.

Sun Exposure and Wind Patterns:

- Moderate sun exposure; UV-resistant materials recommended.
- Shielded from prevailing winds, reducing wind chill effects.

Existing Vegetation and Accessibility



Vegetation:

- Mature trees present; significant consideration for site layout.
- Need for detailed analysis to avoid conflicts with tree preservation.

Accessibility:

- Compliance with the Accessible British Columbia Act.
- Features like non-slip surfaces and adequate spacing for inclusivity.

Amenities and Services



Current Amenities:

- Existing seating, shaded areas.
- Proposal for additional seating and plantings to accommodate increased use.

Restrooms and Changing Facilities:

- Current reliance on Sam Lindsay Aquatic Centre facilities within 60m.
- Consideration for standalone restrooms due to pool maintenance closures impacting spray park access.

Visibility and Surveillance



Importance:

- Open sight lines for safety and passive supervision.
- Current visibility at Lions Park is strong, contributing to a safe environment.

Design Objective:

- Maintain open sight lines in the spray park layout to enhance safety.

Regulatory and Sustainability Considerations



Regulations:

- Compliance with BC Public Health Act and BC Guidelines for Pool Operations.

Zoning compatibility:

Commercial/City Center zoning permits spray park.

Sustainability:

- Options for water usage and disposal: sanitary, stormwater, ground dissipation, recirculation.

Spray Park Servicing and Utility Considerations



Water Usage and Disposal:

- Analysis of four disposal options for managing water runoff.

Electrical Supply:

- Proximity to Sam Lindsay Aquatic Centre for power needs.
- Assessment required during detailed design for service capacity.

Community and Cultural Fit



Community Needs and Desires:

- Importance of community engagement to tailor design to local preferences.
- Cultural and Historical Context:
- Potential to incorporate cultural themes to reflect Kitimat's heritage.

DISTRICT OF KITIMAT SPRAY PARK OPTION 1



General Notes for all Options:

- Ensure the accessibility of all park features including signage, recycling and waste containers, water fountains, and kiosks.
- Maintenance frequency and level of service should be reviewed. Regular inspections of all spray park components park surfacing including accessible parking spaces and adjacent access aisles, thresholds, and picnic areas.
- Ensure accessible parking (and van accessible) spaces are provided close to the entrance and clearly designated with pavement markings and vertical signage, containing the Dynamic Symbol of Accessibility (DSA). Pathway connections from parking lot to site should not pose any barriers to access such as inappropriate surfacing, roots, speed bumps or narrow passages.

Cost Estimate for Option One

Drain to Waste

Administration	\$ 322,894
Civil Works	\$ 48,850
Structural	\$ 251,070
Utilities	\$ 72,280
Splash Park Equipment	\$ 366,615
Landscape Reclamation	\$ 950
Annual Maintenance	\$ 9,600
Total	\$ 1,072,259

Recirculation

Administration	\$ 322,894
Civil Works	\$ 48,850
Structural	\$ 251,070
Utilities	\$ 72,280
Splash Park Equipment	\$ 366,615
Landscape Reclamation	\$ 950
Recirculation System	\$ 285,600
Annual Maintenance	\$ 43,200
Total	\$ 1,391,459

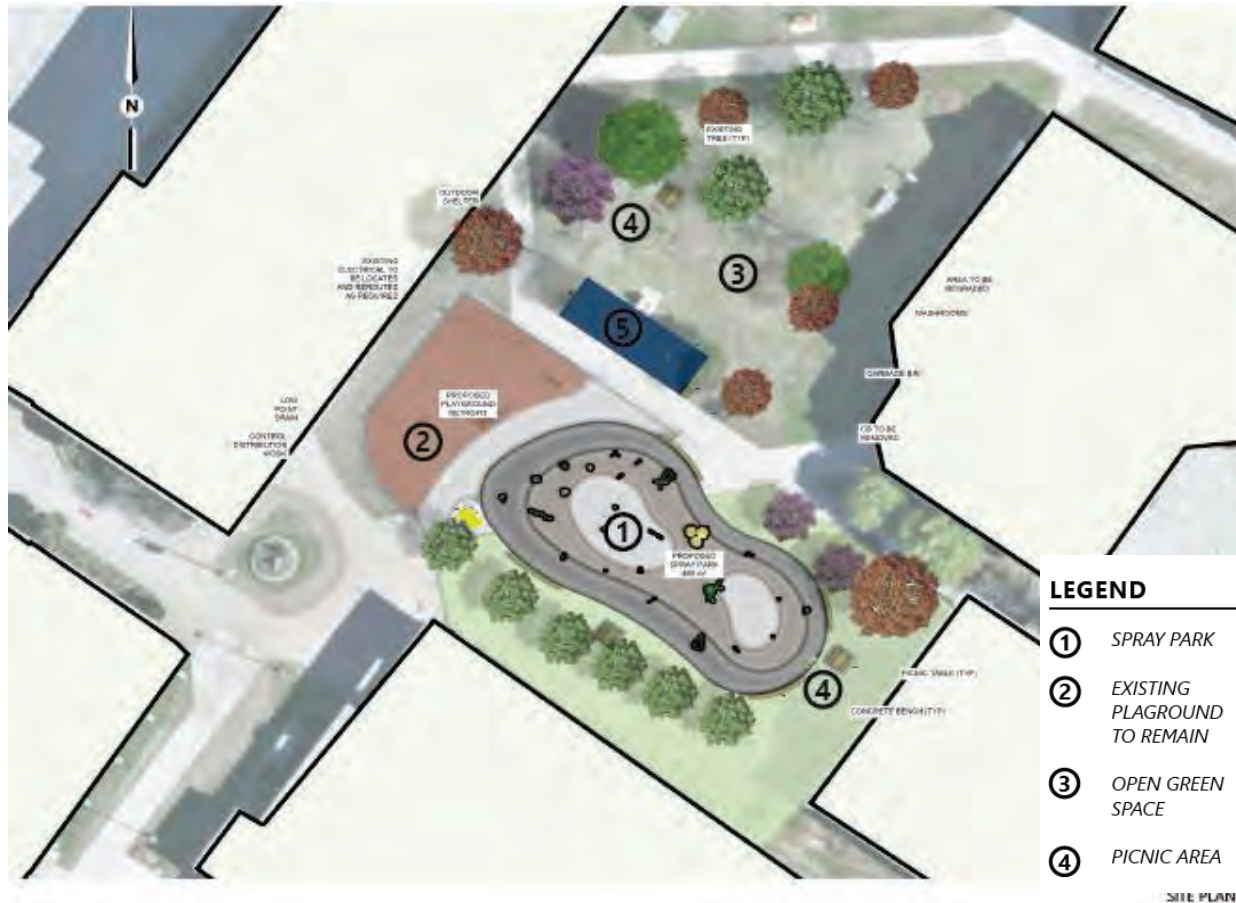


\$ 9,600	96 hours based on a 16 week operational period
\$ 33,600	Recirculation includes an additional 3 hours per day for water sampling etc.
\$ 43,200	Total for Recirculation

* Based on a 7 day week

* Does not include Parks general maintenance

DISTRICT OF KITIMAT SPRAY PARK OPTION 2



General Notes for all Options:

- Ensure the accessibility of all park features including signage, recycling and waste containers, water fountains, and kiosks.
- Maintenance frequency and level of service should be reviewed. Regular inspections of all spray park components park surfacing including accessible parking spaces and adjacent access aisles, thresholds, and picnic areas.
- Ensure accessible parking (and van accessible) spaces are provided close to the entrance and clearly designated with pavement markings and vertical signage, containing the Dynamic Symbol of Accessibility (DSA). Pathway connections from parking lot to site should not pose any barriers to access such as inappropriate surfacing, roots,

Cost Estimate for Option Two

Drain to Waste

Administration	\$ 465,482
Civil Works	\$ 113,450
Structural	\$ 435,685
Utilities	\$ 98,055
Splash Park Equipment	\$ 366,615
Landscape Reclamation	\$ 1,100
Annual Maintenance	\$ 9,600
Total	\$ 1,489,987

Recirculation

Administration	\$ 465,482
Civil Works	\$ 113,450
Structural	\$ 435,685
Utilities	\$ 98,055
Splash Park Equipment	\$ 366,615
Landscape Reclamation	\$ 1,100
Recirculation System	\$ 352,100
Annual Maintenance	\$ 43,200
Total	\$ 1,875,687



\$ 9,600	96 hours based on a 16 week operational period
\$ 33,600	Recirculation includes an additional 3 hours per day for water sampling etc.
\$ 43,200	Total for Recirculation

* Based on a 7 day week

* Does not include Parks general maintenance

Cost Estimate for Option Three

Drain to Waste

Administration	\$ 737,897
Civil Works	\$ 182,450
Structural	\$ 566,990
Utilities	\$ 134,505
Splash Park Equipment	\$ 740,075
Landscape Reclamation	\$ 15,750
Annual Maintenance	\$ 9,600
Total	\$ 2,387,267

Recirculation

Administration	\$ 737,897
Civil Works	\$ 182,450
Structural	\$ 566,990
Utilities	\$ 134,505
Splash Park Equipment	\$ 740,075
Landscape Reclamation	\$ 15,750
Recirculation System	\$ 439,600
Annual Maintenance	\$ 43,200
Total	\$ 2,860,467



\$ 9,600	96 hours based on a 16 week operational period
\$ 33,600	Recirculation includes an additional 3 hours per day for water sampling etc.
\$ 43,200	Total for Recirculation

* Based on a 7 day week

* Does not include Parks general maintenance

Economic Factors and Budget Considerations



Budget and Funding:

- Preliminary project estimates to guide decision-making.

Long-term Maintenance:

- Emphasis on selecting durable materials and designing for ease of maintenance to ensure sustainability.

Conclusion and Next Steps



Summary:

- Lions Park is a feasible location for the spray park, with technical considerations and constraints to address.
- Detailed design phase will refine site-specific challenges and finalize amenities.

Next Steps:

- Engage with the community for input on design preferences.
- Conduct further geotechnical and utility investigations.
- Develop a detailed design plan incorporating feedback and feasibility findings.

Questions

Thank You

Kitimat Spray Park Feasibility

We look forward to collaborating with the community and stakeholders to develop a vibrant and inclusive spray park that will enhance the recreational offerings of Lions Park and serve the residents of Kitimat.

DISTRICT OF KITIMAT SPRAY PARK
OPTION 1

GENERAL NOTES

- Washrooms should be clearly identified with signage and follow universal design principles. Entry pads at washroom entrances must include a sufficient clear floor space, level and compacted surface, be connected to accessible parking and an accessible route. Attention to the opening position of doors, design of thresholds, interior hardware and overall spatial requirements must follow the principles of accessibility.
- Ensure accessible parking (and van accessible) spaces are provided close to the entrance and clearly designated with pavement markings and vertical signage, containing the Dynamic Symbol of Accessibility (DSA). Pathway connections from parking lot to site should not pose any barriers to access such as inappropriate surfacing, roots, speed bumps or narrow passages.
- Areas with picnic tables and benches must be connected by an accessible route or trail to other amenities, such as accessible parking and washrooms, or as part of a spray park access route. Picnic tables should be accessible on both ends . The edges of transitioning surfaces must be level transitions. All surfaces must be designed and maintained to ensure positive drainage.
- Ensure the accessibility of all park features including signage, recycling and waste containers, water fountains, and kiosks.
- Maintenance frequency and level of service should be reviewed. Regular inspections of all spray park components park surfacing including accessible parking spaces and adjacent access aisles, thresholds, and picnic areas.



SITE PLAN

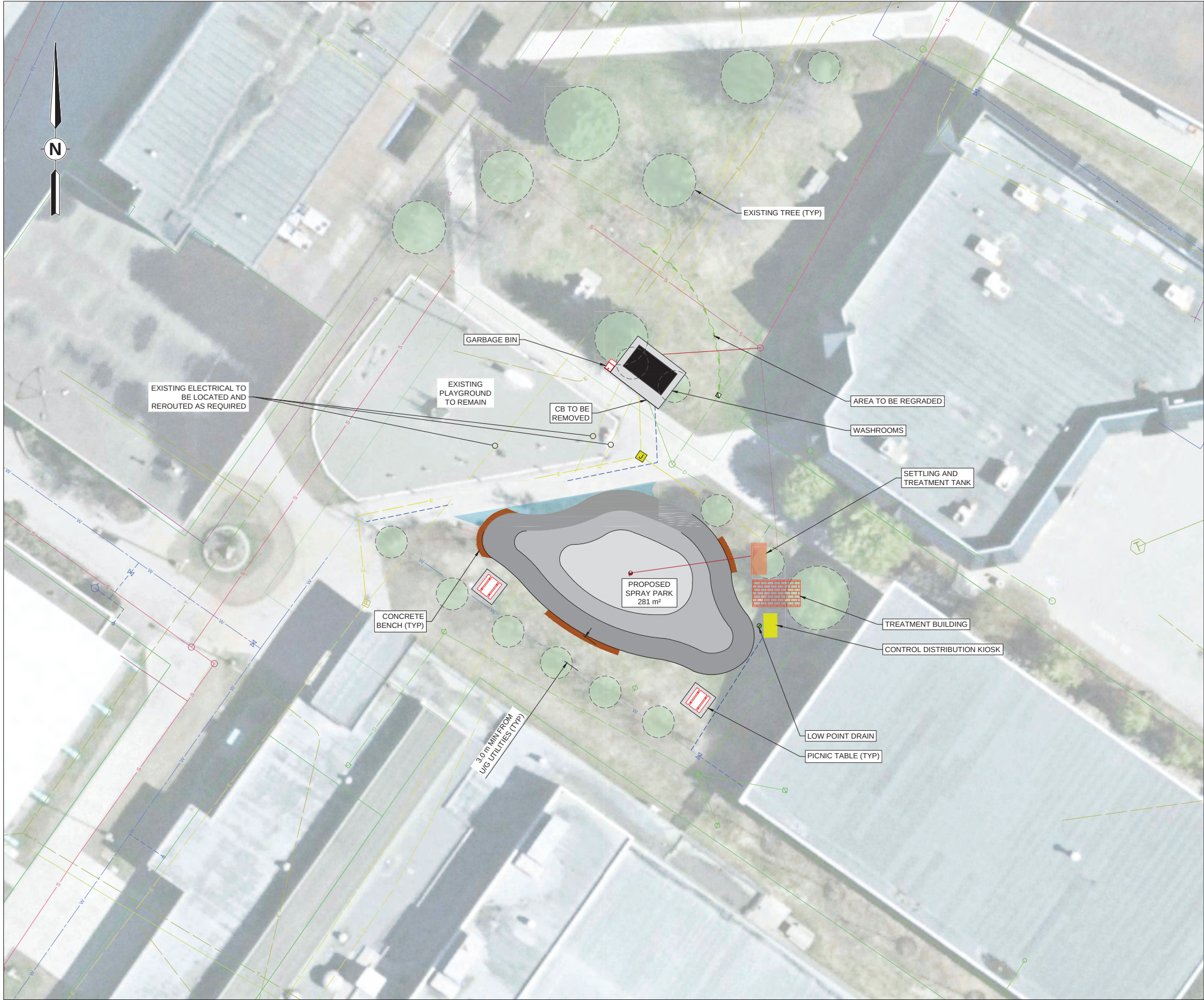
- LEGEND**
- ① SPRAY PARK
 - ② EXISTING PLAGROUND TO REMAIN
 - ③ OPEN GREEN SPACE
 - ④ PICNIC AREA

COST ESTIMATE

0 - Administration	\$322,894
A - Civil works	\$48,850
B - Structural	\$251,070
C - Utilites	\$72,280
D - Splash Park Equipment	\$366,615
E - Landscape Reclamation	\$950
Total	\$1,072,660



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LEGEND		
EXISTING	DESCRIPTION	PROPOSED
	SANITARY SEWER	
	SANITARY MANHOLE	
	SANITARY SEWER SERVICE	
	SANITARY DRAIN	
	STORM SEWER	
	STORM MANHOLE	
	CATCH BASIN	
	WATER MAIN	
	WATER VALVE	
	HYDRANT ASSEMBLY	
	WATER MANHOLE	
	WATER SERVICE	
	HYDRO DUCT	
	HYDRO BOX	
	TELUS DUCT	
	TELUS BOX	
	WALKWAY	

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BENCHMARK
ALL ELEVATION REFER TO CONTROL MONUMENT: -
LOCATED AT: -
ELEVATION: -

0 1 200 400

ORIGINAL DWG SIZE: ANSI D (22" x 34")

322 - 323 City Centre,
Kitimat BC V8C 1T6
Tel. 250 632 3200

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DISTRICT OF KITIMAT
270 CITY CENTER, KITIMAT, B.C. V8C 2H7

DISTRICT OF KITIMAT SPRAY PARK
CONCEPTUAL DESIGN
CIVIL PLAN
OPTION 1 WITH WATER RECYCLING

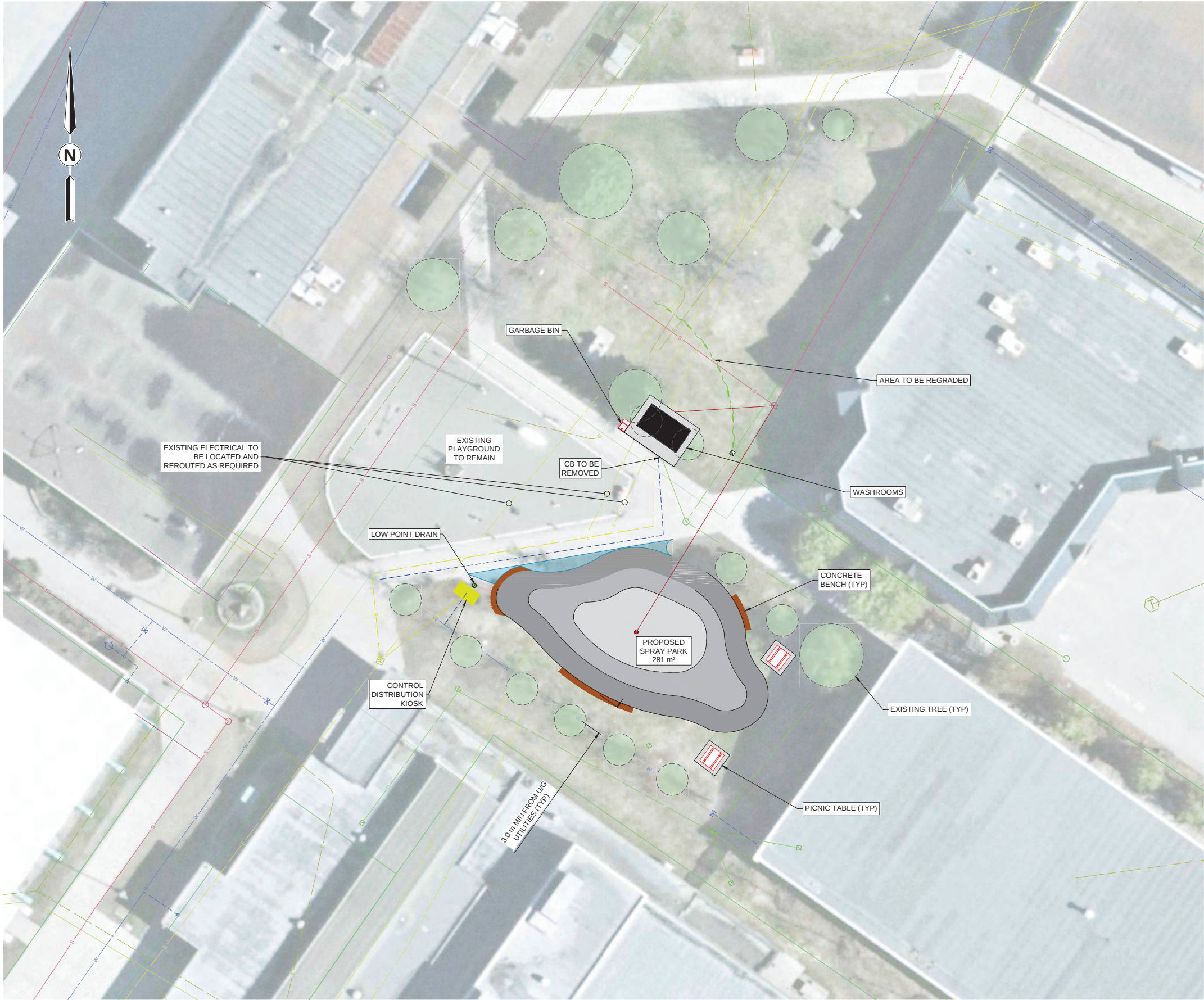
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Project Number
2353-10624-00

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LEGEND		
EXISTING	DESCRIPTION	PROPOSED
	SANITARY SEWER	
	SANITARY MANHOLE	
	SANITARY SEWER SERVICE	
	SANITARY DRAIN	
	STORM SEWER	
	STORM MANHOLE	
	CATCH BASIN	
	WATER MAIN	
	WATER VALVE	
	HYDRANT ASSEMBLY	
	WATER MANHOLE	
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	HYDRO BOX	
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	WALKWAY	

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0 1 200 300

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DISTRICT OF KITIMAT SPRAY PARK
CONCEPTUAL DESIGN
CIVIL PLAN
OPTION 1

Drawing No.
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Project Number
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DESTROY ALL PRINTS BEARING PREVIOUS REVISION

DISTRICT OF KITIMAT SPRAY PARK

OPTION 2

GENERAL NOTES

- Washrooms should be clearly identified with signage and follow universal design principles. Entry pads at washroom entrances must include a sufficient clear floor space, level and compacted surface, be connected to accessible parking and an accessible route. Attention to the opening position of doors, design of thresholds, interior hardware and overall spatial requirements must follow the principles of accessibility.
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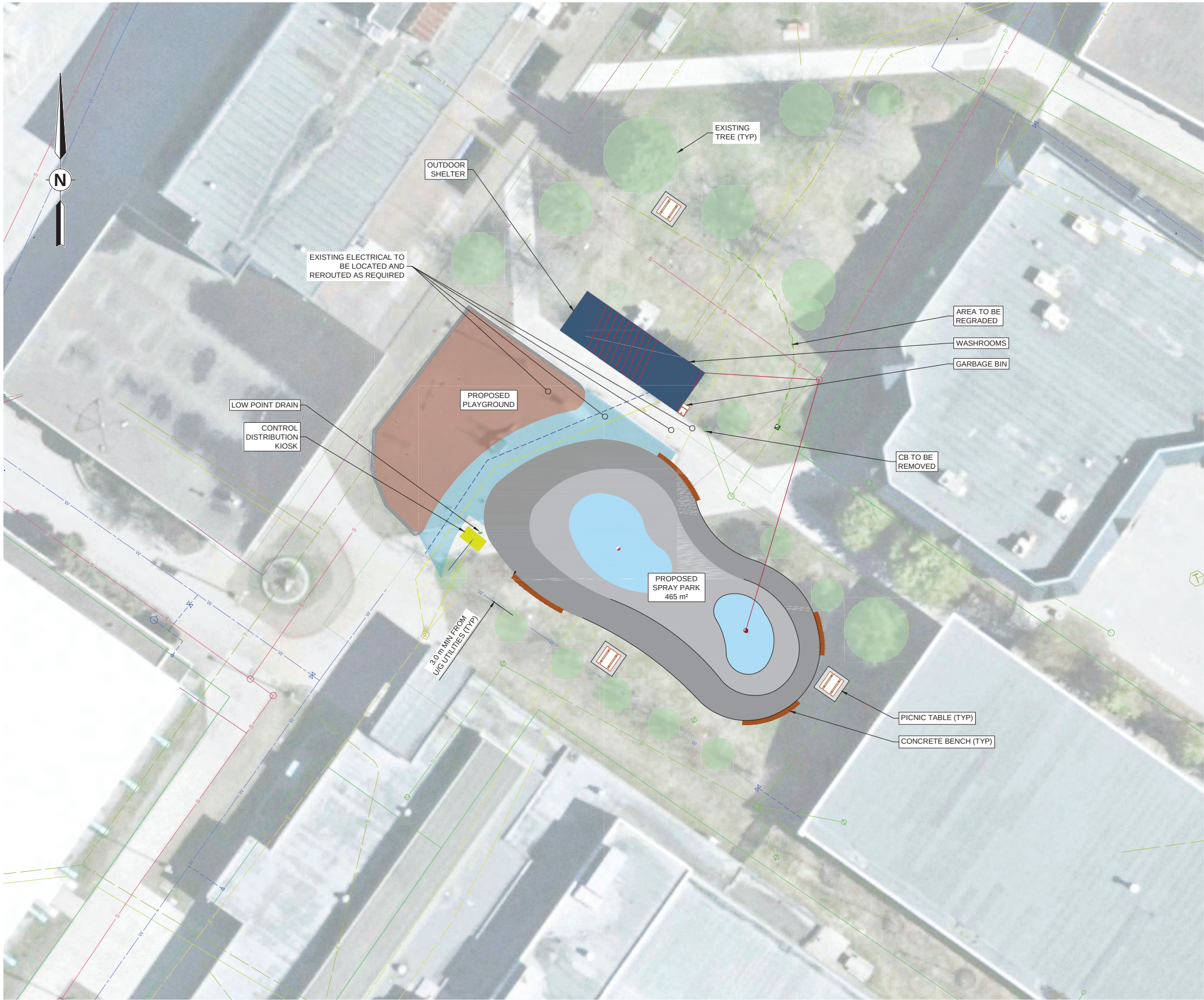
- ### LEGEND
- ① SPRAY PARK
 - ② EXISTING PLAGROUND TO REMAIN
 - ③ OPEN GREEN SPACE
 - ④ PICNIC AREA
 - ⑤ SHELTER

COST ESTIMATE

0 - Administration	\$465,482
A - Civil works	\$113,450
B - Structural	\$435,685
C - Utilites	\$98,055
D - Splash Park Equipment	\$366,615
E - Landscape Reclamation	\$1,100
Total	\$1,499,877



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BENCHMARK
ALL ELEVATION REFER TO CONTROL MONUMENT: N/A
LOCATED AT: N/A
ELEVATION: N/A

0 1 200 400

ORIGINAL DWG SIZE: ANSI D (22" x 34")

322 - 323 City Centre,
Kitimat BC V8C 1T6
Tel. 250 632 3200

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DISTRICT OF KITIMAT
270 CITY CENTER, KITIMAT, B.C. V8C 2H7

DISTRICT OF KITIMAT SPRAY PARK
CONCEPTUAL DESIGN
CIVIL PLAN
OPTION 2

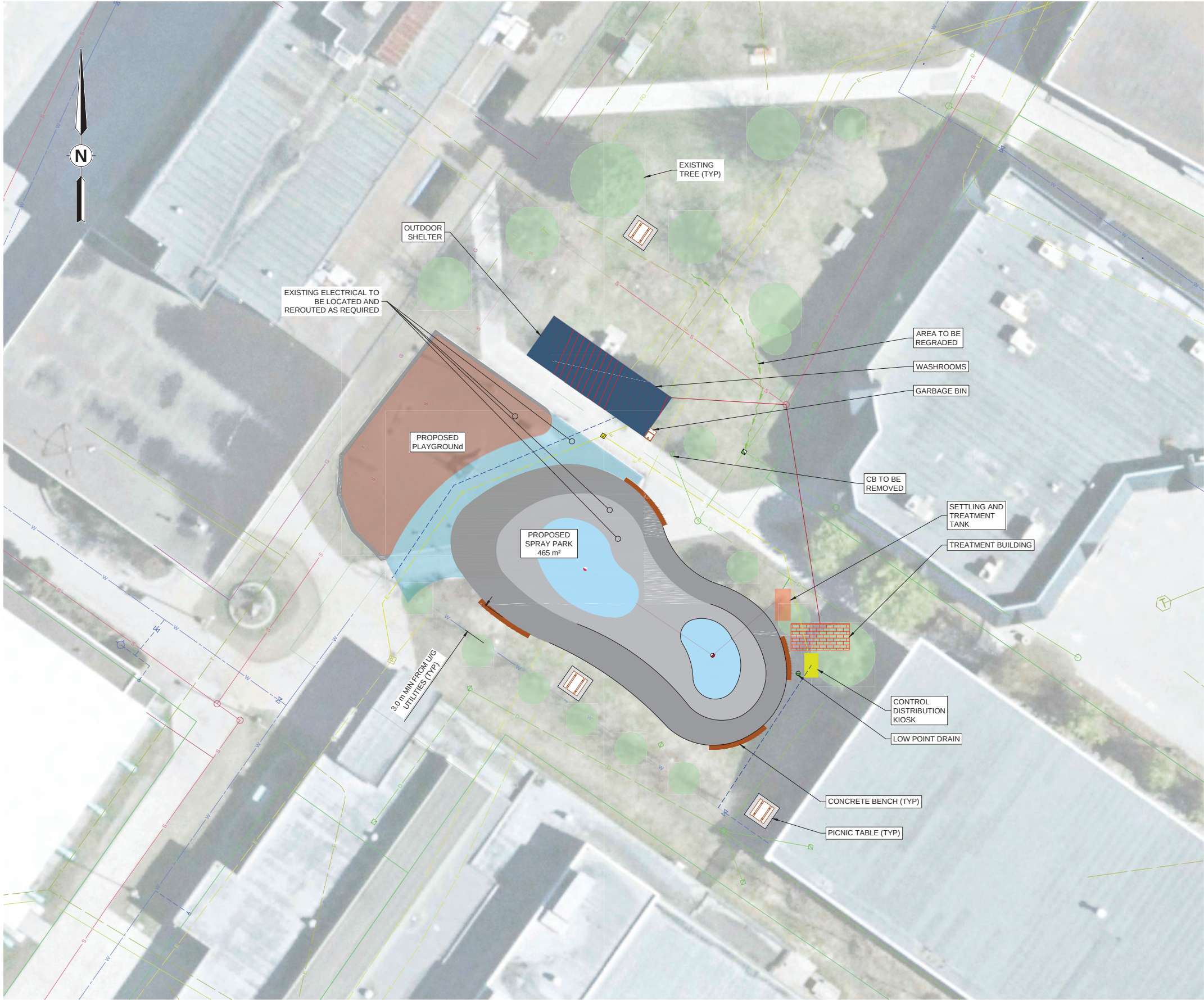
Drawing No.
SK-2A

Project Number
2353-10624-00

Rev.
PA

DESTROY ALL PRINTS BEARING PREVIOUS REVISION

DATE: 2024-08-01 14:52 FILE: X:\2353\Projects\2353-10624-00 DOK Spray Park\07_DRAWINGS\02_Sketches\Civil\OPTIONS 1-3\10624-SK-01_SUBOPT-2.DWG McElhanney ANS D - 2024-02-05



LEGEND		
EXISTING	DESCRIPTION	PROPOSED
	SANITARY SEWER	
	SANITARY MANHOLE	
	SANITARY SEWER SERVICE	
	SANITARY DRAIN	
	STORM SEWER	
	STORM MANHOLE	
	CATCH BASIN	
	WATER MAIN	
	WATER VALVE	
	HYDRANT ASSEMBLY	
	WATER MANHOLE	
	WATER SERVICE	
	HYDRO DUCT	
	HYDRO BOX	
	TELUS DUCT	
	TELUS BOX	
	WALKWAY	

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BENCHMARK
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LOCATED AT: N/A
ELEVATION: N/A

0 100 200

ORIGINAL DWG SIZE: ANSI D (22" x 34")

McElhanney

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DISTRICT OF KITIMAT
270 CITY CENTER, KITIMAT, B.C. V8C 2H7

DISTRICT OF KITIMAT SPRAY PARK
CONCEPTUAL DESIGN
CIVIL PLAN
OPTION 2 WITH WATER RECYCLING

Drawing No.
SK-2B

Project Number
2353-10624-00

Rev.
PA

DISTRICT OF KITIMAT SPRAY PARK
OPTION 3

GENERAL NOTES

- Washrooms should be clearly identified with signage and follow universal design principles. Entry pads at washroom entrances must include a sufficient clear floor space, level and compacted surface, be connected to accessible parking and an accessible route. Attention to the opening position of doors, design of thresholds, interior hardware and overall spatial requirements must follow the principles of accessibility.
- Ensure accessible parking (and van accessible) spaces are provided close to the entrance and clearly designated with pavement markings and vertical signage, containing the Dynamic Symbol of Accessibility (DSA). Pathway connections from parking lot to site should not pose any barriers to access such as inappropriate surfacing, roots, speed bumps or narrow passages.
- Areas with picnic tables and benches must be connected by an accessible route or trail to other amenities, such as accessible parking and washrooms, or as part of a spray park access route. Picnic tables should be accessible on both ends . The edges of transitioning surfaces must be level transitions. All surfaces must be designed and maintained to ensure positive drainage.
- Ensure the accessibility of all park features including signage, recycling and waste containers, water fountains, and kiosks.
- Maintenance frequency and level of service should be reviewed. Regular inspections of all spray park components park surfacing including accessible parking spaces and adjacent access aisles, thresholds, and picnic areas.



SITE PLAN

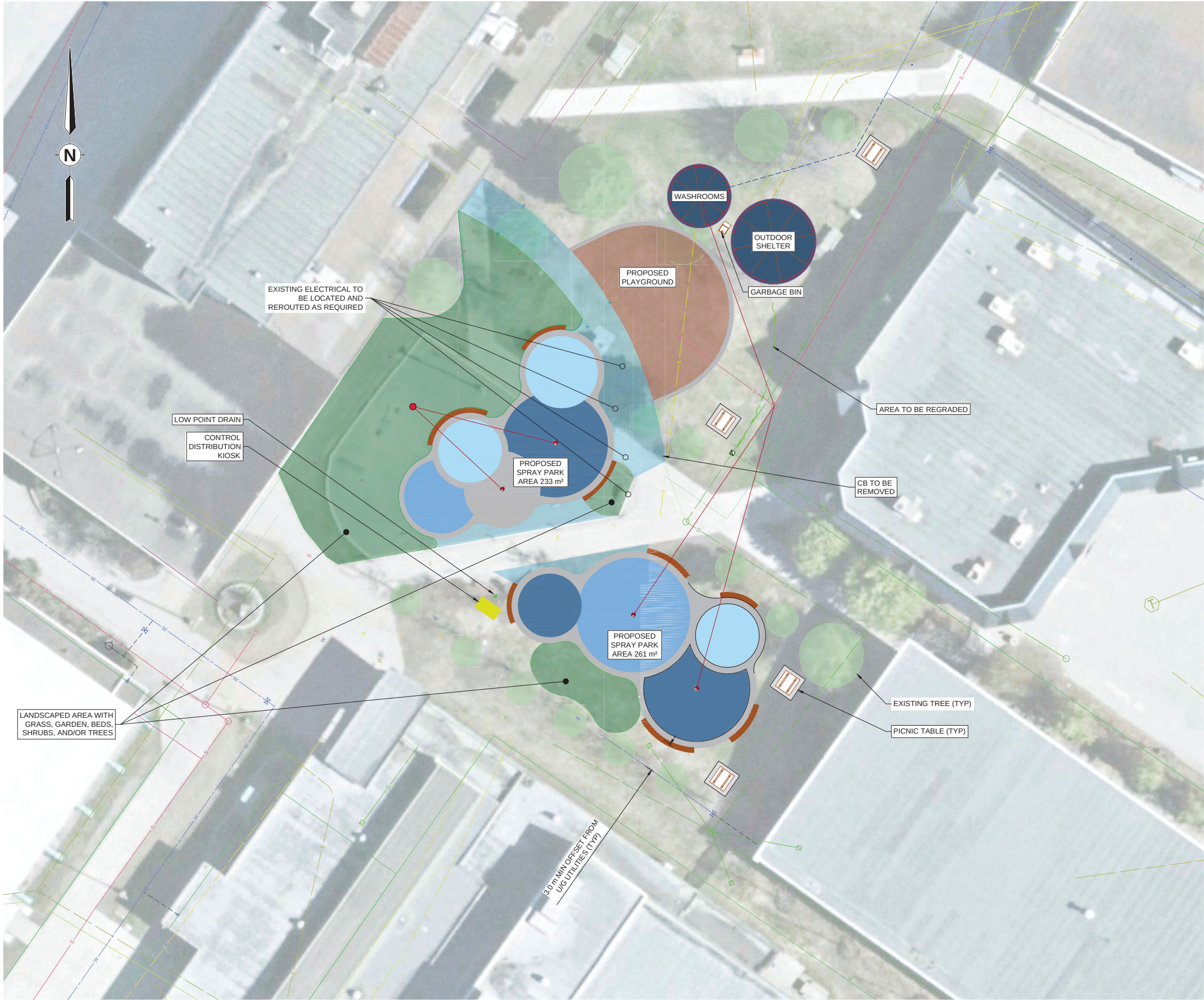
- LEGEND**
- ① SPRAY PARK
 - ② LANDSCAPED AREA
 - ③ OPEN GREEN SPACE
 - ④ PICNIC AREA
 - ⑤ PLAYGROUND RETROFIT

COST ESTIMATE

0 - Administration	\$737,897
A - Civil works	\$182,450
B - Structural	\$566,990
C - Utilites	\$134,505
D - Splash Park Equipment	\$740,075
E - Landscape Reclamation	\$15,750
Total	\$2,377,666



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McElhanney ANS D - 2024-02-05



LEGEND		
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	SANITARY DRAIN	
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ELEVATION: N/A

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Tel. 250 632 3200

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DISTRICT OF KITIMAT
270 CITY CENTER, KITIMAT, B.C. V8C 2H7

DISTRICT OF KITIMAT SPRAY PARK
CONCEPTUAL DESIGN
CIVIL PLAN
OPTION 3

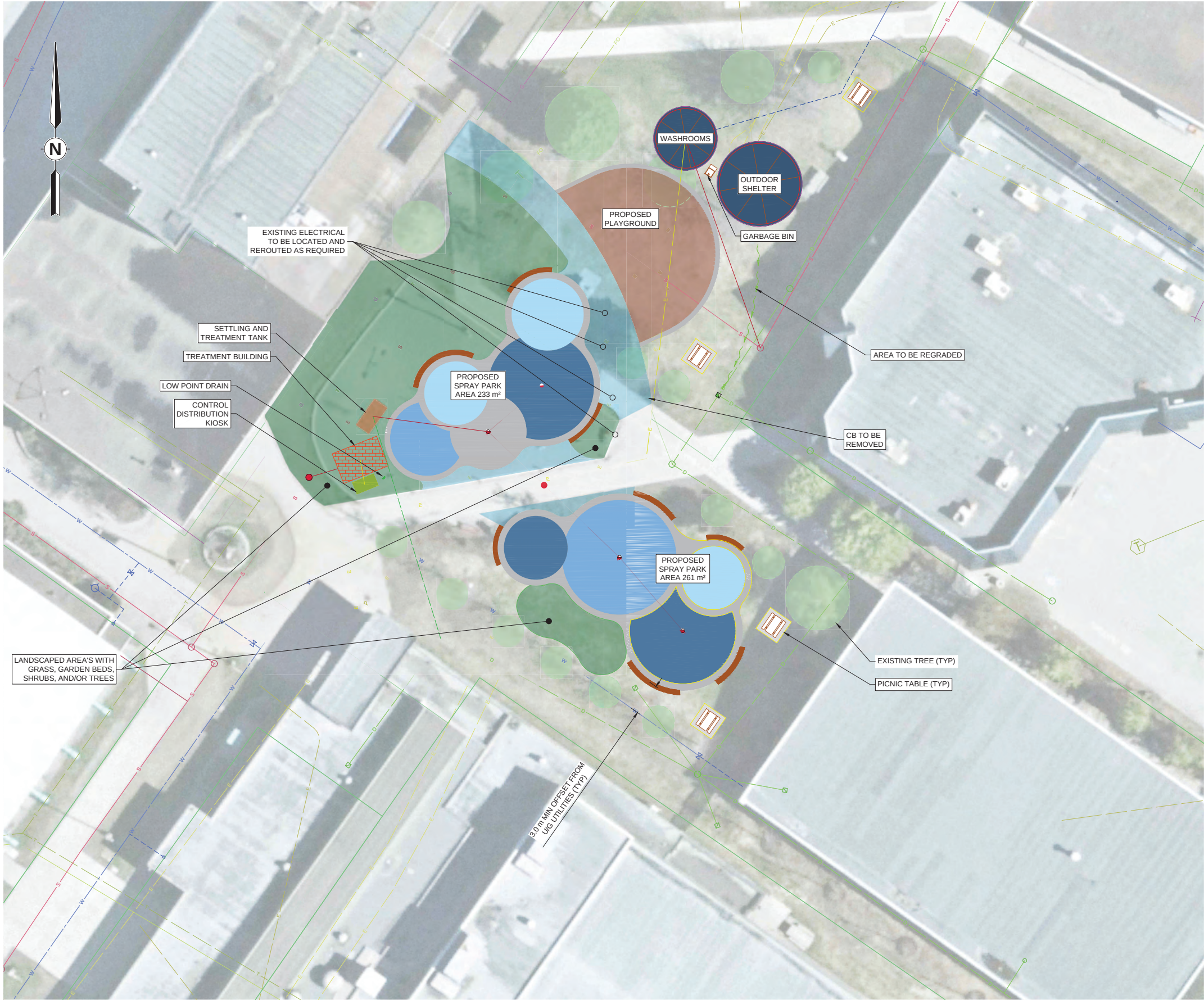
Drawing No.
SK-3A

Project Number
2353-10624-00

Rev.
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DATE: 2024-08-01 14:52 FILE: X:\2353\Projects\2353_10624-00 DOCK Spray Park\07_DRAWINGS\02_Sketches\Civil\OPTIONS 1-3\10624-SK-01_SUBOPT-3.dwg
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270 CITY CENTER, KITIMAT, B.C. V8C 2H7

DISTRICT OF KITIMAT SPRAY PARK
CONCEPTUAL DESIGN
CIVIL PLAN
OPTION 3 WITH WATER RECYCLING

Drawing No.

SK-3B

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