

VILLAGE OF ANMORE

REPORT TO COUNCIL

Date: March 10, 2022
Submitted by: Juli Halliwell, Chief Administrative Officer
Subject: Acceptance of Validation Report – Anmore Community Hub

Purpose / Introduction

To seek acceptance of the Anmore Community Hub Validation Report by Council.

Recommended Options

That Council accept the Anmore Community Hub validation report as presented and authorize the Chief Administrative Officer to accept the validation report in writing;

And that Council increase the Anmore Community Hub project by \$500,000 to a total of \$8,500,000 with additional funds being allocated from the Capital Reserve.

Background

At the November 23, 2021 Regular Council meeting, the following resolution was passed:

That Council authorize staff to enter into the necessary agreements to enable an Integrated Project Delivery method for the construction of the Anmore Community Hub. And that Council approve a budget of up to \$10,000 to fund the Integrated Project Delivery coach from capital reserves.

Since that time, the Village along with the Integrated Project Delivery (IPD) team has been developing the first phase of the IPD process, the Validation Report (**Attachment 1**). The IPD team consists of representatives from the Village of Anmore, the design firm (Krahn) and the construction firm (Jacob Bros.) along with the IPD coach (ISL Engineering).

Discussion

The intent of the Validation Report is to provide the owner (Village of Anmore) with a high level of certainty that the project can be completed as intended for the allocated budget. The Validation Report includes information that has been collectively created by the IPD team through regular team discussions. The IPD team has collaboratively determined a way to

Report/Recommendation to Council

Acceptance of Validation Report – Anmore Community Hub

March 10, 2022

construct the Anmore Community Hub for it's intended purpose without sacrificing functionality and within the currently allocated budget.

The Anmore Community Hub IPD team confirms that, with the changes outlined within the report, that there is a high level of certainty that the project can be completed within the \$8,000,000 previously approved by Council. The Validation Report does include a Risk Register, which represents the identified risks associated with the project and their related potential costs. The risk register amounts to \$604,500 and that amount is not included within the overall \$8,000,00 estimate.

It is also important to note that construction costs have increased substantially since that budget was approved at the September 1, 2020 Regular Council meeting. In fact, construction costs increased by 14.5% in 2021 alone. As a result, it is being requested that Council consider approving an additional amount of \$500,000 to offset some of the potential risks and provide an opportunity for items that have been removed from the budget to be reinstated (should the risks not materialize). This represents a 6.3% increase to the budget and less than half of the construction inflation for last year.

Once the Validation Report is accepted by Council, it will trigger the next phase of the IPD process, which is the design/procurement phase.

Options

1. That Council accept the Anmore Community Hub validation report as presented and authorize the Chief Administrative Officer to accept the validation report in writing;

And that Council increase the Anmore Community Hub project by \$500,000 to a total of \$8,500,000 with additional funds being allocated from the Capital Reserve.

2. That Council provide direction to staff to bring back further information about the Validation Report.
3. That Council increase the Anmore Community Hub project by \$_____ to a total of \$_____ with additional funds being allocated from the Capital Reserve.

Report/Recommendation to Council

Acceptance of Validation Report – Anmore Community Hub

March 10, 2022

Financial Implications

As outlined in the report.

Communications / Civic Engagement

Regular project updates will be provided to Council and the community as construction occurs.

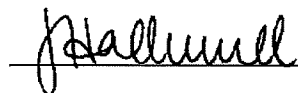
Corporate Strategic Plan Objectives

This project will assist in seeing the Priority Project to Building the Village Centre to completion.

Attachments:

1. Anmore Community Hub Validation Report dated March 15, 2022

Prepared by:



Juli Halliwell

Chief Administrative Officer

Anmore Community Hub

2697 Sunnyside Road, Anmore, BC



Validation Report to Council

March 15, 2022

Table of Contents

Part 1 – Project Overview	P.3
• Concept: Anmore Community Hub	P.3
• Council Summary	P.3
• Recent Developments	P.4
• Conditions of Satisfaction	P.5
• Guiding Values	P.6
Part 2 – Project Team	P.7
• Team Partners	P.7
• Team Process	P.8
• Team Organizational Chart	P.8
• Contact Information	P.9
Part 3 – Design Narratives	P.10
• Functional Program	P.10
• Architectural	P.10
• Structural	P.10
• Mechanical	P.10
• Electrical	P.10
• Civil	P.11
• Landscape	P.11
• Constructability	P.11
Part 4 – Project Controls	P.12
• Decision Matrix	P.12
• Target Cost	P.13
• Construction Schedule	P.13
• Project Milestones	P.14
• Risk Register & Opportunity Log	P.15
• Risk Pool Milestone Release	P.15
Part 5 – Available Project Information	P.16
• Drawings & Sketches	P.16
• Reports	P.25
Part 6 – Owners Wish List	P.30

Part 1 – Project Overview

Concept: Anmore Community Hub

The Anmore Community Hub will provide our community with a new Village Hall – including Council Chambers and administration space – combined with community amenity space. The Hub is designated as the Emergency Operations Centre and will also be available as a Reception Centre for evacuees if needed.

The Village of Anmore needs an administrative building as the temporary trailers currently being used are not a viable long-term solution for administrative office space. These trailers are also not designed to survive a significant natural disaster, which is a risk for the community as the Village Hall operates as the Emergency Operations Centre. As well, the trailers cannot act as a Reception Centre for evacuated residents. The Village was aware that the Old Village Hall needed to be replaced long before it was closed in 2012. Not only was the family home never designed to accommodate offices and public-facing service desks, there were also significant safety concerns due to deteriorating infrastructure.

Recognizing that this project is a major initiative for the community – and that buildings like these are designed to meet both current and long-term needs in the community – the Village brought in community planning and building design experts to gain insight into how to best leverage the project to benefit the Anmore community. The following key steps have guided the project development:

- A 2014 Feasibility Study by CitySpaces, planning consultants, noted that Anmore does not currently have community meetings space and residents generally have to rent space in other cities for their events.
- In 2017, HCMA Architects expanded on the initial Feasibility Study and provided an overall concept design
- Council's 2019-2022 Strategic Plan identified the Village Centre as a priority project

In 2020, following a detailed design exercise and incorporating community input, Council approved the design and an \$8M budget.

Council Summary

The project of delivering the new Village of Anmore Community Hub building at 2697 Sunnyside Road, has to date resulted in several iterations and phases by various consulting entities. As the 'originally' conceived project resulted in a cost that could not meet the established budget of \$8 million for the entire project, and since attempts at achieving sufficient design/cost savings to ensure conformance with the project budget failed, the team and project approach was changed and a different way of procuring the design, pricing and construction delivery was put in place.

The Integrated Team identified in this Validation Report - and the methods necessary to conform to the Integrated Project Delivery approach as per the terms of the CCDC 30 (IPD) contract – has been engaged in a process of bringing the project to the budget limit for the past 2 months. This process included re-design, re-pricing, new procurement strategies and revising the scope of work. The result of this effort yielded the most recent pricing inclusive of all necessary charges, soft costs and design contingencies which indicates that **the project is achievable within the allocated budget.**

The construction industry is currently experiencing a cost inflationary period which results in a great deal of construction-related uncertainties. These include product scarcity, procurement (supply side) delays, cost instability / escalation, as well as labour shortages. Such factors drive the need for sufficient margins in costing and planning and indicate that the risk register should be considered for additional funding. As such, the Integrated Project Delivery Team is requesting additional funding to be provided for this project to address these identified risks.

Recent Developments

The co-signatories of the Integrated Project Delivery contract have progressed the general understanding of the parameters of this project by adhering to the protocols indicated by the IPD contract which includes:

- Regular (weekly) Project Team meetings
- Establishing defined roles and their integration into the process
- Reviews and Assessment of the pre-cursor designs and budgeting
- Review of most current industry status with respect to material/labour/procurement issues
- Establishing incentives for all members of the IDP Team to drive down the cost of the project
- Producing a new Schematic design in all disciplines reflecting the new project parameter
- Revising the priorities of the space/ functional program to drive down the size of the project.
- Adjusting the scope of work on site and off site to reduce the cost and duration of the construction

The result of these efforts of all the Team members are reflected in the accompanying drawings and documents. In summary, the project is now approximately 3,000 sf smaller in gross area (which is mostly accounted for by the removal of the future basement expansion space). The site development has been simplified, the mechanical and electrical system designs have been revised entirely, the area of glazing has been reduced, the primary cladding materials have been changed, the structural system has been changed to reflect the cost and economy of procurement and the over-all geometry has been simplified to speed construction and reduce cost.

At the same time, the functionality of the project has been essentially maintained, and in some cases enhanced. While some of the storage areas (future expansion) have been reduced in size, there are strategies in place to develop these areas in the future as the need arises. The community rooms have a more generous access, and the support spaces on the lower floor have a better functioning relationship to each other. The building maintains it's previous 'essential community character' and will not appear as an 'economy' version of a suitable facility of this type.

Conditions of Satisfaction

The general conditions of satisfaction, or measurement of project success, will be realized in the following ways:

- It provides a gathering space for residents that the community is proud of, and which is sought after for a variety of uses;
- It provides modest Village Administrative office spaces;
- It is easily activated as the Emergency Operations Centre for the Village;
- It is delivered within the approved budget;
- It considers future needs of the community and provides the ability to effectively grow;
- It realizes a collaborative process between all parties throughout the project.

Guiding Values

Guiding Values for Anmore Community Hub



All members of the Integrated Project Delivery Team for the construction of the Anmore Community Hub share a commitment to guiding values to support the success of this project.

TRUST & RESPECT

We will create a team culture that supports an open and honest environment where team members feel safe to engage in productive conflict resolution.

- Always bring a positive attitude
- Practise active listening
- Be present
- Show compassion
- Engage in 'connection before content'

COLLABORATION

We need to use our collective experience to support the success of the project for everyone.

- Be honest and transparent
- Be open to new ideas and different ways of doing things
- Communicate directly and respectfully
- Provide feedback in written form

EMBRACE THE PROCESS

Appreciate the innovation of Integrated Project Delivery.

- Ask questions when clarity is needed
- Support Integrated Project Delivery when uncertainty exists

DIVERSITY

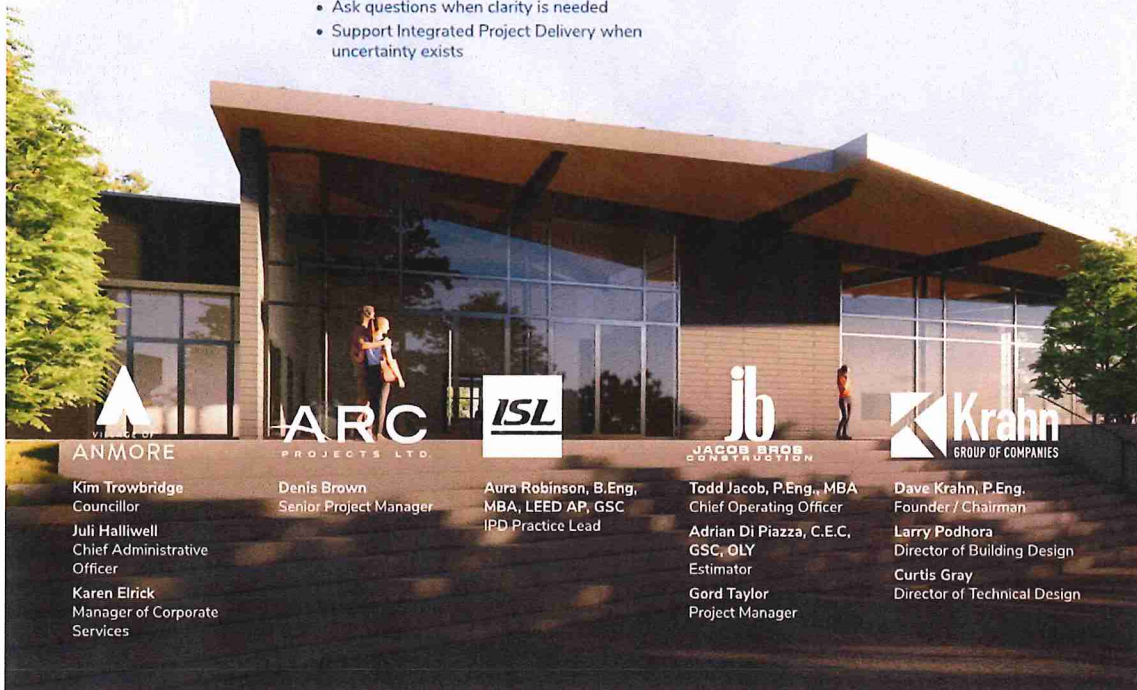
Everyone's voice is needed and important.

- Leave space for everyone to share thoughts and ideas
- Actively participate
- Be accountable and demonstrate an ethic of contribution
- Be a doer
- Be on time
- Respect people's time and other commitments
- Do what you say you will do

FUNCTIONALITY & FIT

Deliver a facility that meets the needs of the community today, provides a sense of pride for the community and considers future need while being affordable and reliable to maintain.

- Minimize operating costs
- Use high quality, durable components and finishes
- Optimize functionality for the community and administration



Part 2 – Project Team

Team Partners Logo Sheet



A handwritten signature in blue ink, reading "Juli Halliwell".

Juli Halliwell, Chief Administrative Officer



A handwritten signature in black ink, reading "Dave Krahn".

Dave Krahn, Founder / Chairman



A handwritten signature in black ink, reading "Todd Jacob".

Todd Jacob, Chief Operating Officer

Team Process

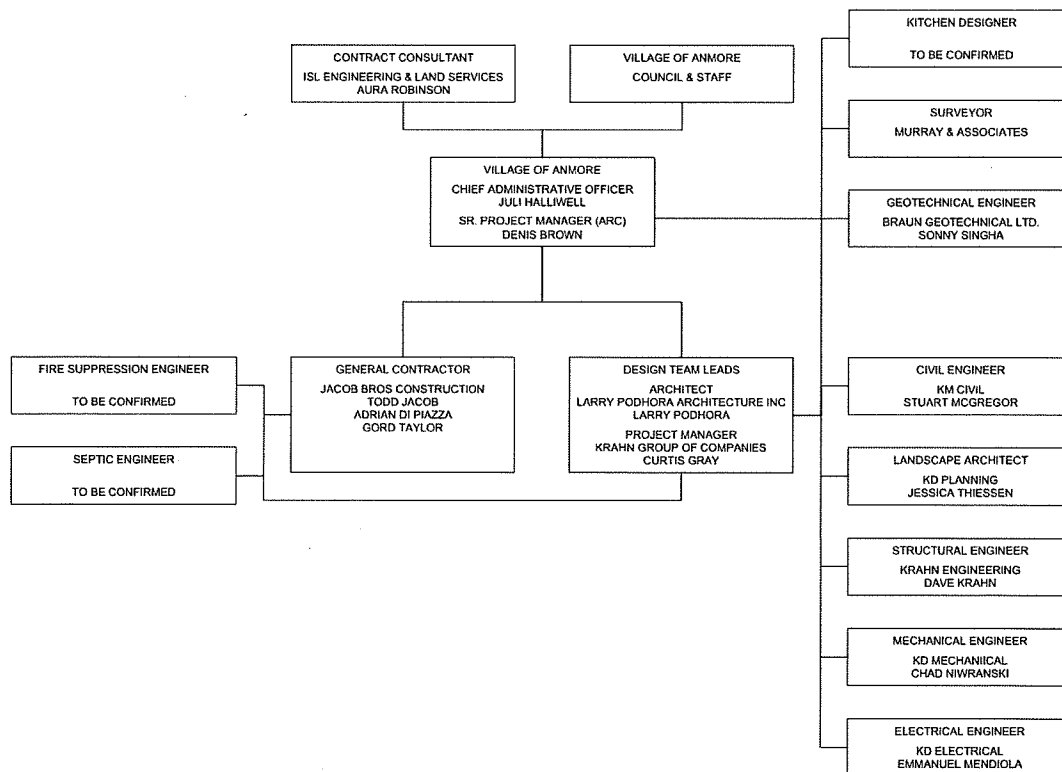
The team is comprised of: PROJECT MANAGEMENT TEAM, PROJECT IMPLEMENTATION TEAMS, and SENIOR MANAGEMENT TEAM.

Given the variety of activities, the diverse expertise and skill sets of the team, the project and tasks were organized into one Project Implementation Team (PIT) to tackle the following:

- Senior Management Team
- Project Management Team
- Architectural/Envelope Team
- Structural Team
- Mechanical Team
- Electrical Team

The team was led by the PMT who managed the tasks undertaken expressed above, illustrating the tasks drawn from the overall project pull plan that would be completed in a four-week timeframe. The full team or significant portions of the team worked once a week in the virtual Big Room where the PMT worked collaboratively on the project.

Project Team Organizational Chart



Contact Information

Name	Company	Email	Telephone
Juli Halliwell C.A.O	Village of Anmore	juli.halliwell@anmore.com	604.469.9877
Kim Trowbridge Councillor	Village of Anmore	kim.trowbridge@anmore.com	604.469.9877
Karen Elrick Manager of Corporate Services	Village of Anmore	karen.elrick@anmore.com	604.469.9877
Denis Brown Sr. Project Manager	Arc Projects	denis@arcprojects.ca	604.290.4744
Aura Robinson Contract Consultant	ISL Engineering & Land Services	arobinson@islengineering.com	780.438.9000
Todd Jacob C.O.O.	Jacob Bros. Construction Inc.	todd@jacobbros.ca	604.541.0303
Adrian Di Piazza Estimator	Jacob Bros. Construction Inc.	adipiazza@jacobbros.ca	604.541.0303
Gord Taylor Sr. Project Manager	Jacob Bros. Construction Inc.	gtaylor@jacobbros.ca	604.541.0303
Larry Podhora Architect AIBC	Larry Podhora architecture inc	all3pods@telus.net larryp@krah.com	778.255.0246
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Stuart McGregor Civil Engineer	KM Civil	stuartm@krah.com	604.853.8831
Jessica Thiessen Landscape Architect	KD Planning	jessicat@krah.com	604.853.8831
Dave Krahn Structural Engineer	Krahn Engineering	davek@krah.com	604.853.8831
Chad Niwanski Mechanical Consultant	KD Mechanical	chadn@krah.com	604.853.8831
Emmanuel Mendiola Electrical Engineer	KD Electrical	emmanuelm@krah.com	604.853.8831

Part 3 – Design Narratives

Functional Program:

This is no longer necessary since there is fully developed conceptual design available for review. The gross and net area of the project is nominally smaller than that of the original design. Expandability is still possible but deferred to a possible future addition.

Architectural Design:

The architectural concept of the Anmore Community Hub remains largely as per the earlier design. It is a two-storey facility with a principal access on the second level along a central axis opening to the south. The principal public rooms are located to the west of the entrance and are oriented to the park across Ma Murray Lane. The administrative and support spaces together with the Council / Boardroom are located to the east of the entrance. The lower level of the facility is accessed via an elevator and an open stair and contains washrooms, change rooms, infrastructure as well as a concession space and a retail unit.

The massing of the structure maintains much of the dynamism of the original albeit in a simplified geometry. The broad sloping roof over the public spaces projects over the west elevation and opens to the park frontage. The major, sloping massing of the main wing is joined to the simpler and lower east wing which acts as a counterpoint in the composition. There is a small entrance plaza for small gatherings at the upper level and a larger, public amenity plaza at the lower level with direct access to the CRU, concession and the support spaces.

Structural Design:

The structural properties of the design have been greatly simplified and made to utilize materials that are more available at a lower cost than some of the elements of the previous structure. The extent and depth of excavation has been significantly reduced and the long span of the public room roof has been proposed to be achieved with standard steel rather the costly hybrid material solution in the previous design. The vertical loads no longer require transfer beams and are brought down directly to ground on steel or composite columns.

Mechanical Design:

The mechanical design; which includes plumbing, heating, ventilation and air conditioning has been re-imagined through the lens of a design-build type approach. This allows for the contractor and trade partners to identify improvements to the proposal by means of outlining product availability and potential cost savings earlier in the process, allowing for an accelerated constructed schedule and an increased budget conscience.

Electrical Design:

The electrical design has also been approached from a design-build approach. This approach allows for access to conveniently available products that both deliver the performance expected and that also identify potential for cost savings. The most significant departure from the original design proposal sees a reduction in capacity of the emergency generator for the building – essential service will continue to be provided, with significant improvement to the budget being the result

Civil Design:

The civil design for the project remains as originally proposed. The general parameters of the project are dictated by the available water service, the storm water management requirements of the Village, and the sanitary system (septic) availability. Cost improvements have been sought in the revision of grading designs and with the extents of exterior hardscapes reconsidered to provide a most efficient design.

Landscape Designs:

The landscape proposal for the project has been significantly reduced in scope, with anticipated reliance on the community volunteer groups. Their ability to coordinate with the municipality is critical to submitting an approved design and meeting normal permitting requirements of the Village. This approach allows for community stakeholders to invest themselves into the project in a more tangible way. It may be considered advantageous to re-introduce a landscape architect into the project to have them provide a design, with the construction partner's sub-trade providing installation services, but in the interest of adhering to the budget this has been considered as a significant cost saving item.

Constructability:

The modified design reflects a simplified structural frame in concrete and structural steel that still provides an inviting architectural design with all of the functional requirements set out in the previous plan. Eliminating the mass timber elements from the design prepared by former designers, offers beneficial schedule lead times and avoids the massive increase associated with market changes to the cost of lumber and in particular mass timber and CLT products. Since this project was tendered, cost for CLT has risen dramatically and lead times for production have increased so dramatically that the project schedule could be impacted by as much as 6 months.

The approach of simplifying the architectural and structural design improves constructability and removes some of the risk of integrating these details with a complex building envelope.

The redesign of the Roof, Wall Cladding and Glazing Elements have maintained the massing and architectural impact of the building but at reduced cost. Energy performance, durability of materials, overall ease of maintenance are primary considerations in the selection of materials and details.

Part 4 – Project Controls

Decision Matrix

In order to bring the project into budget from the original design and construction cost proposal, a number of items were required to be identified as superfluous and able to be eliminated from the project scope.

The following is a summary of some items that were required to be eliminated from the revised project scope. Additional items have been indicated in Part 4, above.

Project: ACH

Decision Matrix

Date:

04-Mar-22

	Decision Made	Responsible	Completed (Y)
1	Universal washrooms will be converted to gender specific	Krahn	Y
2	Deck to be removed, but structures in place for future construction	Krahn	Y
3	Eliminate/reduce the future expansion area at the back of the basement having limited access and no windows.	Krahn	Y
4	Programmed layout remains essentially as proposed in original drawings, with some minor edits to the reception area (additional storage proposed as well as some glazing reduction).	Krahn	Y
5	Revise the roof lines to simplify the construction and to provide a more defined feature that has the potential to open the community rooms even more so to the park area to the west.	Krahn	Y
6	Items to remove for cost savings: -Irrigation (added on wish list) -Lockers (added on wish list) -Acoustic partition (added on wish list) -Skylights in lobby/front entryway -Reduce by one end of trip facility	Krahn	Y
7	Existing trailers to be relocated offsite	VOA	Y
8	CRU will be used as a coffee shop and roughed in accordingly	VOA	Y

Target Cost

The design tendered in mid-2021 resulted in a lump sum price to construct of \$9,469,000. Through the redesign process we estimate that we have reduced the construction cost by almost \$1,800,000 for a revised Construction Cost of approximately \$7,675,000. This reflects a 19% reduction in the cost while simultaneously mitigating risks such as design scope gaps, escalation, supply chain issues and availability of materials and specialty trades. We are confident that as the design is further detailed with the support of key subcontractors who will bring efficiencies and current market information, we will also be able to carefully and deliberately reduce the risk register for further project savings.

A general summary of budget and allowances is provided here:

Cost of Construction	\$7,675,750*
Re-Design Fees & Associated Services	\$450,000
<u>Credit – reallocated design fees</u>	<u>(\$186,000)</u>
Project Cost excluding Risk Register	\$7,939,750
<u>Risk Register</u>	<u>\$604,500</u>
Total Project Cost	\$8,544,250

*includes Insurance and 50% Performance Bond

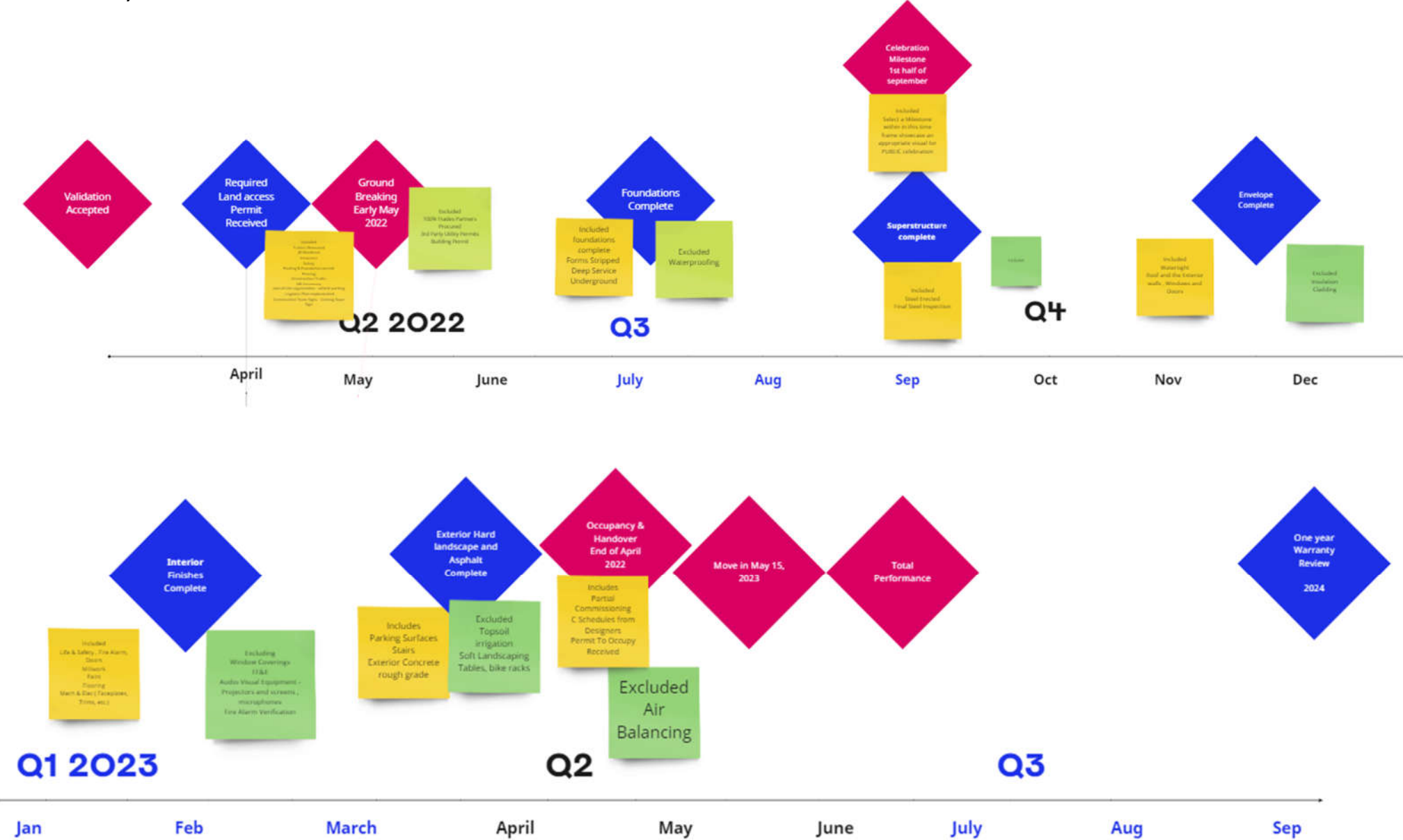
Construction includes the following cash allowances:

Telus Connection Fee	\$5,000
Shaw Connection Fee	\$5,000
Hydro Connection	\$40,000
Fortis Connection	\$5,000
Covid 19 protocols	\$7,500
Existing Septic system	\$5,000
<u>New Septic System</u>	<u>\$100,000</u>
Total Cash Allowances	\$167,500

Construction Schedule

The construction schedule is planned to take twelve (12) months. A preliminary construction schedule that reflects an aggressive start targeted to put shovels in the ground in Early May 2022 and completion in April 2023.

Project Milestones

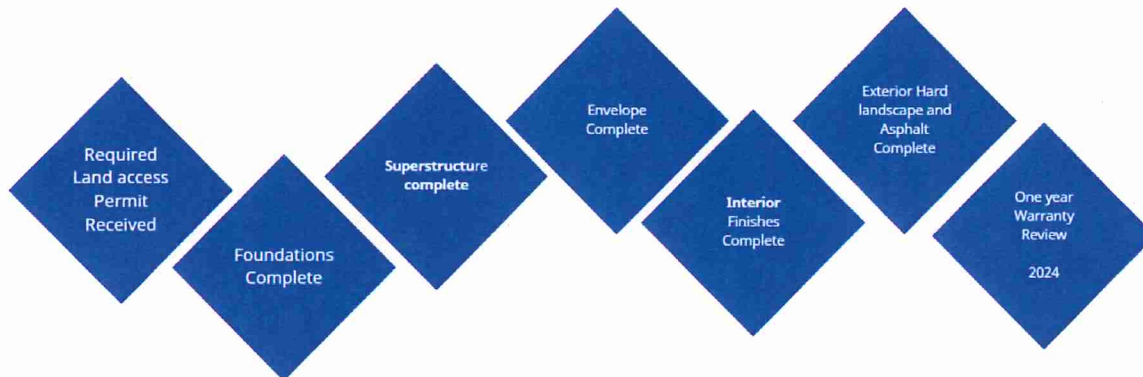


Risk Register & Opportunity Log

Risk Register						
Risk ID	Risk Description	Details of Risk	Risk Likelihood	Impact	Risk Cost	Response Strategy
			High: Greater Than 66%	3		
			Med.: 33%-66%	2		
			Low: Less Than 33%	1		
1	Client Impacts					
1.1	Decision Delays	Client Review, Permit Approvals - Internal	Low	1	\$0.00	Mitigate
1.2	Program Uncertainty/Changes	Client Review - Internal	Low	1	\$0.00	Mitigate
2	Covid Impacts					
2.1	Supply Chain (PVC)	Personnel /Product Availability - External	Medium	2	\$30,000.00	Mitigate
2.2	Supply Chain (Lumber)	Personnel /Product Availability - External	Medium	2	\$15,000.00	Mitigate
2.3	Supply Chain (Steel)	Personnel /Product Availability - External	Medium	2	\$50,000.00	Mitigate
2.4	Supply Chain (Glass)	Personnel /Product Availability - External	Medium	2	\$35,000.00	Mitigate
2.5	Supply Chain (Doors & Hardware)	Personnel /Product Availability - External	Medium	2	\$4,500.00	Mitigate
2.6	Manpower	Personnel Availability - Internal	Medium	2	\$150,000.00	Mitigate
3	Construction Impacts					
3.1	Unknown Site Conditions	Soil Conditions - External	Low	1	\$40,000.00	Mitigate
3.2	Delays	Extreme Weather and Supply Chain - External	Medium	2	\$130,000.00	Mitigate
3.3	Septic field expansion	Design & Construction - Internal	Medium	2	\$0.00	Mitigate
3.4	Site reviews scheduled effectively	Scheduling Efficiency - Internal	Low	2	\$0.00	Mitigate
4	Miscellaneous Factors					
4.1	Cost Escalation	Inflation 5% - External	Medium	2	\$150,000.00	Mitigate
4.2	BC Hydro Design & Approvals	Utility Provider Delay - External	Medium	2	\$0.00	Mitigate
Total					\$604,500.00	

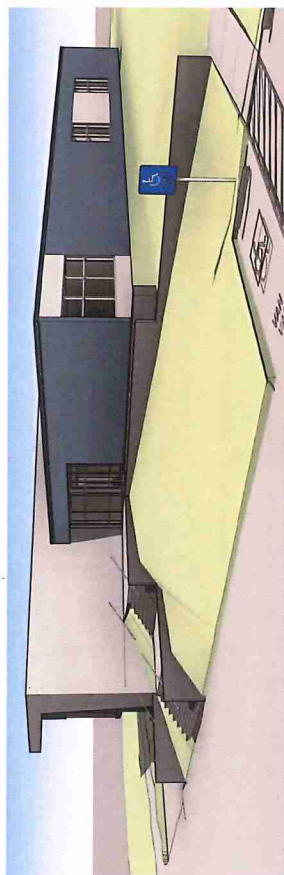
Risk Pool Milestone Release

Risk pool releases will occur as the following milestones are met.

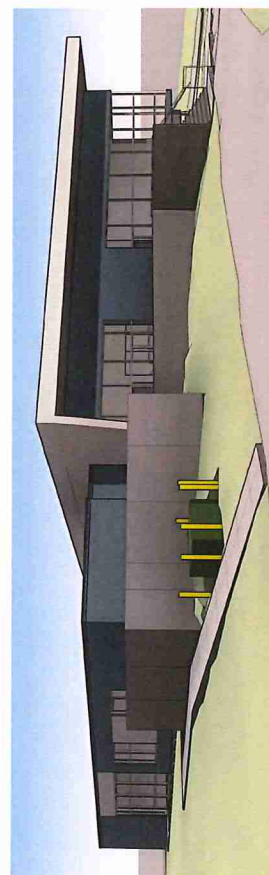




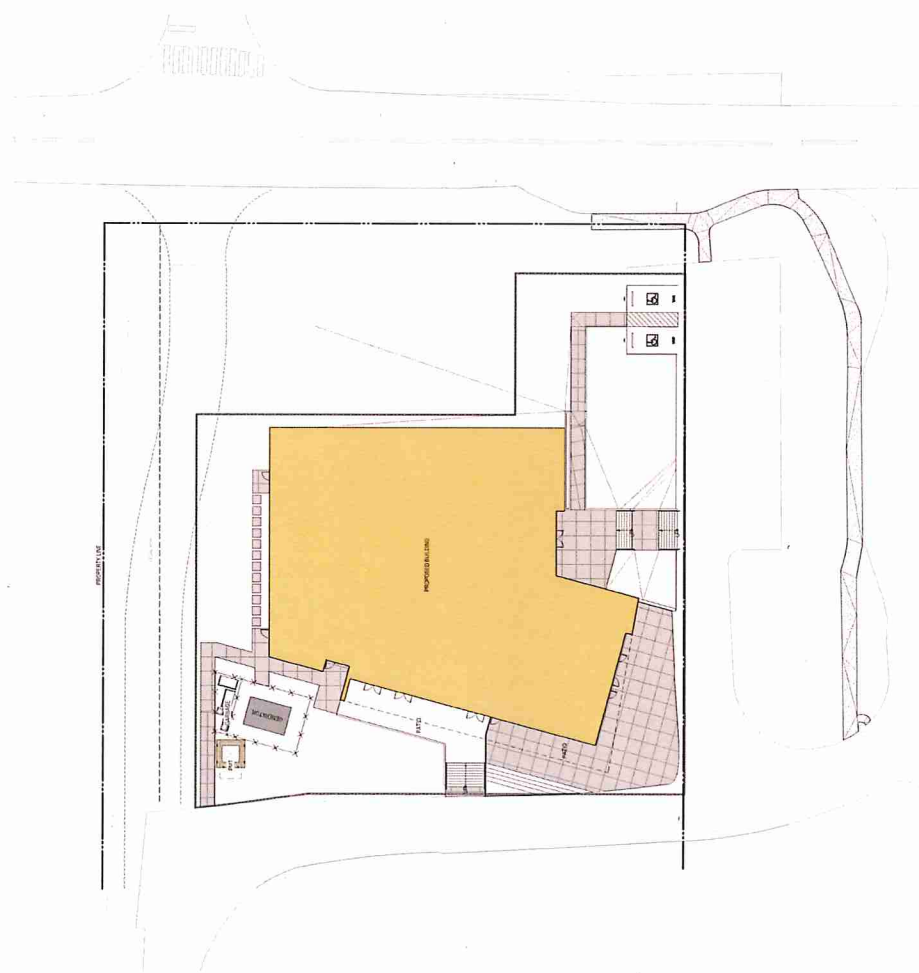
SW PERSPECTIVE



SE PERSPECTIVE



NW PERSPECTIVE



1 ARCHITECTURAL SITE PLAN





FIRE RATING		100% F.R.	80% F.R.	60% F.R.	40% F.R.	20% F.R.	0% F.R.
100% F.R.	80% F.R.	60% F.R.	40% F.R.	20% F.R.	0% F.R.		
100% F.R.	80% F.R.	60% F.R.	40% F.R.	20% F.R.	0% F.R.		
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100% F.R.	80% F.R.	60% F.R.	40% F.R.	20% F.R.	0% F.R.		

WALL CONSTRUCTION
ALL THE PARTY WALLS ARE CONSTRUCTED TO
AT LEAST 80% F.R. AS PER 2015 IBC.
ALL THE EXTERIOR WALLS ARE CONSTRUCTED TO
AT LEAST 20% F.R. AS PER 2015 IBC.
ALL THE ROOF WALLS ARE CONSTRUCTED TO
AT LEAST 20% F.R. AS PER 2015 IBC.

WET WALLS
ALL WALLS NOT ADJACENT TO CONTAINING TO
BE CONSIDERED WET WALLS.
WET WALLS SHALL BE CONSTRUCTED TO
AT LEAST 80% F.R. AS PER 2015 IBC.

ROOF NOTES
ALL ROOF SYSTEMS SHALL BE CONSTRUCTED TO
AT LEAST 20% F.R. AS PER 2015 IBC.
ALL ROOF SYSTEMS SHALL BE CONSTRUCTED TO
AT LEAST 20% F.R. AS PER 2015 IBC.

NOT FOR CONSTRUCTION
THIS DRAWING IS FOR PRELIMINARY REVIEW ONLY.
IT IS NOT TO BE USED FOR CONSTRUCTION.
ALL CONSTRUCTION SHALL BE IN ACCORDANCE
WITH THE LATEST IBC AND ALL APPLICABLE
LOCAL CODES.

PROJECT INFORMATION
PROJECT NAME: ANIMORE COMMUNITY HUB
PROJECT ADDRESS: 200 ANIMORE ROAD
ANIMORE, IL 60009
DRAWING NO: A2.02
PROJECT NORTH

1 ROOF PLAN
SCALE: 1/8" = 1'-0"

ANIMORE COMMUNITY HUB

200 ANIMORE ROAD
ANIMORE, IL 60009

ROOF PLAN

PROJECT NORTH

100% F.R.
80% F.R.
60% F.R.
40% F.R.
20% F.R.
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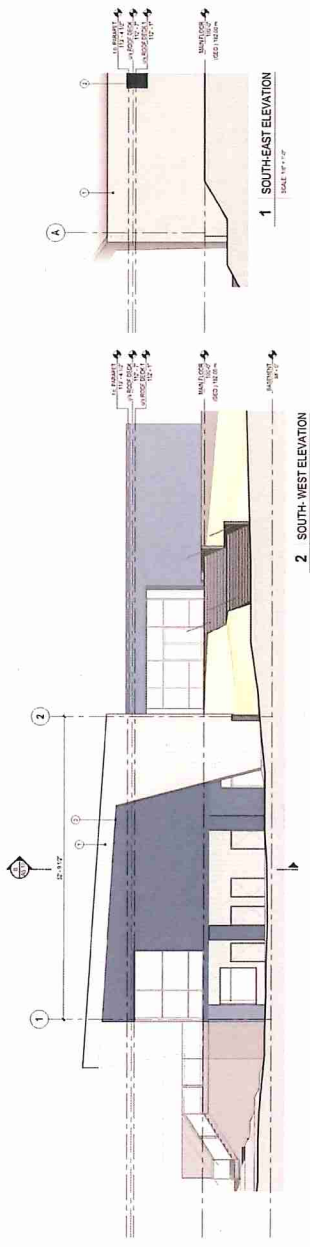
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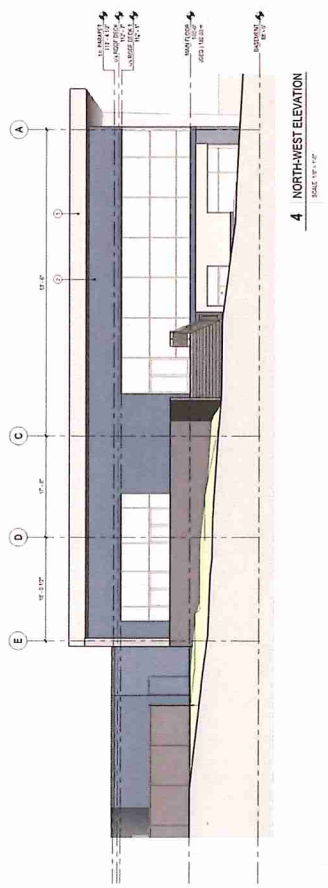
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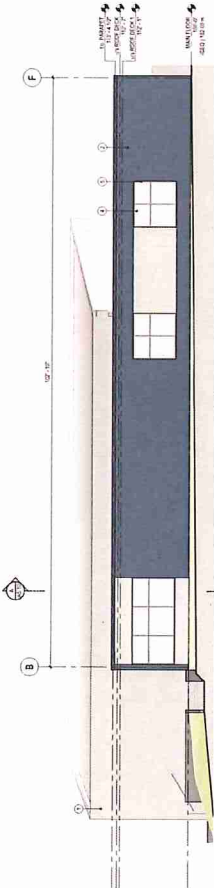
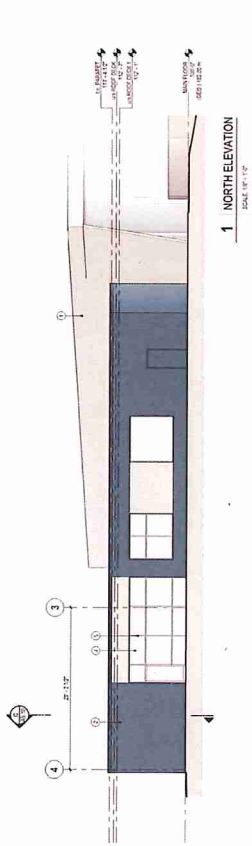
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THIS DRAWING IS A PRELIMINARY DESIGN FOR CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CLIENT TO OBTAIN THE NECESSARY PERMITS AND APPROVALS FOR CONSTRUCTION.



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PRELIMINARY
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THIS DRAWING IS A PRELIMINARY DESIGN AND IS NOT TO BE USED FOR CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE USER TO OBTAIN ALL NECESSARY PERMITS AND TO VERIFY THE ACCURACY OF THE INFORMATION PROVIDED HEREON. THE DESIGNER ASSUMES NO LIABILITY FOR ANY ERRORS OR OMISSIONS IN THIS DRAWING.

1. DESIGNER: ARCHITECTURAL & ENGINEERING
2. CLIENT: ANIMORE COMMUNITY HUB
3. DATE: 10/10/2020
4. SCALE: 1/8" = 1'-0"

ANIMORE COMMUNITY HUB

10000 W. 100th Ave., Suite 100
Denver, CO 80231
Tel: 303.440.1000
Fax: 303.440.1001
www.krahn.com

BUILDING ELEVATIONS

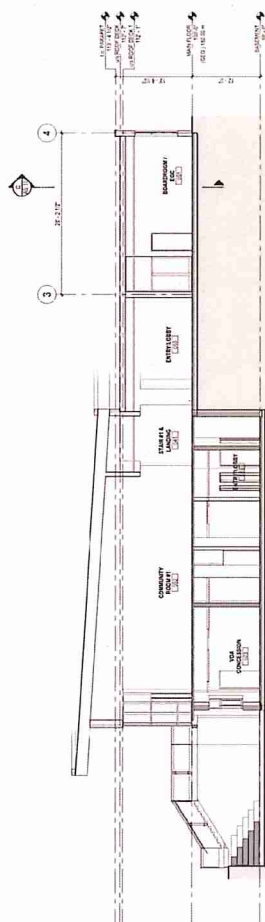
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2. EAST ELEVATION
3. SOUTH ELEVATION
4. WEST ELEVATION

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PROJECT NO.	10000
PROJECT NAME	ANIMORE COMMUNITY HUB
PROJECT ADDRESS	10000 W. 100th Ave., Suite 100 Denver, CO 80231
PROJECT PHONE	303.440.1000
PROJECT FAX	303.440.1001
PROJECT WEBSITE	www.krahn.com

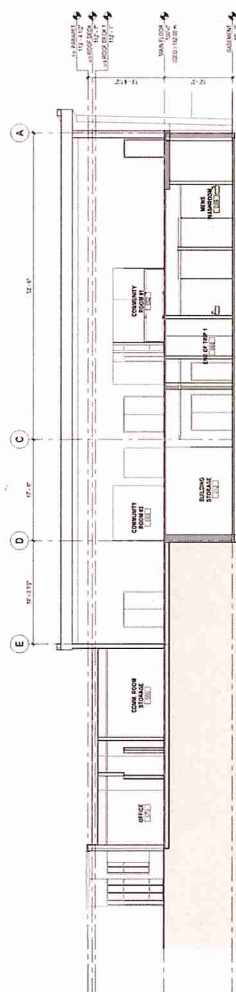
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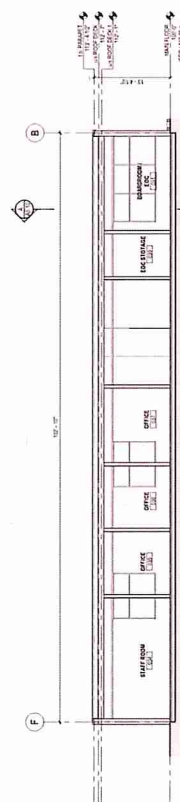
A BUILDING SECTION



B BUILDING SECTION



C BUILDING SECTION



PRELIMINARY
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Larry Podhora | architecture inc
 10015 W. 10th Ave. #1100, Golden, CO 80401
 303.440.1100

SUBJECT OF ADVERTISEMENT
3817 HUNTING ROAD
ANMORE BC

BUILDING SECTIONS

CASEL	AMOUNTED
PAYMENT	BY
RECEIVED	
PROJECT NO.	201647
DRAWING NO.	

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Reports: Geotechnical Report:

Foundations, Excavation & Shoring Specialists

Braun Geotechnical
103 - 10400 85A Ave
Surrey, BC
VAN-3D3
Tel: 604-513-4190
Fax: 604-513-4195
info@braungeo.com

www.braungeo.com

Foundations

Excavation & Shoring

Slope Stability

Natural Hazards

Pavement Design and Management

Reinforced Soil Walls and Slopes

April 24, 2020

Reference: 20-8546

Via email: jnh.hall@braungeo.com

Village of Anmore
2697 Sunnyside Road
Anmore, BC V3H 5G9

Attn: Jull Halliwell

Re: Geotechnical Exploration Report
Proposed Anmore Civic Building
2697 Sunnyside Road, Anmore, BC

1.0 INTRODUCTION

As requested, Braun Geotechnical Ltd. has carried out a geotechnical exploration for the above-referenced project. The geotechnical work has been performed in general accordance with the terms and conditions of the Braun Geotechnical fee proposal dated April 5, 2020 (our reference No. P20-0836). The scope of work included intrusive drilling, and provision of geotechnical recommendations for the project. No consideration has been given to any environmental aspects.

2.0 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject site is located at 2697 Sunnyside Road in the Village of Anmore, BC. It is understood that a 1 to 2-storey civic building is proposed at the subject site. It is understood that a single level basement will be constructed below a portion of the structure. The project also includes new asphalt paved parking lots to the north and southeast of the proposed structure.

At the time of field exploration, an ATCO mobile office structure occupied the east portion of the site. The centre portion of the site was generally flat lying and being used as a gravel surfaced parking lot. Existing grades immediately west and south of the proposed structure location were observed to be sloping at gradients of approximately 6H:1V (Horizontal to Vertical) and 10H:1V, respectively.

3.0 GEOTECHNICAL EXPLORATION

Three test holes (TH20-01 to TH20-03) were drilled on April 15, 2020, using a truck mounted solid stem auger drill to depths of 2.1 to 5.6m. Three test holes (TH18-03 to -05) were drilled by Braun in 2019 within the Village of Anmore Hall area as part of office utility work. Locations of the test holes are shown on the attached plan (Dwg. 20-8546-01). Subsurface conditions were logged in the field and representative disturbed samples were collected from the augers for further visual classification.

4.0 SOIL AND GROUNDWATER CONDITIONS

Review of available published geological information and in-house subsurface information indicated that the study site area is underlain by Yaldon Drift Sediments comprising lodgment till (with sandy loam matrix) and minor flow till containing lenses

Geotechnical Exploration Report
Proposed Anmore Civic Building - 2697 Sunnyside Road, Anmore, BC

April 24, 2020
Project # 20-8546

5.3 Site Preparation

Site preparation before the proposed structure, asphalt paved areas subject to traffic load, and areas proposed for site grading fill should include removal of all vegetation, organic soils, soft disturbed soils, existing fill and other deleterious material down to the natural, undisturbed, very dense soils.

Drainage measures should be implemented to reduce the potential for ponding of water in the excavation. Stripped surfaces should be reviewed by Braun Geotechnical prior to placing foundations or any structural fill. If construction is carried out during wet weather conditions, a nominally thick protective layer of sand and/or gravel should be placed over exposed soil subgrade areas.

5.4 Structural Fill

Subgrade restoration fills should consist of structural fill comprised of well graded, free draining sand and gravel with less than 5% fines (percent passing the #200 sieve). Structural fill should be placed and compacted in maximum 300mm loose lifts with each lift compacted to at least 95% Modified Proctor density (MPD). Walk behind plate tamper compactors should be used to compact structural fill within 1m of foundation walls to avoid excessive build up of lateral earth stresses against the walls. The lift thickness in these areas should typically be reduced to 200mm (8"). For confined areas, structural fill placed under the structure should extend horizontally beyond by a distance equal to at least the thickness of structural fill. Unconfined fills should typically extend horizontally by a distance equal to 2 times the thickness of structural fill.

Density testing should be carried out during fill placement on a regular basis to confirm adequacy of compaction, and the results forwarded to Braun Geotechnical for review. Braun Geotechnical should also be contacted to review fill quality, and placement and compaction procedures.

5.5 Foundation Design

Foundations for the proposed structure may be supported on the underlying natural very dense till-like soils and/or structural fills placed thereon. The following soil resistance (bearing) values may be adopted for foundation design:

Foundation Subgrade	Limit States Design		Working Stress Design
	Factored Ultimate Bearing (ULS)	Serviceability Limit State (SLS)	Allowable Bearing Pressure DL+LL
Natural Dense/ Very Dense TILL-LIKE Soils	450 kPa (9400 psf)	300 kPa (6250 psf)	300 kPa (6250 psf)
Compacted Structural Fill	180 kPa (3750 psf)	120 kPa (2500 psf)	120 kPa (2500 psf)

Note: Larger bearing values may be feasible for specific foundation configurations, and can be reviewed upon request.

The design pressures assume the following:

- Strip and pad footings have minimum widths of 450 mm (18") and 600 mm (24"), respectively.
- All load-bearing surfaces are reviewed by the Geotechnical Engineer.
- Foundation bearing surfaces are no higher than 2H:1V (horizontal to vertical) from the base or toe of adjacent foundation elements and no higher than 1H:1V from the base or toe of sumps, utility structures, or other buried structures.

3



Geotechnical Exploration Report
Proposed Anmore Civic Building - 2697 Sunnyside Road, Anmore, BC

April 24, 2020
Project # 20-8546

and interbeds of glaciolacustrine laminated stony silt. The findings of the geotechnical exploration were generally consistent with the published geological information.

The results of the test hole exploration are provided on the attached test hole logs. Please refer to the test hole logs for detailed subsurface conditions encountered. A generalized subsoil profile based on the test holes is provided below.

FILL ORGANICS

All test holes encountered variable FILL ORGANICS to depths of approximately 0.3 to 0.9m. This zone included sand and/or gravel with variable silt and organics content. Asphalt was also encountered at surface and below surface at some locations.

Compact silty SAND

Brown, damp, compact, silty SAND with trace gravel was encountered below the fill/ organics within TH20-01 & -02 to depths of 0.9 & 0.6m, respectively.

Very dense silty SAND/TILL (H&F)

Grey, damp, dense to very dense, silty SAND to SAND with some silt, with some gravel and occasional inferred cobbles was encountered below within the test holes to the depths of exploration/ refusal at 1.5 to 5.6m.

GROUNDWATER

Groundwater seepage was not encountered within the test holes at the time and to the depths of exploration.

The subsurface conditions described above were encountered at the test hole locations only. Subsurface conditions at other locations could vary.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 General

Exploration test holes generally encountered overburden soils comprising organics/ fills underlain by compact sand/ silty sand, over natural dense to very dense soils at a relatively shallow depth. It is considered that the footings for the proposed structure can be placed on the underlying dense to very dense soils following removal of overburden materials.

5.2 Foundation Excavation

For the proposed structure, temporary unsupported excavation slope cuts may be feasible where space permits, or suitable support systems (shoring) should be provided. It is anticipated that the excavation could be kept free of any standing water using conventional pumping pumps.

It is anticipated that unsupported excavation cuts could be sloped 1H:1V (Horizontal to Vertical) in fill and overburden materials and 1H:2V in the underlying very dense till-like soils. Flatter slopes may be required if poor soil conditions or seepage is encountered. All cut slopes should be covered with poly plastic sheeting held securely in place at the crest and toe of slopes, for moisture control and erosion protection.

The underlying natural soils may contain large boulders which may be encountered during site preparation activities. Large boulders could require additional excavation measures such as blasting.

2



Geotechnical Exploration Report
Proposed Anmore Civic Building - 2697 Sunnyside Road, Anmore, BC

April 24, 2020
Project # 20-8546

- Silty subgrade areas are protected immediately after exposure.
- Footings should be founded at least 12" (300mm) below finished adjacent grade for confinement.

5.6 Seismic Considerations

The BC Building Code classifies a site as Site Class C where the subgrade soils in the upper 30m consist of "very dense soil and soft rock" with average SPT N values greater than 50 and average undrained shear strength (τ_u) greater than 100 kPa. Available subsurface information indicates that very dense soils are present below a relatively shallow depth, corresponding to Site Class C.

The subgrade soil conditions are not considered susceptible to seismically induced liquefaction.

5.7 Horizontal Wall Pressures

Foundation walls retaining backfill may be designed for lateral pressures as indicated on the attached Horizontal Wall Loading Diagram (Dwg. 20-8546-02). The lateral earth pressures provided assume active soil conditions and horizontal drained backfill behind the foundation walls.

5.8 Slab on Grade

The slab on grade should be underlain by a drainage layer comprising a minimum 100mm (4") thick layer of well-graded 19mm (3/4") clear, crushed gravel. This drainage layer should have a suitable discharge to the permanent storm system. If desirable, polyethylene sheeting may also be provided beneath the slab to reduce potential for slab dampness.

Compaction testing should be carried out on underlain fills to confirm that all fill placed below the building has been compacted to at least 95% MPD.

5.9 Drainage and Backfill

Perimeter drainage should consist of perforated 150 mm (6") PVC pipe, placed around the building perimeter, with the invert elevation at footing level. The perimeter drain should be surrounded by at least 150 mm (6") of 19mm (3/4") clear crushed gravel. A 150 mm (6") thick layer of birdseye gravel should be placed over the clear crushed gravel to act as a filter layer. Perimeter drains should also be provided adjacent to any steps in the foundation walls.

Backfill placed around perimeter foundation walls should consist of free-draining granular material such as sand or sand and gravel with less than 5% fines. The material should be compacted to at least 95% MPD for its full depth.

6.0 GEOTECHNICAL FIELD REVIEW

Geotechnical field reviews are required by the Geotechnical Engineer of Record and to satisfy the requirements of the Letters of Professional Assurance required for the Building Permit. Field reviews are essential to confirm that the recommendations of the geotechnical report are understood and followed.

Geotechnical field reviews should be arranged by the Contractor to address the following:

- Excavation slope cut stability and shoring system installation (if applicable);
- Removal of unsuitable materials below the building footprint;
- Suitability of exposed footing subgrade;
- Review and density testing of structural fills;
- Review and density testing of perimeter fill.

7.0 CLOSURE

This report is prepared for the exclusive use of Village of Anmore and their designated representatives and may not be used by other parties without the written permission of Braun Geotechnical Ltd.

4



If the development plans change, or if during construction soil conditions are noted to be different from those described in this report, Braun Geotechnical should be notified immediately in order that the geotechnical recommendations can be confirmed or modified, if required. Further, this report assumes that field reviews will be completed by Braun Geotechnical during construction.

The site Contractor should make their own assessment of subsurface conditions and select the construction means and methods most appropriate to the site conditions.

This report should not be included in the specifications without suitable qualifications approved by the geotechnical engineer.

The use of this assessment report is subject to the conditions on the attached Report Interpretation and Limitations sheet. The reader's attention is drawn specifically to those conditions, as it is considered essential that they be followed for proper use and interpretation of this report.

We hope the above meets with your requirements. Should any questions arise, please do not hesitate to contact the undersigned.

Yours truly,

Braun Geotechnical Ltd.

Braun Geotechnical Ltd.

J. Vivekanandan

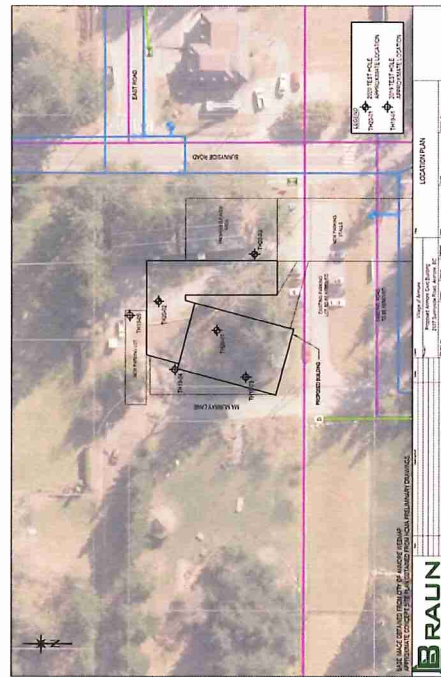
S. Singh
 17/04/2020

Euraj Vivekanandan, EIT,
 Geotechnical Engineer

Sonny Singh, P.Eng
 Geotechnical Engineer

Encl: Report Interpretation and Limitations
 Location Plan
 Test Hole Logs
 Retention Wall Loading Diagram

5



Arborist's Report



ARBORIST REPORT

28 July 2020

PROJECT: ANMORE_CIVIC BUILDING
VDZ PROJECT# DP2017-60
SITE ADDRESS: 2697 Sunnyside Rd., 2690 E Rd.,
Sunnyside Rd./Ravenwood Dr.,
Sunnyside Rd./E Rd.,
Anmore, BC V3H 5G9
PREPARED FOR: Johnston Davidson Architecture
#301 877 E. Hastings
Vancouver, BC
V6A 3Y1
SITE REVIEW DATE(s): May 15th, May 19th May 20th
2020
PROJECT ARBORISTS: Kelly Koome
ISA Certified Arborist PN 5962A
ISA Tree Risk Assessment
Qualified
Certified Wildlife Dangerous
Tree Assessor, P2546
Sarah Bishop
ISA Member
Certified Wildlife Dangerous
Tree Assessor, P2515

ORIGINAL REPORT July 28th, 2020 – S.B.

004 002 0034

JOHN DAVIDSON
122-10000 100-10000
100-10000 100-10000

www.vdz.ca

Anmore Civic Building ARBORIST REPORT
Johnston Davidson Architecture

2 of 41

BACKGROUND

VDZ + A Consulting Inc. (VDZ) was contracted by Johnston Davidson Architecture to prepare an ISA Certified Arborist Tree Report for the properties at 2697 Sunnyside Rd., 2690 E Rd., Sunnyside Rd./Ravenwood Dr., Sunnyside Rd./E Rd. in Anmore, BC.

ASSIGNMENT

VDZ + A Consulting Inc. have been retained by the client to assess the tree(s) at 2697 Sunnyside Rd., 2690 E Rd., Sunnyside Rd./Ravenwood Dr., Sunnyside Rd./E Rd. in Anmore, BC and prepare a tree inventory report. Project Arborist, Sarah Bishop, performed 3 site reviews entailing identification and visual assessment of the tree(s). The scope of the tree inventory is based on 158 trees bounded by a professional land survey provided by the client (Murray & Associates, File 10447-02 C3D, 4/15/2020). Project Arborists, Kelly Koome and Sarah Bishop, have provided recommendations for the retention or removal of tree(s) on this site based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

LIMITS OF THE ASSIGNMENT

The Project Arborists' observations are limited to three site visits on May 15th, 19th, and 20th in 2020. No tissue or soil samples were sent to a lab for identification or analysis. van der Zalm + Associates located the trees using the tree survey provided.

On-site and off-site trees were assessed using a Level 2 assessment. According to the ANSI Tree Risk Assessment Standards, a Level 1 assessment is

a limited visual assessment of an individual tree or population of trees. It can be performed as a "drive-by" assessment.

Whereas Level 2 assessment entails a 360-degree visual evaluation of a tree where the crown, trunk, trunk flare, above-ground roots, and site conditions are evaluated in regard to potential targets. The VDZ Arborists also used mallet sounding to test the trees' health, condition and risk level where deemed appropriate.

PURPOSE AND USE OF REPORT

The purpose of this report is to assist the property owner in compliance with the Village of Anmore Tree Management Bylaw No. 430-2007 and Amendments No. 469-2009 & No. 478-2009.

Anmore Civic Building ARBORIST REPORT
Johnston Davidson Architecture

3 of 41

INTRODUCTION.....	3
BACKGROUND.....	3
ASSIGNMENT.....	3
LIMITATIONS OF ASSIGNMENT.....	3
TESTING & ANALYSIS.....	3
PURPOSE & USE OF REPORT.....	3
SITE DESCRIPTION.....	4-5
SITE REVIEW.....	4
PROPOSED DEVELOPMENT.....	5
ENVIRONMENTAL DESCRIPTION.....	5
TREE PRESERVATION SUMMARY.....	5
ARBORIST SIGNATURES.....	5
TREE ASSESSMENT.....	6-29
REPLACEMENT TREE SUMMARY.....	29

APPENDICES

APPENDIX A – PHOTOS.....	30
APPENDIX B – TREE PROTECTION.....	35
APPENDIX C – GLOSSARY.....	37
APPENDIX D – REFERENCES AND LIMITATIONS.....	40
APPENDIX E – TREE MANAGEMENT PLAN.....	41

INTRODUCTION

SITE REVIEW

SITE DESCRIPTION

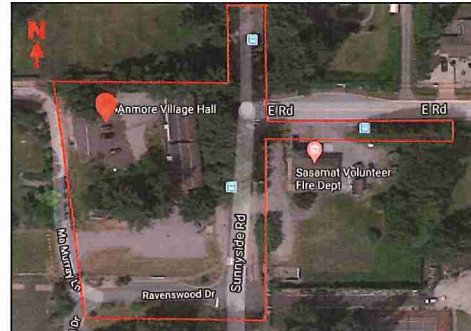


FIG. 1 – AERIAL VIEW OF PROPERTY AND SCOPE OF TREE SURVEY/INVENTORY (GOOGLE, 2020)

PROPOSED SITE DEVELOPMENT

The development of a new civic building.

ENVIRONMENTAL DESCRIPTION

The site contains the existing city hall, employee and visitor parking lots; boulevards along Ravenswood Drive, Sunnyside Road, and E Road. The lots today have a variety of established native and non-native tree species, both coniferous and deciduous.

There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 15 – August 15 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with the Village) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

Anmore Civic Building ARBORIST REPORT
Johnston Davidson Architecture

4 of 41

SITE DESCRIPTION



TREE PRESERVATION SUMMARY

All the Trees identified on the Tree Management Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details. Long term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed. Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success.

This report's content was performed and managed by:

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ISA Tree Risk Assessment Qualified
Certified Wildlife Dangerous Tree Assessor, P2546
Koome Urban Forestry Ltd.

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Any questions or concerns as to the contents of this report please direct them to the following:

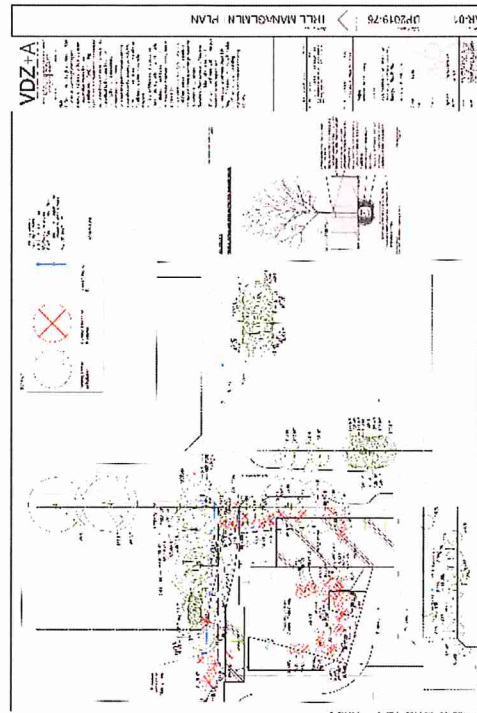
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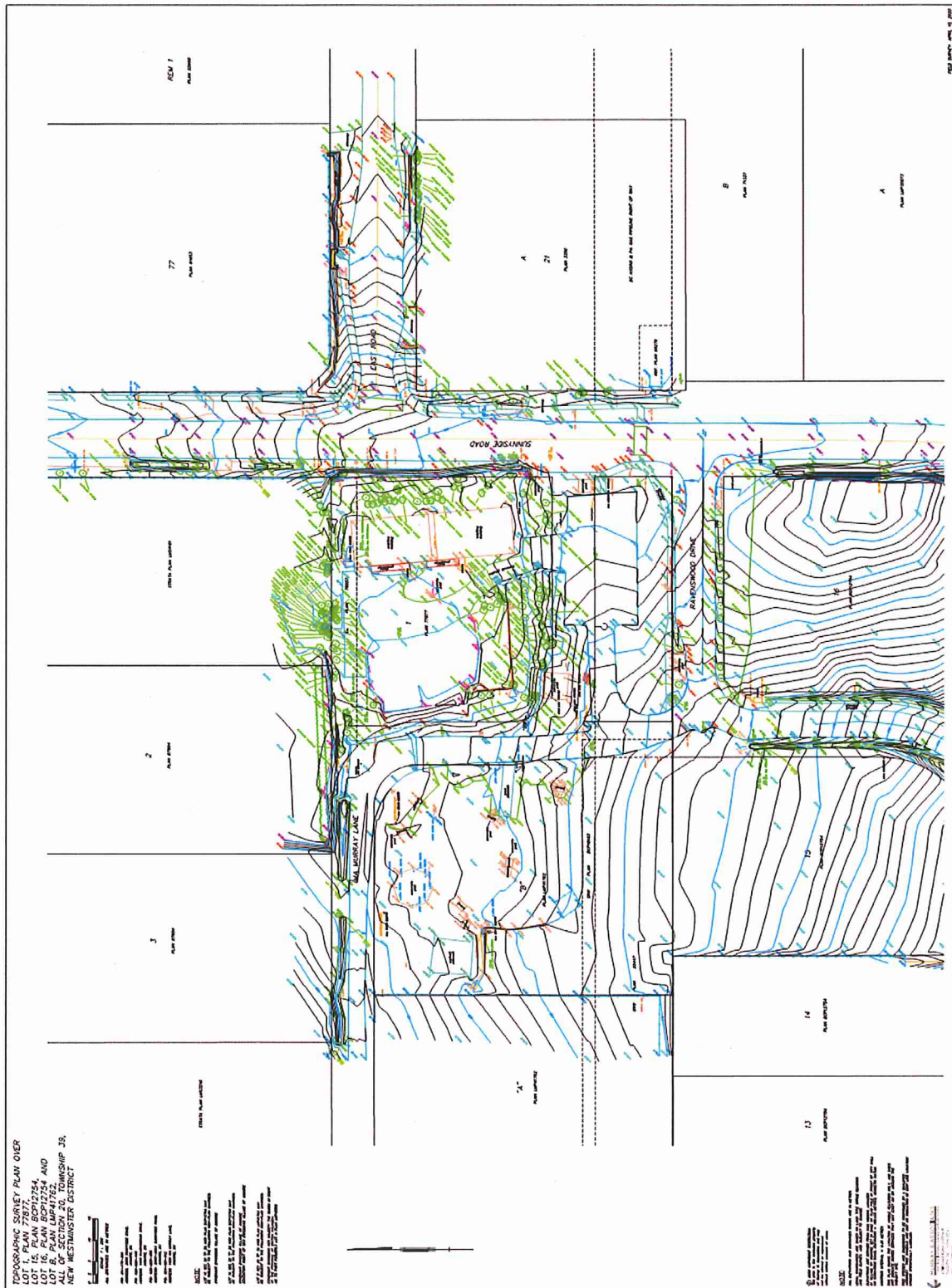
Anmore Civic Building ARBORIST REPORT

Johnston Davidson Architecture

5 of 41



Site Survey



Part 6 – Owner’s Wish List

In light of the design decisions that were required to be made in order to bring the project into range of the approved budget, various elements were required to be eliminated and/or deferred as future improvement project(s). While significant care and consideration has been given to ensure that the previously considered programming exercise was respected, the following are on a short list of items to be re-introduced to this project (should budget allow) or be considered as a top priority in the future:

1. Operable Partition. Proposed to separate the Community Rooms, this partition will be able to fold away to allow for one single large space, or be pulled out define two separate user spaces or simply reduce the size of the overall Community Room for smaller functions. Allowances are being made in the current design to provide structural support of an operable partition, as well as through the provision of an alcove to fold the partition up and out of sight when not required.
2. Glass Awning at Concession. While a generous roof overhang is provided, and additional weather protection is provided by cantilevering the main floor structure, it may be desirable to provide a more significant canopy to protect from the elements.
3. Landscaping. In the effort to reduce construction costs, this item has been assigned tentatively as a community project. As this is not an insignificant scope of work, it is desirable to re-introduce it as a part of this project if the budget permits.
4. Large Wrap-Around Deck Structure. Originally, a more significant exterior deck/plaza area had been proposed off of the two Community Rooms. With significant reduction to construction costs required to keep the project feasible, the deck/plaza area was required to be significantly reduced in area. This element remains to some extent, but a desire remains to see it returned to its original size if possible.