

# Staff Report to Council

Engineering Department

FILE: 02-0810-03/19

**DATE:** July 24, 2019 **Date of Meeting –** July 30, 2019

**TO:** Mayor and Council

**FROM:** Steve Ahluwalia, Manager of Engineering Projects

**SUBJECT:** Fire Hall Conceptual Designs

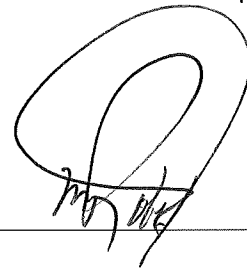
---

**RECOMMENDATION(S):** THAT Council:

- A. Direct staff to proceed with the detailed design and tender for the temporary fire hall; AND
- B. Direct staff to proceed with the detailed design of the new fire hall based upon the conceptual design outlined in Attachment A of the July 24, 2019 Staff Report ('Fire Hall Conceptual Designs'), which includes an Emergency Operations Centre, underground parking and additional space to accommodate future demands, and incorporate feedback received at the July 30th, 2019 Council meeting; AND
- C. Direct staff to coordinate a community information session in September/October 2019; OR
- D. Other.

**CHIEF ADMINISTRATIVE OFFICER COMMENT/RECOMMENDATION:**

---



**PURPOSE**

To provide Council with an update on the fire hall replacement project and to seek feedback on the conceptual designs for the permanent and temporary fire hall sites. Feedback will be considered as the design team moves into the detailed design phase and the detailed design of the new fire hall will be presented back to Council near the end of 2019.

Information Report                       Direction Report                       Decision Report

## **DISCUSSION**

### **Background:**

In 2017, a Spatial Analysis and Feasibility Study of the existing Fire Hall was undertaken. It was found that the building had reached its end of service life, was significantly undersized and required upgrades for seismic, building, and code compliance. The existing Fire Hall is 6,600 square feet on a 0.63acre site. The consultant recommended building a new facility of approximately 21,000 square feet with consideration of relocating the Fire Hall to a larger site (1.5 acres or more).

In December 2017, Council directed staff to investigate potential site options for a relocation of the Fire Hall. Staff identified 12 potential sites, which were slowly reduced to a few viable options over a year long period. Following further analysis and unsuccessful negotiations, all the potential sites were deemed inappropriate due to one or more of the following factors:

- Increased response times
- Size
- Flood plain proximity and associated costs to elevate to the required construction level
- Community impacts
- Access/egress issues
- Cost of the land
- Nearby conflicting uses
- Availability
- Lease issues with existing telecommunications tower

In February 2019, Council directed staff to proceed with plans for replacement of the Fire Hall at the existing site. Staff explored options for the temporary location during construction, including existing civic properties and leasing of other facilities. The gravel and grass civic property to the west of the Pitt Meadows Family Recreation Centre was deemed most appropriate because it is City-owned land, an adequate size, and located centrally for emergency responses.

In April 2019, the consulting work for the new Fire Hall and temporary site was awarded to Johnston Davidson Architecture. The conceptual design phase has been ongoing for the past three months. Staff were asked to review the potential of including a full Emergency Operations Centre (EOC) within the new building. Based upon the needs of the Fire Department, the EOC and to accommodate future needs, it was determined that the building would need to be approximately 26,000 square feet, plus underground parking.

The original budget for the Fire Hall Replacement project was developed in 2016 for a total of \$10M, which included the following:

- \$25,000 for the feasibility study in 2017
- \$750,000 for the design in 2018/2019
- \$9,225,000 for construction in 2020/2021

The original budget was a high-level projection based on similar construction projects. The fire hall location, need for a temporary site, size requirements and detailed scope was not known at that time.

### **Analysis:**

#### Permanent Fire Hall Site

Due to the size constraints of the existing fire hall site, the design needed to consider vertical expansion. During the conceptual design, six options for the building layout were explored. The preferred option was determined to be a three storey building with a portion of the office and training space built over the apparatus bays. Site plans for this option are outlined in Attachment A.

This is the preferred concept for the following reasons:

- Ensures adequate space for future demands (50 year lifespan)
- The building massing is limited to three levels, which fits better with the adjacent developments while still meeting the operational space requirements.
- The apparatus bays are strategically aligned with 192B Street to allow for the safe maneuvering of the vehicles into the bays and improved visibility along 122A Avenue.
- The layout accommodates approximately 21 surface level parking spaces, plus additional underground parking. Surface level parking is essential for quick operational response. Ideally, 30 or more spaces would be desired; however, this is not achievable with the size of the site.
- The layout allows for quick operational responses as the parking and building are located adjacent to the apparatus bays.

The existing telecommunications tower is not currently captured in the conceptual design. Staff intend to engage a radio engineering specialist to assist with this scope. The City has active agreements with the users of the tower and staff are currently discussing the project with the users.

The next best option was a four storey building with no portion of the building over the apparatus bays. This option was not considered further because a four storey building would not fit the building fabric of the neighborhood and the estimated costs were within 5% of the preferred option. Select plans for this option are outlined in Attachment B.

Temporary Fire Hall Site

A temporary fire hall site will be required during the construction of the new building. The gravel and grass area to the west of the Pitt Meadows Family Recreation Centre was deemed most appropriate given the options available. Four layout options were explored and the preferred option positioned the apparatus bays side-by-side at the south end of the lot, closest to 119B Avenue. Site plans are outlined in Attachment C.

The preferred temporary fire hall layout includes:

- Office trailers directly adjacent to the apparatus bays to allow for quick responses during an emergency.
- The front of the apparatus bays and trailers face away from the developments to the west and north in an effort to minimize the impact of noise and light.
- The site layout provides adequate parking for the Fire Department during emergencies.

Other layout options were considered; however, this layout mitigated operational needs and reduced the impacts to neighboring sites.

Project Timeline

The anticipated project timeline is dependent on the feedback received from Council and the community, as well as, discussions with the tower use groups. Staff will explore scope reductions which may slightly add to the detailed design timeline, but reduce the overall project cost. High-level project milestones are outlined in the table below.

Date	Activity
August 2019 - February 2020	Conceptual design revisions and detailed design
September - October 2019	Community Information Session
November 2019	Tender of the temporary fire hall design
December 2019 - January 2020	Present detailed design of new fire hall to Council
January - March 2020	Construction of temporary fire hall
March - April 2020	Tender of fire hall design
April 2020	Occupancy of temporary fire hall
May 2020 - May 2022	Construction of new fire hall
June - August 2022	Occupancy of new fire hall and demobilize temporary hall

**COUNCIL STRATEGIC PLAN ALIGNMENT**

- Corporate Excellence       Economic Prosperity       Community Livability  
 Transportation & Infrastructure       Not Applicable



Endorsement of the preferred conceptual design is a crucial step in order to proceed with the detailed design. The final design and construction will meet or exceed today's standards and will make the City better structured to meet the community's needs.

---

**FINANCIAL IMPLICATIONS**

None       Budget Previously Approved     Other     Referral to Business Planning

The original \$10M budget was a high-level placeholder in 2016 based on similar construction projects. The scope of work and operational requirements were not known. The \$10M budget is already accounted for in the 5 year business plan.

There have been a number of changes since the original budget was developed:

- The existing Fire Hall site was selected for the new building. This requires a temporary Fire Hall be built to maintain operations during the construction of the new Fire Hall. This option still costs significantly less than the purchase of additional properties, especially if they are located within the floodplain.
- A full Emergency Operations Centre was added to the scope of the new building.
- Underground parking was added to meet the operational needs of the Fire Department, the EOC and the public.
- The space requirements were increased in order to accommodate future demands as the building is intended to have a lifespan of 50 or more years.

As the project is in the conceptual stage, only a high-level order of magnitude cost estimate can be provided. The range of estimated project costs, including the scope of work mentioned above, is between \$13.2M and \$14.9M.

As the design progresses, the specific scope of work will be defined and a more detailed cost estimate will be provided. Staff will also be reviewing potential scope reduction measures and grant opportunities, including exploring grant opportunities for the EOC.

The increase in budget can be accommodated in the 2020 business plan by utilizing reserves and without tax implications to residents by reprioritizing other capital projects.

---

**PUBLIC PARTICIPATION**

Inform       Consult       Involve       Collaborate       Empower

Comment:

Initial discussions have occurred with stakeholders directly impacted by the location of the temporary fire hall. In September/October 2019, staff will coordinate a community information session to inform residents of the proposed designs. The comments will be documented and considered during the detail design.

---

**KATZIE FIRST NATION CONSIDERATIONS**

Referral     Yes     No

---

**SIGN-OFFS**

**Written by:**

S. Ahluwalia, Manager of Engineering Projects

**Reviewed by:**

S. Maki, Director of Engineering & Operations

---

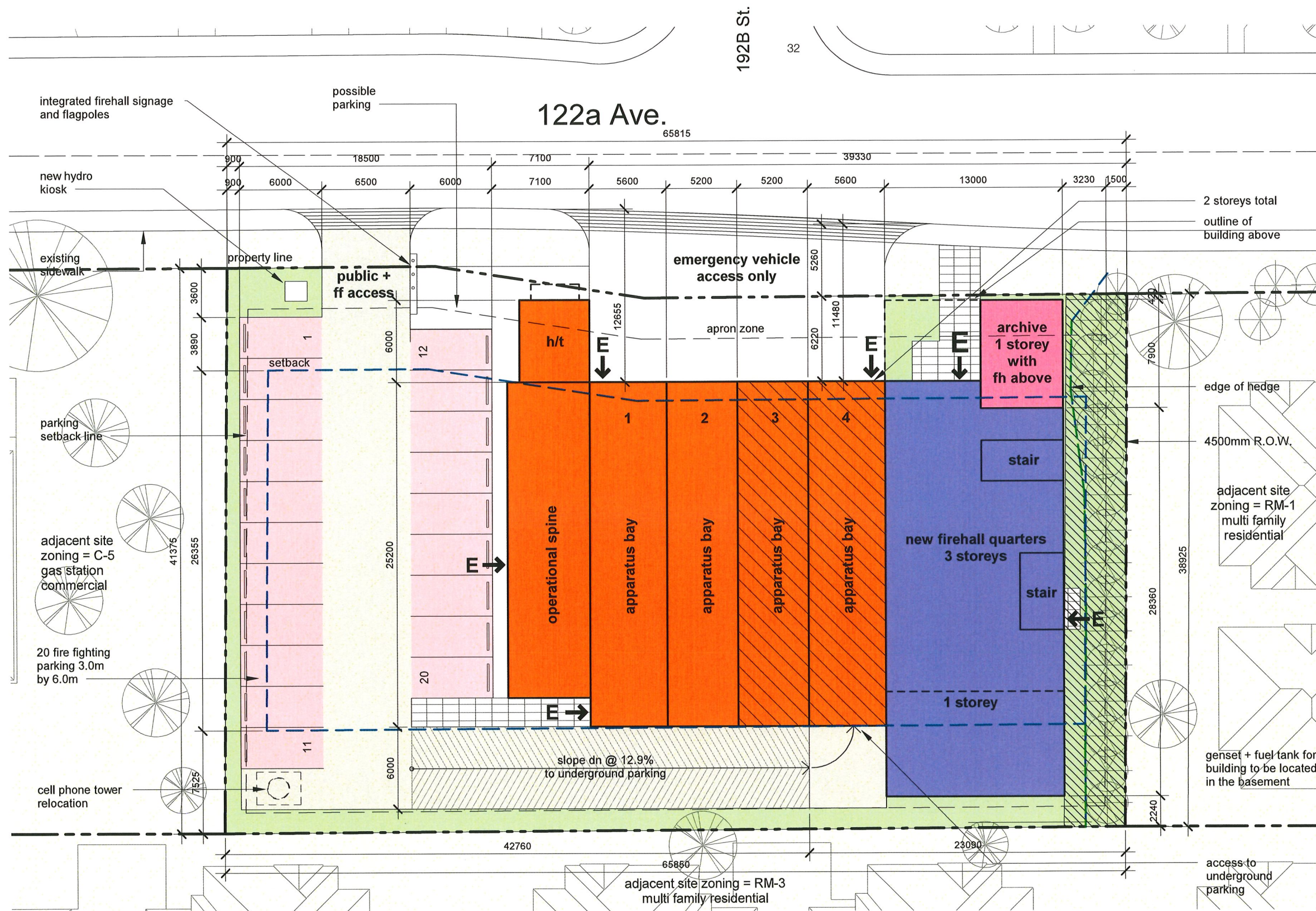
**ATTACHMENT(S):**

- A. Preferred Fire Hall Conceptual Design – Option 2
- B. Fire Hall Conceptual Design – Option 1
- C. Preferred Temporary Fire Hall Conceptual Design





All rights reserved. These drawings, CAD and/ or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.



SITE LEGEND:			
	APPARATUS BAYS + HOSE TOWER + OPERATIONAL SPACES		CONCRETE PAVERS
	NEW ARCHIVE		ASPHALT
	NEW FIREHALL QUARTERS		GRAVEL
	CONCRETE		AUTO EX ZONE
	SERVICE R.O.W.		NEW LANDSCAPING
	NEW CHAIN LINK FENCE		POWER POLE
	NEW ARCH. FENCE		FIRE DEPARTMENT CONNECT
	PROPERTY LINE		SETBACK
	PARKING SETBACK		

BUILDING AREAS:		
	APPARATUS BAYS + H/T + OPERATIONAL	= 689.5 m <sup>2</sup> (7,421.7 ft <sup>2</sup> )
	NEW FH QUARTERS	= 1396.3 m <sup>2</sup> (15,029.7 ft <sup>2</sup> )
	NEW ARCHIVE	= 47.4 m <sup>2</sup> (510.2 ft <sup>2</sup> )

**design development**

City of Pitt Meadows

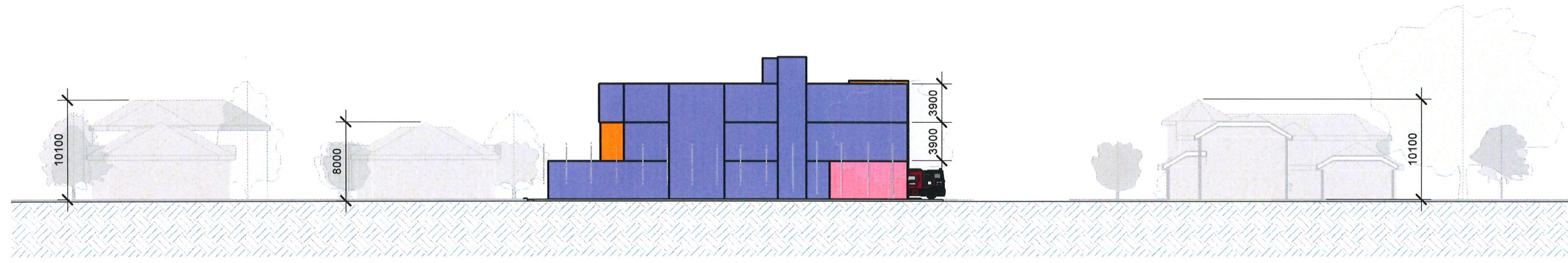
*Pitt Meadows Fire Hall*

**option 2 - site plan**

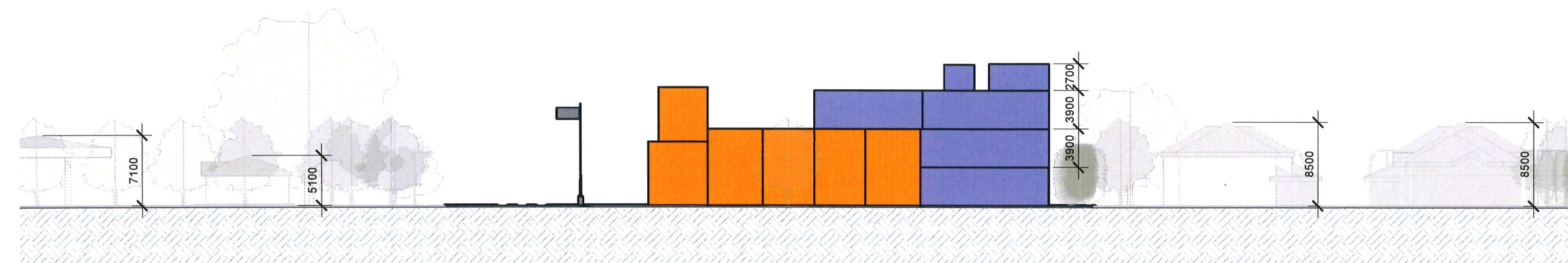
1:300  
19 - july - 16



All rights reserved. These drawings, CAD and/ or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.



1 option 2 site section - north / south  
 scale - 1 : 500

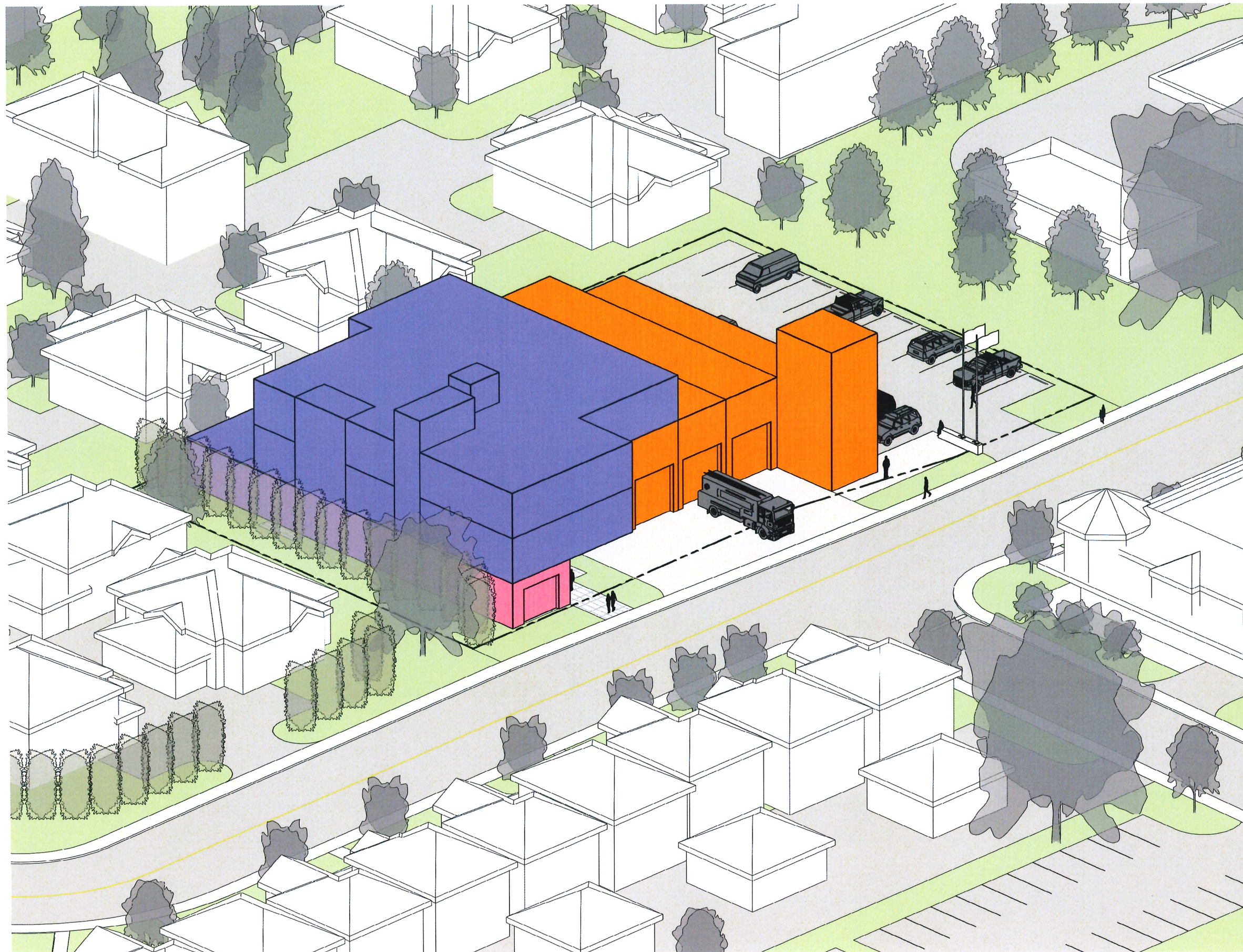


2 option 2 site section - east / west  
 scale - 1 : 500

**design development**  
 City of Pitt Meadows  
*Pitt Meadows Fire Hall*  
**option 2 - site section**

1:500  
 19 - july - 16





**design development**

City of Pitt Meadows

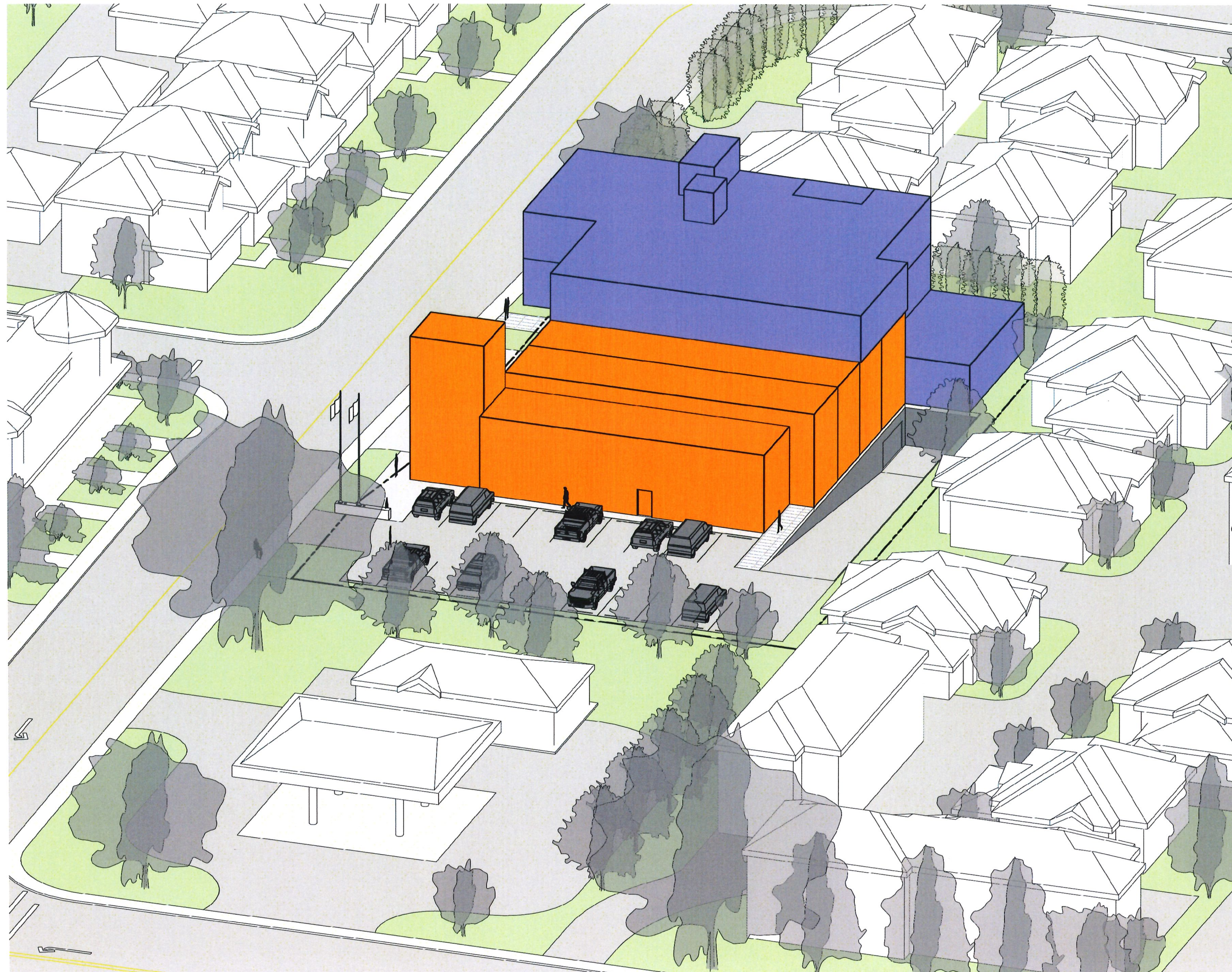
*Pitt Meadows Fire Hall*

**option 2 - NE massing**

1:300

19 - july - 16





All rights reserved. These drawings, CAD and/ or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.

**design development**

City of Pitt Meadows

*Pitt Meadows Fire Hall*

**option 2 - SW massing**

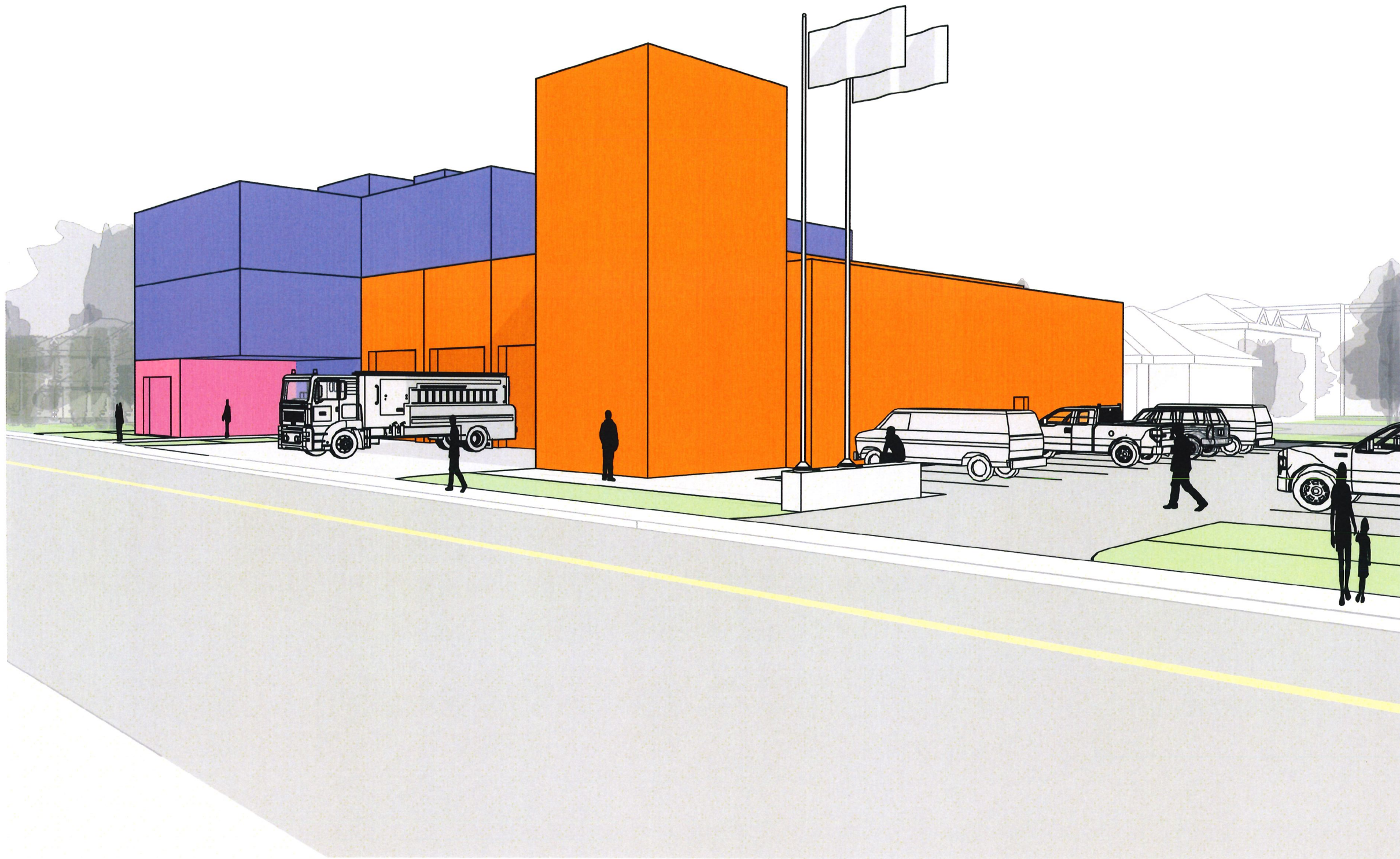
1:300

19 - july - 16





All rights reserved. These drawings, CAD and/ or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.



**design development**

City of Pitt Meadows

*Pitt Meadows Fire Hall*

**option 2 - perspective**

n.t.s.

19 - july - 16

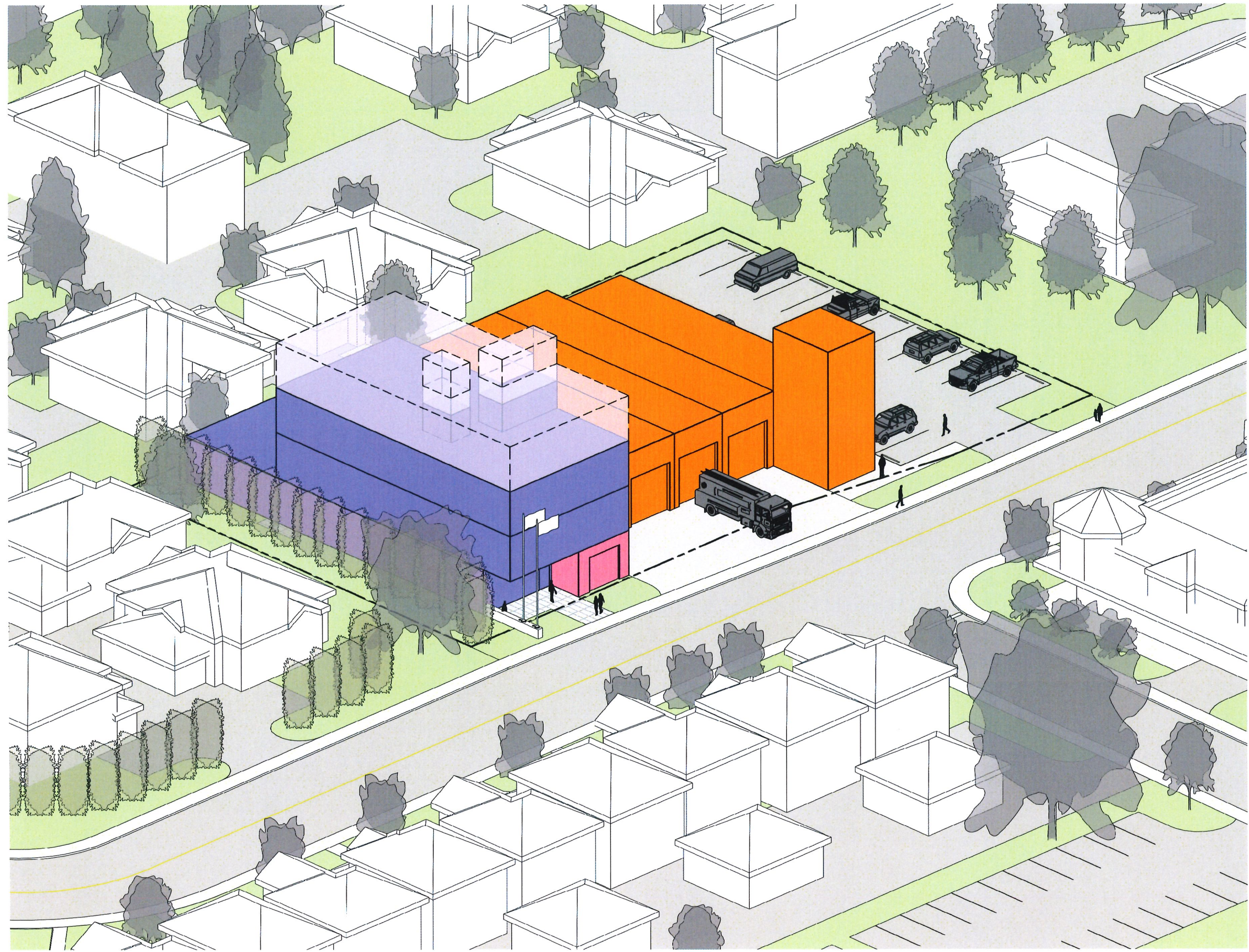


Johnston Davidson

ARCHITECTURE + PLANNING INC.



All rights reserved. These drawings, CAD and/or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.



**design development**

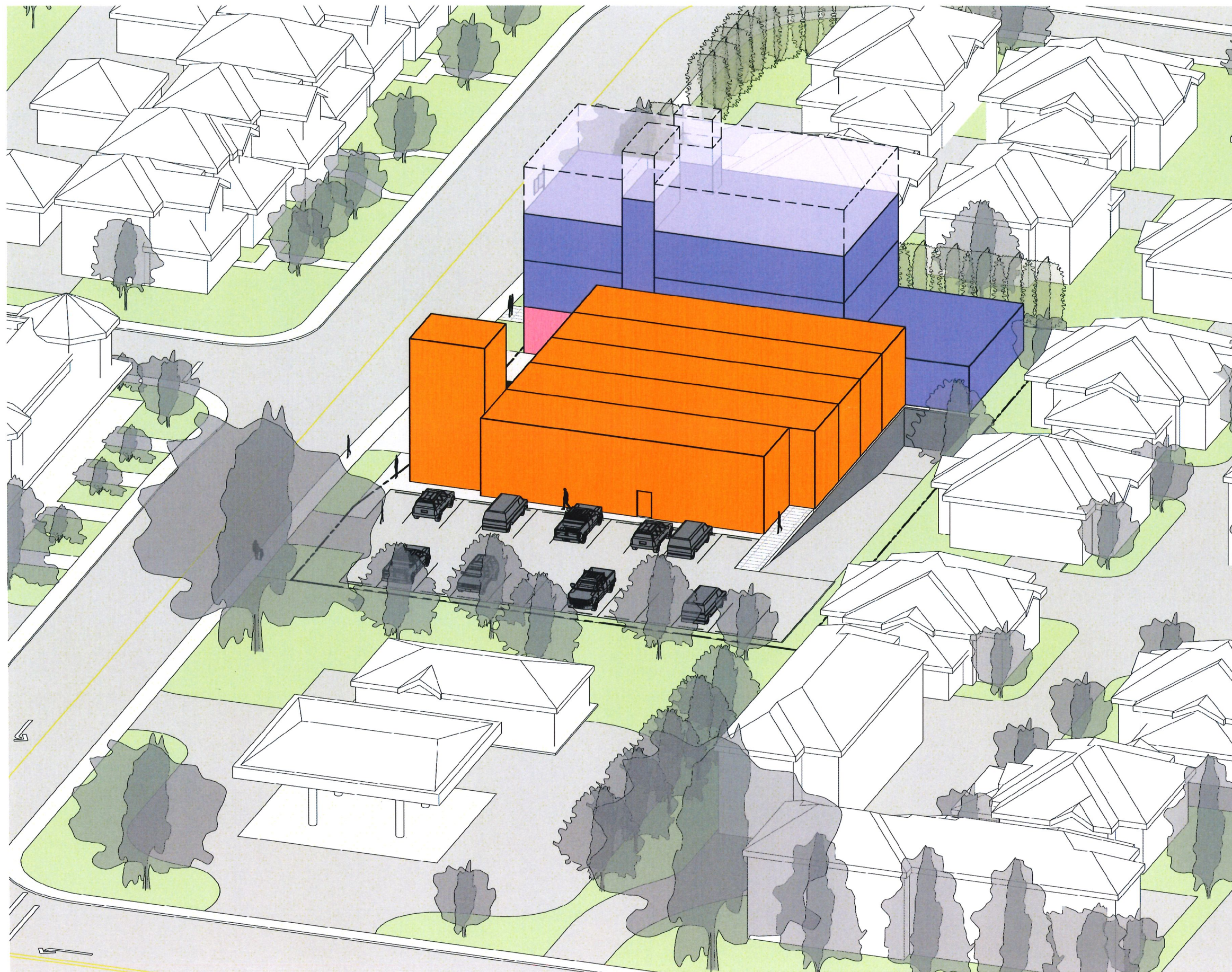
City of Pitt Meadows

*Pitt Meadows Fire Hall*

**option 1 - NE massing**

1:300  
19 - july - 16





**design development**

City of Pitt Meadows

*Pitt Meadows Fire Hall*

**option 1 - SW massing**

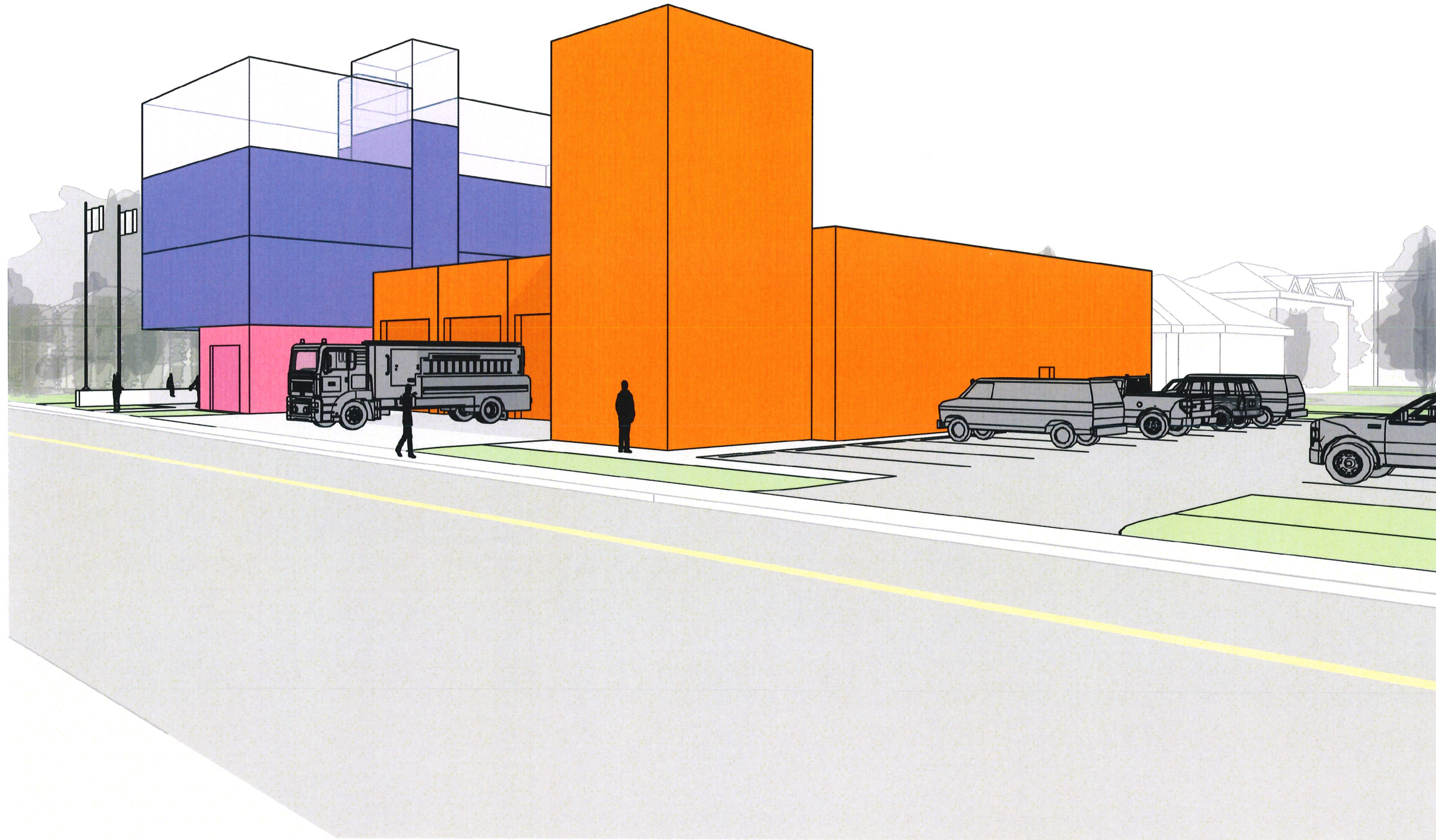
1:300

19 - july - 16





All rights reserved. These drawings, CAD and/ or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.



**design development**

City of Pitt Meadows

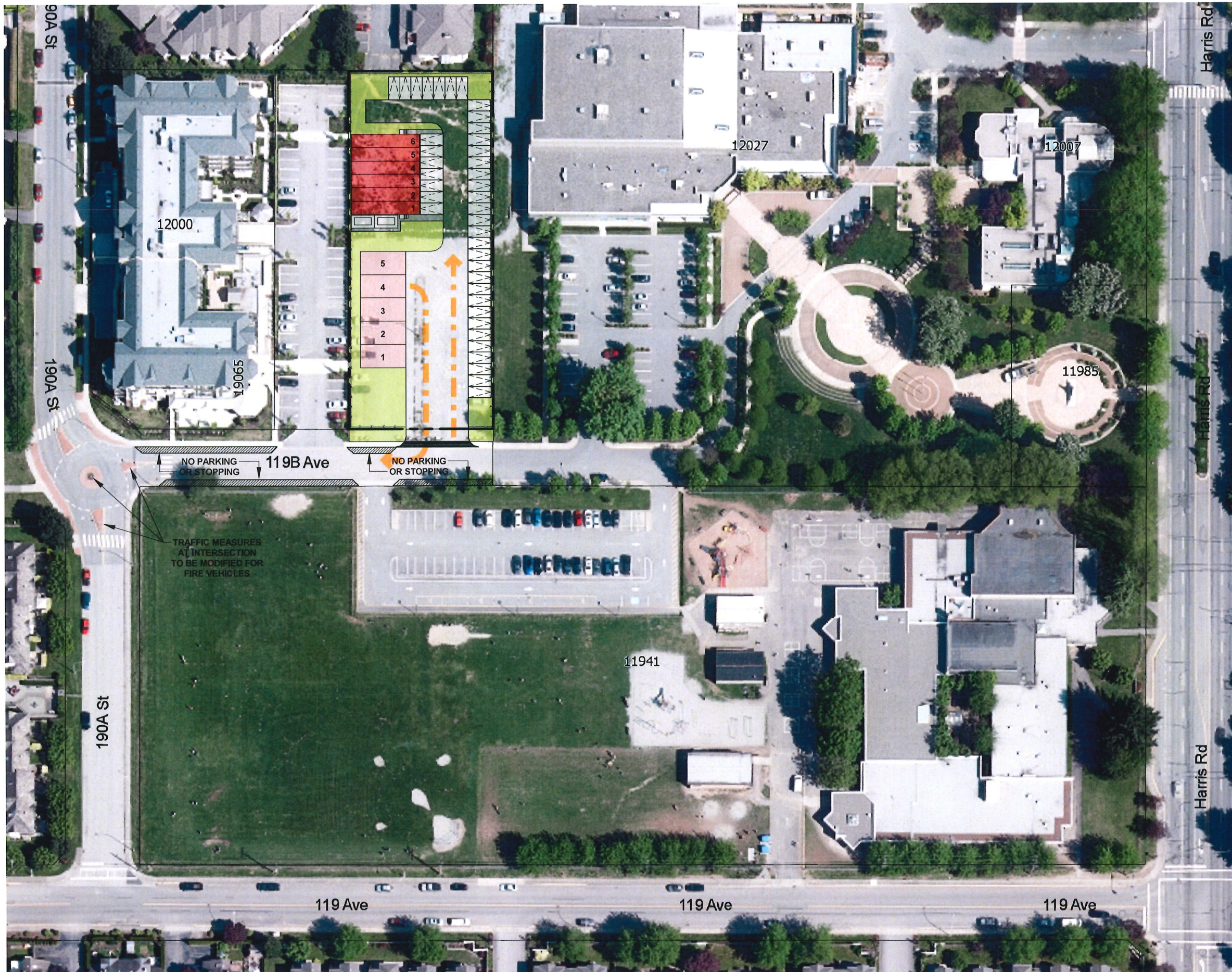
*Pitt Meadows Fire Hall*

**option 1 - perspective**

n.t.s.

19 - july - 16





All rights reserved. These drawings, CAD and/or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.



**design development**

City of Pitt Meadows

*PMFH - Temp FH*

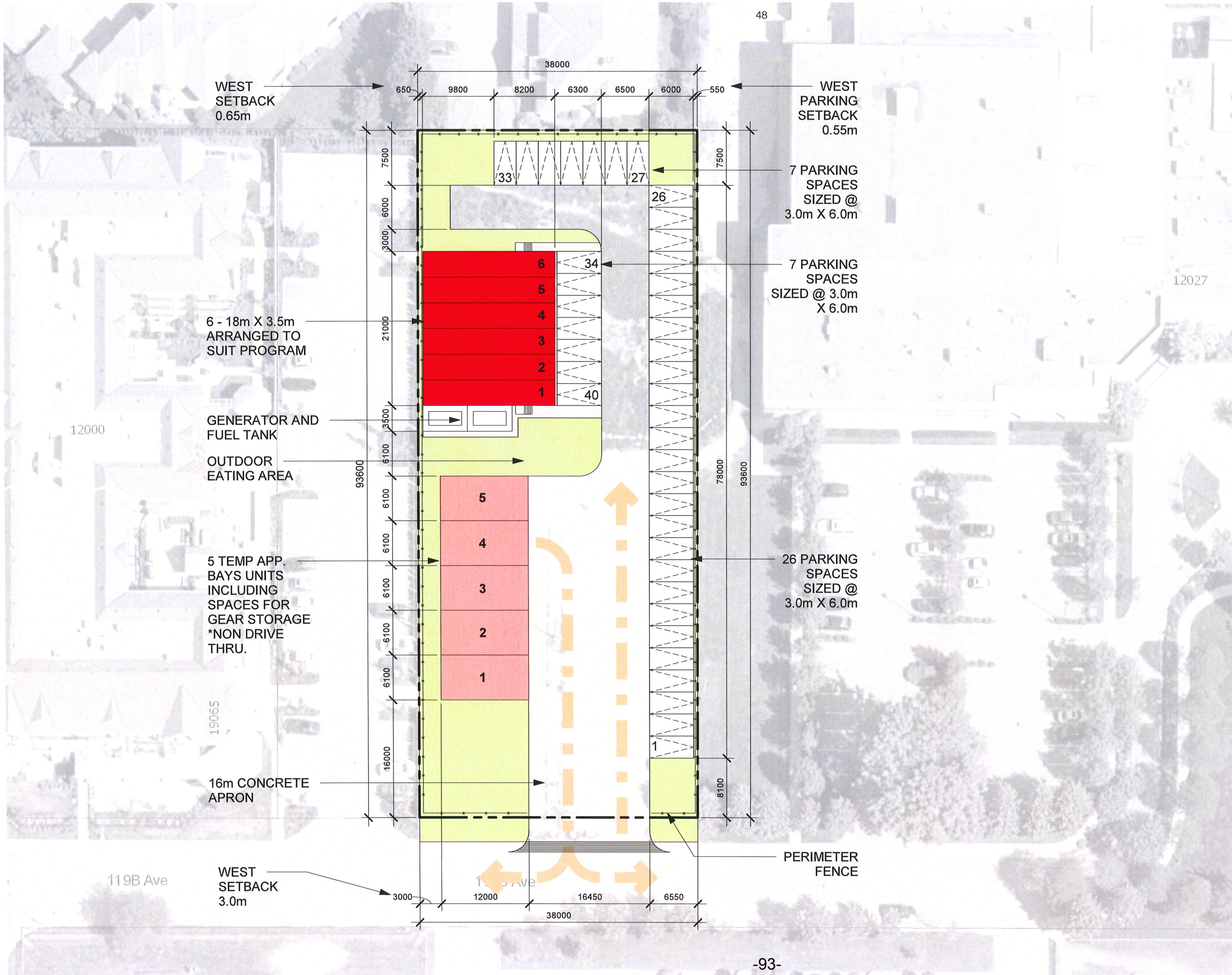
**temp fh - apparatus routes**

1:1000

19 - june - 11



All rights reserved. These drawings, CAD and/ or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.



**design development**

City of Pitt Meadows  
 PMFH - Temp FH

**temp fh - option 4C**

1:500  
 19 - june - 11

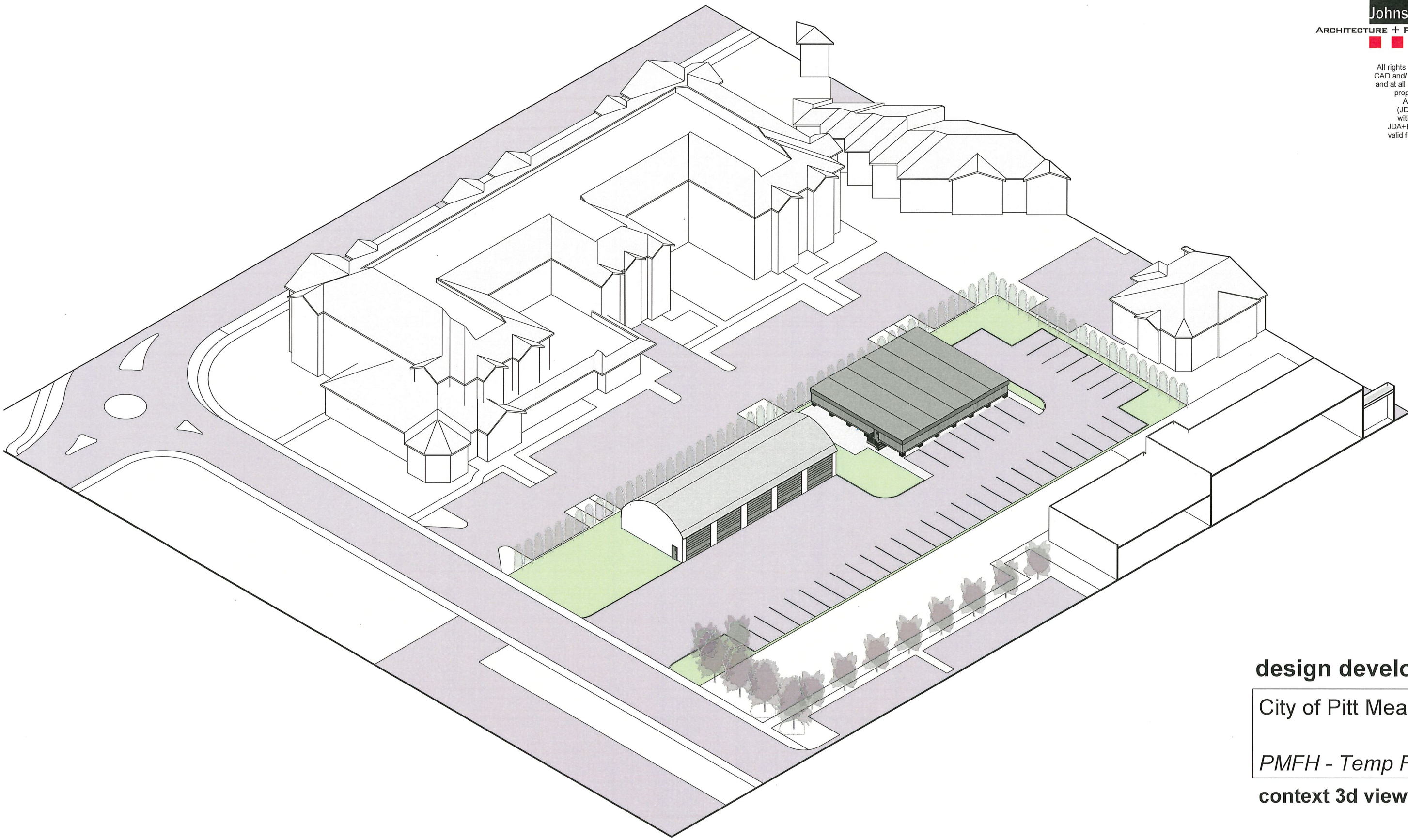


Johnston Davidson

ARCHITECTURE + PLANNING INC.



All rights reserved. These drawings, CAD and/ or Revit files or design are and at all times remain the exclusive property of Johnston Davidson Architecture + Planning Inc. (JDA+P), and cannot be used without the written consent of JDA+P. These drawings are not valid for construction without the seal of the Architects.



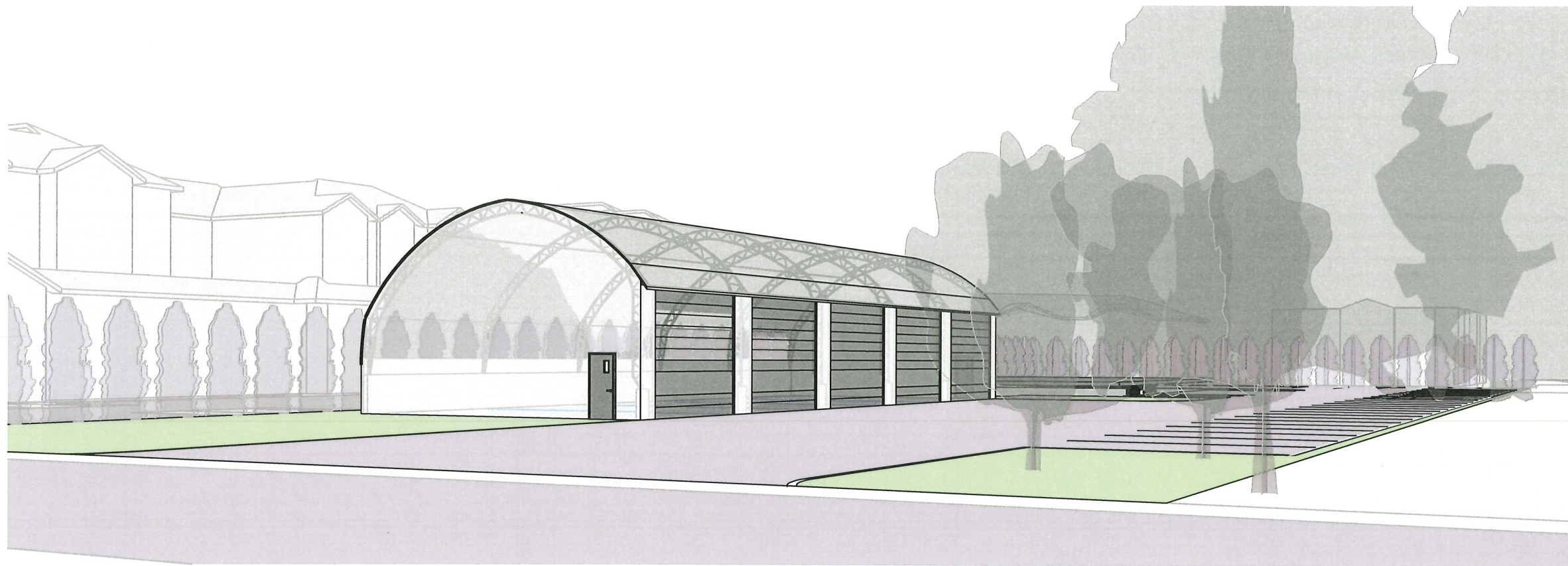
**design development**

City of Pitt Meadows

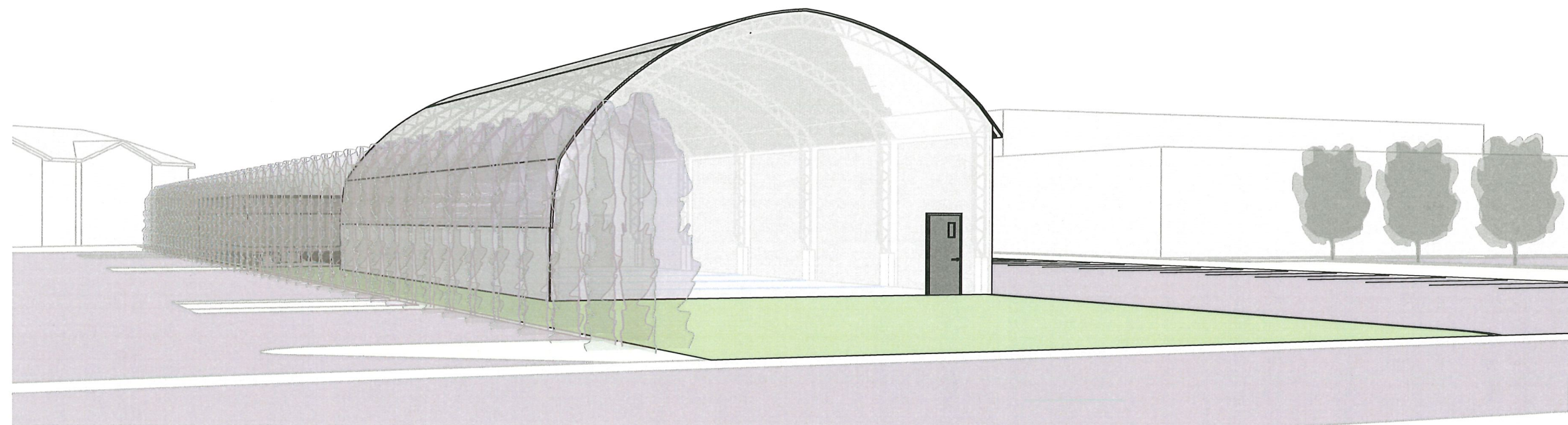
*PMFH - Temp FH*

**context 3d view**





1 south east street perspective



2 south west street perspective

**design development**

City of Pitt Meadows

*PMFH - Temp FH*

**3d street perspective**