

1. June 26, 2023 - Council Agenda And Correspondence

Documents:

[2023 06 26 REGULAR COUNCIL AGENDA.PDF](#)
[2023 06 26 INFORMATIONAL CORRESPONDENCE.PDF](#)

2. DRAFT Bylaw 4293 - Subdivision And Development Servicing Bylaw

Documents:

[BYLAW 4293 - COMPLETE \(DRAFT\) WEBSITE.PDF](#)



AGENDA

City of Salmon Arm Regular Council Meeting

Monday, June 26, 2023
1:00 p.m.

[Public Session Begins at 2:30 p.m.]
Council Chambers of City Hall
500 – 2 Avenue NE
Salmon Arm, BC

Electronic Meeting Link: <https://meet.goto.com/931301501>
Phone Access: Canada: +1(647) 497-9373 / Access Code: 931-301-501

Page #	Item #	Description
	1.	CALL TO ORDER
1-2	2.	IN-CAMERA SESSION
	3.	ACKNOWLEDGEMENT OF TRADITIONAL TERRITORY <i>We acknowledge that we are gathering here on the traditional territory of the Secwepemc people, with whom we share these lands and where we live and work together.</i>
	4.	ADOPTION OF AGENDA
	5.	DISCLOSURE OF INTEREST
	6.	CONFIRMATION OF MINUTES
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	7.	COMMITTEE REPORTS
19-22	1.	Development and Planning Services Committee Meeting Minutes of June 19, 2023
	8.	COLUMBIA SHUSWAP REGIONAL DISTRICT UPDATE
23-26	1.	CSRD Connect – Board Meeting Highlights – June 2023
	9.	STAFF REPORTS
27-28	1.	Director of Corporate Services – 2022 Annual Report
29-32	2.	Chief Financial Officer – 2024/2025 RCMP Funding (2024 Budget)
33-36	3.	Chief Financial Officer – Moneris Merchant Agreement – Parking Meter Card Acceptance
37-54	4.	Senior Planner – Proposed Strata Conversion of a Previously Occupied Building; 31 – 4 Street SE

- | | | |
|---------|------------|---|
| 55-68 | 5. | Fire Chief – Fire Hall #2 – Architectural Services Award |
| 69-72 | 6. | Director of Engineering & Public Works – Budget Amendment – Danger Trees |
| 73-78 | 7. | Director of Engineering & Public Works – BC Hydro Electrical Vehicle Charging Station – Hudson Parking Lot – License of Occupation |
| 79-84 | 8. | Chief Administrative Officer – Active Transportation Advisory Committee |
| 85-88 | 9. | Chief Administrative Officer – Environmental Advisory Committee – Citizen at Large Membership Appointment and Option to Add Alternate |
| 89-92 | 10. | Chief Administrative Officer – Federation of Canadian Municipalities – Proposal to Host a Board Meeting |
| | 10. | INTRODUCTION OF BYLAWS |
| 93-104 | 1. | City of Salmon Arm Zoning Amendment Bylaw No. 4568 [ZON-1258; Klatt, S. & A./Green Emerald Construction Inc.; 5131 75 Avenue NE; R-1 to R-8] – First and Second Reading |
| 105-116 | 2. | City of Salmon Arm Zoning Amendment Bylaw No. 4594 [ZON-1263; City of Salmon Arm; 341-361 Fraser Avenue NW; M-2 to CD-20] – First and Second Reading |
| | 11. | RECONSIDERATION OF BYLAWS |
| 117-120 | 1. | City of Salmon Arm Fee for Service Amendment Bylaw No. 4592 [Parking Violations] – Final Reading |
| 121-124 | 2. | City of Salmon Arm Subdivision and Development Servicing Bylaw No. 4293 – Third and Final Reading |
| | 12. | CORRESPONDENCE |
| 125-126 | 1. | Informational Correspondence |
| | 13. | NEW BUSINESS |
| | 14. | PRESENTATIONS |
| 127-128 | 1. | Presentation 4:00 – 4:15 (approximately)
Barry Healey, CEO Canada, The Swim Academy - Open Water Races and Swim Run Event |
| | 15. | COUNCIL STATEMENTS |
| | 16. | SALMON ARM SECONDARY YOUTH COUNCIL |
| | 17. | NOTICE OF MOTION |
| | 18. | UNFINISHED BUSINESS AND DEFERRED / TABLED ITEMS |
| | 19. | OTHER BUSINESS |
| 129-136 | 1. | Structural Assessment of Old Municipal Hall – 31 Hudson Avenue NE |

20. QUESTION AND ANSWER PERIOD

7:00 p.m.

Page #	Item #	Description
	21.	DISCLOSURE OF INTEREST
	22.	HEARINGS
137-156	1.	Development Variance Permit Application No. VP-582 [Brentwell Construction Ltd./Crevier, L. & S.; 31 4 Street SE; Off-Street Parking Spaces]
	23.	STATUTORY PUBLIC HEARINGS
157-170	1.	Zoning Amendment Application No. ZON-1269 [City of Salmon Arm; Text Amendment; Accessible Parking Regulations]
171-172	2.	Zoning Amendment Application No. ZON-1264 [Brentwell Construction Ltd./Crevier, L. & S.; 31 4 Street SE; Text Amendment; Addition to Definitions and to R-5 (High Density Residential Zone)] <i>See Staff Report in Item 22.1</i>
	24.	RECONSIDERATION OF BYLAWS
173-176	1.	City of Salmon Arm Zoning Amendment Bylaw No. 4590 [ZON-1269; City of Salmon Arm; Text Amendment; Accessible Parking Regulations] - Third Reading
177-180	2.	City of Salmon Arm Zoning Amendment Bylaw No. 4579 [ZON-1264; Brentwell Construction Ltd./Crevier, L. & S.; 31 4 Street SE; Text Amendment; Addition to Definitions and to R-5 (High Density Residential Zone)] - Third Reading
	25.	QUESTION AND ANSWER PERIOD
181-182	26.	ADJOURNMENT

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Item 2

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor Flynn

Seconded: Councillor Lavery

THAT: pursuant to Section 90(1)(d) the security of the property of the municipality; (e) the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality; (f) law enforcement, if the council considers that disclosure could reasonably be expected to harm the conduct of an investigation under or enforcement of an enactment; (l) discussions with municipal officers and employees respecting municipal objectives; measures and progress reports for the purposes of preparing an annual report under section 98; (2)(b) the consideration of information received and held on confidence relating to negotiations between the municipality and a provincial government or the federal government or both, or between a provincial government or the federal government or both and a third party; of the *Community Charter*, Council move In-Camera.

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Item 6.1

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor Gonella

Seconded: Councillor Lindgren

THAT: the Regular Council Meeting Minutes of June 12, 2023, be adopted as circulated.

REGULAR COUNCIL

Minutes of a Regular Meeting of Council of the City of Salmon Arm held in the Council Chambers of City Hall 500 - 2 Avenue NE and by electronic means, at 1:30 p.m. and reconvened at 2:30 p.m. on Monday, June 12, 2023.

PRESENT:

Mayor A. Harrison
Councillor K. Flynn
Councillor T. Lavery (participated remotely)
Councillor L. Wallace Richmond
Councillor D. Gonella
Councillor D. Cannon
Councillor S. Lindgren

Chief Administration Officer E. Jackson
Director of Corporate Services S. Wood
Director of Engineering & Public Works R. Niewenhuizen
Director of Planning & Community Services G. Buxton
Chief Financial Officer C. Van de Cappelle
Planner, C. Larson
Planner, M. Smyrl
Service Delivery Management Coordinator, J. Wilson
Deputy Corporate Officer R. West

ABSENT:

1. CALL TO ORDER

Mayor Harrison called the meeting to order at 1:30 p.m.

2. IN-CAMERA SESSION

0272-2023

Moved: Councillor Lindgren
Seconded: Councillor Wallace Richmond
THAT: pursuant to Section 90(1)(a) personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the municipality or another position appointed by the municipality; (c) labour relations or other employee relations; (d) the security of the property of the municipality; (g) litigation or potential litigation affecting the municipality (4 items); (2)(b) the consideration of information received and held in confidence relating to negotiations between the municipality and a provincial government or the federal government or both, or between a provincial government or the federal government or both and a third party; of the *Community Charter*, Council move In-Camera.

CARRIED UNANIMOUSLY

Council moved In-Camera at 1:30 p.m.
Council returned to Regular Session at 2:24 p.m.
Council recessed until 2:30 p.m.

3. ACKNOWLEDGEMENT OF TRADITIONAL TERRITORY

Mayor Harrison read the following statement: "We acknowledge that we are gathering here on the traditional territory of the Secwepemc people, with whom we share these lands and where we live and work together."

4. REVIEW OF AGENDA

- Late Item – 9.8 – Appointment of a Bylaw Officer
- Late Item – 18.1 – McGuire Lake Pathway Lighting
- Remove Item 9.7 – Environmental Advisory Committee – Citizen at Large Membership Appointment

5. DISCLOSURE OF INTEREST

Councillor Gonella declared a conflict of interest with Item 9.1, 12.1.6, 12.1.7, 12.1.11 and 12.1.12 as he is an employee of the Salmon Arm Folk Music Society.

Councillor Flynn declared a conflict of interest with Item 12.1.12 as the applicant is a client of his firm.

Councillor Wallace Richmond declared a conflict with Item 14.1 as her company has business relations with Shuswap Tourism.

6. CONFIRMATION OF MINUTES

1. Regular Council Meeting Minutes of May 23, 2023

0273-2023

Moved: Councillor Lavery

Seconded: Councillor Cannon

THAT: the Regular Council Meeting Minutes of May 23, 2023, be adopted as circulated.

CARRIED UNANIMOUSLY

2. Special Council Meeting Minutes of June 1, 2023

0274-2023

Moved: Councillor Gonella

Seconded: Councillor Flynn

THAT: the Special Council Meeting Minutes of June 1, 2023, be adopted as circulated.

CARRIED UNANIMOUSLY

7. COMMITTEE REPORTS

1. Development and Planning Services Committee Meeting Minutes of June 5, 2023

0275-2023

Moved: Councillor Wallace Richmond

Seconded: Councillor Lavery

THAT: the Development and Planning Services Committee Meeting Minutes of June 5, 2023 be received as information.

CARRIED UNANIMOUSLY

8. COLUMBIA SHUSWAP REGIONAL DISTRICT UPDATE1. CSRD Connect – May 2023

For information.

Councillor Gonella declared a conflict and left the meeting at 2:43 p.m.

9. STAFF REPORTS1. Manager of Permits & Licensing – Licensing of Special Events on City Property - 2023

0276-2023

Moved: Councillor Lindgren

Seconded: Councillor Wallace Richmond

THAT: the Council of the City of Salmon Arm authorize the use of City lands for the following Special Events Licenses in 2023:

1. Salmon Arm Folk Music Society (Roots and Blues)
Location: 471 – 10 Street SW (Fall Fair Grounds)
Four (4) Alcohol Serving Areas and Hours of Licensed Operation:

Main Beverage Garden and Tasting Lounge (patron area)	August 18: 3:00 p.m. to 12:30 a.m. August 19: 10:00 a.m. to 12:30 a.m. August 20: 10:00 a.m. to 12:30 a.m.
Barn Beverage Garden (patron area)	August 18: 3:00 p.m. to 12:30 a.m. August 19: 10:00 a.m. to 12:30 a.m. August 20: 10:00 a.m. to 12:30 a.m.
VIP Lounge (private access area)	August 18: 3:00 p.m. to 12:30 a.m. August 19: 10:00 a.m. to 12:30 a.m. August 20: 10:00 a.m. to 12:30 a.m.
Volunteer Party (private access area)	August 20 to 21: 10:00 p.m. to 3:00 a.m.

2. Salmon Arm and Shuswap Lake Agricultural Association (Fall Fair)
Location: 471 – 10 Street SW (Fall Fair Grounds)
Hours of Licensed Operation:

- September 8: 11:00 a.m. to 9:00 p.m.
- September 9: 11:00 a.m. to 9:00 p.m.
- September 10: 11:00 a.m. to 4:00 p.m.

CARRIED UNANIMOUSLY

Councillor Gonella returned to the meeting at 2:45 p.m.

2. Director of Planning & Community Services – UBCM Complete Communities Grant Program

0277-2023

Moved: Councillor Lavery

Seconded: Councillor Cannon

THAT: City staff be authorized to submit a grant application to the UBCM Complete Communities 2023/2024 Program up to an amount of \$150,000.00;

9. STAFF REPORTS – continued

2. Director of Planning & Community Services – UBCM Complete Communities Grant Program

AND THAT: the 2023 budget contained in the 2023-2027 Financial Plan Bylaw be amended to reflect a Complete Communities Assessment in the amount of \$150,000, funded from a UBCM Complete Communities Grant.

CARRIED UNANIMOUSLY

3. Director of Planning & Community Services – Official Community Plan Bylaw No. 4000 Review

0278-2023

Moved: Councillor Flynn

Seconded: Councillor Cannon

THAT: Council accept the Project Charter for the Official Community Plan review identified as Attachment #1 to the staff report dated June 2, 2023;

AND THAT: Council direct the issuance of a RFP for Official Community Plan public engagement services.

Amendment:

Moved: Councillor Wallace Richmond

Seconded: Councillor Gonella

THAT: the Official Community Plan Steering Committee membership be amended to combine the Shuswap Family Resource and Referral Society and the Shuswap Association for Community Living into one (1) member and add one (1) member from the District Arts Council.

CARRIED UNANIMOUSLY

Motion as Amended:

CARRIED UNANIMOUSLY

4. Director of Engineering & Public Works – Annual Transit Operating Agreement

0279-2023

Moved: Councillor Wallace Richmond

Seconded: Councillor Cannon

THAT: the Mayor and Corporate Officer be authorized to execute the 2023/2024 Annual Operating Agreement for Transit Services between the City of Salmon Arm and BC Transit.

CARRIED UNANIMOUSLY

9. STAFF REPORTS – continued

5. Director of Engineering & Public Works – Supply of Bulk Aviation Fuels and Related Delivery Services

0280-2023

Moved: Councillor Wallace Richmond

Seconded: Councillor Flynn

THAT: Council accept the proposal from PetroValue Products Canada Inc. at their quoted unit prices for the Supply of Bulk Aviation Fuels and Related Delivery Services for a term of three (3) years commencing July 1, 2023.

CARRIED UNANIMOUSLY

6. Director of Engineering & Public Works – Zone 2 Pump Station Design – Budget Amendment

0281-2023

Moved: Councillor Lavery

Seconded: Councillor Cannon

THAT: the 2023 Budget contained in the 2023 – 2027 Financial Plan be amended to reallocate \$23,500.00 additional funding to the Zone 2 Pump Station Design, funded from the 10 Avenue SE (30 – 33 Street SE) Upgrade;

AND THAT: Council approve the award of the Zone 2 Pump Station 100% Design to WSP Canada Inc. for the total estimated price of \$21,049.00 plus taxes as applicable.

CARRIED UNANIMOUSLY

8. Manager of Permits and Licensing – Appointment of a Bylaw Officer

0282-2023

Moved: Councillor Cannon

Seconded: Councillor Wallace Richmond

THAT: Debbie Wood be appointed as Bylaw Enforcement Officer, in accordance with Section 36 of the Police Act;

AND THAT: such appointment be for the term of her contractual employment as Bylaw Enforcement Officer for the City of Salmon Arm.

CARRIED UNANIMOUSLY

10. INTRODUCTION OF BYLAWS

1. City of Salmon Arm Zoning Amendment Bylaw No. 4579 [ZON-1264; Brentwell Construction Ltd./Crevier, L. & S.; 31 4 Street SE; Text Amendment; Addition to Definitions and to R-5 (High Density Residential Zone)] – First and Second Reading

0283-2023

Moved: Councillor Lindgren

Seconded: Councillor Flynn

THAT: the Bylaw entitled City of Salmon Arm Zoning Amendment Bylaw No. 4579 be read a first and second time.

CARRIED UNANIMOUSLY

10. INTRODUCTION OF BYLAWS - continued

2. City of Salmon Arm Zoning Amendment Bylaw No. 4590 [ZON-1269; City of Salmon Arm; Text Amendment; Accessible Parking Regulations] – First and Second Reading

0284-2023 Moved: Councillor Wallace Richmond
 Seconded: Councillor Cannon
 THAT: the Bylaw entitled City of Salmon Arm Zoning Amendment Bylaw No. 4590 be read a first and second time.

CARRIED UNANIMOUSLY

3. City of Salmon Arm Fee for Service Amendment Bylaw No. 4592 [Parking Violations] – First, Second and Third Reading

0285-2023 Moved: Councillor Lavery
 Seconded: Councillor Lindgren
 THAT: the Bylaw entitled City of Salmon Arm Fee for Service Amendment Bylaw No. 4592 be read a first, second and third time.

CARRIED UNANIMOUSLY

4. City of Salmon Arm Subdivision and Development Servicing Bylaw No. 4293 - First and Second Reading

0286-2023 Moved: Councillor Lindgren
 Seconded: Councillor Gonella
 THAT: the Bylaw entitled City of Salmon Arm Subdivision and Development Servicing Bylaw No. 4293 be read a first and second time.

CARRIED UNANIMOUSLY

11. RECONSIDERATION OF BYLAWS

The meeting recessed at 4:08 p.m.

The meeting reconvened at 4:15 p.m.

Councillor Wallace Richmond declared a conflict and left the meeting at 4:15 p.m.

14. PRESENTATIONS

1. M. Matheson, Shuswap Tourism & Film Commission Annual Update

M. Matheson, Team Leader and Stephanie Goodey, Tourism Marketing Coordinator, Shuswap Tourism & Film Commission, provided an overview of the 2022 Shuswap Tourism Annual Review and were available to answer questions from Council.

Councillor Wallace Richmond returned to the meeting at 4:47 p.m.

2. Isha Matous-Gibbs, Urban Matters – Poverty Reduction Grant

I. Matous-Gibbs, Urban Matters, provided an overview of the Poverty Reduction Grant and was available to answer questions from Council.

12. CORRESPONDENCE

1. Informational Correspondence

Councillors Flynn and Gonella declared a conflict and left the meeting at 5:14 p.m.

12. S. Dhaliwal, President, Salmon Arm Cricket Club – Letter received June 5, 2023 – Request for installation support of cement under pad for Cricket Playing Field

0287-2023

Moved: Councillor Cannon
Seconded: Councillor Wallace Richmond
THAT: Council allocate up to \$7,066.00 from COVID-19 Safe Restart Grant Reserve for the installation of a cement under pad for the Cricket Pitch at the Downtown Fields, subject to entering into a maintenance agreement.

CARRIED UNANIMOUSLY

Councillor Flynn returned to the meeting at 5:25 p.m.

6. T. Starkell, Administrative Services Manager, Salmon Arm Roots and Blues – Letter dated May 15, 2023 – Request for Letter of Support for SEP Application

0288-2023

Moved: Councillor Cannon
Seconded: Councillor Flynn
THAT: Council provide a letter of support recognizing the ROOTS and BLUES Festival as a regionally significant cultural event in support of their Special Event Permit application to the Liquor and Cannabis Regulation Branch.

CARRIED UNANIMOUSLY

7. J. Broadwell, Manager, Downtown Salmon Arm – Request to Close Alexander Street for Roots and Blues Kick Off Concert – August 17, 2023

0289-2023

Moved: Councillor Cannon
Seconded: Councillor Flynn
THAT: Council authorize the closure of the 300 block of Alexander Street (from Hudson Street to Lakeshore Road) on Thursday, August 17, 2023 from 3:00 p.m. to 10:00 p.m. for the 2023 Roots and Blues Kick-Off Concert, subject to the provision of adequate liability insurance.

CARRIED UNANIMOUSLY

11. J. McEwan, Salmon Arm Fair Manager – Letter dated May 18, 2023 – Request for road closures for Salmon Arm Fair & Parade – September 9, 2023

0290-2023

Moved: Councillor Cannon
Seconded: Councillor Wallace Richmond
THAT: Council authorize the Salmon Arm Fall Fair Committee to hold the annual Salmon Arm Fair Parade on Saturday, September 9, 2023 from approximately 10:15 a.m. to 12:30 p.m. with the permission to close roadways to non-parade traffic and with the request for various assistance as follows:

- closure of 5 St SW between Blackburn Park and the fair grounds;

12. CORRESPONDENCE - continued1. Informational Correspondence11. J. McEwan, Salmon Arm Fair Manager – Letter dated May 18, 2023 – Request for road closures for Salmon Arm Fair & Parade – September 9, 2023

- closure of 5 Ave from 10 St SW to 5 St SW South Lane only from Linden Court;
- closure of 10 Ave SW from Shuswap St to 5 St SW ending at Blackburn Park. North side lane to allow float organization and letting East Bound traffic through. Parade marshaling will begin at 7:00 a.m.;
- permission to have the use of traffic barriers dropped at the designated street corners;
- permission to borrow traffic signs, hi vis vests, and directional paddles for the volunteers who will be directing traffic at the intersections;

AND THAT: the following be authorized for the Salmon Arm Fall Fair:

- closure of 5 Ave from 3 St SW to 5 St SW from 8:00 a.m. on Thursday, September 7, 2023 to 5:00 p.m. on September 10, 2023 to assist in safety and fair preparation and tear down;
- five (5) road barriers be placed at each of the corners of 3 St SW and 5 Ave SW and the corner of 5 St SW and 5 Ave SW to assist in setting up ticket booths;
- provision of a water truck during the three days of the fair to water roadways, main arena and competition rings;
- extend the No Parking zones from previous years to include the following:
 - Shuswap St from 5 Ave. SW to Hudson St, both sides
 - Hudson St to Ross St and Ross St to Lakeshore
 - Lakeshore from Ross to 10 St, both sides
- permission to use the Safeway Field for parking September 8 to 10, 2023.

AND FURTHER THAT: this event is subject to the provision of adequate liability insurance.

CARRIED UNANIMOUSLY

Councillor Gonella returned to the meeting at 5:31 p.m.

5. M. Engel – Email dated June 1, 2023 – Request to use Canoe Beach Gazebo – July 2, 2023
10. S. Dewalle – Email dated May 25, 2023 – Request to use Blackburn Park – July 22, 2023

0291-2023

Moved: Councillor Flynn

Seconded: Councillor Wallace Richmond

THAT: Council authorize Marlene Engel to use the Gazebo at Canoe Beach on July 2, 2023 from 4:00 p.m. to 9:00 p.m. for a 70th birthday celebration, subject to the provision of adequate liability insurance.

12. CORRESPONDENCE - continued

1. Informational Correspondence

5. M. Engel - Email dated June 1, 2023 - Request to use Canoe Beach Gazebo - July 2, 2023
10. S. Dewalle - Email dated May 25, 2023 - Request to use Blackburn Park - July 22, 2023

AND THAT: Council authorize Sarah Dewalle to use the Blackburn Park for a group picnic on July 22, 2023 from 11:30 a.m. to 4:00 p.m., subject to the provision of adequate liability insurance.

CARRIED UNANIMOUSLY

8. A. VanderMeulen, Cornerstone CRC Outreach Team - Letter dated June 5, 2023 - Request for road closure - September 16, 2023

0292-2023

Moved: Councillor Flynn

Seconded: Councillor Lindgren

THAT: Council authorize the closure of the road from 2151 12th Avenue NE to 22nd Street NE on September 16, 2023 from 2:00 p.m. to 7:00 p.m. for a community BBQ and games, subject to the provision of adequate liability insurance.

DEFEATED UNANIMOUSLY

13. NEW BUSINESS

15. COUNCIL STATEMENTS

16. SALMON ARM SECONDARY YOUTH COUNCIL

17. NOTICE OF MOTION

18. UNFINISHED BUSINESS AND DEFERRED / TABLED ITEMS

1. McGuire Lake Pathway Lighting

0293-2023

Moved: Councillor Cannon

Seconded: Councillor Flynn

THAT: Council authorize staff to proceed with the purchase and installation of 11 LED post top street light standards for pathway lighting at McGuire Lake at an estimated cost of \$202,812.50 subject to financial partnership with the Salmon Arm Rotary Daybreak Club.

CARRIED

Councillors Lindgren and Lavery Opposed

Councillor Gonella declared a conflict and left the meeting at 6:10 p.m.

19. OTHER BUSINESS

1. Salmon Arm Folk Music Society – Request for Construction Approval

The following motion was released from the In-Camera Council Meeting of May 23, 2023:

0041-2023 (ic) Moved: Councillor Lindgren
 Seconded: Councillor Cannon
 THAT: Council authorize the request from the Salmon Arm Folk Music Society
 to construct improvements on the City owned property located at 541 3rd Street
 SW subject to building permit approval.

CARRIED UNANIMOUSLY

Councillor Gonella returned to the meeting at 6:11 p.m.

20. QUESTION AND ANSWER PERIOD

0294-2023 Moved: Councillor Flynn
 Seconded: Councillor Cannon
 THAT: pursuant to Section 90(1)(a) personal information about an identifiable
 individual who holds or is being considered for a position as an officer, employee
 or agent of the municipality or another position appointed by the municipality; (c)
 labour relations or other employee relations; (d) the security of the property of the
 municipality; (g) litigation or potential litigation affecting the municipality (4
 items); (2)(b) the consideration of information received and held in confidence
 relating to negotiations between the municipality and a provincial government or
 the federal government or both, or between a provincial government or the federal
 government or both and a third party; of the *Community Charter*, Council move In-
 Camera.

CARRIED UNANIMOUSLY

Council moved In-Camera at 6:13 p.m.

Council returned to Regular Session at 6:56 p.m.

The Meeting recessed at 6:56 p.m.

The Meeting reconvened at 7:00 p.m.

PRESENT:

Mayor A. Harrison
Councillor L. Wallace Richmond
Councillor D. Gonella
Councillor D. Cannon
Councillor K. Flynn
Councillor S. Lindgren
Councillor T. Lavery (participated remotely)

Chief Administrative Officer E. Jackson
Director of Corporate Services S. Wood
Director of Engineering and Public Works R. Niewenhuizen
Director of Planning and Community Services G. Buxton
Deputy Corporate Officer R. West

ABSENT:

21. DISCLOSURE OF INTEREST

22. HEARINGS

1. Development Variance Permit Application No. VP-581 [Vandermeer, R. & M.; 2900 40 Street NE; Servicing requirements]

0295-2023

Moved: Councillor Lindgren
Seconded: Councillor Gonella
THAT: Development Variance Permit No. VP-581 be authorized for issuance to vary the Subdivision and Development Servicing Bylaw No. 4163, for the 30 Avenue NE frontage of That Part of the North East ¼ of Section 19 shown on Plan B4242; Township 20; Range 9, W6M, KDYD, waiving the requirement to upgrade 30 Avenue NE, including road widening and ditching.

The Planning Official explained the proposed Development Variance Permit Application.

M. & R. Vandermeer, the applicants, outlined the application and were available to answer questions from Council.

Submissions were called for at this time.

Following three calls for submissions and questions from Council, the Hearing closed at 7:11 p.m. and the Motion was:

Amendment

Moved: Councillor Lindgren
Seconded: Councillor Flynn
THAT: Development Variance Permit No. VP-581 be authorized for issuance subject to the owner providing the required road dedication (approximately 3.965m).

Motion as amended

CARRIED UNANIMOUSLY

CARRIED UNANIMOUSLY

22. HEARINGS – continued2. Development Variance Permit Application No. VP-567 [McLeod, T./Launch Construction Ltd.; 3390 30 Street NE; Servicing requirements

0296-2023

Moved: Councillor Wallace Richmond

Seconded: Councillor Cannon

THAT: Development Variance Permit No. VP-567 be authorized for issuance to vary the Subdivision and Development Servicing Bylaw No. 4163, for the frontage of Lot 1, Section 30, Township 20, Range 9, W6M, KDYD, Plan EPP123104 as follows:

- i) waive the installation of a bike lane (including ditching);
- ii) waive the provision of a Statutory Right of Way in favour of the City for the bike lane; and
- iii) waive the installation of one (1) fire hydrant.

The Planning Official explained the proposed Development Variance Permit Application.

T. McLeod, the applicant, provided an overview of the application and was available to answer questions from Council.

Submissions were called for at this time.

Following three calls for submissions and questions from Council, the Hearing closed at 7:33 p.m. and the Motion was:

DEFEATED UNANIMOUSLY

0297-2023

Moved: Councillor Cannon

Seconded: Councillor Wallace Richmond

THAT: Development Variance Permit No. VP-567 be authorized for issuance to vary the Subdivision and Development Servicing Bylaw No. 4163, for the frontage of Lot 1, Section 30, Township 20, Range 9, W6M, KDYD, Plan EPP123104 as follows:

- i) waive the installation of a bike lane (including ditching);
- ii) waive the installation of one (1) fire hydrant;
- iii) that survey and legal costs are covered by the City of Salmon Arm;

AND THAT: the owner provide the road dedication for the required off-site works.

There was consensus to split the motion:

- i) waive the installation of a bike lane (including ditching);

CARRIED UNANIMOUSLY

- ii) waive the installation of one (1) fire hydrant;

CARRIED UNANIMOUSLY

22. HEARINGS – continued

2. Development Variance Permit Application No. VP-567 [McLeod, T./Launch Construction Ltd.; 3390 30 Street NE; Servicing requirements

- iii) that survey and legal costs are covered by the City of Salmon Arm;

DEFEATED

Mayor Harrison, Councillors Wallace Richmond, Gonella, Lindgren, Flynn Opposed

AND THAT: the owner provide the road dedication for the required off-site works.

CARRIED UNANIMOUSLY

3. Development Variance Permit Application No. VP-574 [0695662 BC Ltd./Massier, G.; 1631 10 Street SE and 1561, 1581, 1621, 1641, 1661 and 1681 9 Street SE; Servicing and Retaining Wall requirements]

0298-2023

Moved: Councillor Cannon

Seconded: Councillor Flynn

THAT: Development Variance Permit No. VP-574 be authorized for issuance for Lot 2, Section 11, Township 20, Range 10, W6M, KDYD, Plan 1915 Except Plan EPP115809, and Lots 2, 4, 6, 8, 10 & 12, Township 20, Range 10, W6M, KDYD, Plan EPP115809 which will vary the following provisions of Subdivision and Development Servicing Bylaw No. 4163 and Zoning Bylaw No. 2303 as follows:

- i. Subdivision and Development Servicing Bylaw No. 4163, Section 4.11.4 – extend the maximum permitted cul-de-sac length from 160 metres in length in Urban Development Areas to 249 metres for the future 8 Avenue SE, and
- ii. Zoning Bylaw No. 2303, Section 4.12.1(a) – Fences and Retaining Walls – increase the maximum permitted combined height of a fence in conjunction with a retaining wall from 2 m (6.5 feet) to 6 m (19.7 feet).

The Planning Official explained the proposed Development Permit Application.

G. Massier, the agent for the applicant, provided an overview of the application and was available to answer questions from Council.

Submissions were called for at this time.

J. Wickner, Franklin Engineering Ltd., agent for the property owners of 1681 10 Street SE, expressed their opposition to the extension of the cul-de-sac as a similar request was denied for their application.

22. HEARINGS – continued

3. Development Variance Permit Application No. VP-574 [0695662 BC Ltd./Massier, G.; 1631 10 Street SE and 1561, 1581, 1621, 1641, 1661 and 1681 9 Street SE; Servicing and Retaining Wall requirements]

Following three calls for submissions and questions from Council, the Hearing closed at 8:24 p.m. and following comments from Council the Motion was split:

- i. Subdivision and Development Servicing Bylaw No. 4163, Section 4.11.4 – extend the maximum permitted cul-de-sac length from 160 metres in length in Urban Development Areas to 249 metres for the future 8 Avenue SE.

CARRIED UNANIMOUSLY

- ii. Zoning Bylaw No. 2303, Section 4.12.1(a) – Fences and Retaining Walls – increase the maximum permitted combined height of a fence in conjunction with a retaining wall from 2 m (6.5 feet) to 6 m (19.7 feet).

CARRIED

Councillor Lindgren Opposed

23. STATUTORY PUBLIC HEARINGS

1. City of Salmon Arm Zoning Amendment Bylaw No. 4580 [ZON-1265; EWDS Holdings Ltd.; 2760 Auto Road SE; R-1 to R-8]

The Planning Official explained the proposed Zoning Amendment Application.

Submissions were called for at this time.

Following three calls for submissions and questions from Council, the Public Hearing closed at 8:41 p.m. followed by comments from Council.

24. RECONSIDERATION OF BYLAWS

1. City of Salmon Arm Zoning Amendment Bylaw No. 4580 [ZON-1265; EWDS Holdings Ltd.; 2760 Auto Road SE; R-1 to R-8] – Third Reading and Final Reading

0299-2023

Moved: Councillor Gonella

Seconded: Councillor Wallace Richmond

THAT: the Bylaw entitled City of Salmon Arm Zoning Amendment Bylaw No. 4580 be read a third and final time.

CARRIED UNANIMOUSLY

25. QUESTION AND ANSWER PERIOD

0300-2023

Moved: Councillor Lindgren

Seconded: Councillor Flynn

THAT: pursuant to Section 90(1)(a) personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the municipality or another position appointed by the municipality; (c) labour relations or other employee relations; (d) the security of the property of the municipality; (g) litigation or potential litigation affecting the municipality (4 items); (2)(b) the consideration of information received and held in confidence relating to negotiations between the municipality and a provincial government or the federal government or both, or between a provincial government or the federal government or both and a third party; of the *Community Charter*, Council move In-Camera.

CARRIED UNANIMOUSLY

Council moved In-Camera at 8:42 p.m.

Council returned to Regular Session at 9:02 p.m.

26. ADJOURNMENT

0301-2023

Moved: Councillor Flynn

Seconded: Councillor Lavery

THAT: the Regular Council Meeting of June 12, 2023 be adjourned.

CARRIED UNANIMOUSLY

The meeting adjourned at 9:03 p.m.

CERTIFIED CORRECT:

CORPORATE OFFICER

MAYOR

Adopted by Council the day of June, 2023.

Item 7.1

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor Cannon

Seconded: Councillor Flynn

THAT: the Development and Planning Services Committee Meeting Minutes of June 19, 2023 be received as information.

DEVELOPMENT AND PLANNING SERVICES COMMITTEE

Minutes of a Meeting of the Development and Planning Services Committee of the City of Salmon Arm held in Council Chambers, City Hall, 500 – 2 Avenue NE, Salmon Arm, BC, and by electronic means on Monday, June 19, 2023.

PRESENT:

Mayor A. Harrison
Councillor T. Lavery (participated remotely)
Councillor K. Flynn
Councillor D. Cannon (participated remotely)
Councillor L. Wallace Richmond

Chief Administration Officer E. Jackson
Senior Planner C. Larson
Deputy Corporate Officer R. West

ABSENT:

Councillor D. Gonella
Councillor S. Lindgren

1. CALL TO ORDER

Mayor Harrison called the meeting to order at 8:01 a.m.

2. ACKNOWLEDGEMENT OF TRADITIONAL TERRITORY

Mayor Harrison read the following statement: “We acknowledge that we are gathering here on the traditional territory of the Secwepemc people, with whom we share these lands and where we live and work together”.

3. REVIEW OF THE AGENDA

4. DISCLOSURE OF INTEREST

5. REPORTS

1. Zoning Amendment Application No. ZON-1263 [City of Salmon Arm; 341 - 361 Fraser Avenue NW; M-2 to CD-20]

Moved: Councillor Wallace Richmond

Seconded: Councillor Lavery

THAT: the Development and Planning Services Committee recommends to Council that a bylaw be prepared for Council's consideration, adoption of which would amend Zoning Bylaw No. 2303 by rezoning a portion of Parcel A, Block B, Section 14, Township 20, Range 10, W6M, KDYD, Plan 1523, and a portion of Lot A, Section 14, Township 20, Range 10, W6M, KDYD Plan 38914 from the M-2 (Light Industrial Zone) to a new CD-20 (Comprehensive Development Zone-20).

Douglas Winter, Development Manager, BC Housing, spoke regarding the proposed site and need for a shelter at 341-361 Fraser Avenue and was available to answer questions from the Committee.

CARRIED UNANIMOUSLY

2. Zoning Amendment Application No. ZON-1258 [Klatt, A. & S./Green Emerald Construction Inc.; 5131 75 Avenue NE; R-1 to R-8]

Moved: Councillor Flynn

Seconded: Councillor Lavery

THAT: the Development and Planning Services Committee recommends to Council that a bylaw be prepared for Council's consideration, adoption of which would amend Zoning Bylaw No. 2303 by rezoning Lot 1 District Lot 6412 and Section 5, Township 21, Range 9, W6M, KDYD, Plan KAP69981 from R-1 (Single Family Residential Zone) to R-8 (Residential Suite Zone).

CARRIED UNANIMOUSLY

6. FOR INFORMATION

7. ADJOURNMENT

Moved: Councillor Lavery

Seconded: Councillor Flynn

THAT: the Development and Planning Services Committee meeting of June 19, 2023 be adjourned.

CARRIED UNANIMOUSLY

The meeting adjourned at 8:59 a.m.

Mayor A. Harrison, Chair

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Item 8.1

CITY OF SALMON ARM

Date: June 26, 2023

CSRD Connect
Board Meeting Highlights – June 2023

From: Columbia Shuswap Regional District <listserv@civicplus.com>
Sent: Wednesday, June 21, 2023 6:11 AM
To: Rhonda West
Subject: [External] CSRD Connect - Board Meeting Highlights - June 2023



June 2023

As part of the shift to our new website, the Columbia Shuswap Regional District is now able to integrate our E-newsletter directly with our website's [sign-up function](#). We'd love to hear feedback about our new format. Please email communications@csrd.bc.ca with any comments or suggestions.

Committee Reports

Shuswap Emergency Program Executive

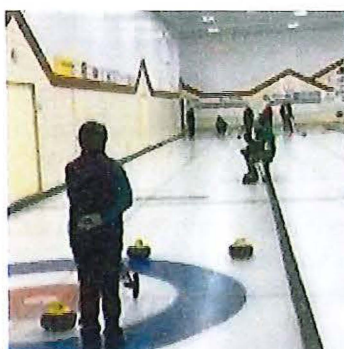
The Board agreed to write a letter to the Minister of Emergency Management and Climate Readiness and copy UBCM regarding the lack of communication and local government engagement with the modernized emergency management legislative change process.



Business General

Ministry of Indigenous Relations and Reconciliation Presentation

Wayne Giles, Regional Director, Kootenay Boundary, for the Ministry of Indigenous Relations and Reconciliation, updated the Board regarding Reconciliation negotiations in BC. The [presentation](#) provided local context regarding First Nations Bands in the CSRD region, including the Secwépemc, Sinixt, Ktunaxa and Okanagan Nations. There was also discussion regarding BC's Declaration on the Rights of Indigenous Peoples Act, as well as the UBCM - BC Memorandum of Understanding, which recognizes reconciliation as a shared, cross-government responsibility.



Business General

Golden Curling Rink

The Board agreed to re-allocate \$21,000 to purchase curling rink [vinyl floor covering sheets](#). These will remove the need for painting lines on the concrete floor and alleviate concerns with marks created on the floor from skateboarding activities.

Blind Bay Streetlight purchase

The Board agreed to the [purchase of 50 LED streetlight fixtures](#), at a cost of not more than \$15,000. These lights are more energy efficient than the current high-pressure sodium lights. They also last longer, with 100,000 hours of use for the LED lights as compared to 20,000 hours for the current streetlights. The new LED lights will be changed out over time as the current ones burn out.

Administration Bylaws

Amendments to CSRD Building Bylaw

The Board adopted a bylaw which includes the required changes to bring the [CSRD's Building Bylaw](#) in line with the new BC Energy Step Code requirements. The BC Energy Step Code is a mandatory compliance path in the BC Building Code (BCBC) that local governments must use to require a level of energy efficiency in new construction that goes above and beyond the previous requirements of the BC Building Code.



Land Use Matters



Electoral Area E: OCP Amendment Number 840-03, Zoning Amendment Number 841-07

The applicant is proposing to redesignate the property, located at 3410 Oxbow Frontage Road, from Industrial (ID) to Resort (RT) and rezone the property from Industrial 2 (ID2) to CDE8 – Comprehensive Development E8 to create a mixed-use resort near Yard Creek in Electoral Area E.

CSRD staff were recommending denial of the [proposal](#) at second reading because the amending bylaws are inconsistent with the Resort, Residential, and Industrial policies in Electoral Area E Official Community Plan. The subject property is located in an established industrial area and, as such, the staff do not believe it is suitable for resort or residential use. The CSRD Board, however, voted to deny the staff recommendation. The Board subsequently approved a new motion to move the project forward to next stage, which will require a full public hearing prior to third reading.

For information and background reports for the other Development Services items discussed at this meeting, please see the June 15, 2023 [Board Meeting Agenda](#). If you have questions about a specific application, contact the planning department at plan@csrd.bc.ca

Closed meeting releases

The resolutions released from the June 15, 2023 Board Meeting are as follows:

Revelstoke Area Economic Development Commission Appointment

THAT: Carol Palladino be appointed to the Revelstoke Area Economic Development Commission as Public-at-Large for a two-year term ending May 31, 2025.

Next Board Meeting

Thursday, July 20, 2023

The Regular CSRD Board Meeting will be held in the CSRD Boardroom, at 555 Harbourfront Drive NE, Salmon Arm. The Regular Board meeting public session generally starts at 9:30 AM (PT) / 10:30 AM (MT). Any scheduling changes to the meeting start time will be noted on the [Meeting Calendar](#) on the CSRD's website.



Item 9.1

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: Council receive the City of Salmon Arm 2022 Annual Report for information.

To: His Worship Mayor Harrison & Members of Council

Date: June 15, 2023

Subject: 2022 Annual Report

Recommendation:

THAT: Council receive the City of Salmon Arm 2022 Annual Report for information.

Background:

The City of Salmon Arm 2022 Annual Report has been compiled pursuant to Section 98 of the *Community Charter*, which also requires that the report be made available for public inspection.

The report was available for viewing on the City's website on June 6, 2023 and hard copies were made available at the front counter of City Hall on June 9, 2023.

In addition, a notice was published in the Salmon Arm Observer on June 21, 2023 to advise that Council will consider submissions from the public about the report at the June 26, 2023, Regular Council Meeting.

A copy of the 2022 Annual Report has been distributed to Mayor and Council under a separate cover.

Respectfully Submitted,



Sue Wood

Director of Corporate Services

Item 9.2

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the City of Salmon Arm approve in principle the 2024/2025 budget of \$5,539,794.00 under the Municipal Policing Contract of which the City is responsible for 90% thereof.

To: Mayor Harrison and Members of Council
Date: June 15, 2023
From: Chelsea Van de Cappelle, Chief Financial Officer
Subject: 2024/2025 RCMP Funding (2024 Budget)

Recommendation:

THAT: The City of Salmon Arm approve in principle the 2024/2025 budget of \$5,539,794 under the Municipal Policing Contract of which the City is responsible for 90% thereof.

Background:

The City has received the RCMP Multi Year Financial Plan (MYFP) for 2024/2025 to 2028/2029 and must provide a letter of 'approval in principle' regarding the 2024/2025 budget as required by the Ministry of Public Safety and Solicitor General.

This 'letter of approval in principle' does not mean that Council endorses the budget set for the City of Salmon Arm (City), but rather, it is a budget allocation/planning tool used by the Federal Treasury Board. The Federal Treasury Board must have this letter by end of June of each year for the following fiscal year in order to set aside sufficient financial resources to fund their share of the Municipal RCMP Contract costs.

The five (5) year forecast represents an increase in costs in each year as compared to the last five (5) year forecast received by the City. The 2024/2025 budget contains an increase of \$458,100 which is primarily attributed to increases associated with (amounts are approximate):

- Wages - \$116,300;
- Pensions - \$18,800;
- Divisional Administration (Core Administration, Payments in Lieu of Leave, Health Services & Special Leaves) - \$197,000;
- Professional Services (including body worn cameras and training) - \$38,300; and
- Fuel - \$46,400.

In addition the RCMP vehicles replacement estimate has increased \$20,000. The City allocates funding to a Police Vehicle Replacement Reserve Fund annually and budgets for these replacements separately under capital expenditures.

The MYFP also outlines the annual Earned Retirement Benefit payment of \$23,073 as approved by Council in 2020 and the Green Timbers Accommodation payment of \$12,840 as per Provincial settlement agreements. These payments are not included in the 2024/2025 budget of \$5,539,794 as they are payments for which the City is 100% responsible. They are however included as separate items and included in the 2023 budget.

Further, the RCMP retroactive costs for 2017 - 2021 have not been included in this forecast. On March 29, 2023, the City received a letter from the Senior Assistant Deputy Minister of Public Safety Canada, advising that the Government of Canada maintains that contract jurisdictions were required to pay retroactive salary costs as per the Police Service Agreements, however they agreed to provide up to two years for payment. On March 30, 2023, the City received an invoice for retroactive pay in the amount \$718,648.85.

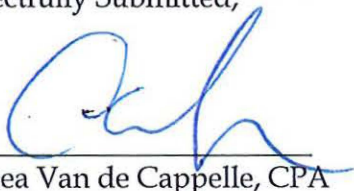
The repayment of the retroactive costs was penalty and interest free and therefore Council elected to participate in an extended repayment schedule; with 50% of the invoice to be paid by March 31, 2024 and the remainder by March 31, 2025. These costs will be paid for from reserves with no additional financial impact.

It should be noted however that this recently settled collective agreement expires March 31, 2023 and therefore the MYFP for 2024/2025 includes a non-contractual wage estimate of 3.5% for planning purposes. E-Division has recommended that contract partners build a contingency to mitigate the impact of future negotiated rates.

The 2024/2025 forecast for the City's budget year 2024 equates to a 2.18% increase in taxes which is higher than the original forecast submitted and presented to Council in 2022 (1.05%). Future years, 2025 through 2028, reflect approximate tax increases of 0.52%, 0.93%, 0.97% and 1.02% respectively. Note these increases do not reflect any budget reductions made by the City for vacancies or transfers from the RCMP Operating Reserve.

If the 'letter of approval in principle' is not received, services could be reduced to our community due to a shortfall in funding from the Federal level to the Provincial level. It is therefore recommended that Council approve in principle the 2024/2025 budget of \$5,539,794.

Respectfully Submitted,



Chelsea Van de Cappelle, CPA

Policing Costs
Budget Projections - Next Five Years

<i>Summary</i>	2023	2024	2025	2026	2027	2028
Total Costs	\$ 5,010,790	\$ 5,539,794	\$ 5,667,746	\$ 5,887,936	\$ 6,118,412	\$ 6,363,342
Less: Vehicles	(112,000)	(132,000)	(138,000)	(142,000)	(146,000)	(152,000)
	<u>\$ 4,898,790</u>	<u>\$ 5,407,794</u>	<u>\$ 5,529,746</u>	<u>\$ 5,745,936</u>	<u>\$ 5,972,412</u>	<u>\$ 6,211,342</u>
CSA Cost @ 90%	\$ 4,408,911	\$ 4,867,015	\$ 4,976,771	\$ 5,171,342	\$ 5,375,171	\$ 5,590,208
No. of Members	21	21	21	21	21	21
Cost Per Member	<u>\$ 209,948.14</u>	<u>\$ 231,762.60</u>	<u>\$ 236,989.11</u>	<u>\$ 246,254.40</u>	<u>\$ 255,960.51</u>	<u>\$ 266,200.37</u>

Status Quo

Per Member Increase	\$ 21,814.46	\$ 5,226.51	\$ 9,265.29	\$ 9,706.11	\$ 10,239.86
No. of Members	21	21	21	21	21
Total Cost Increase	<u>\$ 458,103.60</u>	<u>\$ 109,756.80</u>	<u>\$ 194,571.00</u>	<u>\$ 203,828.40</u>	<u>\$ 215,037.00</u>
Equivalent Tax Increase	2.18	0.52	0.93	0.97	1.02

Increase to Members (if any)

Per Member Increase	\$ 21,814.46	\$ 5,226.51	\$ 9,265.29	\$ 9,706.11	\$ 10,239.86
No. of Members	21	21	21	21	21
Total Cost Increase	458,103.60	109,756.80	194,571.00	203,828.40	215,037.00
Cost of Additional Members	-	-	-	-	-
	<u>\$ 458,103.60</u>	<u>\$ 109,756.80</u>	<u>\$ 194,571.00</u>	<u>\$ 203,828.40</u>	<u>\$ 215,037.00</u>
Equivalent Tax Increase	2.18	0.52	0.93	0.97	1.02

Total Cost Per Member	\$ 231,762.60	\$ 236,989.11	\$ 246,254.40	\$ 255,960.51	\$ 266,200.37
No. of Members	21	21	21	21	21
Total Annual Cost	<u>\$ 4,867,014.60</u>	<u>\$ 4,976,771.40</u>	<u>\$ 5,171,342.40</u>	<u>\$ 5,375,170.80</u>	<u>\$ 5,590,207.80</u>

Item 9.3

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the Mayor and Corporate Officer be authorized to execute the Merchant Agreement with Moneris for payment processing services related to the City's parking machines supplied by Mackay Meters.

**CITY OF
SALMON ARM**

To: His Worship Mayor Harrison and Members of Council
Date: June 13, 2023
From: Chelsea Van de Cappelle, Chief Financial Officer
Subject: Moneris Merchant Agreement – Parking Meter Card Acceptance

Recommendation:

THAT: The Mayor and Corporate Officer be authorized to execute the Merchant Agreement with Moneris for payment processing services related to the City's parking machines supplied by Mackay Meters.

Background:

Current parking meters, supplied by Mackay Meters, are equipped to take cash only. In June 2020, Council requested information on advancing credit/debit and contact-less payment options for parking meters and a staff report was brought forward identifying options. In August 2020, Council resolved to include the purchase of EMV3 card readers (which allow for credit/debit and contactless payment), within the 2021 budget. EMV3 readers were an improved technological advancement which were to be available for Mackay Meters in 2021.

The onset of COVID created delays during EMV3 development, ultimately delaying the release of the readers and advancement of this initiative. The readers were finally made available and the City submitted its request in June of 2022. Additional constraints attributed to product availability and staff capacity to advance the project created additional delays.

The EMV3 card reader hardware requires the City to establish an account/agreement with Moneris; who will provide a virtual payment processing gateway.

Merchant Agreement – Moneris

The City currently utilizes Chase Paymentech (Chase) for its payment processor for City Hall, RCMP and Airport transactions and Global Payments (Global) for the airport fuel system. Global has proprietary rights over the airport fuel system.

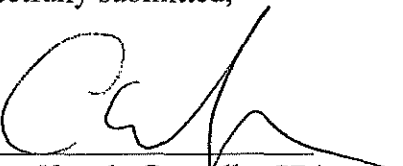
The new EMV3 card readers are only certified with Moneris (they have exclusive rights) therefore the City must use Moneris for processing transactions with the new EMV3 parking readers.

Debit and contactless transactions are charged a fee based on the number and type of transaction. Credit transactions are charged fees based on the dollar value of the sale. Credit fees include a base transaction fee, a network assessment fee, and interchange fees depending on the type of card used and whether or not transactions meet certain qualification criteria. Payment Brands (i.e. Visa or MasterCard) establish the interchange levels and can change the interchange fees and qualification criteria. These changes impact the fees the City must pay and as a result the fee quotes provided to the City are likely to change.

It is estimated, based on historical 5 year averages of parking meter revenues and adjusting the value of sales from \$0.25 per hour to \$1.00 per hour; that the City could generate approximately \$134,000 in paid on street parking revenues. Based on this dollar volume and making some assumptions around proportionate use of cash/debit/credit transactions, staff estimate that the cost of processing including monthly account fees could be upwards of \$5,000 per year. Actual costs incurred will depend entirely on volume, payment brand rates and parking rates.

The 2023 Budget for Interest and Bank Charges for Downtown Parking is \$1,500.00 with no expenses incurred to date. While the annual estimated processing cost is greater than the current budget, actual costs will depend on implementation timing. As a result the current budget is anticipated to be sufficient and therefore a budget amendment is not recommended at this time.

Respectfully submitted,



Chelsea Van de Cappelle, CPA

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Item 9.4

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: Pursuant to Section 242 of the *Strata Property Act*, Council approve the strata conversion of the previously occupied building located on Lot 3, Block 1, Section 14, Township 20, Range 10, W6M, KDYD, Plan 936.



TO: His Worship Mayor Harrison and Members of Council

DATE: May 25, 2023

SUBJECT: Proposed Strata Conversion of a Previously Occupied Building – SUB-23.02 (Brentwell)
Legal: Lot 3, Block 1, Section 14, Township 20, Range 10, W6M, KDYD, Plan 936
Civic Address: 31 – 4 Street SE
Owner/Applicant: Brentwell Venture Ltd. / Crevier, L.E. & S.

MOTION FOR CONSIDERATION

THAT: Pursuant to Section 242 of the *Strata Property Act*, Council approve the strata conversion of the previously occupied building located on Lot 3, Block 1, Section 14, Township 20, Range 10, W6M, KDYD, Plan 936.

STAFF RECOMMENDATION

THAT: The motion for consideration be adopted.

PROPOSAL

The subject property is located at 31 4 Street SE (Appendix 1) which contains a recently constructed duplex building (site photos are attached as Appendix 2). The applicant is requesting to convert the existing residential building to strata title ownership. The development is to remain under current management entirely as rental units. The applicant's intent in creating the two real estate entities through this proposed strata conversion is to subsequently develop a secondary suite within each duplex unit as per the BC Building Code, subject to a Zoning Amendment (ZON-1264). A sketch plan of the proposed strata conversion is attached as Appendix 3.

COMMENTS

Planning Department

A Strata Title Conversion is the division of an existing building into two or more strata title units. Strata Title is a form of ownership in which the unit owners have a share in the title to the property, and common amenities on the property are also shared.

While typically Subdivision Applications are not considered by Council, any proposal involving the conversion of a previously occupied building to strata title ownership must receive Council approval in accordance with Section 242 of the *Strata Property Act*. This allows the City to assess the impact of the conversion on the supply of rental accommodation in the area, to consider the impact on residential tenants, and to ensure that the building is in substantial compliance with the BC Building Code and City Bylaws. Section 242 of the *Strata Property Act* is attached (Appendix 4).

The subject property is designated as High Density Residential in the Official Community Plan, Zoned R-5 in the Zoning Bylaw, and contains a duplex, being used as intended for residential use and currently being rented. No changes to this residential rental use are proposed. OCP residential policy as well as

the City's Housing Strategy supports a variety of housing formats for both rental and market housing to encourage a range of diverse housing types.

The development of the duplex proceeded under the R-5 Zoning as approved by Council in the winter of 2020 (ZON-1191). This development under R-5 zoning did not require any Density Bonus and therefore none of the units were required to be secured as "rental only" by way of a covenant. While not the owner's current intent, following the strata conversion each half of the duplex unit could potentially be sold. Again, as previously noted no changes to the residential rental use are proposed.

ZON-1264

The 4 units proposed (the 2 duplex units and 2 secondary suites) are supported by the density provisions of the R5 Zone, and will be considered under a separate application (ZON-1264). The 2 secondary suites proposed are supported by amendments to the BC Building Code (BCBC) effective as of December 2019 (Appendix 5). At the time of writing this report, the 2 secondary suites proposed are not supported in the R-5 Zone and are subject to full consideration through a Zoning Amendment application (ZON-1264).

In order to ensure compliance with the BCBC, a certified report from a Professional Engineer, Registered Architect or qualified professional indicating conformance with the B.C. Building Code, Plumbing Code, Fire Code and other Provincial and Federal Regulations will be required.

Subject to the Zoning Amendment (ZON-1264) to allow for the suites, the strata conversion of the building would allow for the creation of two separate real estate entities to enable suites, and would present an additional option within the mix of housing types in the High Density Residential designated area, aligned with OCP policy and the Community Housing Strategy.

Subdivision and Development Services Bylaw No 4163

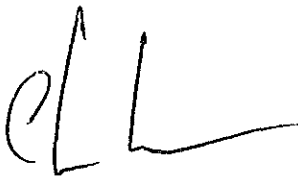
Strata conversion triggers the requirements of the Subdivision and Development Services (SDS) Bylaw. Many of the requirements were met through the recent development of the property. The outstanding requirement is related to road dedication to meet the Urban Local Road standard. The applicant had accounted for this at time of development. Dedication of approximately 2.919 m (to be confirmed by BCLS) is required along the 4 Street SE frontage prior to approval of the Strata plan.

Letter of Preliminary Review

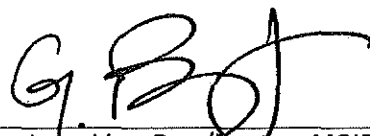
To further clarify the conditions detailed above, a letter of preliminary review will be issued to the applicant. This letter will outline the terms and conditions which have to be met.

CONCLUSION

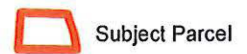
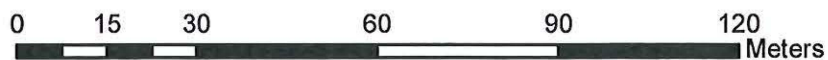
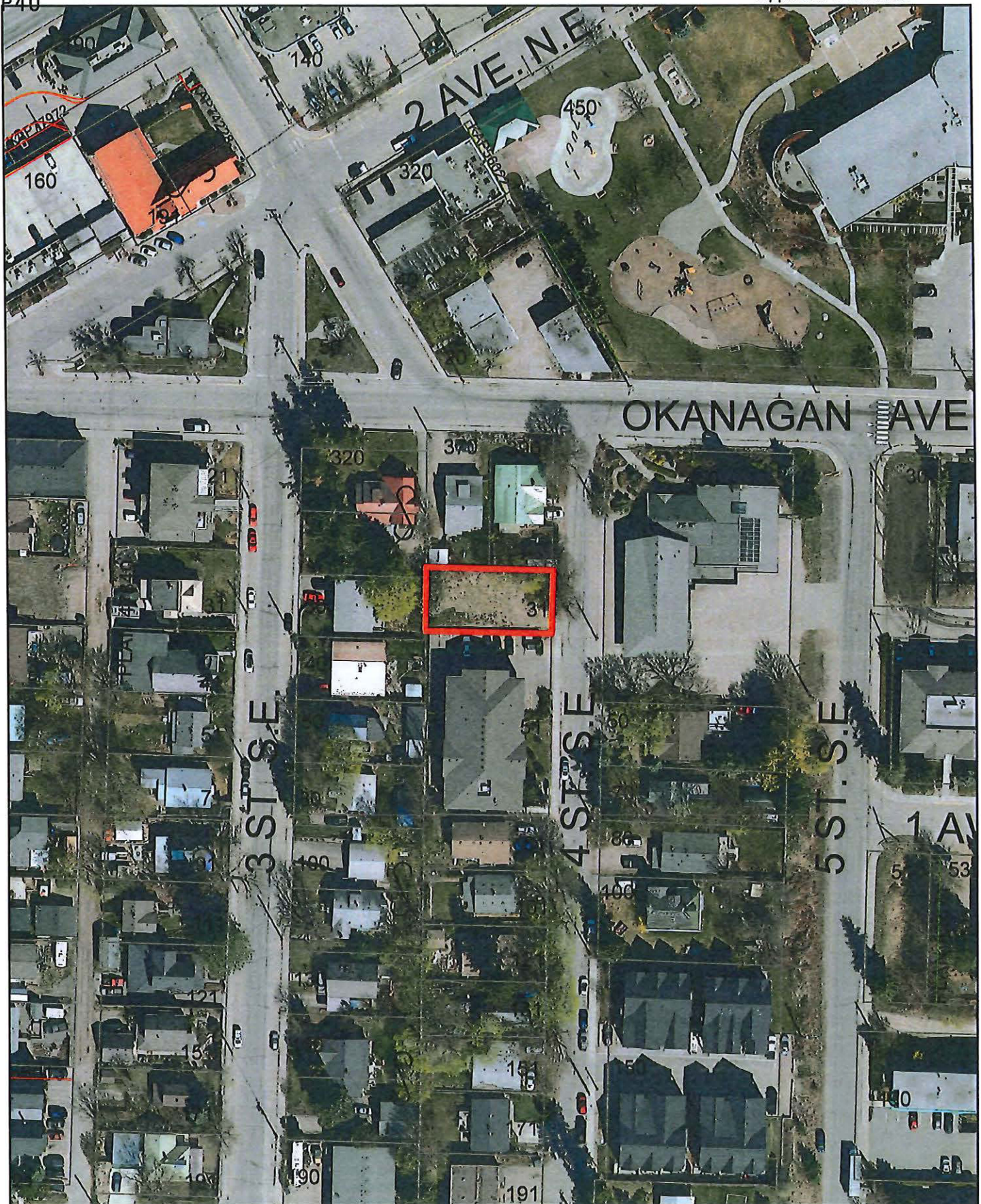
Given that the building involved will need to meet BCBC requirements through the Building Permit process, and that the proposal aligns with OCP residential policy as well as the City's Housing Strategy, with the units to remain as rentals under current management, staff have no concerns with the proposed strata conversion. Should Council approve this proposal and subject to meeting the conditions (SDS Bylaw, Zoning and BCBC requirements) to be provided in a Letter of Preliminary Review, the Approving Officer will be able to execute approval of the Strata plan.



Prepared by: Chris Larson, MCIP, RPP
Senior Planner

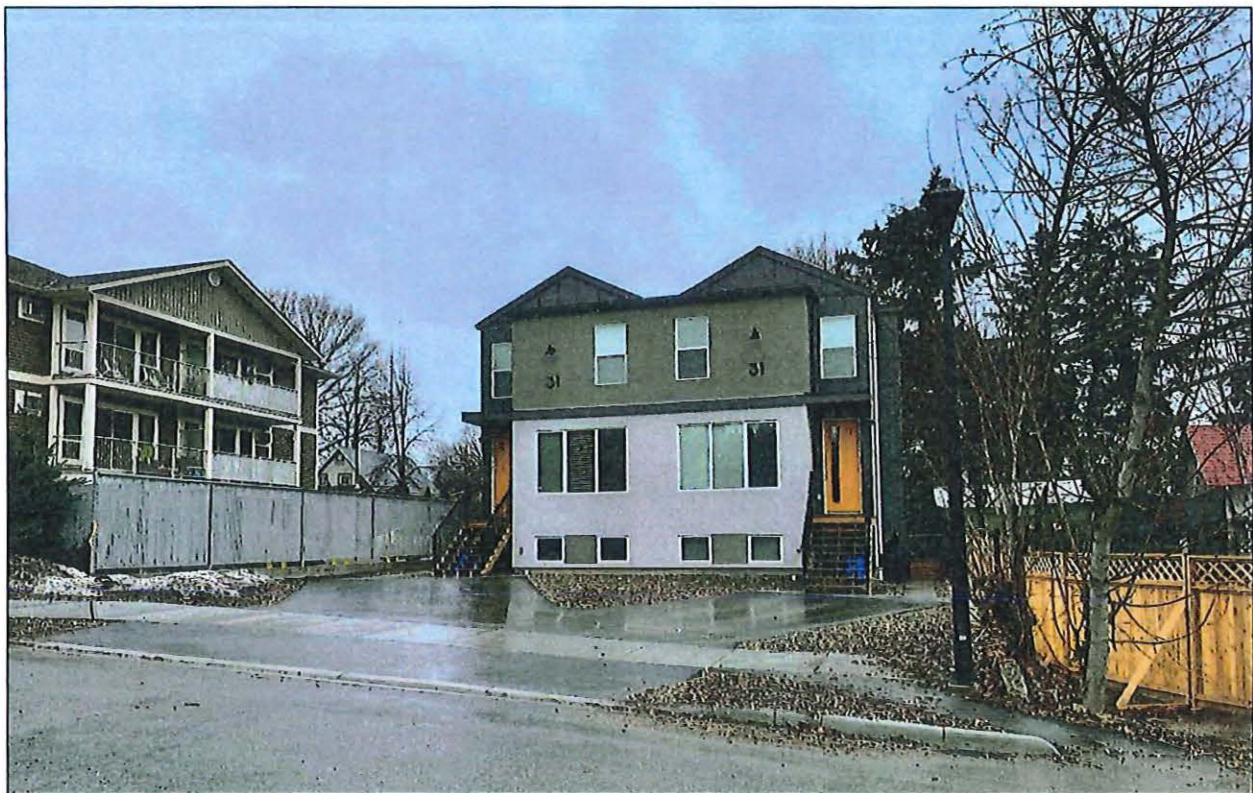


Reviewed by: Gary Buxton, MCIP, RPP
Director of Planning & Community Services





View of subject parcel northwest from 4 Street SE.



View of subject parcel southeast from 4 Street SE.

BUILDING — FLOOR PLANS

SCALE 1 : 100

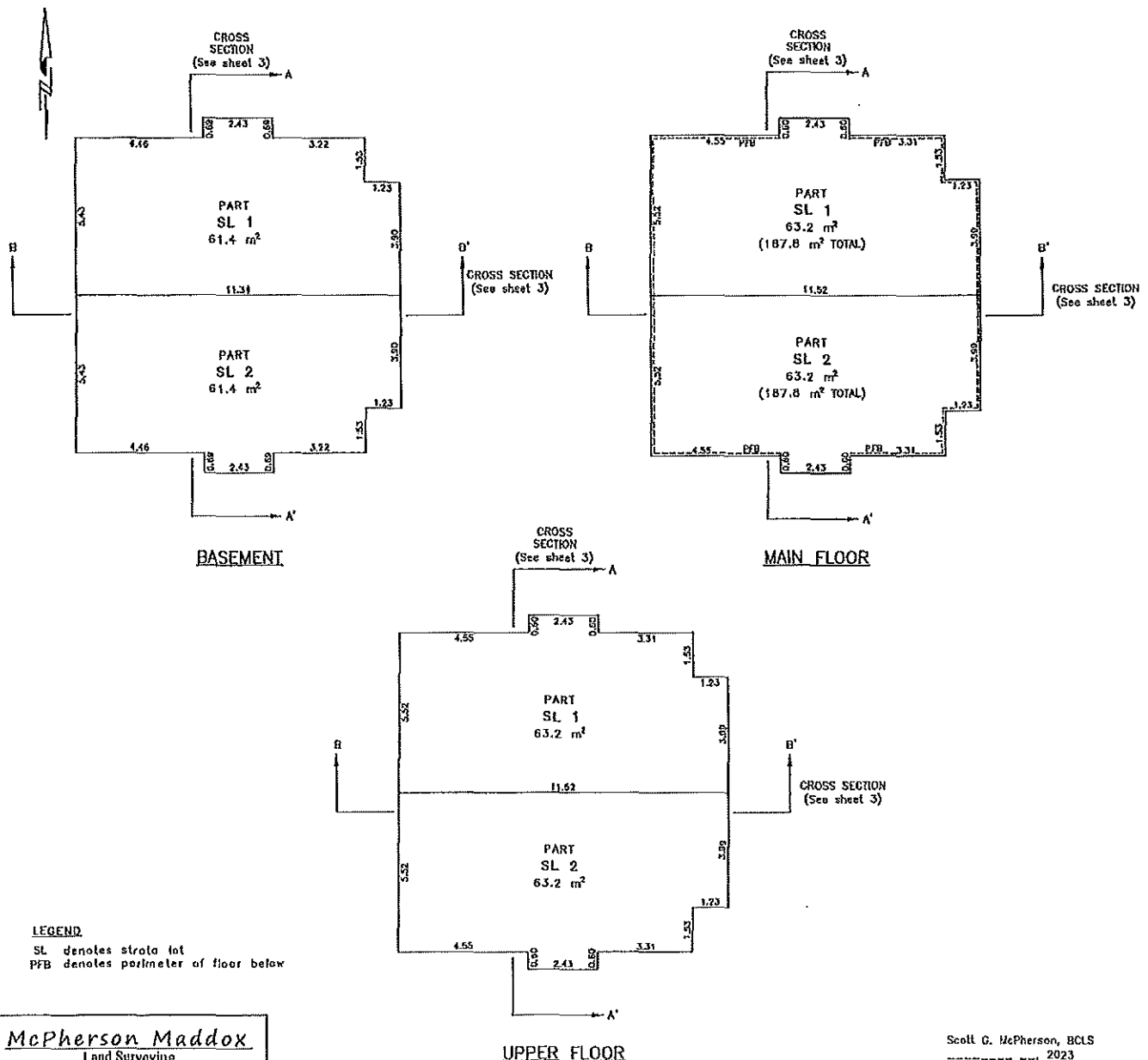
0m 1 2 3 4 5 6 7m

The intended plot size of this plan is 432mm in width by 560mm in height (C size) when plotted at a scale of 1:100

All angles for the strata boundaries shown defect by multiples of 90 degrees, unless otherwise indicated.

The strata boundary dimensions shown herein are to the midpoint of the structural portion of exterior walls and the midpoint between structural portions of party walls between strata lots, unless otherwise noted.

The cross section arrows on this plan point in the direction of the view.

SHEET 2 OF 3 SHEETS
STRATA PLAN EPS**PRELIMINARY**

STRATA PROPERTY ACT

[SBC 1998] CHAPTER 43

Part 14 — Land Titles

Approval for conversion of previously occupied buildings

242 (1) For the purposes of this section, "**approving authority**" means

- (a) the municipal council of the municipality if the land is located in a municipality,
- (b) the regional board of the regional district if the land is located in a regional district but not in a municipality and is neither Nisga'a Lands nor treaty lands of a treaty first nation,
- (c) the Nisga'a Village Government if the land is located within Nisga'a Village Lands,
- (d) the Nisga'a Lisims Government if the land is Nisga'a Lands other than Nisga'a Village Lands, or
- (e) the governing body of the treaty first nation if the land is located within the treaty lands of that treaty first nation.

(2) If a person applying to deposit a strata plan wishes to include in the strata plan a previously occupied building, the person must submit the proposed strata plan to the approving authority.

(3) The approving authority may

- (a) approve the strata plan, or approve the strata plan subject to terms and conditions, or
- (b) refuse to approve the strata plan, or refuse to approve the strata plan until terms and conditions imposed by the approving authority are met.

(4) The decision of the approving authority under subsection (3) is final and may not be appealed.

(5) The approving authority must not approve the strata plan unless the building substantially complies with the following:

- (a) the applicable bylaws of the municipality or regional district;
- (b) applicable Nisga'a Government laws;
- (b.1) the applicable laws of the treaty first nation;
- (c) the building regulations within the meaning of the *Building Act*, except, in relation to a treaty first nation that has entered into an agreement described in section 6 of that Act, to

the extent that the agreement enables the treaty first nation to establish standards that are different from those established by the building regulations.

(6) In making its decision, the approving authority must consider

- (a) the priority of rental accommodation over privately owned housing in the area,
- (b) any proposals for the relocation of persons occupying a residential building,
- (c) the life expectancy of the building,
- (d) projected major increases in maintenance costs due to the condition of the building, and
- (e) any other matters that, in its opinion, are relevant.

(7) If the approving authority approves the strata plan without terms and conditions, an authorized signatory of the approving authority must endorse the plan in accordance with the regulations.

(8) If the approving authority approves the strata plan subject to terms and conditions, an authorized signatory of the approving authority must endorse the plan in accordance with the regulations once the terms and conditions have been met.

(9) The endorsement must be dated not more than 180 days before the date the strata plan is tendered for deposit.

(10) The approving authority may, by resolution, with respect to a specified type of previously occupied building,

- (a) delegate to an approving officer or other person designated in the resolution the exercise of the powers and performance of the duties of the approving authority under this section, and
- (b) impose limits or conditions on the exercise of the powers and performance of the duties delegated by the resolution.

(11) This section does not apply to a strata plan that includes a previously occupied building if the person applying to deposit the strata plan is the government or the Crown in right of Canada.

No. B19-05
 December 12, 2019

Secondary Suites, Changes to Design and Construction Requirements British Columbia Building Code 2018 Revision 2

The purpose of this bulletin is to provide information about Revision 2 changes to the British Columbia Building Code 2018 (BC Code) for the design and construction of new secondary suites. Changes are effective December 12, 2019 and apply to projects for which a permit is applied for on or after this date.

A separate bulletin B19-04 discusses how the BC Code changes to secondary suite requirements may impact land use planning.

Background

The BC Code introduced requirements for secondary suites in 1995. Therefore, the National Building Code (National Code) provisions were not adopted when they were first published in 2010. The BC Code requirements have not been substantially updated since 1995.

The adopted changes:

- harmonize with the form and approach of the National Code, and most of its technical requirements;
- incorporate historical requirements from the BC Code that provide a higher level of health and safety; and
- adapt some requirements based on application to existing buildings and to coordinate with other requirements.

The Province of British Columbia (B.C.) is working to remove barriers to secondary housing forms. These mid-cycle revisions to the BC Code aim to increase options for the design and construction of new secondary suites in buildings. Allowing the construction of more secondary suites in more building types helps create more housing units while providing an acceptable level of health and fire safety to occupants. These changes provide local authorities with more options for land use planning.

The definition of secondary suite in the BC Code is not to be equated with similar terms in land use bylaws. Land use bylaws may define or use the term secondary suite to describe housing types. The term might carry a different meaning in bylaw than the meaning assigned in the BC Code. It is often appropriate to set aside the BC Code terms when considering land use and zoning matters.

Including solutions for design and construction of secondary suites in the BC Code does not allow owners to contravene land use bylaws. Land use bylaws govern where secondary suites are permitted whereas the BC Code governs how they are to be built. **Before constructing a secondary suite, check with the local authority.**

The BC Code governs the design and construction of new secondary suites including alterations to existing buildings to add a secondary suite as well as new work or alterations within a secondary

suite. It is not intended that the BC Code be used as evaluation metrics or retroactive construction requirements for existing secondary suites.

Changes to the Definition of Secondary Suites

The BC Code **previously** defined a *secondary suite* as “a *dwelling unit*

- having a total floor space of not more than 90 m² in area,
- having a floor space less than 40% of the habitable space of the *building*,
- located within a *building* of *residential occupancy* containing only one other *dwelling unit*, and
- located in and part of a *building* which is a single real estate entity.”

The **new** definition states that a *secondary suite* means “a self-contained *dwelling unit* located within a *building* or portion of a *building*

- completely separated from other parts of the *building* by a vertical *fire separation* that has a *fire-resistance rating* of not less than 1 h and extends from the ground or lowermost assembly continuously through or adjacent to all *storeys* and spaces including *service spaces* of the separated portions,
- of only *residential occupancy* that contains only one other *dwelling unit* and common spaces, and
- where both *dwelling units* constitute a single real estate entity.”

The previous definition placed limits on floor space as a mechanism to moderate fire load and occupant load. This revision **discontinues the prescribed floor space amounts and percentage distribution**. New requirements as well as some existing and revised requirements, moderate risks attributed to fire load and occupant load as compensatory measures. **Check with the local authority on floor space allowances.**



It cannot be assumed that the owner occupies one of the dwelling units, nor that the occupant of the dwelling unit has direct control over the secondary suite or use by its occupants as a means of increasing the level of safety. A secondary suite is not a subordinate suite to a principle suite. However, there are health and safety opportunities and benefits that come with a house with a secondary suite having single ownership that may not be available for units with separate ownership. Typical requirements for separately-owned dwelling units have been adjusted to accommodate the interest, coordination, and maintenance that is available with single ownership.

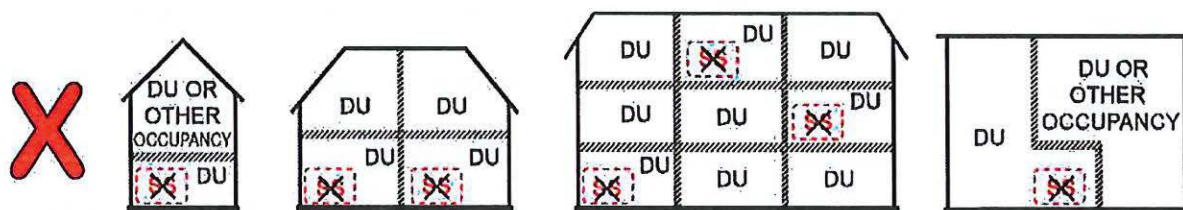
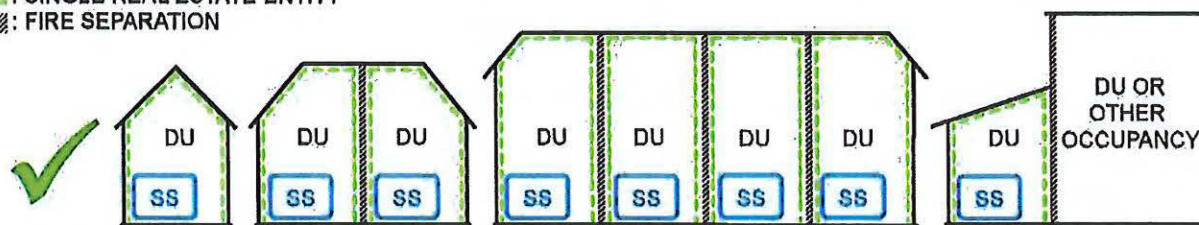
In addition, this change adopts and adapts permissions in the National Code to **allow the construction of secondary suites in a building that may contain more than one dwelling unit or other occupancy**. These permissions are limited and only apply where a dwelling unit and its secondary suite are completely separated from other parts of the building with continuous vertical fire-rated construction. These permissions do not apply where any portion of the dwelling unit and its secondary suite are above or below another dwelling unit or other occupancy.

Examples of buildings where the BC Code allows the construction of secondary suites include side-by-side duplexes and also row houses where a vertical fire separation separates the portion with the dwelling unit with the secondary suite from the remainder of the building. Examples where secondary suites are not permitted are up/down duplexes and apartment buildings where dwelling units are above or below other dwelling units.

The following illustration provides examples of the types of buildings in which the BC Code allows the construction of secondary suites and where secondary suites are not permitted. **Before constructing a secondary suite, check with the local authority.**

Local government contact information is available here: <http://www.civicinfo.bc.ca/directories>.

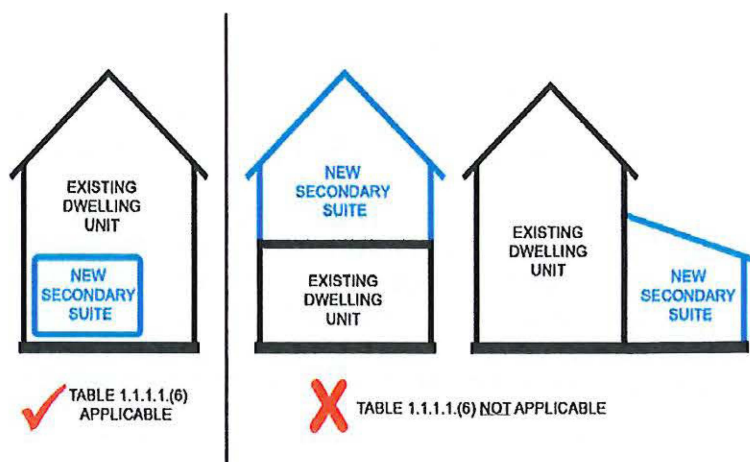
DU: DWELLING UNIT
 SS: SECONDARY SUITE
 SINGLE REAL ESTATE ENTITY
 FIRE SEPARATION



Changes to Alterations to Existing Buildings to Add a Secondary Suite

Some previous requirements were based on the premise of 'finishing' an unfinished basement and dealing with the hardships that may exist when working within the confines of an existing home. Some accommodation for when existing construction poses a practical or financial hardship is necessary to avoid abandoning projects or creating disincentives to permits and inspections.

This change distinguishes requirements for new construction - with no existing construction imposing hardship - from requirements for alterations to existing buildings where existing construction poses a hardship. Division A provides Table 1.1.1.1.(6) containing Alternative Compliance Methods that are considered adequate but may only be used where existing construction acts as a practical barrier to compliance with the acceptable solutions in Division B of the BC Code.



Similar to the alternative compliance methods available to heritage buildings, the alternative compliance methods in Table 1.1.1.1.(6) may be substituted for the requirements contained elsewhere in the BC Code. The owner may choose any or a combination of these options:

- apply acceptable solutions in Division B,
- apply alternative solutions under Division A, or
- apply alternative compliance methods in Table 1.1.1.1.(6) of Division A.

Changes to Design and Construction Requirements (Division B)

This change adopts the form and approach of the National Code with regards to secondary suites. Requirements specific to secondary suites are found along side those for dwelling units throughout Part 9 and B.C.'s unique Section 9.37. is deleted.

A table providing references to secondary suite-specific content as it appears throughout Part 9 of Division B is included in the Appendix to this bulletin.

Many provisions are carried over and/or adapted from B.C.'s previous Section 9.37., however there are some provisions that are new. Examples are as follows (references are to Division B):

Examples of New Secondary Suite Provisions	
Means of Egress	Section 9.9.
A second and separate means of egress may be required depending on the design and risk to the first means of egress. Sprinklered buildings and access to balconies provide some alternatives. Where an openable window is relied upon as a second means of egress, it must meet certain conditions; it must have a larger opening (at least 1 m high by 0.55 m wide) than a bedroom egress window, and the sill height is limited to 1 m above the floor and 7 m above adjacent ground level.	
Fire Protection	Section 9.10.
Within a house with a secondary suite, the dwelling units and the common spaces are required to be separated from each other by a fire separation that acts as a continuous barrier to the spread of smoke and fire. Fire separations in a house with a secondary suite must have a fire-resistance rating unless the house is fully sprinklered. As previous, a 45-minute fire-resistance rating is required if smoke alarms are not interconnected (smoke alarms are still required) and a 30-minute fire-resistance rating is permitted where additional photo-electric smoke alarms are installed in each unit and the additional smoke alarms are interconnected. A new 15-minute fire-resistance rating is now permitted where every smoke alarm in the house (secondary suite and the other dwelling unit including their common spaces) are interconnected. A 15-minute rating can be based on testing described in Part 3, calculated using the component additive method in Appendix D, or the designer can follow the construction specifications detailed in Clause 9.11.1.1.(2)(a). There are also construction specifications detailed in Sentence 9.10.3.1.(3) that the designer can use where a 30-minute fire-resistance rating is required. The construction specifications for both the 15-minute assembly and the 30-minute assembly permit the use of 12.7 mm regular gypsum board and satisfy the sound transmission requirements as well.	

Examples of New Secondary Suite Provisions (continued)

Fire Protection (continued)

Section 9.10.

Doors as closures in fire separations do not need to be labelled or tested, provided they are designed to specific criteria such as having a 45 mm thickness of solid wood and be provided with a self-closing device.

Assemblies that separate houses with secondary suites need not be constructed as a firewall but shall be constructed as fire separations with not less than a 1-hour fire-resistance rating. The assembly must be continuous from the top of footings to the underside of the roof deck and may not at any point be horizontal. A house with a secondary suite may not be above or below any other unit or occupancy.

Interconnected smoke alarms must be photo-electric type as they are less susceptible to nuisance alarms and may now rely on wireless technology for interconnection.

Windows or access panels for firefighting are not required for houses with secondary suites, nor is firefighting access to basements required.

Sound Transmission

Section 9.11.

Controlling sound transmission is important to occupant health and well-being. The separation between a secondary suite and the other dwelling unit within a house has a reduced apparent sound transmission class (ASTC 40 from 47) and reduced sound transmission class (STC 43 from 50). There is an additional option in lieu of a rating of a prescriptive assembly that is considered acceptable. Sound resistance can be further improved by selecting furnishings and finishing materials that absorb sound such a carpet.

Carbon Monoxide Alarms

Article 9.32.4.2.

All carbon monoxide alarms installed in a house with a secondary suite including their common spaces must be interconnected and may rely on wireless technology for interconnection.

A house with a secondary suite may contain common spaces such as common storage, common service rooms, common laundry facilities, and common areas used for egress. Common spaces that are part of a shared means of egress must be separated from the dwelling units with a fire separation and have available controls such as for lighting.

More Information

BC Codes are Now Available Free Online

Free online access to the [BC Building Code](#) and the [BC Fire Code](#) is available on the BC publications [website](#). In addition, Revision 2 content changes are summarized in the online [BC Building Code](#) and the [BC Fire Code 2018](#), for convenience.

Links

- Codes Canada: (volunteer & attend) https://www.nrc-cnrc.gc.ca/eng/solutions/advisory/codes_centre_index.html
- Ministry website: <https://www2.gov.bc.ca/gov/content/industry/construction-industry/building-codes-standards>
- National Code Change Request: https://www.nrc-cnrc.gc.ca/eng/solutions/advisory/codes_centre/code_change_request.html

Contact the Building and Safety Standards Branch

- **General** inquiries can be sent to building.safety@gov.bc.ca
- **Technical** code inquiries can be sent to codequestion@gov.bc.ca

Contact the Local Authority

- Local authority contact information is available online at <http://www.civicinfo.bc.ca/directories>.

The Building and Safety Standards Branch does not enforce compliance with the BC Code. Local authorities are authorized to enforce the BC Code through the Local Government Act and the Community Charter.

Appendix A

British Columbia Building Code 2018 Revision 2 References to Secondary Suite Provisions

The following table provides references to secondary suite-specific content as it appears throughout Part 9 of Division B.

Secondary Suite Provisions in Part 9		
Reference	Application	Provision
Article 9.5.3.1.	Ceiling Heights of Rooms or Spaces	Ceiling and clear heights in secondary suites shall be the same as for all other dwelling units
Article 9.5.5.1.	Doorway Opening Sizes	Doorway opening sizes shall be the same as for all other dwelling units
Section 9.8.	Stairs, Ramps, Landings, Handrails and Guards	Stairs, ramps, landings, handrails and guards shall be the same as for those serving single dwelling units
Article 9.9.2.4.	Principal Entrances	Exemption from requirements for exits
Article 9.9.3.3.	Width of Corridors	Minimum width for public corridors and exit corridors serving a house with a secondary suite including its common spaces
Article 9.9.3.4.	Clear Height	Minimum clear height for public corridors and exit corridors serving a house with a secondary suite including its common spaces
Subsection 9.9.4.	Fire Separations for Exits	Exits shall be separated by a fire separation with a fire-resistance rating corresponding to the interconnection of smoke alarms and the presence of sprinklers
Subsection 9.9.6.	Doors in a Means of Egress	Limits on obstructions of doors and at doorways in a means of egress
Article 9.9.9.2.	Two Separate Exits	Permitted alternatives from providing a second and separate exit
Article 9.9.9.3.	Shared Egress Facilities	Permitted alternatives from providing a second and separate means of egress
Subsection 9.9.11.	Signs	Exemption from requirements for signage
Subsection 9.9.12.	Lighting	Exemption from requirements for lighting in a means of egress
Article 9.10.3.1.	Fire-Resistance and Fire-Protection Ratings	Permitted assemblies where a fire-resistance rating is required
Article 9.10.9.2.	Continuous Barrier	Sealing of joints in fire separations
Article 9.10.9.3.	Openings to be Protected with Closures	Permitted alternative for doors where a fire-protection rating is required

Secondary Suite Provisions in Part 9 (continued)		
Reference	Application	Provision
Article 9.10.9.6.	Penetrations of Fire Separations	Permitted alternative to providing fire dampers
Article 9.10.9.14.	Separation of Residential Suites	Dwelling units shall be separated by a fire separation with a fire-resistance rating corresponding to the interconnection of smoke alarms and the presence of sprinklers
Article 9.10.9.15.	Separation of Public Corridors	Public corridors shall be separated from the remainder of the building by a fire separation with a fire-resistance rating corresponding to the interconnection of smoke alarms and the presence of sprinklers
Article 9.10.10.4.	Location of Fuel-Fired Appliances	Permitted alternative for the separation of service rooms containing a fuel-fired appliance
Article 9.10.11.2.	Firewalls Not Required	Permitted alternative to the requirement for a firewall on a property line
Article 9.10.12.3.	Exterior Walls Meeting at an Angle	Required distance between unprotected openings
Subsection 9.10.15.	Spatial Separation Between Houses	Application of Subsection 9.10.15. to houses with a secondary suite
Article 9.10.19.1.	Required Smoke Alarms	Smoke alarms required in ancillary spaces and common spaces
Article 9.10.19.5.	Interconnection of Smoke Alarms	Options for interconnection of smoke alarms corresponding with the fire-resistance rating of fire separations and the presence of sprinklers
Subsection 9.10.20.	Firefighting	Exemption from providing access panels and basement access
Subsection 9.11.1.	Protection from Airborne Noise	Requirement for protection from airborne noise, and permitted assemblies where an apparent sound transmission class rating or a sound transmission class rating are required
Section 9.32.	Ventilation	Permitted alternative to a self-contained mechanical ventilation system serving only one dwelling unit
Article 9.32.4.2.	Carbon Monoxide Alarms	Carbon monoxide alarms shall be interconnected
Section 9.33.	Heating and Air-Conditioning	Permitted alternative to a heating system or air-conditioning system serving only one dwelling unit
Article 9.33.4.3.	Heating System Control	Individual temperature controls shall be provided in each dwelling unit
Subsection 9.34.2.	Lighting Outlets	Requirement for stairways to be lighted

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Item 9.5

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: Council accept the Architectural Consulting Services Quote for Tendering and Construction Services of the Fire Hall #2 addition from Avex Architecture, for the quoted price of \$25,000.00 plus applicable taxes;

AND THAT: the City's Purchasing Policy No. 7.13 be waived in the procurement of these works to authorize sole sourcing to Avex Architecture.



TO: His Worship Mayor Harrison and Members of Council
FROM: Brad Shirley, Fire Chief
DATE: June 14th, 2023
SUBJECT: FIRE HALL # 2 – ARCHITECTURAL SERVICES AWARD

STAFF RECOMMENDATION

THAT: Council accept the Architectural Consulting Services Quote for Tendering and Construction services of the Fire Hall # 2 addition from Avex Architecture, for the quoted price of \$25,000.00 plus applicable taxes.

AND THAT: The City's Purchasing Policy No. 7.13 be waived in the procurement of these works to authorize sole sourcing to Avex Architecture.

BACKGROUND

Fire Hall # 2 is located at 100, 30th St. S.E. The proposed addition is at the east end of the current building and will house the aerial ladder truck, hazardous material trailer and related firefighting equipment.

In 2022 Avex Architecture was awarded the preliminary design and cost estimate services for the proposed project.

Since completion of the plans, council has approved a budget of \$500,000.00 in the 2023 cycle with funds allotted from the Gas Tax grant enabling us to continue with the Tendering process. The anticipated timeline is to have construction completed by late 2023, early 2024 subject to sufficient funding and contractor availability.

STAFF COMMENTS

Moving forward, the architect is required to complete construction drawings, document preparation, tendering services, services during construction, final inspection and approvals. The preliminary design 3D views are attached.

Staff are recommending this sole source of Avex Architecture for value added reasons as they were responsible for the initial design portion of this project and have completed research on structure and design.

As this is a public facility it is recommend that the same architect on record that has completed the initial designs and research continue with the project and be responsible for the tendering and construction services.

Staff are recommending that council accept the architectural consulting services quote for The Fire Hall 2 addition from Avex Architecture in the amount of \$25,000.00, plus taxes as applicable.

Respectfully submitted,

Fire Chief Brad Shirley



MARC A. LAMERTON, Principal
Architect AIBC
B.A., M.Arch., LEED AP

May 23, 2023 (Revised)

To: Darin Gerow, ASCT
Manager of Roads & Parks
City of Salmon Arm
T 250-803-4088

Re: Architectural Consulting Services for the proposed Building Addition to municipal Firehall #2
• 200 – 30th Street NE, Salmon Arm, BC

Thank you for the opportunity to provide you with a proposal regarding the planned addition to the City of Salmon Arm Firehall #2. It is always exciting to explore the ways that existing structures can be improved in order to extend the lifespan and to enhance the capacity of such an important facility. When this improvement involves a public building, such as a firehall, the potential benefit will impact many members of the community. We are excited about the prospect of working with the city staff and the project team in order to help realize the plans for the facility upgrade.

At this point, based on the design work developed during the preliminary budgeting phase, we understand that the building addition will consist of two new truck bays contained in a concrete block structure approximately 26' x 42' in size. The new portion will be attached to the east side of the existing firehall facility.

Below, an outline of the general scope of services will be provided for the various stages of design, followed by the associated fees. As discussed, I've done my best to streamline this proposal as much as possible in order to provide you with something competitive, yet still allow me to offer you the benefits and expertise of a practicing Registered Architect.

SCOPE OF SERVICES

As per our initial discussions we understand the scope of services required to include the following:

PART A - CONSULTANT ENGAGEMENT

During this phase, we will reach out to suitable engineers that will be required to consult on this project and obtain proposals for their relevant parts of the design. At this time, it is anticipated that the following engineering consultants will be required:

- Geotechnical
- Structural
- Mechanical (HVAC & Plumbing)
- Electrical



MARC A. LAMERTON, Principal
 Architect AIBC
 B.A., M.Arch., LEED AP

PART B - DESIGN DEVELOPMENT DESIGN PHASE

The design work will continue from the concept developed during preliminary budget work. During this phase, we will:

- Confirm all pertinent aspects of the existing building and site conditions.
- Review in further detail all the requirements and wishes for the project and confirm the preliminary stylistic approach for the design.
- Further develop the conceptual drawings, ensuring the design meets the specified requirements.
- Develop schematic building sections and elevations for the selected concept.
- Begin the coordination effort with all required consulting engineers.
- Refine the digital 3-D model confirming the building form and materials.
- Produce a Schematic Design package of coordinated drawings from all consultant team members.

PART C – CONSTRUCTION DOCUMENTS

This next phase comprises the majority of the effort required to finalize the design and develop the detailed, coordinated drawings. During this part, we will provide:

- Coordination of design with all required engineering consultants (i.e. geotechnical, structural, mechanical, electrical).
- Review and specification of all major building components.
- Preparation of comprehensive, detailed architectural drawings and Project Manual - to an industry-standard level of detail – suitable for Tendering and obtaining a Building Permit.
- Provision of BC Building Code Letters of Assurance (Schedule A & Schedule B).

PART D - TENDERING SERVICES

It is understood that this project will require a Public Tender process in order to select a General Contractor. During this phase, we will include:

- Provision of PDF digital files and/or hard copy drawings for the purposes of tendering the general contract.
- Assistance to the City of Salmon Arm in the tendering and General Contract selection process.
- Preparation of the CCDC-2 Contract between Owner (City of Salmon Arm) and the successful General Contractor.



MARC A. LAMERTON, Principal
 Architect AIBC
 B.A., M.Arch., LEED AP

PART E - SERVICES DURING CONSTRUCTION

While the project is being constructed, we will:

- Make periodic site visits to ensure that the building is being constructed in general conformance with the Construction Documents.
- Respond to Requests for Information, provide Site Instructions, and review Shop Drawings throughout the construction process.
- Review General Contractor Requests for Payment and forward comments to the City of Salmon Arm.
- Perform a Substantial Completion walk-through and create a deficiency list of items to be completed prior to Occupancy.
- Perform a final inspection at the end of the work, and provide BC Building Code Letters of Assurance (Schedule C-A & Schedule C-B) for submission to the local Authority Having Jurisdiction.

ESTIMATED FEES

To perform the Scope of Services listed above I propose the following fees:

Part A:	Fixed fee amount of \$1,500 (One Thousand Five Hundred) + Tax
Part B:	Fixed fee amount of \$4,500 (Four Thousand Five Hundred) + Tax
Part C:	Fixed fee amount of \$9,500 (Nine Thousand Five Hundred) + Tax
Part D:	Fixed fee amount of \$3,500 (Three Thousand Five Hundred) + Tax
Part E:	Fixed fee amount of \$6,000 (Six Thousand) + Tax

No extras will be charged without your full prior knowledge and approval. If the project should be cancelled at any time, fees for only those portions completed to that time will be payable.

Should any work outside of the agreed scope above be required and approved by you, the hourly rate for this additional work (and for general hourly work) is:

- Architect - \$175/hr
- Architectural Technologist - \$105/hr

Note that this fee amount does **not include** fees for sub-consultants such as: legal, land surveyor, civil, landscape, soils, structural, mechanical, electrical or quantity estimating. The fee and services do, however, include the coordination of the input from any of these disciplines as required to produce a first-class design and drawing package. The fee also does **not include** fees for Building Permit Application, or any other required costs levied by the Authorities Having Jurisdiction.



MARC A. LAMERTON, Principal
 Architect AIBC
 B.A., M.Arch., LEED AP

DISBURSEMENTS

Additional costs for computer plots, blueprinting, photocopying and other reproductions will be billed at cost with no markup.

SCHEDULE

We are available to begin work within the next few weeks. As an instruction to begin please sign this proposal in the space provided below and return a copy of it to us. We will work as efficiently as necessary order to have the design and drawings & specifications completed in a timely manner, meeting your expectations to tender the project during early summer and to begin construction in the fall of 2023.

Thank you, again, for considering us for this project. We are excited by the prospect of being able to work on it with you. If you have any questions or concerns regarding this proposal, please do not hesitate to contact us.

Yours very truly,

A handwritten signature in black ink, appearing to read 'Marc Lamerton', is written over a horizontal line.

Marc Lamerton, Architect AIBC
 B.A., M.Arch., LEED AP

 (Accepted by Owner

 Date)

This proposal & agreement is in compliance with the AIBC Bylaws, including especially (but not limited to) Bylaw 28: Professional Engagement and Bylaws 34.16: the Tariff of Fees for Architectural services; and the Code of Ethics.

AVEX Architecture Inc. carries Professional Liability Insurance in accordance with AIBC Bylaw 16.1.1. Proof of insurance can be supplied up on request.

Invoicing will occur at completion or partial completion of each main project phase, with payment due within 30 days of invoice date.

FIRE HALL #2 ADDITION

Salmon Arm, BC

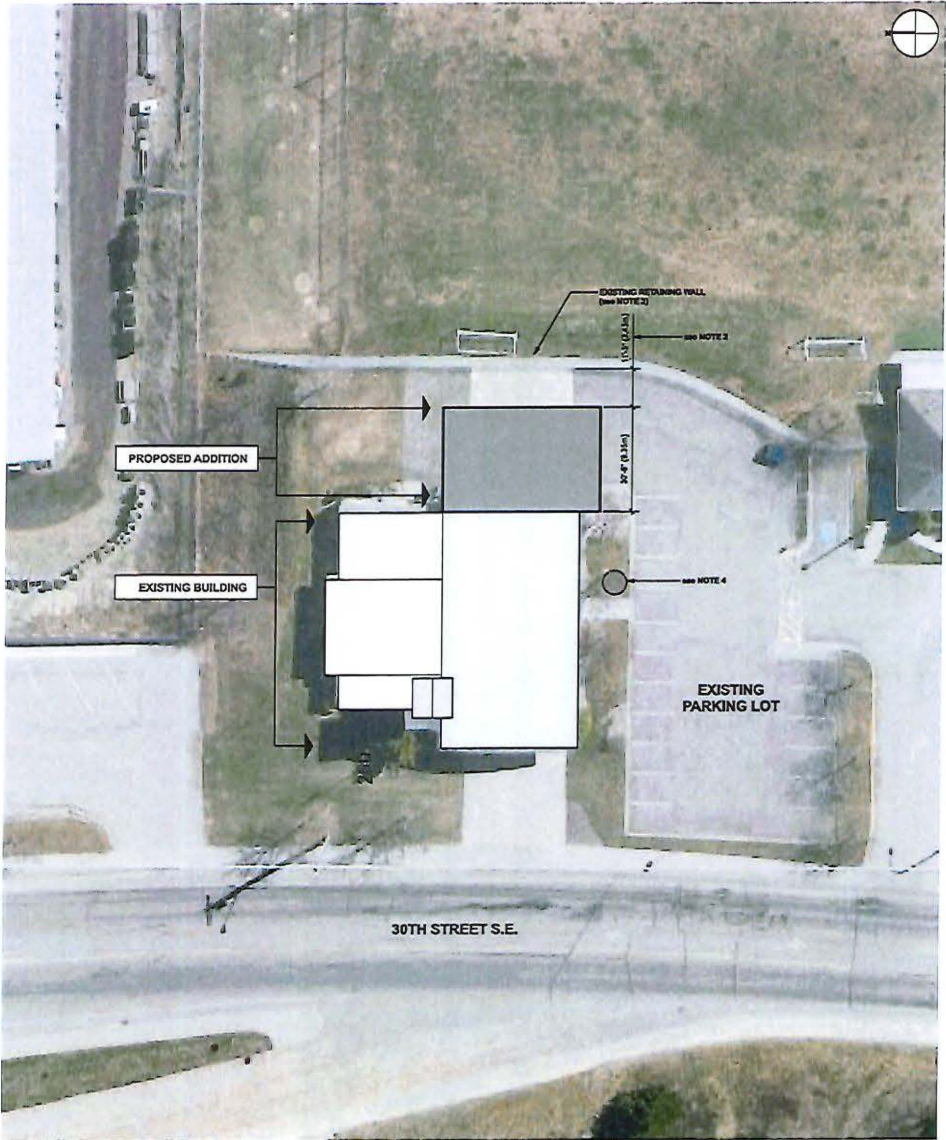
DRAWING LIST:

- A1.0 COVER / SITE PLAN
- A2.0 FOUNDATION & SLAB PLAN
- A2.1 MAIN FLOOR PLAN & NOTES
- A2.2 ROOF PLAN
- A3.1 BUILDING ELEVATIONS
- A3.2 BUILDING ELEVATIONS
- A4.1 BUILDING SECTIONS
- A5.1 3-D VIEWS

DEVELOPMENT INFORMATION	
CIVIC ADDRESS:	200 - 30th Street SE, Salmon Arm, BC
LEGAL DESCRIPTION:	Lot 1 See 18 To 20 R 9 WBM KDYO Plan M4P00475
PARCEL IDENTIFIER:	025-008-009
ZONING:	P-3
DCP DESIGNATION:	Institutional
PARCEL SIZE:	74,875sqm (18.5ac)
REQUIRED SETBACKS:	Front Yard - 6.0m (19.7') Rear Yard - 6.0m (19.7') Interior Side Yard - 3.0m (9.8') Exterior Side Yard - 6.0m (19.7')
MAXIMUM HEIGHT:	Proposed - see Site Plan Accessory Building = 12.0m (39.4') Proposed - see Elevations

BUILDING CODE INFORMATION	
BUILDING AREA:	Existing = 430.1sqm (4,604sf) Proposed = 130.0sqm (1,400sf) Total = 561.0sqm (6,004sf)
BUILDING HEIGHT:	1 Storey
OCCUPANCY:	Group F, Division 3 - Low-Hazard Industrial (Storage Garage) Group D - Business & Personal Service (Offices, Meeting Rooms)
FIRE SUPPRESSION:	No
STREETS FACING:	1
BUILDING CONSTRUCTION:	Combustible and Non-Combustible
APPLICABLE BUILDING CODE:	BC Building Code (2018) - Part 3 Applicable Sub-Section: 3.2.2.2.5 - Group F, Division 3, up to 2 storeys - Max. Area = 1,500sqm (16,145sf) (1 storey, facing 1 street) - Combustible and Non-Combustible construction permitted - Floor Assemblies to be Fire Separations (45Min, FRR) - Loadbearing walls to have 45Min, FRR
REQUIRED FIRE SEPARATIONS:	Between Storage Garage and other Occupancies = 1.5H FRR (as per 3.2.2.5.6)
TRAVEL DISTANCES:	Travel Distance to nearest Exit = 30m (as per 3.4.2.5.1(X))
SPECIAL REQUIREMENTS:	Project to be designed to include the requirements for Post-Disaster Buildings, as described in Division B Part 4, and all other applicable parts.

SITE PLAN NOTES	
1.	New roof water and footing drainage to connect to existing storm water piping.
2.	Proposed new building addition excavation to be impacted by proximity of existing retaining wall. City of Salmon Arm to consult with Geotechnical Engineer, Structural Engineer, & Contractor to confirm required wall modifications.
3.	All existing building services - electrical, HVAC, & plumbing - to be extended into building addition.
4.	Assumed location of existing oil & gas interceptor. New truck bay drainage to be connected.



1 SITE PLAN
Scale: 1:200

PRELIMINARY

ISSUE DATE

ISSUE	DATE
1	
2	
3	
4	
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DRAWN BY: MLC

DATE: October 2023

SCALE: 1/4" = 1'-0"



4165 - 4th St NE
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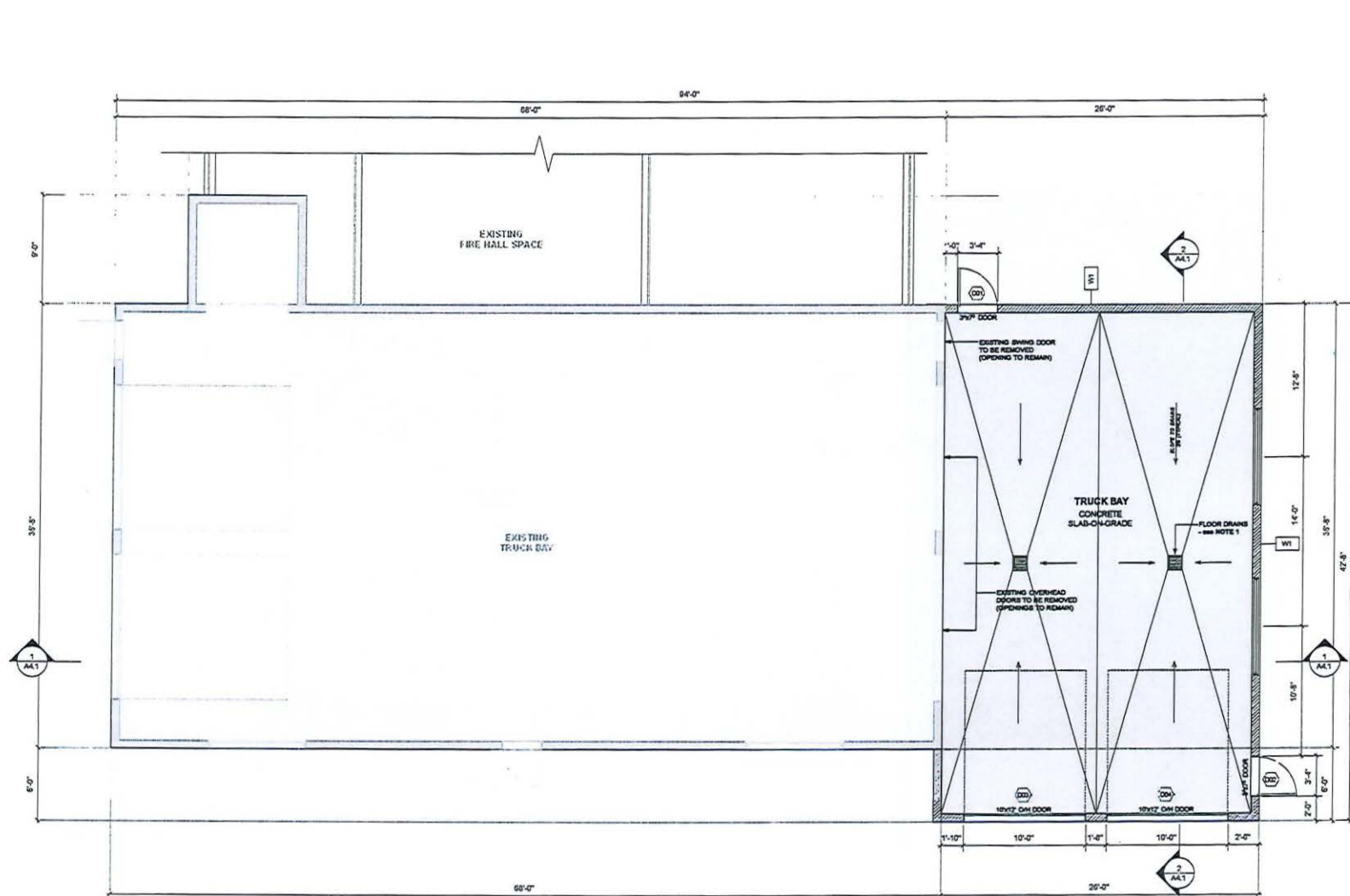
PROJECT: 23-030
CITY OF
SALMON ARM
- FIRE HALL #2
Truck Bay Addition

200 - 30th Street SE
Salmon Arm, BC

DRAWING TITLE:
COVER / SITE
PLAN

DRAWING NO:

A1.0



WALL ASSEMBLIES

Wall Type "WT"

- Metal Cladding - 24ga. (colour & profile to be determined)
- Liquid-Applied Moisture & Air Barrier
- Metal C-Profile - 3.5" x 1.5" x 0.075" mineral stone wool board (Rockwool Comfortboard 80 or equivalent). Min. R-11.4 continuous insulation (as per ASHRAE 90.1)
- Concrete Masonry Unit (CMU) wall construction (as per Structural)
- interior paint finish to match existing (epoxy paint - or equivalent - to provide vapour barrier)

FLOOR PLAN NOTES

1. Floor drains & catch basins to be provided for Truck Bay drainage. To be connected to existing oil & grit interceptor and underground stormwater piping.
2. Building dimensions for design & budgeting purposes only. Architect to review drawings with Contractor and optimize dimensions for CMU construction.
3. HVAC: Mechanical system providing heating, cooling, and ventilation to be extended into building addition. Heating provided by gas-fired Unit Heaters.
4. Carbon monoxide and carbon dioxide detectors to be provided.
5. New high-bay LED truck bay lighting to be provided.



PRELIMINARY

ISSUE	DATE

DRAWN BY: H.C.

DATE: October 2022

SCALE: 1/4"=1'-0"



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PROJECT: 22-030
CITY OF SALMON ARM
- FIRE HALL #2
Truck Bay Addition

200 - 20th Street SE
Salmon Arm, BC

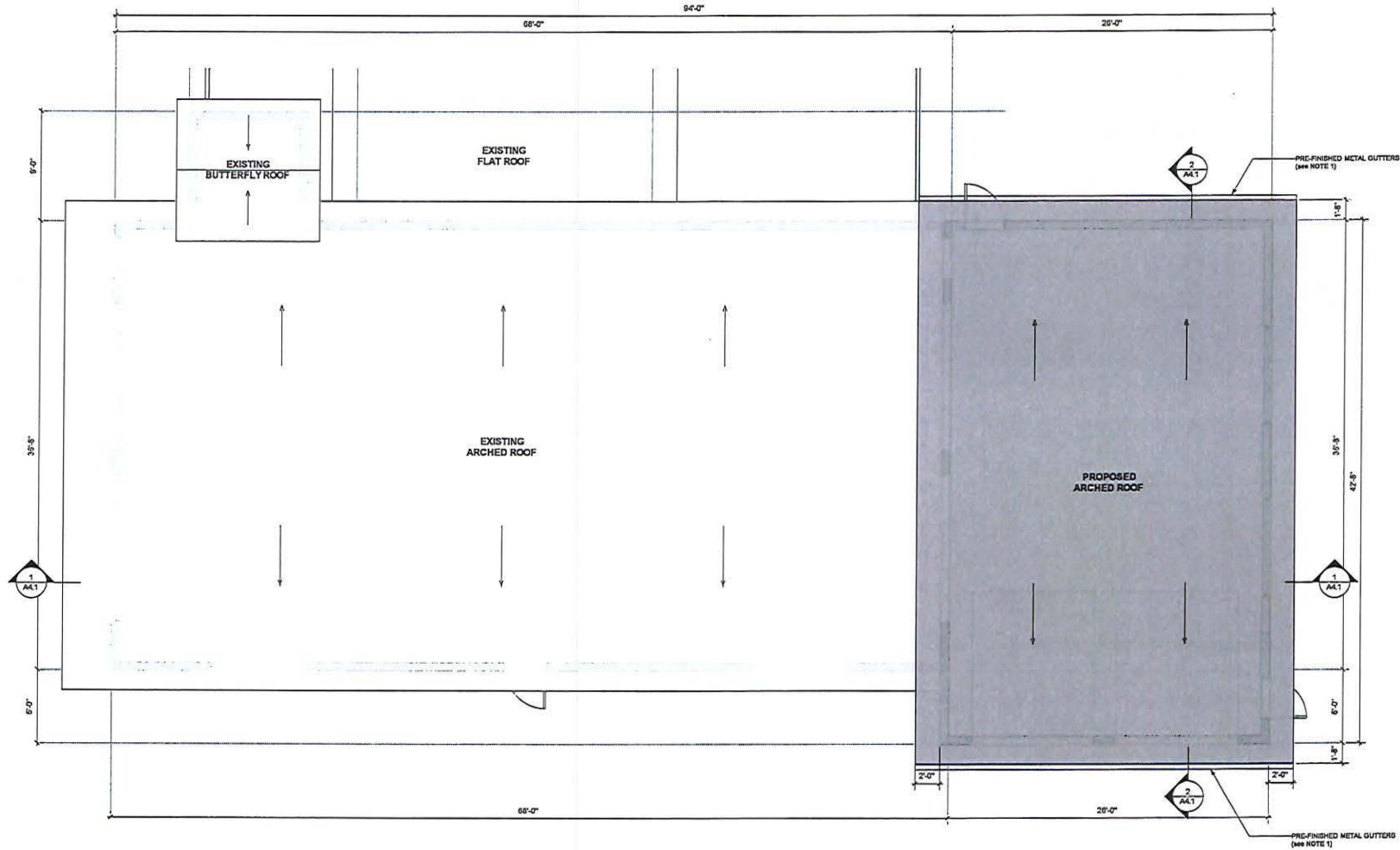
DRAWING TITLE:
MAIN FLOOR PLAN

DRAWING NO:

A2.1

ROOF PLAN NOTES

1. Roof water to be collected in rain water leaders and connected to existing storm water piping.
2. Roof geometry / curve to match existing.



PRELIMINARY

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ISSUE	DATE

DRAWN BY: PLQ
 DATE: October 2023
 SCALE: 1/4"=1'-0"



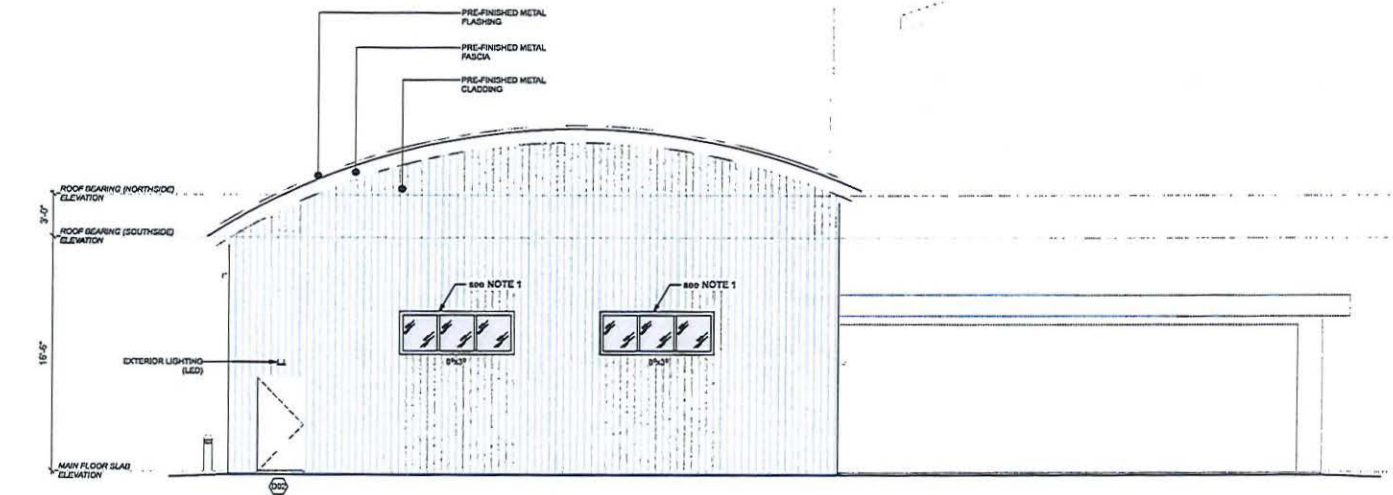
4185 - 40 ST NE
 PO BOX 2250
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 Marc Lamontagne, Architect
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PROJECT: 22-000
CITY OF SALMON ARM - FIRE HALL #2
 Truck Bay Addition

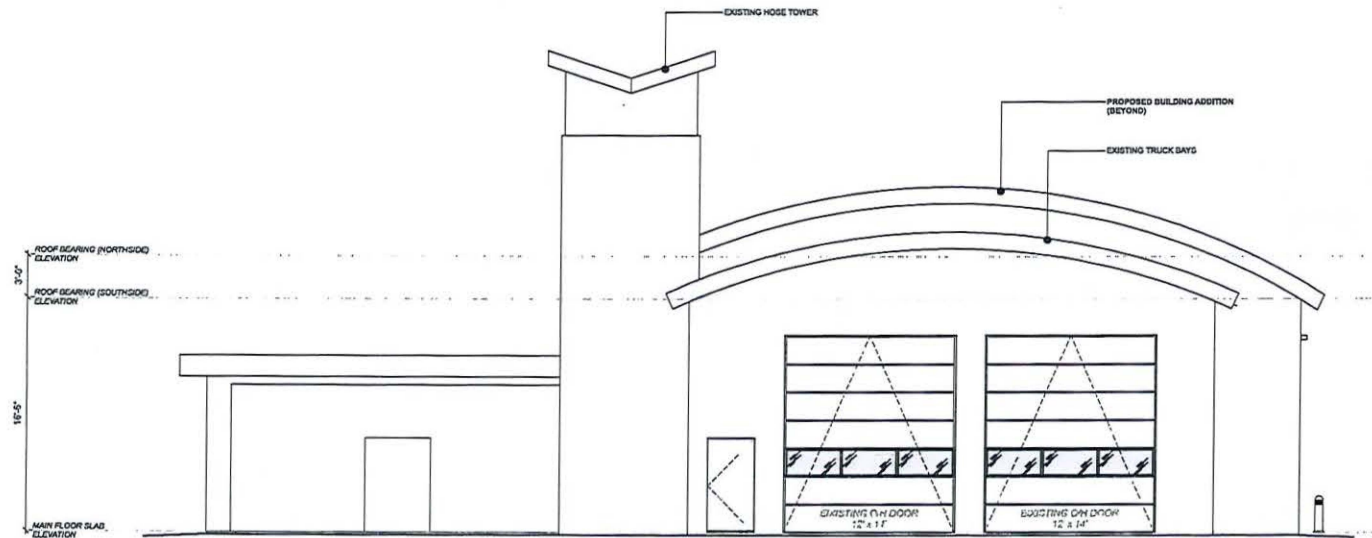
200 - 20th Street SE
 Salmon Arm, BC

DRAWING TITLE:
ROOF PLAN

DRAWING NO.
A2.2



1 EAST ELEVATION
Scale: 1/4" = 1'-0"



2 WEST ELEVATION
Scale: 1/4" = 1'-0"

DOOR SCHEDULE

DOOR 'D01'	+ 2'-0" x 7'-0", Insulated flush metal, door closer, threshold, weather seals, pressed metal frame
DOOR 'D02'	+ 2'-0" x 7'-0", Insulated flush metal, door closer, threshold, weather seals, pressed metal frame
DOOR 'D03'	+ 10'-0" x 12'-0", Insulated pre-finished metal overhead door + air sealed double-glazed lights (see Elevations) + power operating
DOOR 'D04'	+ 10'-0" x 12'-0", Insulated pre-finished metal overhead door + air sealed double-glazed lights (see Elevations) + power operating

ELEVATION NOTES

1. New pre-finished aluminum windows (to match existing)
+ 8'-0" x 3'-0"
+ double-glazed, with Low-E coating
+ thermally broken

PRELIMINARY

ISSUE DATE

1
2
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11
12

DRAWN BY: H.C.

DATE: October 2023

SCALE: 1/4" = 1'-0"



4102 - 4th ST NE
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Plan, Location, Architectural
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PROJECT: 22-039
CITY OF SALMON ARM
- FIRE HALL #2
Truck Bay Addition

200 - 30th Street SE
Salmon Arm, BC

DRAWING TITLE:
ELEVATIONS

DRAWING NO:

A3.1



ISSUE	DATE

DRAWN BY: M.C.
DATE: October 2022
SCALE: 1/4" = 1'-0"



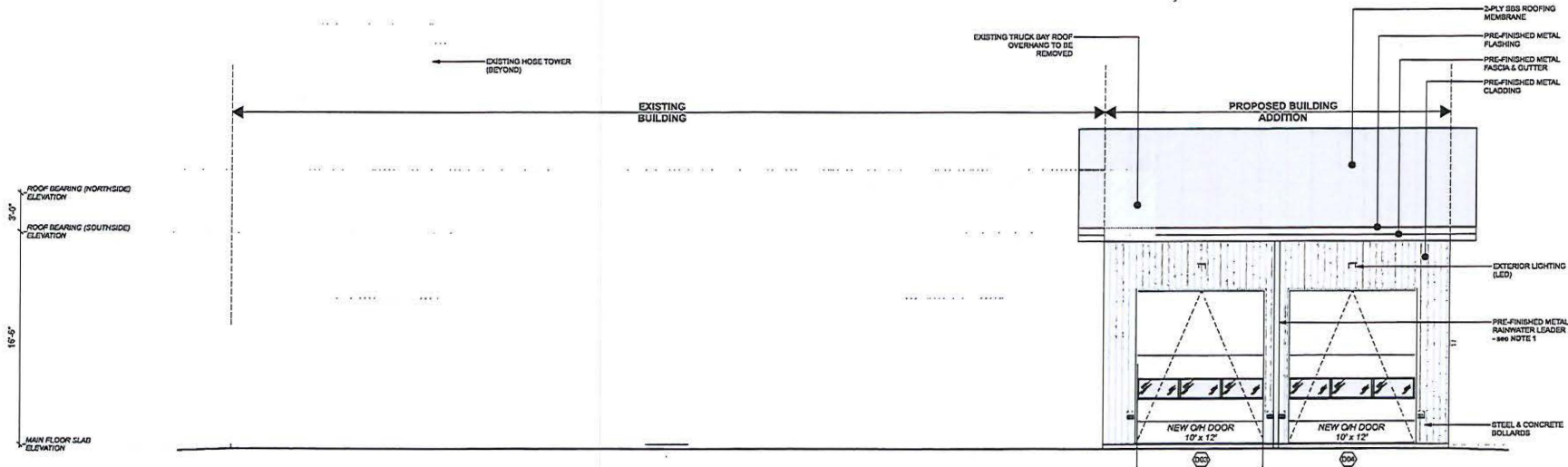
4168 - 4th ST NE
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PROJECT: 22-030
CITY OF SALMON ARM
- FIRE HALL #2
Truck Bay Addition

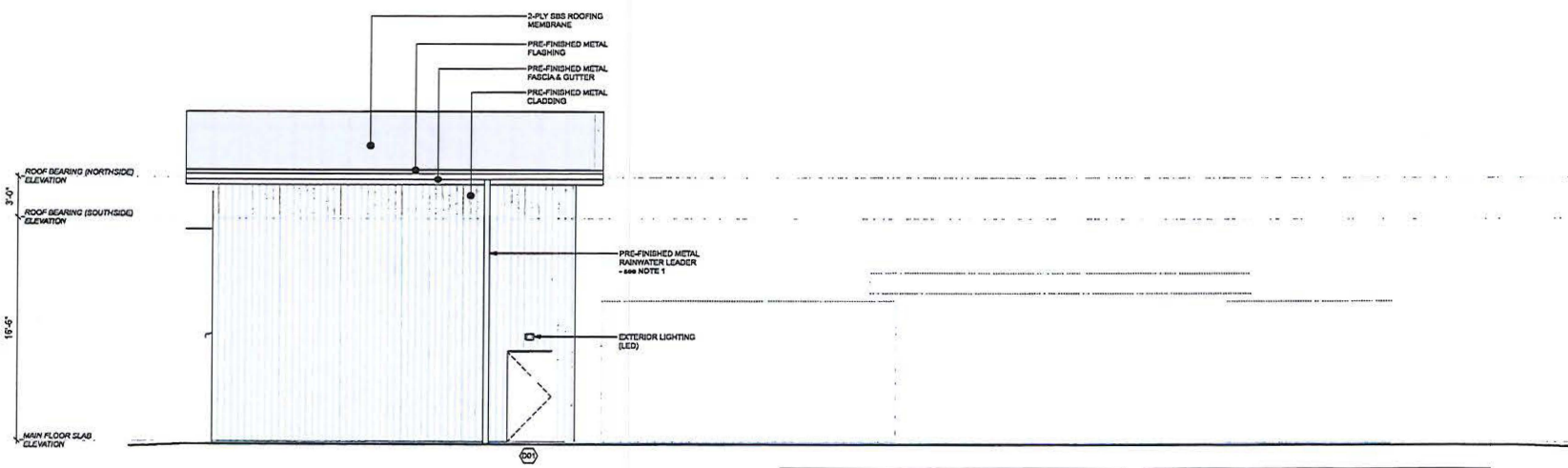
200 - 30th Street SE
Salmon Arm, BC

DRAWING TITLE:
ELEVATIONS

DRAWING NO:
A3.2



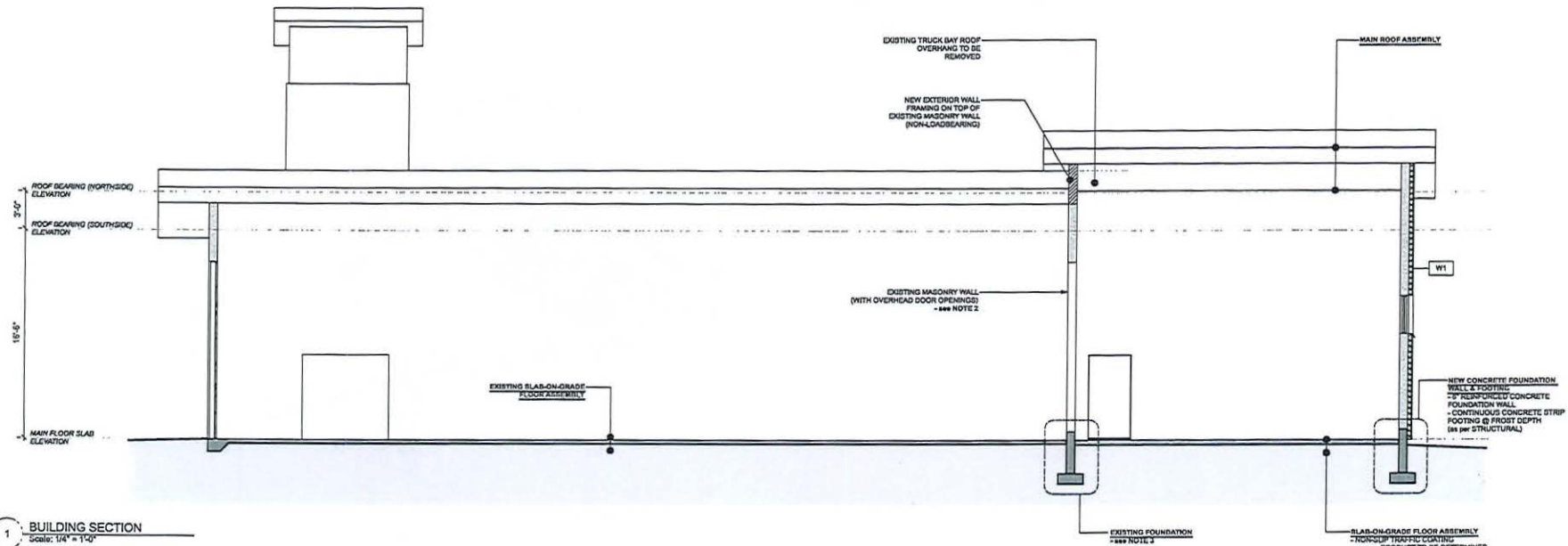
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Scale: 1/4" = 1'-0"



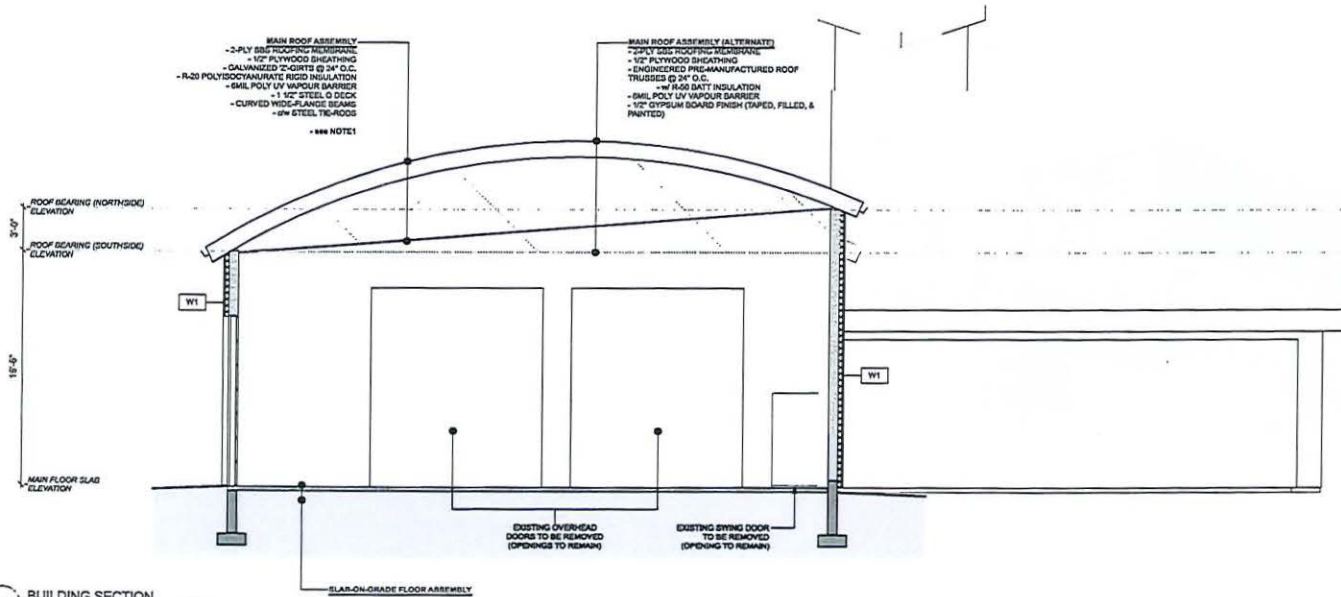
2 NORTH ELEVATION
Scale: 1/4" = 1'-0"

ELEVATION NOTES
1. All rainwater to be collected into existing underground piping and directed into municipal stormwater system.

DOOR SCHEDULE
DOOR 'D01' - 3'-0" x 7'-0", Insulated flush metal, door closer, threshold, weather seals, pressed metal frame
DOOR 'D02' - 3'-0" x 7'-0", Insulated flush metal, door closer, threshold, weather seals, pressed metal frame
DOOR 'D03' - 10'-0" x 12'-0", Insulated pre-finished metal overhead door - (2x) sealed double-glazed lights (see Elevations) - power operated
DOOR 'D04' - 10'-0" x 12'-0", Insulated pre-finished metal overhead door - (2x) sealed double-glazed lights (see Elevations) - power operated



1 BUILDING SECTION
Scale: 1/4" = 1'-0"



2 BUILDING SECTION
Scale: 1/4" = 1'-0"

SECTION NOTES

1. Structural system specified by original fire hall Structural Engineer (Titan Structural Consulting Ltd.) used as a reference for truck bay addition design. All final structural design and specifications - including the requirements for "Post-Cluster" facilities - for the building addition to be provided by a Professional Engineer registered in British Columbia.
2. Split-face concrete surface on existing masonry wall to be finished appropriate masonry waterproofing paint (process to include pressure-washing, priming, & painting).
- Rust-Oleum "Stain-Kicker", or equivalent.
3. Original structural drawings indicate a "thickened-edge slab" footing design for the east Truck Bay masonry wall. It is anticipated that no new loads will be added to this wall, however, a structural engineer will review proposed building addition design and analyze the existing footings (a thick wall strip footing is shown for consistency).

PRELIMINARY

ISSUE DATE

DRAWN BY: P.L.C.

DATE: October 2022

SCALE: 1/4" = 1'-0"



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PROJECT: 22-032
CITY OF
SALMON ARM - FIRE HALL #2
Truck Bay Addition

200 - 30th Street SE
Salmon Arm, BC

DRAWING TITLE:
BUILDING
SECTIONS

DRAWING NO:

A4.1

PRELIMINARY

ISSUE	DATE

DRAWN BY: PLO
 DATE: October 2022
 SCALE: 1/8"



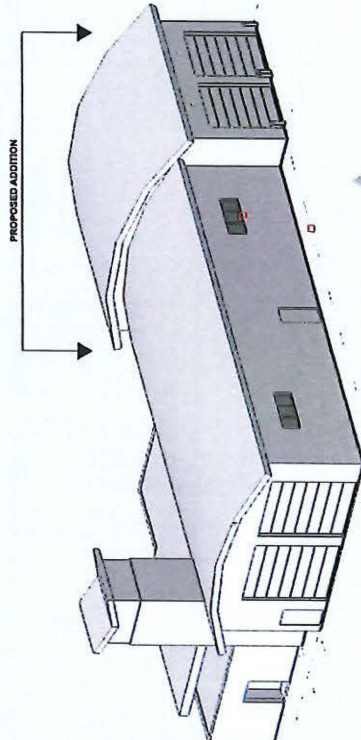
4105 - 4th ST. NE
 SUITE 100
 SALMON ARM, BC V1E 4B3
 Pats Lumsden Architectural Inc.
 P: 250-531-4400
 F: 250-531-4401
 www.patlsdesign.com

PROJECT: 20-030
 CITY OF
 SALMON ARM
 - FIRE HALL #2
 Truck Bay Addition

300 - 3rd Street SE
 Salmon Arm, BC

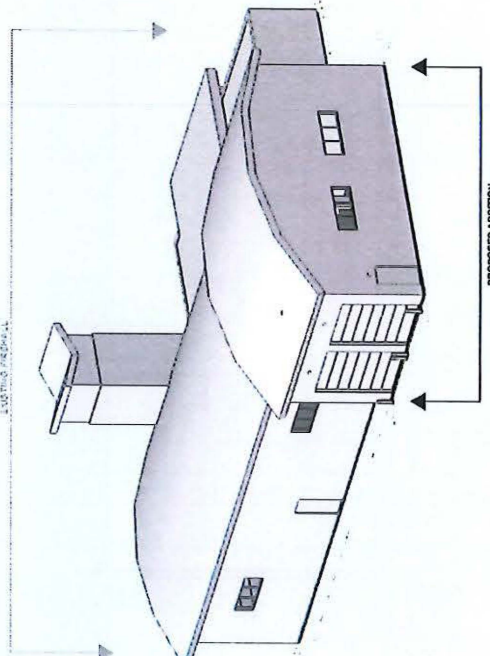
DRAWING TITLE:
3D VIEWS

DRAWING NO:
A5.1



EXISTING FIREHALL

1 View from Southwest



EXISTING FIREHALL

2 View from Southeast

Item 9.6

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the 2023 Budget contained in the 2023-2027 Financial Plan Bylaw be amended to reflect additional funding in the amount of \$25,000.00, which includes additional funds required to remove identified danger trees, reallocated from the Future Expenditure Reserve.



File: 6300. Trees

TO: His Worship the Mayor Harrison and Members of Council

FROM: Robert Niewenhuizen, Director of Engineering and Public Works

PREPARED BY: Darin Gerow, Manager of Roads & Parks

DATE: June 14, 2023

SUBJECT: **BUDGET AMENDMENT– DANGER TREES**

STAFF RECOMMENDATION

THAT: The 2023 Budget contained in the 2023 – 2027 Financial Plan Bylaw be amended to reflect additional funding in the amount of \$25,000.00, which includes additional funds required to remove identified danger trees, reallocated from the Future Expenditure Reserve

BACKGROUND

City of Salmon Arm Public Works Department receives a substantial volume of reports and complaints regarding 'Danger Trees'. Danger trees can be defined differently by each individual, The City's process has been that once a complaint has been received our certified arborist reviews the tree and provides us with a recommendation. If this includes removal, we attempt to remove the tree with city staff. If the removal is more technical in nature, the City will procure a professional tree feller to have the tree removed safely.

Procedures put in place over the past 5 years have reduced the amount of City funded removals. This was accomplished by confirming responsibility to the real property owners where trees are located within their boulevard, as per Traffic Bylaw No. 1971. However, within the last 2 years the City has experienced an increase in dangerous tree reports

A dangerous tree removal budget was requested and approved 3 years ago, and increased each year. The 2023 budget was approved with \$25,725.00. Currently to date we have spent \$10,790.00, with \$14,935.00 remaining to get us through the year. Although we currently have funds remaining, we have an estimated cost of \$36,300.00 to remove trees that have been identified as hazardous and imminently dangerous.

It is recommended that council amend the 2023 budget contained in the 2023 – 2027 Financial Plan Bylaw to reflect additional funding in the amount of \$25,000.00 reallocated from the Future Expenditure Reserve, which currently has \$50,000 available. These funds will be utilized to remove trees that have been recently identified as hazardous and imminently dangerous.

Respectfully submitted,


Robert Niewenhuizen, ASCT
Director of Engineering and Public Works

cc Chelsea Van de Cappelle, CFO

X:\Operations Dept\Engineering Services\0920-PARKS\6300 Trees\Hazard Trees\HWM Budget Amendment - Danger Trees.docx

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Item 9.7

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: Council enter into a 10 year license of occupation with BC Hydro for the installation of a Direct Current Fast Charge (DCFC) electrical vehicle charging station at Hudson Parking Lot in Salmon Arm, including the occupation of 6 parking stalls, with the option to extend the term 10 more years at the request of BC Hydro;

AND THAT: the Mayor and Corporate Officer be authorized to execute the License of Occupation with BC Hydro.



File: 5500 Utilities – BC Hydro

TO: His Worship Mayor Harrison and Members of Council

FROM: Robert Niewenhuizen, Director of Engineering and Public Works

DATE: June 26, 2023

SUBJECT: **BC Hydro Electrical Vehicle Charging Station / Hudson Parking Lot – License of Occupation**

RECOMMENDATION:

THAT: Council enter into a 10 year license of occupation with BC Hydro for the installation of a Direct Current Fast Charge (DCFC) electrical vehicle charging station at Hudson Parking Lot in Salmon Arm, including the occupation of 6 parking stalls, with the option to extend the term 10 more years at the request of BC Hydro;

AND THAT: The Mayor and Corporate Officer be authorized to execute the License of Occupation with BC Hydro.

BACKGROUND:

BC Hydro would like to install a pull through Electrical Vehicle charging station at Hudson Parking Lot (100 Hudson Ave NW, Salmon Arm) in support of the Province of BC's goal to ensure 100% of all new vehicles sales by the year 2035 are zero emission vehicles.

(https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf).

BC Hydro currently operates over 120 public EV fast charger at over 80 sites throughout the province, with immediate plans to expand this network to 145 sites by the end of 2025 through its public Electric Vehicle Fast Charging Network Plan.

(<https://www.bchydro.com/powersmart/electric-vehicles/industry/charging-network-planning.html>)

Details of the license:

- BC Hydro will cover all capital costs for the installation (around \$500,000).
- BC Hydro will cover all costs associated with operating and maintaining the charging equipment including electricity (around \$8,000 to \$10,000 per year) and operate the public EV fast charging station.

- In return the City needs to commit to sign a 10 year license of occupation with the option to extend for a further term of 10 years at the request and sole decision of BC Hydro.
- City of Salmon Arm will provide general maintenance of the parking: stall painting, asphalt patching and snow clearing.
- Equipment to be installed: 2 dual head Direct Current Fast Charge electrical car charging stations. Site plan attached as Appendix 1.
- 6 parking stalls are expected to be occupied, of the 26 parking stalls.
- Other communities with similar charging stations are Lillooet, Fraser Lake and Kitimat. Examples attached as Appendix 2
- Users of the charging station to pay separately for the use of the charging station and parking. This will not reduce the number of reserved parking stalls.
- Installation planned for summer of 2023, weather dependent.
- Ross Street Parking Lot Electrical Vehicle charging station is not planned to be removed.

BC Hydro has secured a federal grant (NRCan) under the Zero Emissions Infrastructure Program that will offset the capital cost for this project. The charging station could be expanded in the future if agreed by both parties.

The Hudson Parking Station site was discussed with the Downtown Parking Commission and they have provided support for the facility to be installed at this location.

This charging station would benefit the Downtown area and complements the City's ongoing climate action efforts by reducing community-wide emissions. A high increase in EV charges is expected to achieve BC goal of 100% of all new vehicles sales to be zero emission vehicles by 2035. BC Hydro Charging Station pull-through layout has the advantage of accommodating large electrical vehicles and EV's towing trailers, compared to other charging stations.

Planning Department

The Hudson Parking Lot is situated within the downtown city centre and is just 1 block from the Trans Canada Highway, providing an easily accessible location close to a wide range of services. This site falls within the Commercial – City Centre land use designation of the OCP, and is zoned C-2 (Town Centre Commercial) in the Zoning Bylaw. An objective of the Commercial – City Centre OCP land use designation is to “*promote the City Centre as the business and cultural focus of the community*”. The proposed location of an EV charging station aligns well with this policy, encouraging visitation of surrounding commercial business and pedestrian use of the city centre. The C-2 zone permits parkade/off street parking use, *private utility*, *public utility*, as well as *accessory use*, which permits the location of an EV charging station at this site. This proposed location for an EV charging station compliments existing policies and regulations.

Conclusion

Staff respectfully recommend that Council enter into a 10 year license of occupation with BC Hydro for the installation of a Direct Current Fast Charge (DCFC) electrical vehicle charging station at Hudson Parking Lot in Salmon Arm including the occupation of 6 parking stalls and the option to extend the term 10 more years at the request of BC Hydro; that the Mayor and Corporate Officer be authorize to execute the License of Occupation with BC Hydro.

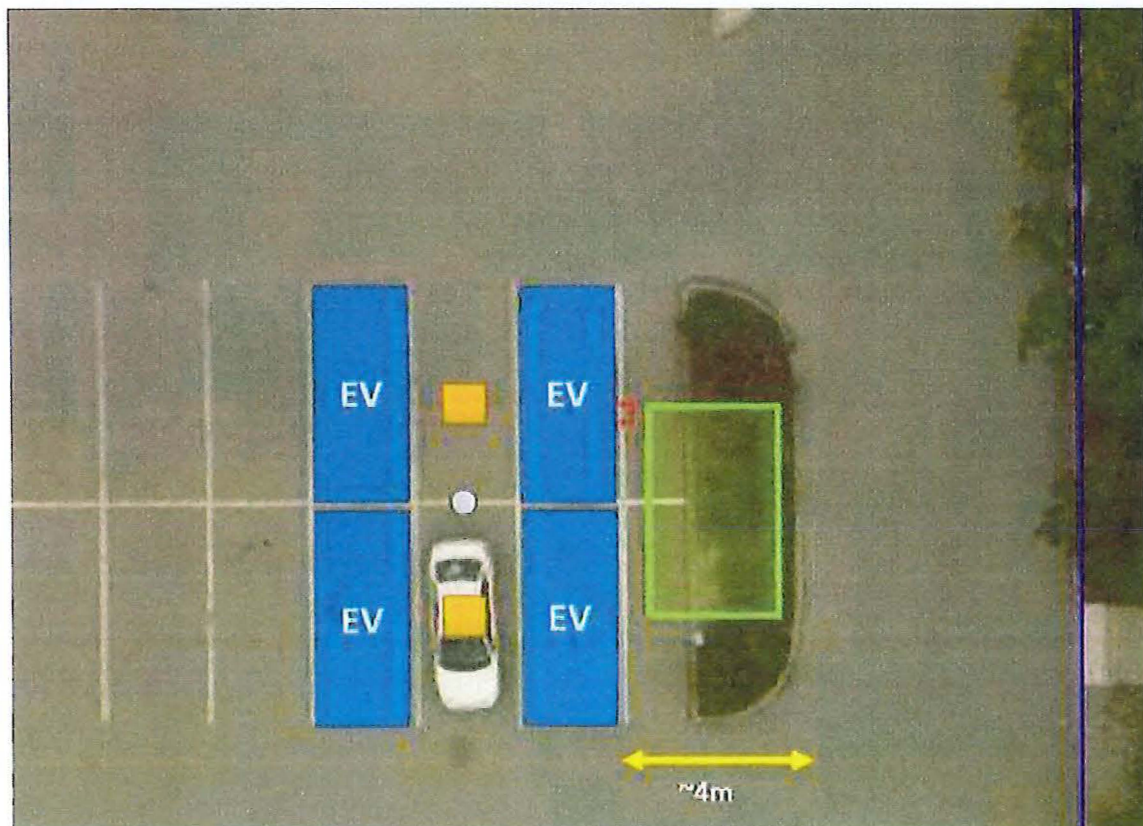
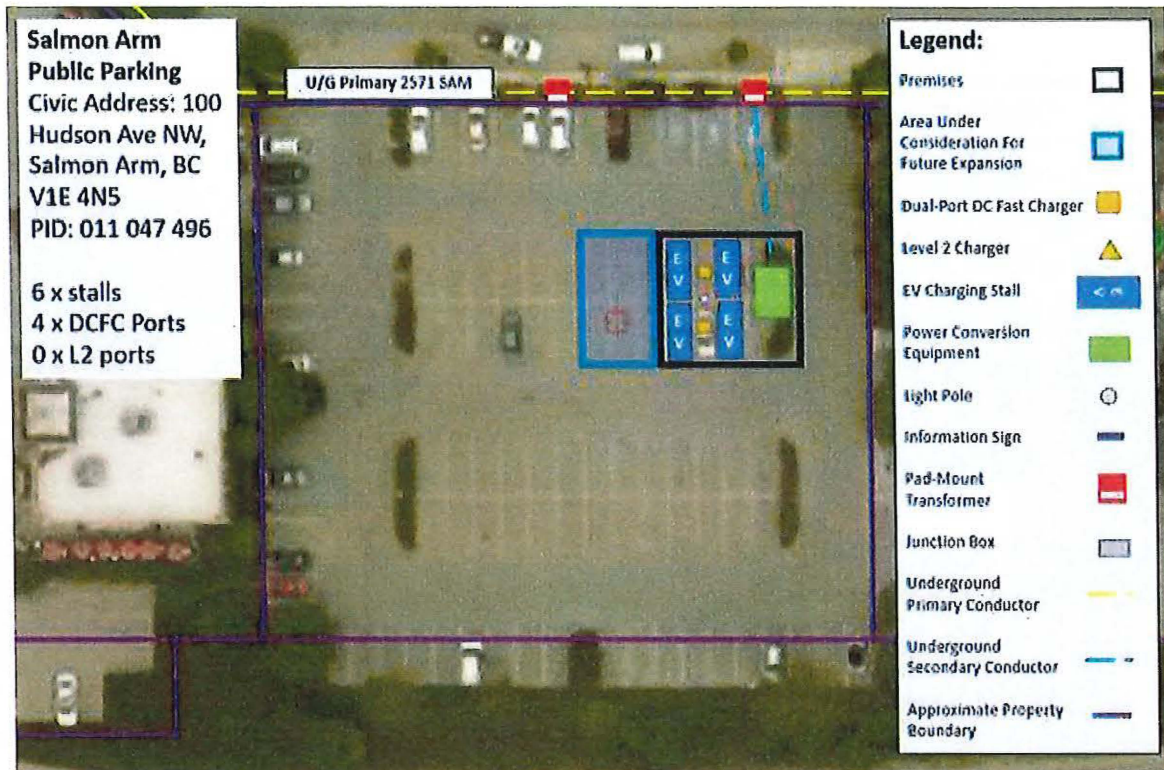
Respectfully submitted,



Robert Nieuwenhuizen,
Director of Engineering and Public Works

cc Erin Jackson, Chief Administrative Officer
Sue Wood, Corporate Officer

Appendix 1 Site plan



Appendix 2 Examples of similar charging stations

Lillooet. 2-sided Pull-Through Configuration. 2 x 50kW ports. 6 x standard parking stalls required.



Excellent trailer access from both sides. (September 24, 2022)



Item 9.8

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: Council adopt the Active Transportation Advisory Committee Terms of Reference dated June 26, 2023.



TO: His Worship Mayor Harrison and Members of Council

DATE: June 16, 2023

SUBJECT: Active Transportation Advisory Committee

MOTION FOR CONSIDERATION:

THAT: Council adopt the Active Transportation Advisory Committee Terms of Reference.

BACKGROUND:

The Active Transportation Task Force (ATTF) was formed in 2020 to provide information and recommendations to Council to help guide the City in developing a modern Active Transportation Plan. With financial assistance from the Province, the City of Salmon Arm successfully developed an Active Transportation Network Plan (ATNP) in collaboration with the ATTF and broader community.

The City acknowledges and appreciates the significant time and effort put forth by the ATTF members to bring the ATNP to life. The ATNP outlines a collective vision for active transportation in Salmon Arm and includes an implementation strategy that is uniquely suited to the City's topography, demographics and current and future needs.

As the original work of the ATTF has been completed, it is proposed that a new committee be formed to provide ongoing advice and recommendations to City Council to assist in implementation of the ATNP. Agenda items will focus on implementing the ATNP and achieving the goals of increasing active transportation mode share, working towards zero traffic-related fatalities and serious injuries, and reducing green house gas emissions.

The Terms of Reference (ToR), attached as Appendix A, specifies a membership that includes the following:

Membership: (11)


- One (1) member of City Council as chair – as appointed by Council
- One (1) member from Shuswap Trail Alliance
- One (1) member from Salmon Arm Economic Development Society
- One (1) member from Downtown Salmon Arm
- One (1) member from School District #83
- One (1) member from Interior Health
- One (1) member from Shuswap Cycling Club
- Four (4) Citizens-At-Large including one (1) member who uses mobility devices and one (1) member who is a senior (65 plus).

Quorum will be 50% +1, or 6 members.

While Indigenous representation has not yet been determined, both Adams Lake and Neskonlith Chiefs and Councils have been invited to appoint a member to participate as their schedules permit.

It is recommended that Council adopt the attached ToR. Once the ToR is adopted, staff will initiate a recruitment process for the Active Transportation Advisory Committee, with the inaugural meeting proposed for September 2023.

Respectfully Submitted,


Erin Jackson
Chief Administrative Officer



Active Transportation Advisory Committee Terms of Reference

Definition of Active Transportation

Active Transportation is any form of human-powered transportation, including moving with mobility devices (including power wheelchairs and mobility scooters), walking, cycling, roller-blading, skateboarding and scootering.

Mandate/Purpose:

The purpose of the Active Transportation Advisory Committee (ATAC) is to provide advice and recommendations to Salmon Arm City Council. Agenda items will focus on implementing the City's Active Transportation Network Plan (ATNP) and achieving the goals of increasing active transportation mode share, working towards zero traffic-related fatalities and serious injury, and reducing green house gas emissions.

Discussion topics will include those related to policy, pedestrian and cycling networks, access to transit, environmental and health considerations, regional connectivity, safety and suggesting amenities and design principles to deliver a successful Active Transportation program in Salmon Arm. The Committee will also help identify initiatives that influence citizen decisions to adopt Active Transportation.

Scope and Activities

The Active Transportation Advisory Committee will, consistent with the mandate/purpose described above, undertake the following:

- Identify and review strategies that work towards quantifiable goals for:
 - Implementing the Active Transportation Network Plan (ATNP),
 - Increasing Active Transportation mode share
 - Working towards zero traffic-related fatalities or serious injuries on city roads
- Support awareness of Active Transportation through promotion, education and community outreach
- Provide advice to and respond to requests from Council on projects, policies or bylaws under consideration by staff or Council, and on additional topics of interest to committee members that fall within the subject area of the committee.

- Provide input on Active Transportation initiatives for the City's annual budget process
- Provide advice and leadership on citizen and stakeholder engagement related to Active Transportation
- Support awareness of Active Transportation as a healthy and environmentally sustainable activity
- Improve the quality of Active Transportation with recommendations and support of safe, innovative, and cost-effective design principles
- Encourage land use patterns that support active modes of transportation
- Promote integrated and connected regional Active Transportation policies and networks
- Periodically report to Council on the progress and success of Active Transportation in Salmon Arm

Any initiatives proposed by the Committee that have resource implications, including staff time, are to be approved by Council.

Procedural Matters

Meetings - The Committee will meet a minimum of three times per year. A regular schedule of meetings will be established annually at the first meeting of the year. Meetings will not be held during the summer (July and August), unless there is a time-sensitive reason for convening the Committee. Special meetings may be held at the call of the Chair. The meeting rules and procedures will be in accordance with the Council Procedure Bylaw.

Working Groups - Working Groups may be created by the ATAC to research specific initiatives. Such Working Groups will report back to the full ATAC table for discussion and further direction. All recommendations made by a Working Group must be endorsed by the ATAC through Resolution before they are presented to Council.

Membership - To the extent possible, the ATAC will have a diverse membership with respect to gender, age and cultural-ethnic background.

The Committee will consist of 11 ongoing members with experience and interest in Active Transportation as follows:

- One (1) member of City Council as chair – as appointed by Council
- One (1) member from Shuswap Trail Alliance
- One (1) member from Salmon Arm Economic Development Society
- One (1) member from Downtown Salmon Arm
- One (1) member from School District #83
- One (1) member from Interior Health
- One (1) member from Shuswap Cycling Club

- Four (4) Citizens-At-Large including one (1) member who uses mobility devices and one (1) member who is a senior (65 plus).

The Committee Member Code of Conduct sets a standard for member conduct that will result in good governance and a high level of public confidence. All members will be required to sign and adhere to the Code of Conduct throughout their term of participation.

There shall be no remuneration payable to members for sitting on the Committee.

Representatives from community organizations will nominate a representative and submit formal letters from their boards confirming the appointment. They will also identify an alternate who will attend in the absence of the appointed member.

There will be a public call for Citizens-At-Large members. Council will then appoint Citizen-At-Large members after reviewing the submitted applications and resumes.

Citizens-At-Large members will serve for two-year terms. Members who wish to be re-appointed will follow the above process.

Organizations with more singular issues on Active Transportation may ask to attend or be asked by the ATAC to attend meetings with a designated representative acting as a non-voting liaison.

Quorum – Fifty percent (50%) plus one (1) shall constitute a quorum.

Staff Support: - the Planning, Engineering and Corporate Services Department(s) will provide the required professional and administrative support.

Review of Terms of Reference – Council will review these Terms of Reference after the first two years.

Additionally, the ATAC will discuss the Terms of Reference during the committee's first meeting each term to refresh members' understanding.

Reporting:

- Meeting minutes will be presented to Council.
- All recommendations of the Committee must be ratified by Council.
- All media releases must be ratified by Council.

Dated June 26, 2023

Item 9.9

CITY OF SALMON ARM

Date: June 26, 2023

Environmental Advisory Committee
Citizen at Large Membership Appointment
and Option to Add Alternate

CITY OF SALMON ARM

TO: Mayor Harrison & Members of Council
DATE: June 5, 2023
FROM: Erin Jackson, Chief Administrative Officer
SUBJECT: Environmental Advisory Committee – Citizen at Large membership appointment and option to add alternate

Background:

The Environmental Advisory Committee membership currently includes 13 voting members; one (1) Council representative, three (3) Citizens at Large, a member representing each of the Forest and Agricultural Industries, members from five (5) organizations and from the Adams Lake and Neskonlith Bands. The current term of the three Citizen at Large members will expire December 31, 2023.

One of the Committee's three appointed Citizens at Large, Michael Simpson, has stepped down and will not be completing his term. Staff has advertised this position in the newspaper, on the City website, social media and in the lobby of City Hall. Two (2) applications were received by the June 2, 2023 closing date, from the following individuals:

Sarah Johnson
Bob Demulder

It is recommended that Council appoint one Citizen at Large to complete the existing term, as well as consider the option of appointing the other applicant as an alternate. While designating alternates for Citizen at Large members has not previously been contemplated, staff believe this may be beneficial in situations where achieving quorum is an ongoing challenge.

In addition to the EAC, committees that have Citizen at Large members include:

- Downtown Parking Commission (4)*
- Housing Task Force (2)**

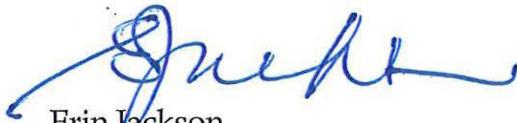
- Community Heritage Commission (3)*
- Active Transportation Advisory Committee (4)**
- Greenways Liaison Committee (2)

Should Council authorize the appointment of an alternate to the Citizens at Large, the EAC Terms of Reference (ToR) will be updated to allow for one (1) position on an ongoing basis, through the same Council approval process as occurs with regular Citizens at Large. In other words, Citizens at Large cannot designate their own alternates and there will only be an alternate when there is sufficient interest. The intent would be that a single alternate could cover for any of the Citizens at Large if they are absent.

The ToR documents for the other committees, and the bylaws for the commissions can also be updated and brought back to Council if the membership determines it is advantageous to do so. As alternates do not change the number required to achieve quorum, it will not have a negative impact on the operation of the meeting and the alternate(s) would be invited to attend meetings in a non-voting capacity until they are called upon to stand in for an absent Citizen at Large.

The EAC also has a vacancy for a member from the Agricultural Industry. The application deadline for this position is June 23, 2023.

Respectfully submitted,



Erin Jackson
Chief Administrative Officer

*Governed by bylaw

**Not currently active

***Pending Council approval

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Item 9.10

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: Council authorize the submission of a proposal to host a FCM Board Meeting in 2025;

AND THAT: the associated costs of hosting the event, estimated at \$10,000.00, be included in the 2024 budget, for consideration.



TO: Mayor Harrison & Members of Council
DATE: June 22, 2023
FROM: Erin Jackson, Chief Administrative Officer
SUBJECT: Federation of Canadian Municipalities – Proposal to Host a Board Meeting

MOTION FOR CONSIDERATION:

THAT: COUNCIL AUTHORIZE THE SUBMISSION OF A PROPOSAL TO HOST A FCM BOARD MEETING IN 2025;

AND THAT: THE ASSOCIATED COSTS OF HOSTING THE EVENT, ESTIMATED AT \$10,000, BE INCLUDED IN THE 2024 BUDGET, FOR CONSIDERATION.

BACKGROUND:

FCM holds four Board meetings per year, with two held in communities across Canada. As Councillor Wallace Richmond has recently been elected to sit on the Board, it would be an opportune time to take advantage of the exposure and economic benefit that hosting would provide.

Hosting dates available are:

- March 11-13, 2025;
- September 16-18, 2025;
- March 3-5, 2026; and
- September 15-17, 2026.

A rough economic impact calculation completed by Salmon Arm Economic Development Society (SAEDS), based on 150 guests for 3 nights would equate to an approximately \$125,000 impact (estimate based on Canadian Sports Tourism Association Calculator), including the categories of lodging, fuel, groceries, restaurants; recreation/retail.

The Host Municipality must accept responsibility for all expenses associated with hosting FCM as listed below:

- Welcome Reception and/or Dinner (estimated cost of \$7,500);
- Study tours (if offered);
- Computer equipment (estimated cost of \$1,000); and
- Other services that it accepts to provide.

SAEDS estimates the welcome reception to be approximately \$7,500 (150 people x \$50pp). Staff propose requesting 1/2 of the cost for the welcome reception from the MRDT Event Fund Budget as this event would meet the criteria of off-season and overnight stays.

SAEDS is prepared to produce and submit the bid on behalf of the City, as well as support any event planning requirements. They have also offered to host some study tours - food hub, innovation centre, downtown revitalization walking tour are some preliminary ideas.

A Council resolution is required to include in the bid package, which must be submitted by June 30, 2023.

Respectfully submitted,



Erin Jackson
Chief Administrative Officer

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Item 10.1

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the Bylaw entitled City of Salmon Arm Zoning Amendment Bylaw No. 4568 be read a first and second time.

[ZON-1258; Klatt, S. & A./Green Emerald Construction Inc.; 5131 75 Avenue NE; R-1 to R-8]



To: His Worship Mayor Harrison and Members of Council

Date: June 14, 2023

Subject: Zoning Bylaw Amendment Application No. 1258

Legal: Lot 1 District Lot 6412 and Section 5, Township 21, Range 9, W6M, KDYD, Plan KAP69981

Civic: 5131 – 75 Avenue NE

Owner: Klatt. A. & S.

Agent: Green Emerald Construction Inc. (Arsenault, G.)

STAFF RECOMMENDATION

THAT: a bylaw be prepared for Council's consideration, adoption of which would amend Zoning Bylaw No. 2303 by rezoning Lot 1 District Lot 6412 and Section 5, Township 21, Range 9, W6M, KDYD, Plan KAP69981 from R-1 (Single Family Residential Zone) to R-8 (Residential Suite Zone).

PROPOSAL

This proposal is to rezone the subject parcel from R-1 (Single Family Residential) to R-8 (Residential Suite) to permit future redevelopment including the construction and use of a *detached suite*.

BACKGROUND

The subject parcel is located at 5131 – 75 Avenue NE (Appendix 1 and 2) in Canoe, is approximately 885 square metres in area, and contains an existing single family dwelling (to be removed). The subject parcel is designated Medium Density Residential in the City's Official Community Plan (OCP), and zoned R-1 (Single Family Residential) in the Zoning Bylaw (Appendix 3 & 4). The development of the site is subject to a variance application (VP-569) and is not considered within this report. Notwithstanding the proposed siting, the parcel meets the conditions to permit a *detached suite* in the proposed R-8 Zone.

The area is largely comprised of R-1 zoned parcels containing single family dwellings. There are presently six R-8 zoned parcels within the vicinity of the subject parcel. Site photos are attached as Appendix 5.

The subject parcel is affected by restrictions resulting from the natural terrain. Directly adjacent to Shuswap Lake, the subject property is entirely within the 30 m streamside protection and enhancement area (SPEA) specified by the Province's Riparian Area Protection Regulations (RAPR). The City's Floodplain Provisions also specify a 15 m setback from the natural boundary of the lake. The applicant has submitted a RAPR report to the Province, which is subject to review. A variance application (VP-569) has been submitted to shift the building envelop south, towards the road and away from Shuswap Lake and the Floodplain setback.

No development on the site is permitted until Provincial acceptance of the RAPR report and the registration of a RAPR covenant on the Title of the subject parcel.

Secondary Suites

Policy 8.3.25 of the OCP provides for the consideration of secondary suites in all Residential designated areas via a rezoning application, subject to compliance with the Zoning Bylaw and the BC Building Code. Based on parcel area and width, the subject property has potential to easily meet the conditions for the

development of a *secondary suite* (or *detached suite*), including sufficient space for an additional off-street parking stall.

COMMENTS

Engineering Department

No objections to the proposed rezoning.

Building Department

No concerns. Development Cost Charges apply to a *detached suite*.

Fire Department

No concerns.


Public Consultation

Pursuant to the *Local Government Act* and *City of Salmon Arm Zoning Bylaw* notices are mailed to landowners within a 30m radius of the application. Newspaper ads are placed in two editions of the local paper in advance of the Statutory Public Hearing. The notices outline the proposal and advise those with interest in the proposal to provide written submission prior to the Statutory Public Hearing and information regarding attending the Hearing. R-8 rezoning for parcels < 0.4 ha do not require the posting of a Notice of Development sign. It is expected that the Hearing for this application will be held on July 10, 2023.

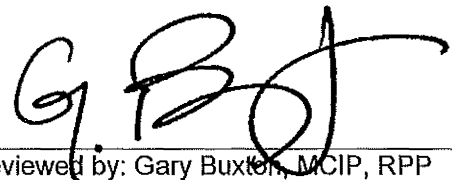
Planning Department

Any new development will require a building permit and will be subject to applicable Development Cost Charges, as well as meeting Zoning Bylaw, RAPR, and BC Building Code requirements. Development on the site is not permitted until Provincial acceptance of the RAPR report and the subsequent registration of a covenant registered on the Title of the subject parcel addressing RAPR and the City's Floodplain Provisions.

The subject parcel is well suited to R-8 development with sufficient area to meet all R-8 Zone requirements, including the provision of onsite parking. The proposed R-8 zoning of the subject parcel is consistent with the OCP and is therefore supported by staff.



Prepared by: Chris Larson, MCIP, RPP
Senior Planner



Reviewed by: Gary Buxton, MCIP, RPP
Director of Planning & Community Services



0 35 70 140 210 280 Meters

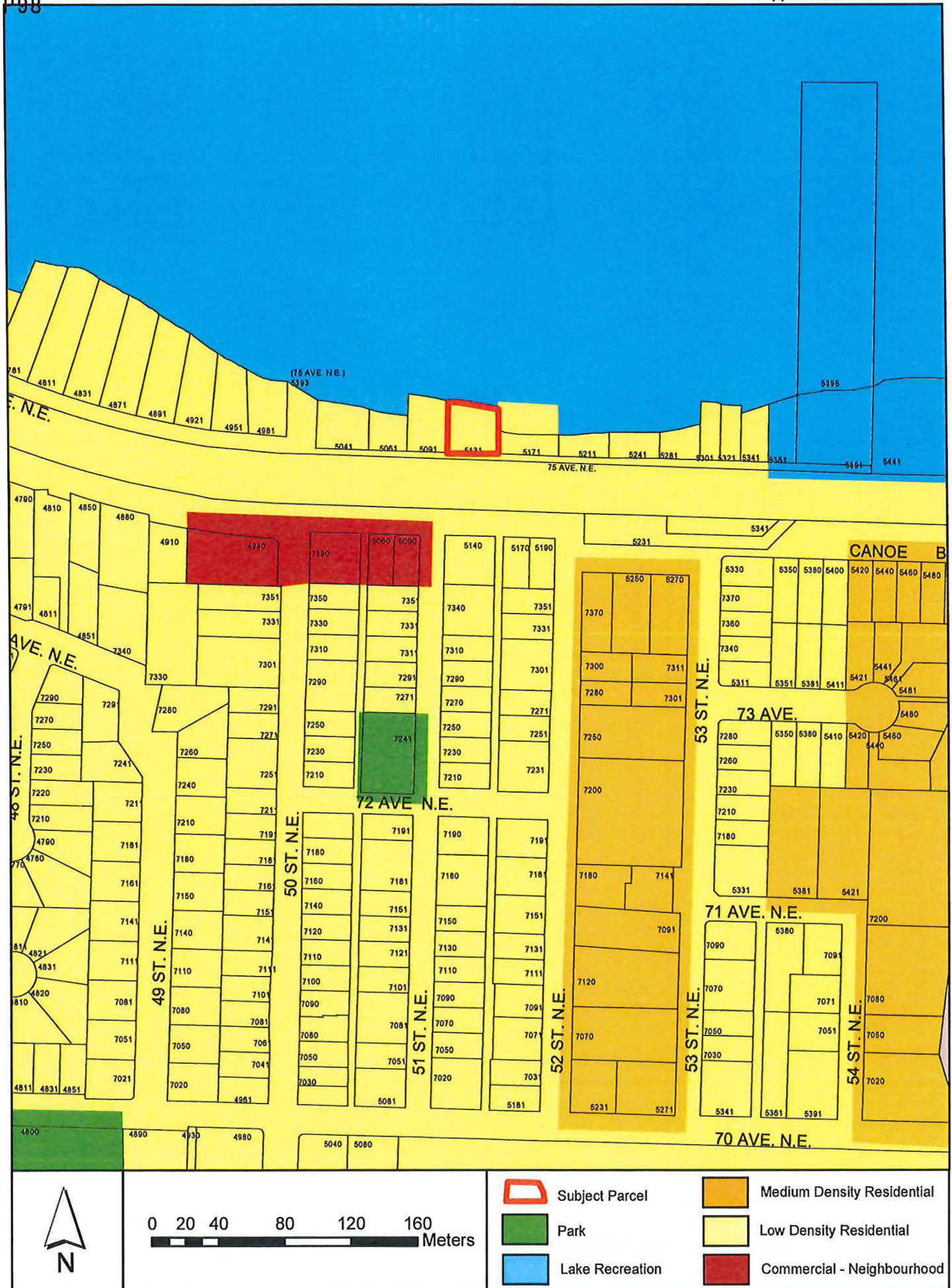
 Subject Parcel

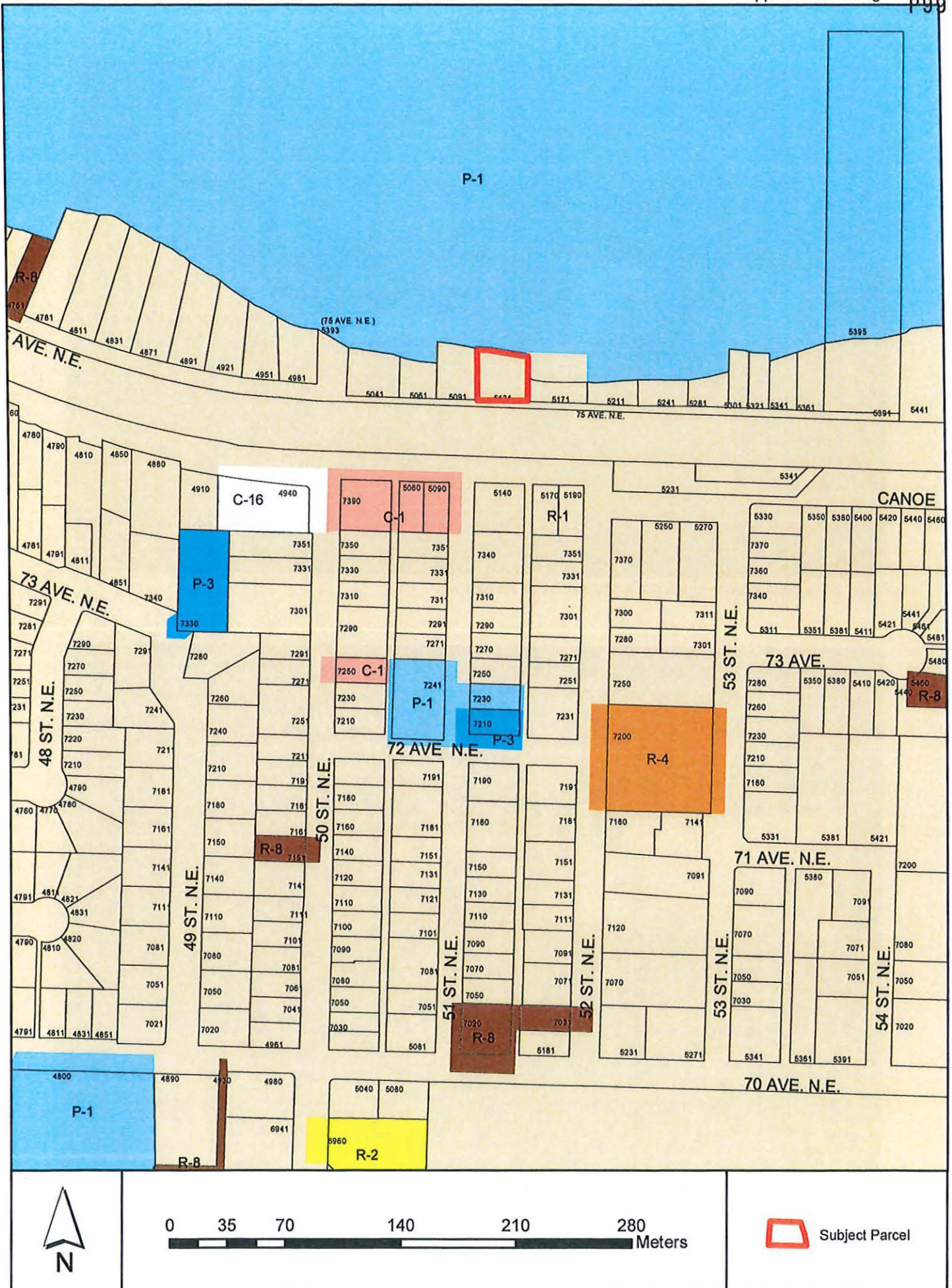


0 5 10 20 30 40 Meters



Subject Parcel







View of subject parcel looking northwest from 75 Ave NE.



View of subject parcel looking northeast from 75 Ave NE.

CITY OF SALMON ARM

BYLAW NO. 4568

A bylaw to amend "District of Salmon Arm Zoning Bylaw No. 2303"

WHEREAS notice of a Public Hearing to be held by the Council of the City of Salmon Arm in the Council Chambers at City Hall, 500 – 2 Avenue NE; Salmon Arm, British Columbia and by electronic means, on July 10, 2023 at the hour of 7:00 p.m. was published in the _____ and , 2023 issues of the Salmon Arm Observer;

AND WHEREAS the said Public Hearing was duly held at the time and place above mentioned;

NOW THEREFORE the Council of the City of Salmon Arm in open meeting assembled enacts as follows:

1. "District of Salmon Arm Zoning Bylaw No. 2303" is hereby amended as follows:

Rezone Lot 1, District Lot 6412 and Section 5, Township 21, Range 9, W6M, KDYD, Plan KAP69981 from R-1 (Single Family Residential Zone) to R-8 (Residential Suite Zone), attached as Schedule "A".

2. SEVERABILITY

If any part, section, sub-section, clause of this bylaw for any reason is held to be invalid by the decisions of a Court of competent jurisdiction, the invalid portion shall be severed and the decisions that it is invalid shall not affect the validity of the remaining portions of this bylaw.

3. ENACTMENT

Any enactment referred to herein is a reference to an enactment of British Columbia and regulations thereto as amended, revised, consolidated or replaced from time to time.

4. EFFECTIVE DATE

This bylaw shall come into full force and effect upon adoption of same.

5. CITATION

This bylaw may be cited as "City of Salmon Arm Zoning Amendment Bylaw No. 4568"

READ A FIRST TIME THIS DAY OF 2023

READ A SECOND TIME THIS DAY OF 2023

READ A THIRD TIME THIS DAY OF 2023

APPROVED PURSUANT TO SECTION 52 (3) (a) OF THE TRANSPORTATION ACT
ON THE DAY OF , 2023

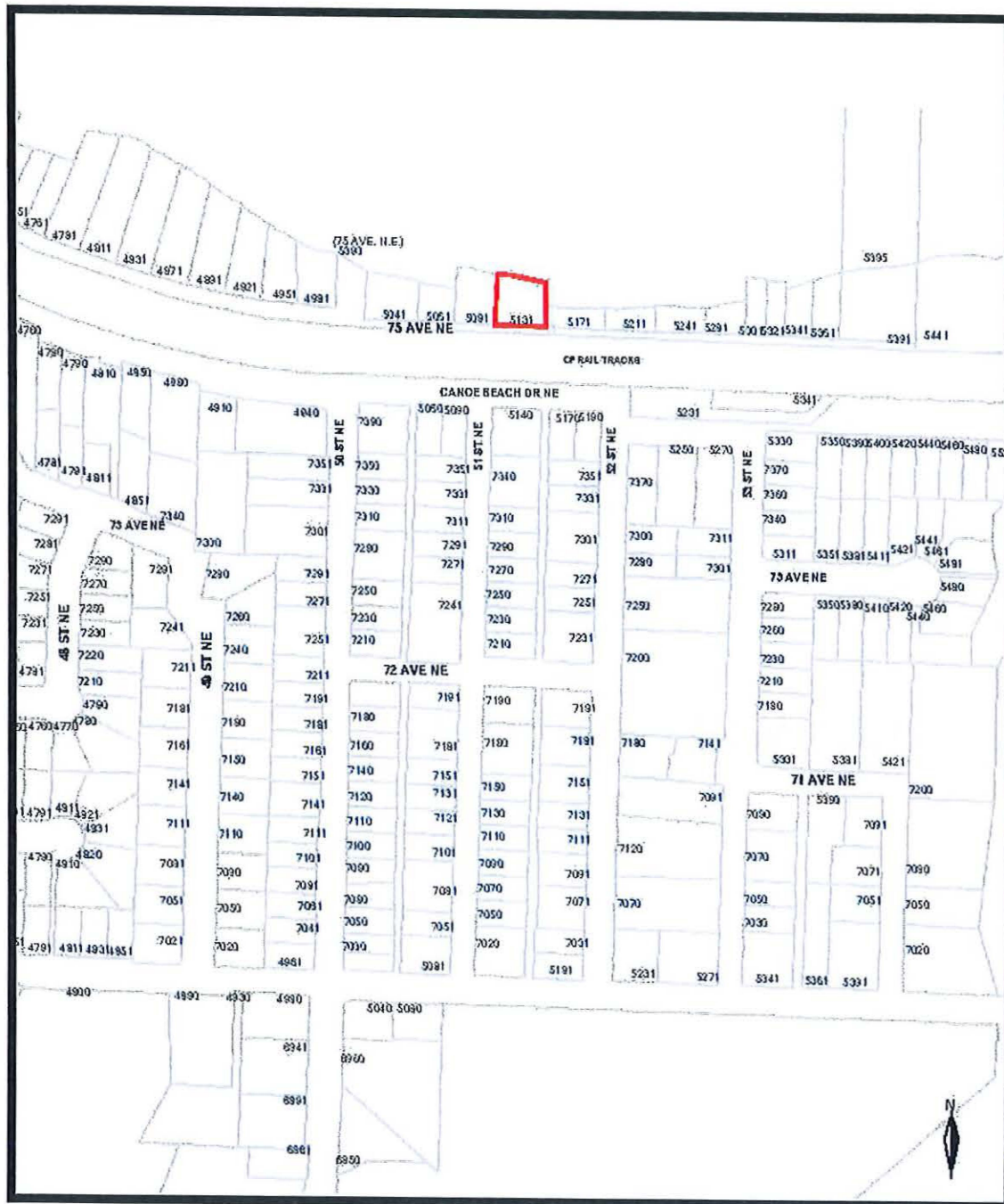
For Minister of Transportation & Infrastructure

ADOPTED BY COUNCIL THIS DAY OF 2023

MAYOR

CORPORATE OFFICER

Schedule "A"



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Item 10.2

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the Bylaw entitled City of Salmon Arm Zoning Amendment Bylaw No. 4594 be read a first and second time.

[ZON-1263; City of Salmon Arm; 341-361 Fraser Avenue NW; M-2 to CD-20]



To: His Worship Mayor Harrison and Members of Council

Date: June 16, 2023

Subject: **Zoning Bylaw Amendment Application No. 1263**

Legal: **A portion of Parcel A, Block B, Section 14, Township 20, Range 10, West of the 6th. Meridian, KDYD Plan 1523, and a portion of Lot A, Section 14, Township 20, Range 10, West of the 6th. Meridian, KDYD Plan 38914**
Civic: **341 – 361 Fraser Avenue N.W.**
Owner/Agent: **City of Salmon Arm**

MOTION FOR CONSIDERATION

THAT: a bylaw be prepared for Council's consideration, adoption of which would amend Zoning Bylaw No. 2303 by rezoning a portion of Parcel A, Block B, Section 14, Township 20, Range 10, West of the 6th. Meridian, KDYD Plan 1523, and a portion of Lot A, Section 14, Township 20, Range 10, West of the 6th. Meridian, KDYD Plan 38914 from the M-2 (Light Industrial Zone) to a new CD-20 (Comprehensive Development Zone - 20).

STAFF RECOMMENDATION

THAT: The motion for consideration be adopted.

PROPOSAL

This proposal is to rezone the parcel from the M-2 (Light Industrial Zone) to a new CD-20 (Comprehensive Development Zone -20) to accommodate the construction of a shelter to accommodate unhoused individuals in the community. BC Housing is funding and managing the construction of the shelter, while the Canadian Mental Health Association (CMHA) will operate the shelter once constructed. The shelter aims to provide up to 25 beds, as well as daily meals and support services. The land is owned by the City and will be leased to BC Housing. A separate Council decision is required with respect to a lease.

BACKGROUND

The subject parcel is located at 341-361 Fraser Avenue NW (Appendix 1 and 2), is approximately 1,900 square metres in area, and is currently vacant industrial land. The parcel is designated Medium Density Residential and outside Residential Development Area A in the City's Official Community Plan (OCP), within the Urban Containment Boundary, and zoned M-2 (Light Industrial) in the Zoning Bylaw (Appendix 3 & 4). A shelter would be consistent with the Medium Density Residential designation.

The rezoning is supported by the following OCP policy:

8.3.27 - Support community support services and uses, such as shelters, transition / youth homes and other forms of social housing within the Urban Containment Boundary in locations near local services.

15.3.4 - Community support services and uses, such as shelters, transition / youth homes and other forms of social housing, are supported within the Urban Containment Boundary.

Congregate Housing is also allowed in the C-2 Zone (Town Centre Commercial Zone), which is consistent with an adjacent property.

The subject parcel is located an area with a diversity of current zoning:

- R-4 (Medium Density Residential Zone) to the north (currently vacant)
- R-1 (Single Family Residential Zone) to the north (currently vacant)
- C-2 (Town Centre Commercial Zone) to the south (currently vacant)
- R-1 (Single Family Residential Zone) to the south
- CD-7 (Comprehensive Development Zone (single family with suites)) to the east

The proposed CD-20 Zone is separated from the adjacent CD-7 by a strip of land that is 7.0m (23 feet) wide, that will allow for separation and potential buffering of the proposed shelter from the adjacent dwellings in addition to any efforts undertaken on the CD-20 (shelter) site.

COMMENTS

Engineering Department

No objections to the proposed rezoning.

Building Department

No concerns. Building Permit application required for development.

Fire Department

No objections to the proposed rezoning.

Public Consultation

Pursuant to the *Local Government Act* and *City of Salmon Arm Zoning Bylaw* notices are mailed to landowners within a 30m radius of the application. Newspaper ads are placed in two editions of the local paper in advance of the Statutory Public Hearing. The notices outline the proposal and advise those with interest in the proposal to provide written submission prior to the Statutory Public Hearing and information regarding attending the Hearing. A Notice of Development sign will also be posted at the site. It is expected that the Hearing for this application will be held on July 24, 2023.

Planning Department

The future development as proposed is a shelter for unhoused members of the community. While the number of unhoused members of the community is not clearly understood, it appears to be a growing problem that has, at times, manifested itself in homeless encampments located on municipal lands. Currently the City has accommodated an encampment just to the north of the proposed location of the rezoning, immediately adjacent to Peter Jannink Nature Park.

Common law precedent in BC municipalities has established that if there are no (or inadequate) shelter facilities in a community, then unhoused individuals are allowed to use municipal lands and parks for erecting temporary shelters. A municipality may limit the location and duration of the use of public lands for temporary shelter, but cannot simply prohibit it. This entails the municipality actively moving unhoused individuals around the community, and requires substantial bylaw enforcement funds and resources (as has been seen in 2022 and 2023). However, if shelter facilities do exist in adequate numbers (and it is anticipated that the shelter can meet local needs), then a municipality may partially or completely prohibit the use of parks for temporary shelter. If the City therefore wants to effectively manage the location of unhoused individuals in the community, having an adequate shelter is a necessary pre-cursor.

A shelter is likely to:

- Reduce the likelihood of unhoused individuals camping or creating encampments in public spaces
- Increase dignity and quality of life for vulnerable people

- Reduce social isolation for vulnerable people
- Reduce disruptive behaviors, such as late night noise and fires
- Manage disruptive behaviors through on site support services
- Fill current gaps in the housing continuum
- Reduce impacts on policing services and health services

The particular site was selected based on the fact that the City has very few land assets to choose from, and that for a shelter to be successful it needs to be close to daily needs and services for unhoused individuals, and close to a transit route. This is the only site that effectively meets those criteria. The site also avoids concentrating social support functions in one area of the community, and should lessen the impact that the current encampment creates. Based on research that BC Housing has undertaken in other communities, there is no evidence that supportive housing such as shelters reduces property values in their vicinity.

The uses permitted in the CD-20 zone encompass a range of living options for unhoused individuals that are defined in the Zoning Bylaw:


- *community shelter*
- *congregate housing*
- *shelter*

BC Housing is proposing the construction of a modular building for the shelter. Modules that comprise the building are constructed in 3.66m by 18.3m (12 feet x 60 feet) dimensions, and are proposed to be assembled in a 18.3m by 18.3m (60 feet x 60 feet) single storey structure that will be about 4.0m in height above existing grade. The site dimensions are approximately 42.0m width and 45.0m depth, so the 18.3m module will fit onto the site and allow for generous setbacks. The proposed building would have a site coverage of less than 20%, allowing for ample landscaping and other outdoor elements. The setbacks have been established to allow the building considerable flexibility to locate on the site (e.g. for an accessory storage building). The height limit has been set at 11.0m to allow for possible vertical expansion as needed in the future. Parking requirements have been established at 1 stall per 10 shelter beds, meaning that 3 parking stalls would likely be required for the proposed structure. Given that unhoused individuals likely do not have personal vehicles, the parking requirement covers staff needs.

Given the proximity to the TransCanada Highway, the rezoning will need to be ratified by MoTI. Staff will submit the bylaw to MoTI when approved by Council.

CONCLUSION

The proposed CD-20 zoning of the subject parcel is consistent with the OCP. The rezoning would also facilitate the development and construction of a housing form that is critically needed in the community.

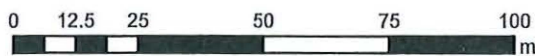


Prepared by: Gary Duxton, MCIP, RPP
Director of Planning & Community
Services

Subject Property Map

APPENDIX 1

P109



 Subject Property
 Parcels

P110

OrthoMap

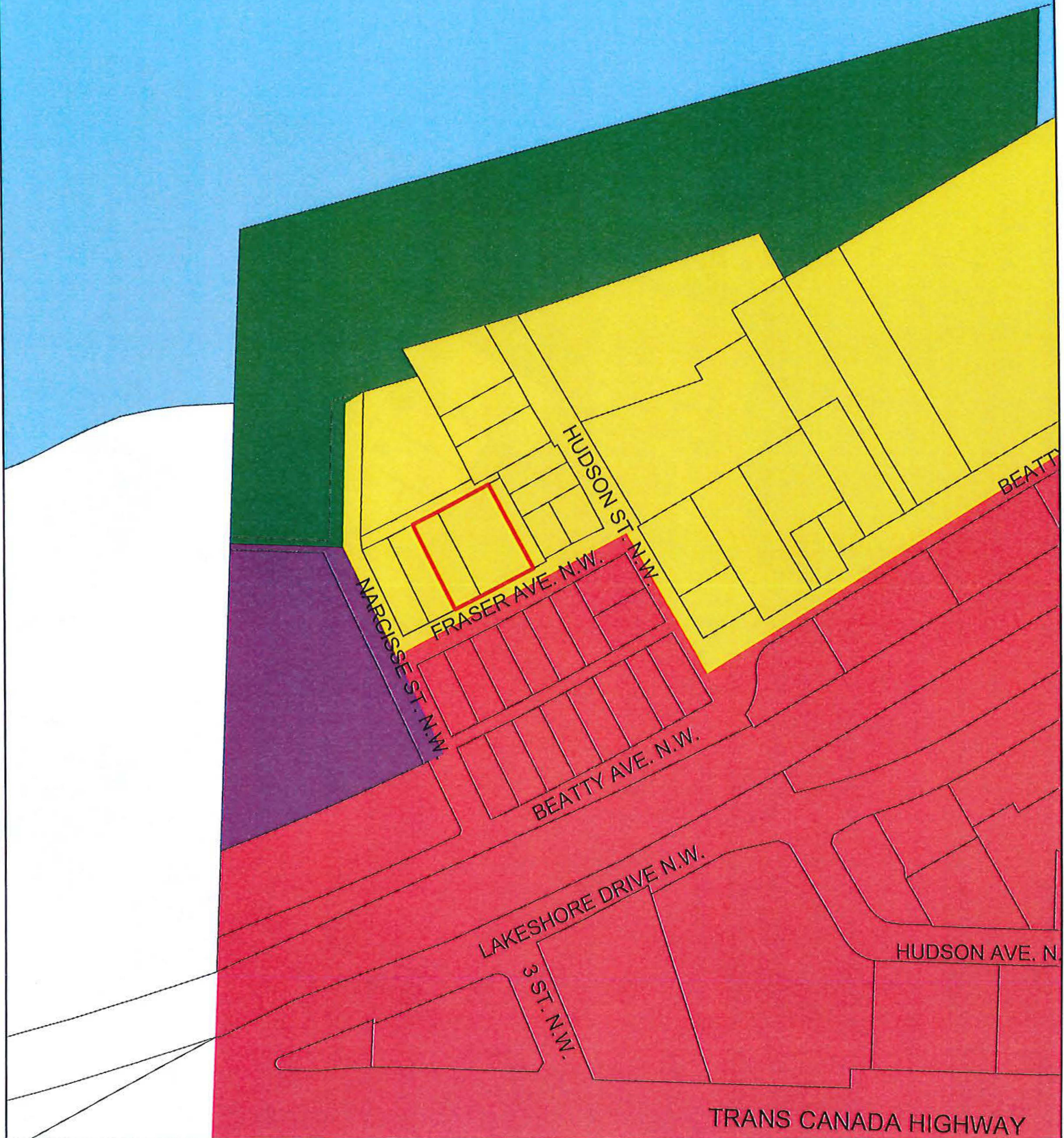
APPENDIX 2



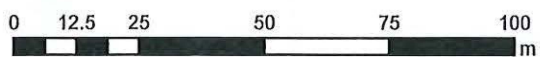
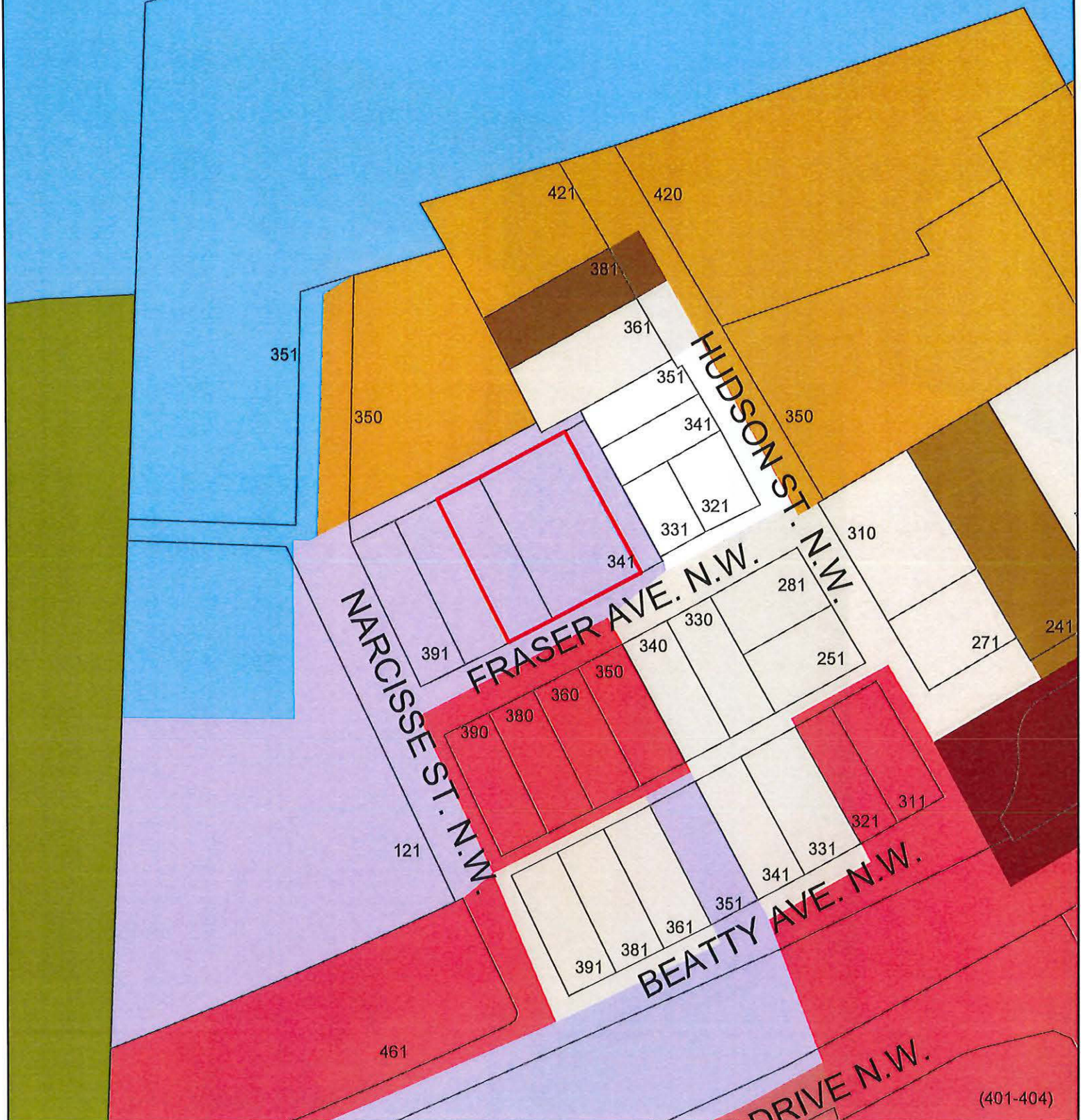
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Subject Property
 Parcels

Aerial Photo Date: 2021



- Subject Property
- Parcels
- Park
- Environmentally Sensitive Lake Areas
- Institutional
- Residential - Medium Density
- Commercial - City Centre



 Subject Property	 C-2	 P-1
 Parcels	 C-3	 R-1
	 C-6	 R-4
	 IR	 R-5
	 M-2	 R-8

CITY OF SALMON ARM

BYLAW NO. 4594

A bylaw to amend "District of Salmon Arm Zoning Bylaw No. 2303"

WHEREAS notice of a Public Hearing to be held by the Council of the City of Salmon Arm in the Council Chambers at City Hall, 500 - 2 Avenue NE, Salmon Arm, British Columbia and by electronic means, on July 24, 2023 at the hour of 7:00 p.m. was published in the July , 2023 and July , 2023 issues of the Salmon Arm Observer;

AND WHEREAS the said Public Hearing was duly held at the time and place above mentioned;

NOW THEREFORE the Council of the City of Salmon Arm in open meeting assembled enacts as follows:

1. "District of Salmon Arm Zoning Bylaw No. 2303" is hereby amended by adding as follows:

- a) A new Section 58 – Comprehensive Development Zones – CD-20 - COMPREHENSIVE DEVELOPMENT ZONE – 20 (attached hereto as Schedule "A" and forming part of this bylaw), is added after Section 57; and
- b) A portion of Parcel A, Block B, Section 14, Township 20, Range 10, West of the 6th. Meridian, KDYD Plan 1523, and a portion of Lot A, Section 14, Township 20, Range 10, West of the 6th. Meridian, KDYD Plan 38914 from the M-2 (Light Industrial Zone) to the CD-20 (Comprehensive Development Zone - 20).

2. SEVERABILITY

If any part, section, sub-section, clause of this bylaw for any reason is held to be invalid by the decisions of a Court of competent jurisdiction, the invalid portion shall be severed and the decisions that it is invalid shall not affect the validity of the remaining portions of this bylaw.

3. ENACTMENT

Any enactment referred to herein is a reference to an enactment of British Columbia and regulations thereto as amended, revised, consolidated or replaced from time to time.

4. EFFECTIVE DATE

This bylaw shall come into full force and effect upon adoption of same.

5. CITATION

This bylaw may be cited as "City of Salmon Arm Zoning Amendment Bylaw No. 4594".

READ A FIRST TIME THIS DAY OF 2023

READ A SECOND TIME THIS DAY OF 2023

READ A THIRD TIME THIS DAY OF 2023

APPROVED PURSUANT TO SECTION 52 (3) (a) OF THE TRANSPORTATION ACT
ON THE DAY OF , 2023

For Minister of Transportation & Infrastructure

ADOPTED BY COUNCIL THIS DAY OF 2023

MAYOR

CORPORATE OFFICER

BYLAW NO. 4594
SCHEDULE "A"

SECTION 58 - CD-20 - COMPREHENSIVE DEVELOPMENT ZONE - 20

Purpose

- 58.1 The purpose of the CD-20 Zone is to accommodate the use of a *community shelter* as defined in the *Zoning Bylaw* on the *parcels* legally described as a portion of Parcel A, Block B, Section 14, Township 20, Range 10, West of the 6th. Meridian, KDYD Plan 1523, and a portion of Lot A, Section 14, Township 20, Range 10, West of the 6th. Meridian, KDYD Plan 38914.

Permitted Uses

- 58.2 The following uses and no others are permitted in the CD-20 Zone:

- .1 *assembly hall,*
- .2 *community shelter,*
- .3 *congregate housing*
- .4 *public utility,*
- .5 *public use, and*
- .6 *shelter*
- .7 *accessory use.*

Maximum Height of Principal Buildings

- 58.3 The maximum *height* of *principal buildings* shall be 11.0 metres (36.1 feet).

Maximum Height of Accessory Buildings

- 58.4 The maximum *height* of *accessory buildings* shall be 6.0 metres (19.68 feet).

Minimum Parcel Size or Site Area

- 58.5 The minimum *parcel* size or *site* area shall be 0.18 hectares (0.44 acres).

Minimum Setback of Principal Buildings

- 58.6 The minimum *setback* of the *principal building* from the:

- | | | |
|----|---|------------------------|
| .1 | <i>Front parcel line</i> shall be | 3.5 metres (11.5 feet) |
| .2 | <i>Rear parcel line</i> shall be | 1.0 metre (3.3 feet) |
| .3 | <i>Interior side parcel line</i> shall be | 1.0 metre (3.3 feet) |
| .4 | <i>Exterior side parcel line</i> shall be | 3.0 metres (9.8 feet) |

Minimum Setback of Accessory Buildings

- 58.7 The minimum setback of *accessory buildings* from the:

- | | | |
|----|---|------------------------|
| .1 | <i>Front parcel line</i> shall be | 6.0 metres (19.7 feet) |
| .2 | <i>Rear parcel line</i> shall be | 0.6 metre (1.9 feet) |
| .3 | <i>Interior side parcel line</i> shall be | 0.6 metre (1.9 feet) |
| .4 | <i>Exterior side parcel line</i> shall be | 3.0 metres (9.8 feet) |

Community Shelter Parking

58.8

- .1 The minimum number of parking stalls required in the CD-20 Zone shall be 1 stall per 10 shelter beds.

Outside Storage

- 58.9 Outside storage shall be screened as per Appendix I.

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Item 11.1

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the Bylaw entitled City of Salmon Arm Fee for Service Amendment Bylaw No. 4592 be read a final time.

[Parking Violations]

CITY OF SALMON ARM

BYLAW NO. 4592

A bylaw to amend "District of Salmon Arm Fee for Service Bylaw No. 2498"

WHEREAS, it is deemed desirable and expedient to alter the fees imposed by "District of Salmon Arm Fee for Service Bylaw No. 2498";

NOW THEREFORE the Council of the City of Salmon Arm, in open meeting assembled enacts as follows:

1. Schedule "B" –

a) Sentence 3. of Appendix 3 in Schedule B:

3.	Parking Violations	
	• All Parking Violations	\$35.00
	• If paid within 2 days	\$10.00

be replaced with:

3.	Parking Violations	
	• All Parking Violations	\$50.00
	• If paid within 2 days	\$25.00

b) Sentence 5. of Appendix 3 in Schedule B be amended by deleting the reference to "Marine Park NE Parking Lot" in its entirety.

SEVERABILITY

2. If any portion of this Bylaw is held invalid by a Court of competent jurisdiction, then that invalid portion shall be severed and the remainder of this Bylaw shall be deemed to have been adopted without the severed portion.

ENACTMENTS

3. Any enactments referred to herein is a reference to an enactment of British Columbia and regulations thereto, as amended, revised, consolidated or replaced from time to time.

EFFECTIVE DATE

4. This Bylaw shall come into full force and effect upon adoption of same.

CITATION

5. This Bylaw may be cited as the "City of Salmon Arm Fee for Service Amendment Bylaw No. 4592".

READ A FIRST TIME THIS 12th DAY OF JUNE 2023

READ A SECOND TIME THIS 12th DAY OF JUNE 2023

READ A THIRD TIME THIS 12th DAY OF JUNE 2023

ADOPTED BY THE COUNCIL DAY OF 2023

MAYOR

CORPORATE OFFICER

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Item 11.2

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the Bylaw entitled City of Salmon Arm Subdivision and Development Servicing Bylaw No. 4293 be read a third and final time.



*City of Salmon Arm
Memorandum from the Engineering and
Public Works Department*

TO: His Worship the Mayor and Members of Council

FROM: Robert Niewenhuizen, Director of Engineering and Public Works

PREPARED BY: Jenn Wilson, Service Delivery Management Coordinator

DATE: June 5, 2023

SUBJECT: **SUBDIVISION AND DEVELOPMENT SERVICING BYLAW UPDATE**

RECOMMENDATION:

THAT: The Subdivision and Development Servicing Bylaw No. 4293 be read a first and second time.

AND THAT: The Subdivision and Development Servicing Bylaw No. 4163 be repealed upon final reading of the Subdivision and Development Servicing Bylaw No. 4293

The Subdivision and Development Servicing Bylaw No. 4163 was adopted by Council on October 11, 2016. Since then, the Engineering Department staff have been collecting 'housekeeping' updates and recommendations for updates through master planning documents. Staff have completed a draft update and completed a thorough review of the City's Subdivision and Development Servicing Bylaw No. 4163 against current best practices. The review process has resulted in a final draft of a new bylaw intended to be streamlined, modernized, user friendly, legally sound and consistent with updated master plans.

The previous bylaw update was significant and included several rounds of consultation with local engineers and developers as well as a thorough legal review. The proposed changes in this update are generally minor in nature, as such a legal review and consultation with external stakeholders is not recommended by staff.

The most significant changes incorporate recommendations from the City's Stormwater Master Plan (ISL Engineering, 2020) and the City's Active Transportation Plan (Urban Systems, 2022) into Schedule B, Part 1 and 2, Design Criteria and Standard Drawings.

Staff carefully considered all master plan recommendations and opted not to include all recommendations during this revision cycle. Generally, these recommendations would require either a significant service level change or broader multi-departmental coordination.

The key changes to the documents are listed below.

Bylaw:

- Revision of definition of 'Low Density Residential' to be consistent with the Official Community Plan definition.
- Addition of a 12m Urban Single Lane Hillside road cross-section (first introduced in the Park Hill development).
- Addition of bike lane or paved shoulder requirements on rural roads where indicated by the Official Community Plan.
- Removal of 'Fire Hydrants' from the list of works and services exempt for infill developments. Note: if density increases, fire hydrant gaps should be filled.

Design Criteria:

- Addition of information regarding Engineers and Geoscientists BC (EGBC) Firm Permit to Practice requirements.
- Addition of Illumination plans and Individual Lot Grading plans to design drawing submission set requirements
- Addition of a reference to BC Active Transportation (BCAT) Design Guide as best practices for AT design as well as to new/revised standard drawings
- Addition of Multi-use Path design specifications
- Addition of a maximum driveway width for residential and commercial properties, allowing wider driveways on wider lots, to a maximum of 8m and 10m respectively.
- Addition of recommendations for the City Stormwater Master Plan including:
 - o Requirement to include considerations for the impact of Climate Change and a 10% increase to design flows, at minimum
 - o Addition of enhanced recommendations for infiltration systems, specifically addressing risk management
 - o A set run-off rate based on a basin wide calculation for flows entering into sensitive ecosystems
 - o A requirement for all culverts to accommodate the 100-year flood events
 - o Updates to the run-off and roughness coefficients and Intensity-Duration-Frequency (IDF) curves
- Clarification on street lighting specifications
- Addition of a bee and drought friendly boulevard seed mix

Drawings:

- Update of CGS-8 Trail Type 1 (Multi-use Path) to meet AT Master Plan recommendation (BCAT best practices) of 3-4m width.
- Update of CGS-9 Trail Type 2 to meet AT Master Plan recommendation (BCAT best practices) of 2-3m width.
- Update RD-3 Urban Collector Road Cross-Section to meet BCAT best practices including the addition of an offset multi-use path (MUP) on one side of the roadway and removal of the bike lanes.
- Update of RD-9 Rural Arterial Road Cross-Section to meet BCAT best practices for rural roads with a widened paved shoulder of 2.5m or an offset MUP where right of way (ROW) and topography permit.
- Update of RD-8 Rural Collector Road Cross-Section to meet BCAT best practices for rural roads with a widened paved shoulder of 2.0m or an offset MUP where ROW and topography permit.

- Update of RD-7 Rural Local Road Cross-Section to improve AT capacity of rural roads with a widened gravel shoulder of 1.5m or an offset MUP.
- Update of RD-6A Industrial Area Road Cross-Section to improve AT capacity of industrial roads with a widened gravel shoulder of 1.5m or an offset MUP.
- Update of RD-6B New Industrial Park Cross-Section to improve AT capacity of industrial roads with inclusion of a 2.0m offset MUP.
- Update of CGS-5 Sidewalk Crossing at Driveway Entrance to the BCAT best practices.
- Update of CGS-6 Wheelchair Sidewalk Ramp to the BCAT best practices including tactile attention indicators in high use areas.
- Additional of drawings RD-11A Temporary 20m Cul-de-sac and RD-11B Temporary Lane Cul-de-sac.
- Update of ST-7 IDF curve to most recent Environment Canada Data.
- All drawings are sealed per Engineers and Geoscientists British Columbia (EGBC) requirements.

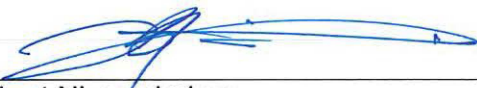
Construction Specifications

- Addition of MMCD Supplemental Specifications for Horizontal Direction Drilling
- Addition of MMCD Supplemental Specifications for Sanitary Pipe Lining

Construction Specifications:

- General housekeeping items

Respectfully submitted,



Robert Niewenhuizen,
Director of Engineering and Public Works

INFORMATIONAL CORRESPONDENCE – June 26, 2023

- | | | |
|-----|---|---|
| 1. | V. Morris – Email dated June 15, 2023 – Foreshore Trail | N |
| 2. | G. Armstrong – Email dated June 15, 2023 – Road Safety | N |
| 3. | K. Wilkinson – Email dated June 16, 2023 – Clearcut of Appleyard Property | N |
| 4. | B. Reynaud – Email dated June 14, 2023 – Clearcut in Raven | N |
| 5. | D. Fredlund – Email dated June 21, 2023 - Ducks | N |
| 6. | A. Varnes, Program Manager, Shuswap District Arts Council – Information Release dated June 13, 2023 - Wednesday on the Wharf | N |
| 7. | D. Mills, Shuswap Cycling Society – Letter dated June 9, 2023 - Request to use Klahani Park – 8 th Annual Shuswap Cross, Cyclocross Race - September 17, 2023 | A |
| 8. | L. Payne – Email dated June 16, 2023 – Request to use Marine Park to honor Indigenous History Month – June 30, 2023 | A |
| 9. | J. Bellhouse, Executive Director, Shuswap Trail Alliance – Email dated June 8, 2023 – Request for Letter of Support for Rubberhead Jump Line Project | A |
| 10. | H. Scribner, Administrator & Board Secretary, MIABC – Email dated June 13, 2023 – MIABC Voting Delegate | A |
| 11. | A. Slater, General Manager, SILGA – Email dated June 9, 2023 – SILGA Youth Representative at UBCM Convention | N |
| 12. | P. Jones, Mayor, District of North Saanich – Letter dated June 21, 2023 – Province of British Columbia’s Home for People Action Plan | N |
| 13. | Shuswap Watershed Council – Media Release – Shuswap watershed groups warn of economic impacts of potential Zebra and Quagga Mussel infestation, emphasize importance of prevention measures | N |
| 14. | Interior Health – News Release dated June 9, 2023 – Thompson Region Family Obstetrics Clinic will accept new referrals starting next week | N |

N = No Action Required
A = Action Requested

S = Staff has Responded
R = Response Required

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Item 14.1

CITY OF SALMON ARM

Date: June 26, 2023

B. Healey, CEO Canada, The Swim Academy
Open Water Races and Swim Run Event

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Item 19.1

CITY OF SALMON ARM

Date: June 26, 2023

The following motion was released from the In-Camera Council Meeting of May 23, 2023:

THAT: Council authorize the Structural Assessment Report of Old Municipal Hall – 31 Hudson Avenue NE prepared by BAR Engineering Co. Ltd. be released from In-Camera.

CARRIED UNANIMOUSLY

EXECUTIVE

SUMMARY

The structural condition of the Old Municipal Hall at 31 Hudson Avenue NE in the City of Salmon Arm is poor. Significant financial investment should be expected to maintain the current condition of the building, preserve the historic significance of the exterior brick walls, and prevent potential collapse in the future.

The three main structural deficiencies include the lateral displacement of the south wall of the arched ceiling room in the original building, the deterioration of the North Wing exterior walls, and the differential foundation movement.

The lateral wall displacement is a result of poor construction methods used at the time of construction. The instability of the wall is a safety risk to occupants and a repair is required.

The deterioration of the North Wing exterior walls is due to moisture exposure and has been exacerbated by the lack of roof gutters and downspouts.

The differential foundation movement can be attributed to the highly plastic clay soils on which the building foundation is supported. The soils are susceptible to swelling and shrinkage with changing moisture conditions. Inadequate roof and site surface water runoff management has exacerbated the subsurface moisture levels throughout the life of the building which has led to the foundation movements. These movements have caused uneven floors throughout the building, cracking in the interior wall and ceiling finishes, and cracking and displacement of the foundation walls and exterior brick walls.

Four options for the repair or replacement of the building have been proposed. Option 1 – Full Replacement, Option 2 – Partial Replacement, Option 3 – Repair and Revitalization, and Option 4 – Interim Repair. The budget estimates for the four options are \$940,000 - \$1,400,000, \$967,000 - \$1,465,000, \$700,000 - \$1,050,000, and \$96,000 - \$144,000 respectively.

Option 2 – Partial Replacement is the recommended option. While only marginally more costly than complete replacement, Option 2 maintains the historical significance of the structure by incorporating the original brick walls into the new building façade.

Should Options 1 through 3 not be viable at this time due to fiscal constraints the City should strongly consider Option 4 – Interim Repair. This option addresses the critical structural deficiencies and provides measures to mitigate the ongoing building deterioration.

Per:



Joey Funk, P. Eng.
Intermediate Structural Engineer

BAR Engineering Co. Ltd.
#201 2540 - 53 Avenue
Vernon, BC
V1T 9W8

Phone: 250-541-9590
Email: joey.funk@bareng.ca

5.0 DISCUSSION

Based on the conditions observed during the site investigations there are three main structural defects of concern, the outwards displacement of the south wall of the original building, deterioration of the North Wing exterior walls, and the differential movement of the foundation.

5.1 Wall Displacement

The south wall of the east half of the original building is susceptible to outward displacement due to the arched ceiling roof construction. Site framed rafter roofs typically include three main components. Rafters are the inclined structural members supporting the roof deck and span from the side walls to the peak of the roof. Ceiling joist are the horizontal structural members supporting the ceiling finish and extend the width of the roof. Collar ties are horizontal structural members installed between the ceiling joist and the peak of the roof, tying the rafters together.

When a load is applied to the roof the rafters on opposing sides of the roof peak push against one another developing an axial compression load in the rafters. At the side walls, the axial load in the rafters will exert a horizontal and vertical load on the wall due to the inclination of the rafters. The horizontal loads, also known as kick out forces, are equal and opposite on opposing sides of the roof. The vertical load is resisted by the supporting wall and the horizontal load, or kick out force, is resisted by both the ceiling joists and the collar ties, if present.

The east half of the original building does not have ceiling joists at the top of the supporting wall elevation due to the arched ceiling. Further, the collar ties are situated very near to the peak of the roof to maximize the height of the arched ceiling. These conditions make the top of the exterior walls susceptible to outwards displacement since the kick out forces are applied to the wall rather than being resolved within the ceiling joists and collar ties.

The north wall of the original building in this area did not appear to be displaced. The North Wing roof, which is framed into the original building roof, likely provides adequate lateral support to resist the kick out forces transferred from the roof above the arch ceiling.

The ceiling cracks observed on the arched ceiling can be attributed to the outwards displacement of the south wall. The outwards displacement of the wall causes tension loads to develop on the ceiling face resulting in the observed cracking.

Cracking of interior architectural wall finishes is common in buildings supported on shallow foundations. Cracking can be caused by foundation settlement and heaving, shrinkage and expansion of construction materials, and changes in interior air temperature and humidity.

5.2 Deterioration of North Wing

The water damage observed at the base of the east and west walls of the North Wing can be attributed to the lack of rain gutters and downspouts along the roof eaves. Rain and snowmelt fall to the ground and splashes against the base of the walls. Long term exposure to moisture can lead to wood rot and eventual failure.

5.3 Differential Foundation Movement

The cracks in the foundation walls, exterior brick walls, and the sloping floors throughout the building can be attributed to differential movement of the building foundation. Refer to the attached Geotech Report prepared by Evertek Engineering, Appendix B, for further discussion on the site soil characteristics and how they relate to the conditions observed.

As discussed in the Geotech Report referenced above, the underlying soil on which the building foundation bears is a high plastic clay. High plastic clays are prone to shrinkage and expansion with changes in moisture content. The lack of rain and snowmelt management from the roof and site has likely caused significant moisture content swings in the subgrade soils throughout the life of the building. These moisture swings likely resulted in periods of significant soil swelling and shrinkage, leading to the observed differential foundation movements.

Frost heaving, as discussed in the Geotech Report, likely caused the shear failure between the concrete pilasters supporting the brick buttresses and the foundation walls. The gravity loads on the pilasters are small in relation to the foundation wall loads and therefore the net frost heave force would be significantly higher on the pilasters causing the shear failure observed. Once sheared, seasonal frost heave likely resulted in frost jacking of the pilasters.

Frost jacking is the cumulative displacement of objects embedded in the ground due to frost heave. Light objects embedded in the ground have the tendency to displace upwards during the freeze cycle. Due to their light weight, the objects don't settle during thaw cycles. As the freeze-thaw cycles continue, the objects slowly 'jack' out of the ground.

The frost jacking of the pilasters is likely the main contributing factor for the cracked brick walls. The upwards displacement of the pilasters translated to similar displacements of the buttresses. Since the buttress brick work is integrated into the exterior wythe of the brick walls, the upwards movement forced the exterior wythe to displace causing the observed cracks.

6.0 OPTION ANALYSIS

The following options for repair or replacement have been developed considering the existing conditions and the historical significance of the building. High-level budget estimates for each respective option have been provided.

6.1 Option 1: Full Replacement - \$940,000 to \$1,400,000

The scope of work includes the demolition of the existing structure and associated foundations, and construction of a new building of similar size to current building codes. No consideration to the historical significance of the building is given in this option.

6.2 Option 2: Partial Replacement - \$976,000 to \$1,465,000

The scope of work for this option is the same as Option 1 but includes repair and stabilization of the west, south, and east brick walls and the incorporation of these walls into the new building façade. This option retains the historical significance of the exterior brick walls of the original building. The following is a summary of the work included in this option:

- Underpinning and temporary bracing of the west, south, and east brick walls.
- Demolition of all remaining structure and associated foundations.
- Construction of a new building of similar size to current building codes.
- Repair the brick walls and incorporate into façade of newly constructed building.
- Re-grade site to provide positive drainage away from building.

6.3 Option 3: Repair and Revitalization - \$700,000 to \$1,050,000

The scope of work includes stabilization of the foundation, repair of the exterior brick work, replacement of exterior cladding and building envelope, and interior renovations. The following is a summary of the work included in this option:

- Underpinning of foundation with helical piles.
- Repair of exterior brick walls.
- Install tension rods across the width of the arched ceiling in the original building.
- Replace soffit and fascia.
- Eavestrough, downspout, and splash pad installation.
- Replace exterior cladding and air barrier.
- Reinsulate exterior walls.
- Insulate foundation.
- Replace vapour barrier.
- Replace windows and doors.
- Re-drywall exterior walls.
- Patch and paint walls and ceilings throughout.
- Replace flooring.
- Refinish washrooms.
- Replace kitchen cupboards and appliances.
- Replace fixtures.
- Electrical and Mechanical upgrades.
- Re-grade site to provide positive drainage away from building.

6.4 Option 4: Interim Repair - \$96,000 to \$144,000

The scope of work includes interim repairs to maintain the current condition of the building and mitigate further deterioration. The following is a summary of the work included in this option:

- Install tension rods across the width of the arched ceiling in the original building.
- Replace pilasters at the architectural buttresses and repair exterior brick walls.
- North Wing wall base repair including replacing structural members and sheathing as required, new weather barrier, and new exterior cladding.
- Install gutters with downspouts and splash pads.
- Perimeter foundation insulation.
- Re-grade site to provide positive drainage away from building.

7.0 RECOMMENDATIONS

Based on the budget estimates for the four options outlined above and the historic significance of the exterior brick work, Option 2 is the recommended option. Option 2 is marginally more costly than Option 1 but maintains the historic value of the original exterior brick work.

Option 3 is not recommended due to the elevated risk of unknown costs that often arise in renovation projects which can be difficult to predict.

Option 4 is not recommended since the financial investment required to maintain the existing conditions of the building are significant without adding long term value to the community. High operations costs due to poor thermal and building envelope performance has likely been and will continue to be a liability for the City.

Notwithstanding the foregoing comments, Option 4 may be the only feasible alternative in the short term due to fiscal constraints. This option addresses the critical structural deficiencies and provides measures to mitigate the ongoing building deterioration as summarized below:

- The proposed tension rods installed across the width of the arched ceiling will stabilize the lateral displacement of the respective south wall.
- Repairs to the North Wing exterior walls will mitigate water ingress and wood rot.
- The replacement of the pilasters supporting the brick buttresses will mitigate the ongoing displacement and cracking of the brick walls.
- Water runoff control through eave gutters, downspouts, and positive site drainage away from the building will moderate the moisture changes in the subsurface soils. This will mitigate soil shrinkage and swelling, in turn decreasing the differential foundation movements. The gutters and downspouts will also mitigate water splashing against the North Wing exterior walls.
- Perimeter foundation insulation will mitigate frost heave of the foundation.

8.0 CONCLUSION

The structural condition of the Old Municipal Hall at 31 Hudson Avenue NE in the City of Salmon Arm is poor. Significant financial investment should be expected to maintain the current condition of the building, preserve the historic significance of the exterior brick walls, and prevent potential collapse in the future.

The cracked foundation and brick walls can be attributed to differential movement of the underlying soils. The highly plastic clays present at the site are susceptible to volumetric changes when exposed to changing moisture conditions and freeze-thaw cycles.

The differential movement of the foundation likely started early in the life of the structure and progressed over time. The differential movement of the foundations is of moderate structural concern, specifically related to the continued displacement and deterioration of the exterior brick walls.

The lateral displacement of the south wall of the arched ceiling room in the original building is of significant structural concern. Bracing is required to prevent future collapse.

The deterioration of the North Wing exterior walls is of moderate structural concern and repairs should be considered. Further deterioration to the structural framing systems can be expected without addressing the roof and site drainage.

It is the opinion of the undersigned that **Option 2 – Partial Replacement** with an estimated cost of \$976,000 to \$1,465,000 should be considered. While only marginally more costly than complete replacement, Option 2 maintains the historical significance of the structure by incorporating the original brick walls into the new building façade.

Should options 1 through 3 not be viable at this time due to fiscal constraints the City should strongly consider Option 4 – Interim Repair. This option addresses the critical structural deficiencies and provides measures to mitigate the ongoing building deterioration.

The stability of the south wall of the arched ceiling room in the original building is of significant structural concern and poses a safety risk to occupants. Annual re-inspection of this wall by a structural engineer is required until such time that permanent bracing has been installed.

9.0 CLOSURE

We have prepared this report in accordance with good engineering practice and accepted codes. Should further information be made available, we would welcome the opportunity to review it to determine if it affects the conclusions drawn in this report. We appreciate the opportunity to prepare this report for you. If you have any questions or comments, please contact the undersigned.

Respectfully Submitted,

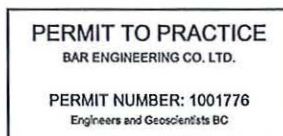
BAR Engineering Co. Ltd.

Per:



Joey Funk, P. Eng.

Intermediate Structural Engineer



Reviewed By,

S. Brent Gebhardt, P. Eng.

Manager, Structural Division

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Item 22.1

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: Development Variance Permit No. VP-582 be authorized for issuance for Lot 3, Block 1, Section 14, Township 20, Range 10, W6M KDYD, Plan 936 to vary provisions of Zoning Bylaw No. 2303 – Appendix 1, Table A1-1 – Multi-Family R-5 & Suite – reduce the number of required off-street parking spaces from five (5) to four (4).

[Brentwell Construction Ltd./Crevier, L. & S.; 31 4 Street SE; Off-Street Parking Spaces]



TO: His Worship Mayor Harrison and Members of Council

DATE: May 25, 2023

SUBJECT: **Zoning Bylaw Text Amendment Application No. 1264**
Development Variance Permit Application No. 582

Legal: Lot 3, Block 1, Section 14, Township 20, Range 10, W6M KDYD, Plan 936

Civic: 31 – 4 Street SE

Owner/Applicant: Brentwell Construction Ltd, Crevier, L. A. & S. P.

MOTION FOR CONSIDERATION

THAT: A bylaw be prepared for Council's consideration, adoption of which would amend Zoning Bylaw No. 2303 as follows:

1) Amend Section 2.2 - Definitions - Secondary Suite – e) and f) to read:

e) must be located within a building or portion of a building of residential occupancy; and

f) must be located within a building or portion of a building where both dwelling units constitute a single real estate entity.

2) Amend the R-5 Zone - Section 10.3.13 to add "Secondary Suite" as a permitted accessory use.

AND THAT: Final Reading of the Bylaw be withheld subject to Ministry of Transportation and Infrastructure approval.

AND FURTHER THAT: Development Variance Permit No. 582 be authorized for issuance for Lot 3, Block 1, Section 14, Township 20, Range 10, W6M KDYD, Plan 936 to vary provisions of Zoning Bylaw No. 2303 - Appendix 1, Table A1-1 – Multi-Family R-5 & Suite – reduce the number of required off-street parking spaces from five (5) to four (4).

STAFF RECOMMENDATION

THAT: The motion for consideration be adopted.

PROPOSAL

The purpose of these applications is to amend the Zoning Bylaw to accommodate the development of secondary suites within a duplex, and address on-site parking requirements. The Zoning Bylaw amendments would be applicable to all R-5 Zone parcels, while the variance for parking is isolated to the subject parcel.

BACKGROUND

The subject parcel is located at 31 – 4 Street SE, just south of Fletcher Park (Appendix 1). It is designated High Density Residential (HR) in the City's Official Community Plan (OCP) and zoned R-5 (High Density Residential) in the Zoning Bylaw (Appendix 2 and 3). The parcel is approximately 460 square metres in area, and features a recently developed duplex building (site photos attached as Appendix 4).

The Zoning Map attached shows the mix of zones in the immediate area, predominantly Residential (R-1, R-5 and R-8), with nearby Institutional and Commercial zones further to the north, west and east. Land uses adjacent to the subject parcel include the following:

North: Residential land (R-1 Single Family Residential)
South: Residential land (R-5 Multi Family Residential)
East: Road (4 Street SE) and P-3 (Institutional) land beyond
West: Residential land (R-1 Single Family Residential)

Section 8.4.46 of the OCP states that *duplex* development that is not part of a multiple family development is exempt from a form and character residential development permit application.

OCP POLICY

Within the OCP, the subject parcel is designated High Density Residential (HR) and is in Residential Development Area A, considered the highest priority for development. The proposed zoning amendment would align with the OCP's Urban Residential Objectives listed in Section 8.2 and the Urban Residential Policies listed in Section 8.3, including providing a variety of housing types, housing options, and supporting compact communities. In terms of siting, the proposal appears aligned with OCP Siting Policies under Section 8.3.19, including good access to transportation routes, recreation, community services, and utility servicing.

Secondary Suites

Policy 8.3.25 of the OCP provides for the consideration of secondary suites in all Residential designated areas via a rezoning application, subject to compliance with the Zoning Bylaw and the BC Building Code.

COMMENTS

Ministry of Transportation & Infrastructure

MOTI has granted preliminary approval (Appendix 5). Final Reading is subject to MOTI approval.

Engineering Department

No Concerns. Recommendation of support for requested parking variance. Servicing information provided to applicant in advance of development (Appendix 6).

Public Consultation

Pursuant to the *Local Government Act*, Zoning Bylaw, and Development Variance Permit Procedures Bylaw notices are mailed to land owners within a 30m radius of the application. The notices outline the proposal and advises those with an interest in the proposal to provide written submission prior to the Hearing and information regarding attending the Hearing. Further to the Zoning Bylaw amendment, newspaper ads are placed in two editions of the local paper in advance of the Statutory Public Hearing. It is expected that the Hearings for these applications will be held on June 26, 2023.

Planning Department

BC Building Code Changes

As per Appendix 7, effective December 2019 the BC Building Code (BCBC) adopted changes to allow for secondary suites in more building types (other than single detached dwellings), providing additional options for land use planning. Examples of building types where the BCBC allows for suites include

townhouse-style developments (including duplexes) where a dwelling and its suite are separated from other parts of the building by a vertical fire separation. The BCBC governs how suites are built and does not allow for the contravention of local land use bylaws. Amending the Zoning Bylaw as proposed below would provide the City with additional housing options.

In order to align with the current BCBC and allow for suites to be an option within the R-5 Zone (and others), Staff propose amendments to the definition of Secondary Suite. The current definition reads as such:

SECONDARY SUITE means a dwelling unit conforming to the Building Regulations of British Columbia which is accessory to the principal dwelling unit and must meet the following criteria:

- a) cannot exceed a maximum floor space of 90 square metres (968.8 square feet);
- b) cannot exceed a maximum of 40% of habitable floor space of the building;
- c) must have a separate entrance;
- d) must be an integral part of the building and have at least one heated wall or floor in common with the principal dwelling unit;
- e) must be located within a building of residential occupancy containing only one other principal dwelling unit; and
- f) must be located in and part of a building which is a single real estate entity.

As the current definition is specific to a suite within a single family dwelling, the proposed changes would allow for suites within additional building types as in bold and underlined below:

SECONDARY SUITE means a *dwelling unit* conforming to the Building Regulations of British Columbia which is accessory to the principal *dwelling unit* and must meet the following criteria:

- a) cannot exceed a maximum floor space of 90 square metres (968.8 square feet);
- b) cannot exceed a maximum of 40% of habitable floor space of the single real estate entity;
- c) must have a separate entrance;
- d) must be an integral part of the building and have at least one heated wall or floor in common with the principal dwelling unit or single real estate entity;
- e) must be located within a building **or portion of a building** of residential occupancy; and
- f) must be located **within a building or portion of a building where both dwelling units constitute a single real estate entity.**

Staff consider the addition of *secondary suite* as an accessory use in the R-5 Zone to be a positive option, allowing an additional housing type and an alternative for increased density on smaller residential parcels, which would otherwise require some form of consolidation with adjacent parcels in order to achieve a developable minimum parcel area. Given housing market trends and the small lot sizes in the High Density Residential designated city centre area, staff believe it is reasonable to allow for the inclusion of an option for secondary suites within the R-5 Zone, which may not have timely potential for consolidation to larger parcel sizes.

In consideration of the subject parcel, the surrounding neighbourhood has been undergoing slow redevelopment with a mix of old and new single family housing, newer multi-family development, as well as institutional and commercial development. The subject parcel is located in an area well-suited for higher density residential development featuring sidewalks and transit routes, within close walking distance of the City centre. As noted, the Residential – High Density (HD) designation in the City's Official Community Plan (OCP) supports the proposed development scenario, which in the opinion of staff aligns with broad OCP policies.

The proposal also aligns with the strategic themes identified in the Salmon Arm Community Housing Strategy considering density and diversity that fits with the character of the community, and developing opportunities to address rental housing needs. Within the Community Housing Strategy, Duplex, Row House, and Semi-Detached Housing accounted for 18% of dwelling types within Salmon Arm (2016).

The maximum residential density permitted under R-5 zoning is 100 dwelling units per hectare of land. As the subject property is 0.046 hectares in area, the maximum permitted density would be 4 dwelling units assuming: 1) the present gross areas of the subject parcel; and 2) no density bonus. With a density

bonus under R-5 zoning, the maximum density is 130 units per hectare, or 5 units on 0.046 hectares, with a height increase to 15 m. All that being said, the constraints presented by the small parcel area of the subject parcel limits the development potential to less than 5 units.

Table 1 – R-5 Zoning Analysis (0.046 hectare area)

	<u>R-5 Permitted/Required</u>	<u>R-5 with Bonus</u>	<u>Proposed</u>
Density	4 units	5 units	2 units + 2 Suites
Height	12 m	15 m	8.8 m
Parcel Coverage	55 %	70 %	35%
Setback – front	5 m	5 m	8.8 m
Setback – interior side	2.4 m - 2.0 m (VP-521)	2.4 m - 2.0 m (VP-521)	2.0 m (VP-521)
Setback – rear	5 m	5 m	5.6 m
Parking	5	5/6	4
Small Car Spaces	20 % (1)	20 % (1)	n/a

It is important to note that the building on the subject parcel exists and is not under application. The R-5 zoning and interior side parcel line variances from 2.4m to 2m were approved at the pre-development stage in 2020 (ZON-1191 and VP-521). Staff are of the opinion that the proposed development of suites within the existing building should align well with the residential development to the area.

Development Cost Charges

Staff note that consistent with the Development Cost Charge Bylaw, secondary suites within any single real estate entity are exempt from DCCs.

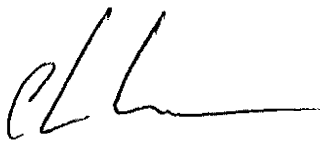
Parking Variance

With respect to parking requirements relative to the proposed development concept, a 2-unit development within the R-5 Zone with 2 secondary suites would be required to provide 5 parking stalls. 4 parking spaces are proposed (Appendix 8). The provision of on-site parking is practical and necessary, as the opportunity for on-street parking at this site is somewhat limited, however staff note public parking options along Okanagan Avenue and feel that the requested reduction is reasonable and manageable at this downtown location.

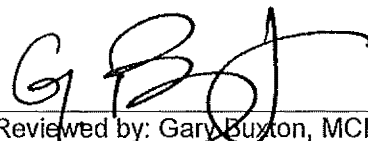
CONCLUSION

Staff view the proposed Zoning Bylaw amendments as presented to be consistent with OCP residential objectives and policy, as well as the Community Housing Strategy. The additions proposed to the Zoning Bylaw serve to clarify municipal policy, support housing diversity in the city centre area, and provide opportunity for an additional housing format and purpose built rentals supported by updates to the BC Building Code. The proposed Zoning Bylaw amendments and the variance for parking reduction are supported by staff.

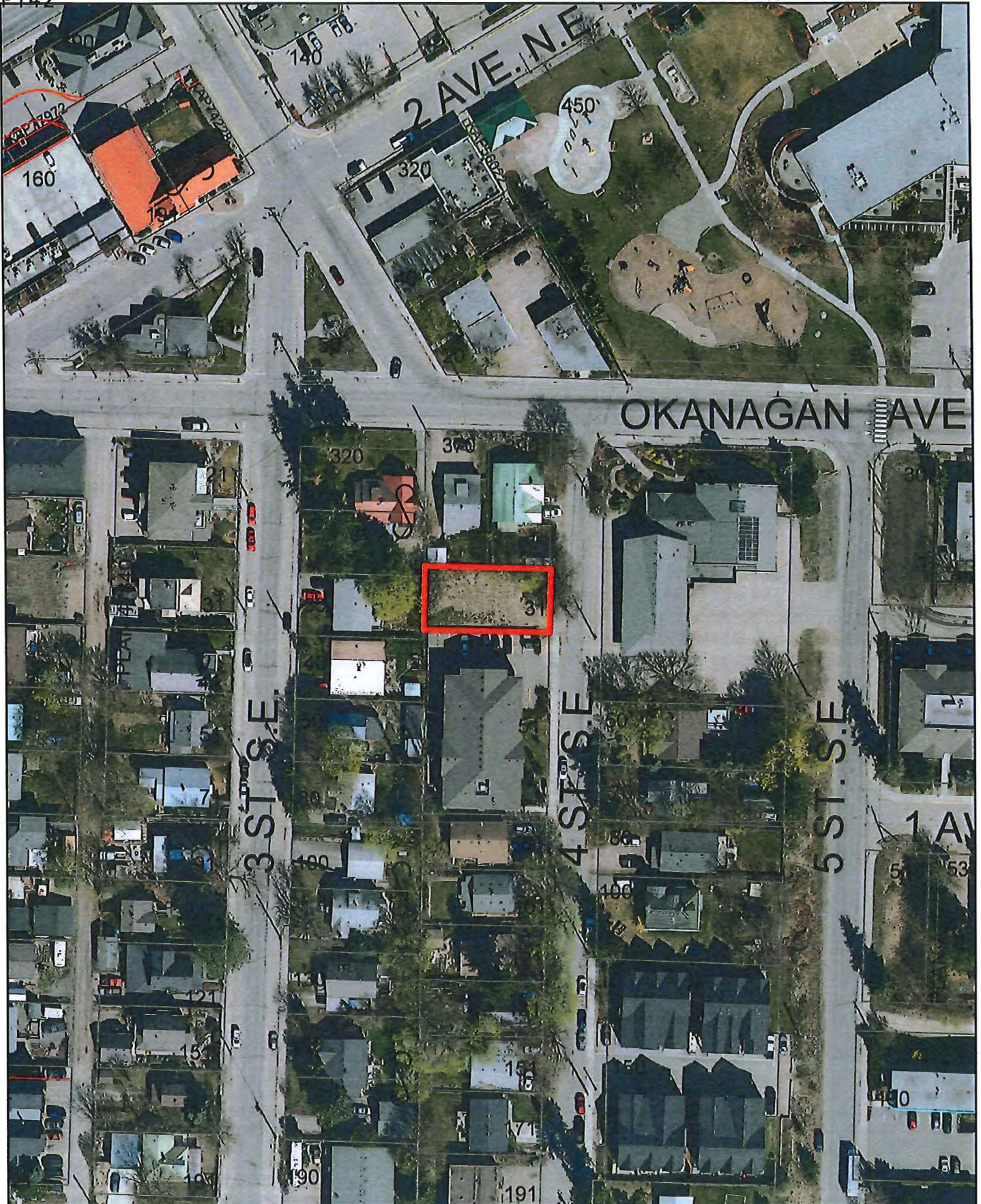
While this proposal relates to the R-5 Zone, if Council wishes to create similar provisions for secondary suites in the R-2 and R-4 Zones, Council could direct Staff to prepare an additional Zoning Bylaw Amendment.




Prepared by: Chris Larson, MCIP, RPP
Senior Planner

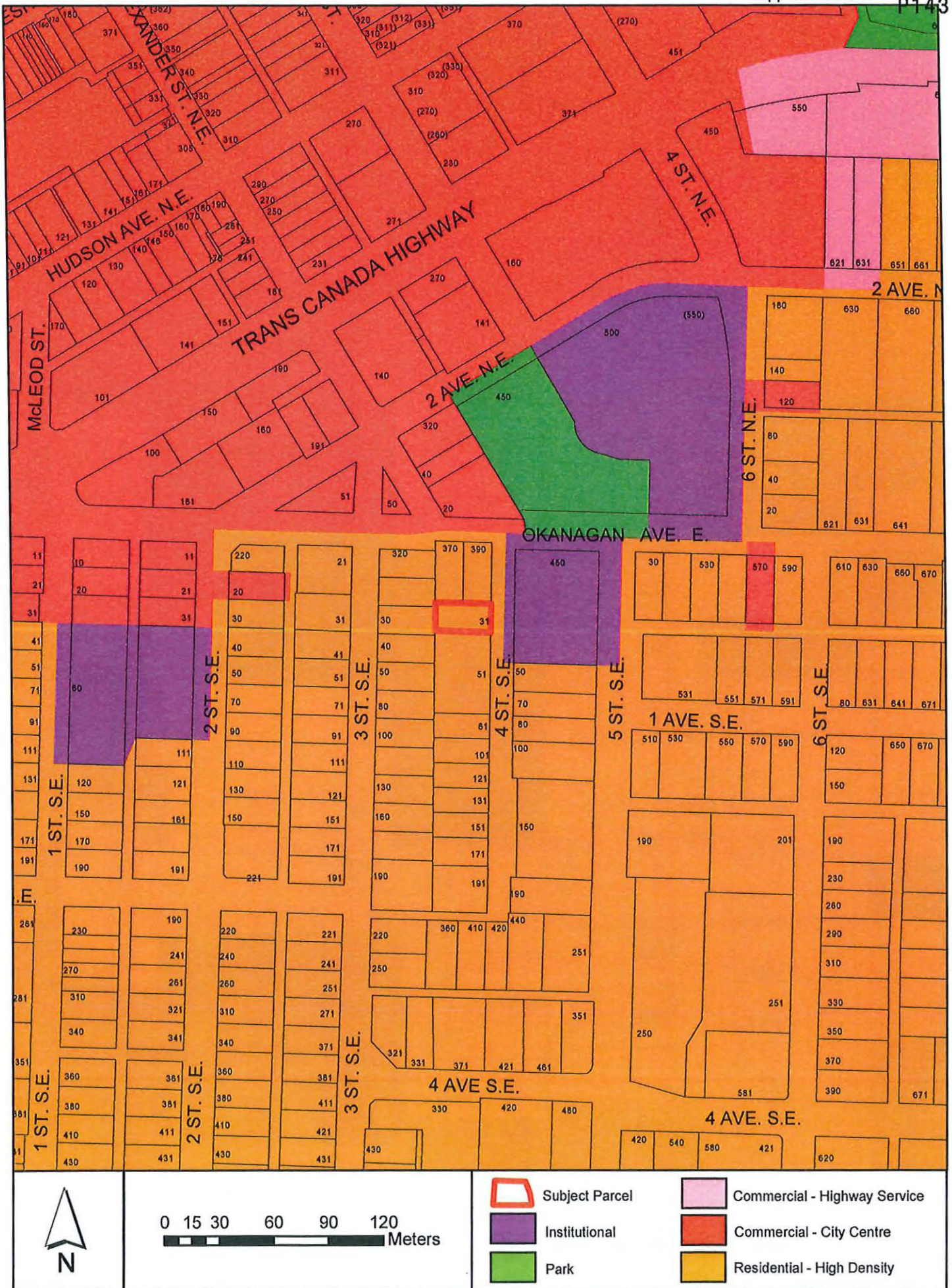


Reviewed by: Gary Buxton, MCIP, RPP
Director of Planning & Community Services

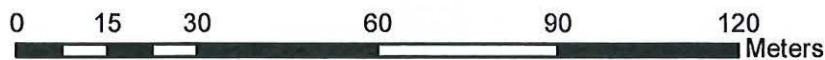
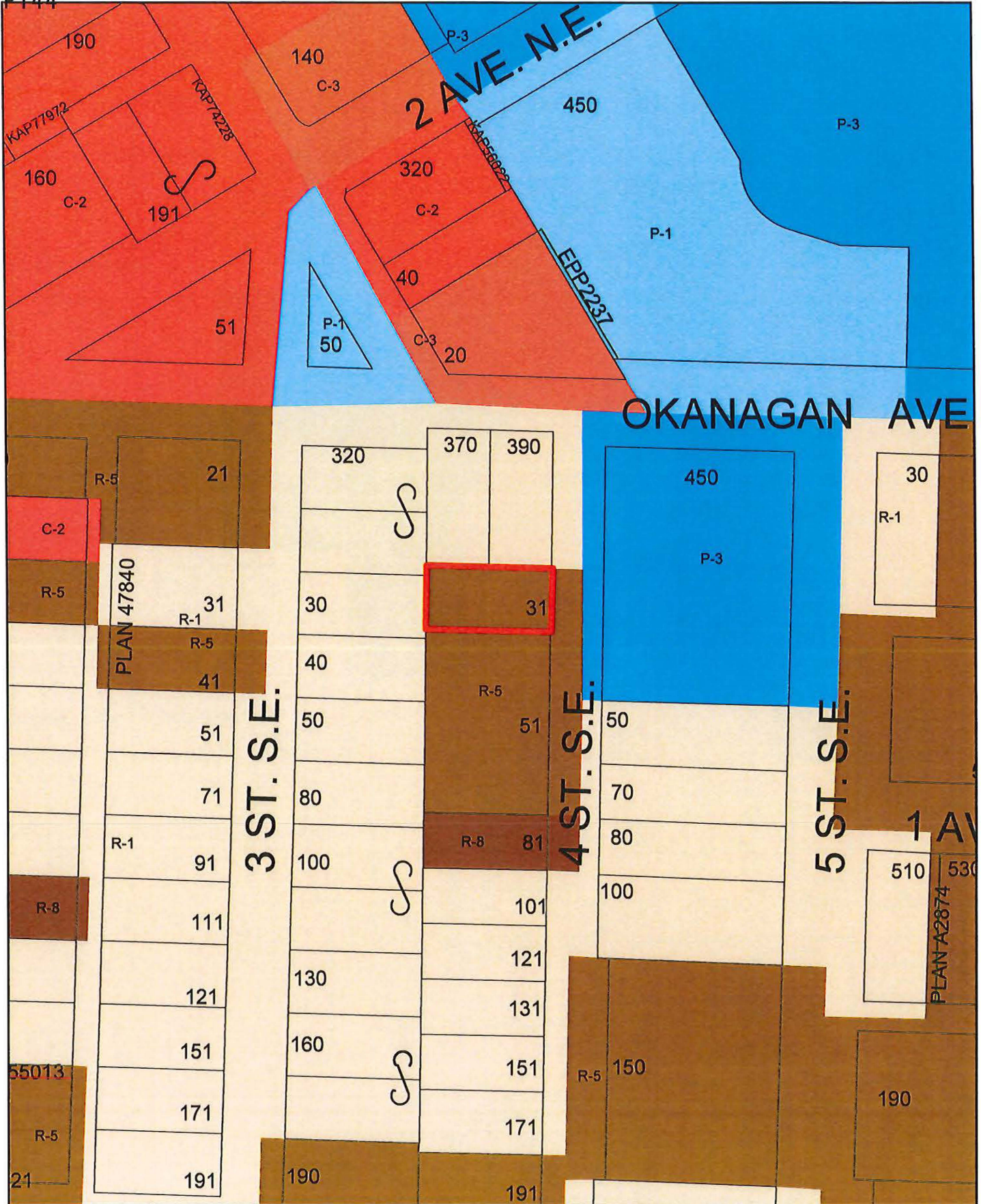


0 15 30 60 90 120 Meters

 Subject Parcel



P144





View of subject parcel northwest from 4 Street SE.



View of subject parcel southeast from 4 Street SE.



Your File #: ZON-1264
BL4579
eDAS File #: 2023-01563
Date: Apr/03/2023

City of Salmon Arm
500 2nd Avenue NE
PO Box 40
Salmon Arm, BC V1E 4N2
Canada

Re: Proposed Bylaw BL4579 for:
PID 011-894-504, LOT 3 BLOCK 1 SECTION 14 TOWNSHIP 20 RANGE 10
WEST OF THE 6TH MERIDIAN KAMLOOPS DIVISION YALE DISTRICT PLAN
936

Preliminary Approval is granted for the Bylaw Text Amendment for one year pursuant to section 52(3)(a) of the *Transportation Act*.

If you have any questions please feel free to call Beth Bahm at (778) 576-1114.
Yours truly,

Beth Bahm
Development Officer

Local District Address
Salmon Arm Area Office Bag 100 850C 16th Street NE Salmon Arm, BC V1E 4S4 Canada Phone: (250) 712-3660 Fax: (250) 833-3380



*Memorandum from the
Engineering and Public
Works Department*

TO: Director of Development Services
 DATE: May 18, 2023
 PREPARED BY: Chris Moore, Engineering Assistant
 APPLICANT: **Brentwell Ventures Ltd / S. & L. Crevier**
 SUBJECT: **ZONING AMENDMENT APPLICATION FILE NO. ZON-1264 Bylaw No. 4579**
SUBDIVISION (STRATA) APPLICATION FILE NO. SUB-23.02
DEVELOPMENT VARIANCE PERMIT APPLICATION FILE NO. VP-582

LEGAL: Lot 3, Block 1, Section 14, Township 20, Range 10,
 W6M, KDYD, Plan 936

CIVIC: **31 – 4 Street SE**

Further to your referral dated March 30, 2023, we provide the following servicing information.

Comments are based on the Subdivision/Development as proposed in the referral. If the development plans for the property change significantly, comments below may change

General:

1. Full municipal services are required as noted herein. Owner / Developer to comply fully with the requirements of the Subdivision and Development Services Bylaw No 4163. Notwithstanding the comments contained in this referral, it is the applicant's responsibility to ensure these standards are met.
2. Comments provided below reflect the best available information. Detailed engineering data or other information not available at this time, may change the contents of these comments.
3. Property under the control and jurisdiction of the municipality shall be reinstated to City satisfaction.
4. Owner / Developer will be responsible for all costs incurred by the City of Salmon Arm during construction and inspections. This amount may be required prior to construction.

Roads / Access:

1. 4 Street SE, on the subject property's eastern boundary, is designated as an Urban Local Road standard, requiring 20.0m road dedication (10.0m on either side of road centerline). Available records indicate that an additional 2.919m road dedication is required (to be confirmed by a BCLS).
2. 4 Street SE is currently constructed to a Local Road standard. No further upgrading is required.
3. The applicant is requesting to reduce the number of parking stalls from five to four. 4 Street SE is located in the downtown area, with easy access by foot to many facilities. There are multiple locations on and adjacent to 4 Street where parking is available. Staff do not consider the reduction in onsite parking by one parking stall to be significant and therefore **the Engineering Department recommends that the request to reduce the number of parking stalls from five to four be approved.**

**ZONING AMENDMENT APPLICATION FILE NO. ZON-1264
SUBDIVISION (STRATA) APPLICATION FILE NO. SUB-23.02
VARIANCE PERMIT APPLICATION FILE NO. VP-582**

May 18, 2023

Page 2

Water:

1. The subject property fronts a 200mm diameter Zone 1 watermain on 4 Street SE. No upgrades will be required at this time.
2. Records indicate that the existing property is serviced by a 50mm diameter service from the 200mm diameter watermain on 4 Street SE with one water meter installed in each property. No further upgrades are required.
3. The subject property is in an area with sufficient fire flows and pressures according to the 2011 Water Study (OD&K 2012).
4. Fire protection requirements to be confirmed with the Building Department and Fire Department.

Sanitary:

1. The subject property fronts a 200mm diameter sanitary sewer on 4 Street SE. No upgrades will be required at this time.
2. Records indicate that the existing property is serviced by a 100mm service from the sanitary sewer on 4 Street SE. No further upgrades are required.

Drainage:

1. The subject property fronts a 250mm diameter storm sewer on 4 Street SE. No upgrades will be required at this time.
2. Records indicate that the existing property is serviced by a 150mm service from the sanitary sewer on 4 Street SE. No further upgrades are required.



Chris Moore
Engineering Assistant



Gabriel Bau P.Eng.
City Engineer

No. B19-05
December 12, 2019

Secondary Suites, Changes to Design and Construction Requirements British Columbia Building Code 2018 Revision 2

The purpose of this bulletin is to provide information about Revision 2 changes to the British Columbia Building Code 2018 (BC Code) for the design and construction of new secondary suites. Changes are effective December 12, 2019 and apply to projects for which a permit is applied for on or after this date.

A separate bulletin B19-04 discusses how the BC Code changes to secondary suite requirements may impact land use planning.

Background

The BC Code introduced requirements for secondary suites in 1995. Therefore, the National Building Code (National Code) provisions were not adopted when they were first published in 2010. The BC Code requirements have not been substantially updated since 1995.

The adopted changes:

- harmonize with the form and approach of the National Code, and most of its technical requirements;
- incorporate historical requirements from the BC Code that provide a higher level of health and safety; and
- adapt some requirements based on application to existing buildings and to coordinate with other requirements.

The Province of British Columbia (B.C.) is working to remove barriers to secondary housing forms. These mid-cycle revisions to the BC Code aim to increase options for the design and construction of new secondary suites in buildings. Allowing the construction of more secondary suites in more building types helps create more housing units while providing an acceptable level of health and fire safety to occupants. These changes provide local authorities with more options for land use planning.

The definition of secondary suite in the BC Code is not to be equated with similar terms in land use bylaws. Land use bylaws may define or use the term secondary suite to describe housing types. The term might carry a different meaning in bylaw than the meaning assigned in the BC Code. It is often appropriate to set aside the BC Code terms when considering land use and zoning matters.

Including solutions for design and construction of secondary suites in the BC Code does not allow owners to contravene land use bylaws. Land use bylaws govern where secondary suites are permitted whereas the BC Code governs how they are to be built. **Before constructing a secondary suite, check with the local authority.**

The BC Code governs the design and construction of new secondary suites including alterations to existing buildings to add a secondary suite as well as new work or alterations within a secondary

suite. It is not intended that the BC Code be used as evaluation metrics or retroactive construction requirements for existing secondary suites.

Changes to the Definition of Secondary Suites

The BC Code **previously** defined a *secondary suite* as “a *dwelling unit*

- having a total floor space of not more than 90 m² in area,
- having a floor space less than 40% of the habitable space of the *building*,
- located within a *building* of *residential occupancy* containing only one other *dwelling unit*, and
- located in and part of a *building* which is a single real estate entity.”

The **new** definition states that a *secondary suite* means “a self-contained *dwelling unit* located within a *building* or portion of a *building*

- completely separated from other parts of the *building* by a vertical *fire separation* that has a *fire-resistance rating* of not less than 1 h and extends from the ground or lowermost assembly continuously through or adjacent to all *storeys* and spaces including *service spaces* of the separated portions,
- of only *residential occupancy* that contains only one other *dwelling unit* and common spaces, and
- where both *dwelling units* constitute a single real estate entity.”

The previous definition placed limits on floor space as a mechanism to moderate fire load and occupant load. This revision **discontinues the prescribed floor space amounts and percentage distribution**. New requirements as well as some existing and revised requirements, moderate risks attributed to fire load and occupant load as compensatory measures. **Check with the local authority on floor space allowances.**

It cannot be assumed that the owner occupies one of the dwelling units, nor that the occupant of the dwelling unit has direct control over the secondary suite or use by its occupants as a means of increasing the level of safety. A secondary suite is not a subordinate suite to a principle suite. However, there are health and safety opportunities and benefits that come with a house with a secondary suite having single ownership that may not be available for units with separate ownership. Typical requirements for separately-owned dwelling units have been adjusted to accommodate the interest, coordination, and maintenance that is available with single ownership.

In addition, this change adopts and adapts permissions in the National Code to **allow the construction of secondary suites in a building that may contain more than one dwelling unit or other occupancy**. These permissions are limited and only apply where a dwelling unit and its secondary suite are completely separated from other parts of the building with continuous vertical fire-rated construction. These permissions do not apply where any portion of the dwelling unit and its secondary suite are above or below another dwelling unit or other occupancy.

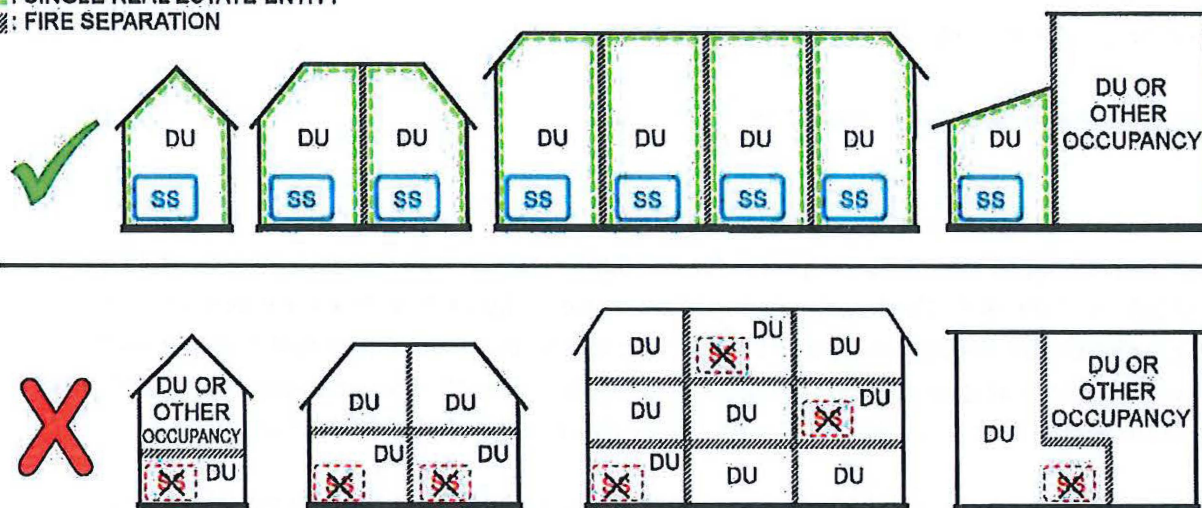
Examples of buildings where the BC Code allows the construction of secondary suites include side-by-side duplexes and also row houses where a vertical fire separation separates the portion with the dwelling unit with the secondary suite from the remainder of the building. Examples where secondary suites are not permitted are up/down duplexes and apartment buildings where dwelling units are above or below other dwelling units.

The contents of this Bulletin are not intended to be provided as legal advice and should not be relied upon as legal advice. For further information, contact the Building and Safety Standards Branch.

The following illustration provides examples of the types of buildings in which the BC Code allows the construction of secondary suites and where secondary suites are not permitted. **Before constructing a secondary suite, check with the local authority.**

Local government contact information is available here: <http://www.civicinfo.bc.ca/directories>.

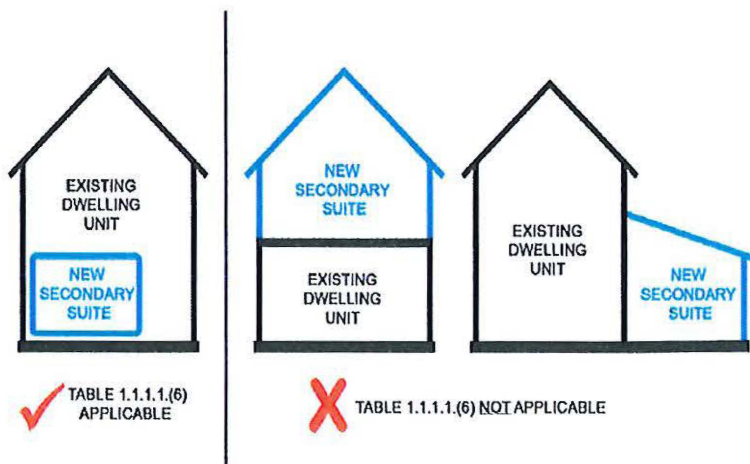
DU: DWELLING UNIT
SS: SECONDARY SUITE
[Green dashed line]: SINGLE REAL ESTATE ENTITY
[Hatched line]: FIRE SEPARATION



Changes to Alterations to Existing Buildings to Add a Secondary Suite

Some previous requirements were based on the premise of 'finishing' an unfinished basement and dealing with the hardships that may exist when working within the confines of an existing home. Some accommodation for when existing construction poses a practical or financial hardship is necessary to avoid abandoning projects or creating disincentives to permits and inspections.

This change distinguishes requirements for new construction - with no existing construction imposing hardship - from requirements for alterations to existing buildings where existing construction poses a hardship. Division A provides Table 1.1.1.1.(6) containing Alternative Compliance Methods that are considered adequate but may only be used where existing construction acts as a practical barrier to compliance with the acceptable solutions in Division B of the BC Code.





Brentwell Construction Ltd.
1009 Kalamalka Lake Rd.
Vernon, BC V1T 6V4
August 14, 2020

City of Salmon Arm
500 2 Avenue NE
Salmon Arm, BC V1E 4N2

Re: Variance Rationale – 31 4th Street SE

We are requesting to have 4 parking stalls for the duplex rather than the amount required by the City of Salmon Arm. With the location being in close proximity to downtown, we believe that tenants will take advantage of this and walk or bike to and from the duplex which would minimize the use for more than one vehicle per unit/ suite. There is also off-street parking on 4 Street and Okanagan Avenue that could be used, without negatively impacting neighboring dwellings.

With rental properties in such high demand in the area, we hope that the City can allow this variance.

Thank you,
Brentwell Construction Ltd.

Rhonda West

From: Barb Puddifant
Sent: Thursday, June 22, 2023 8:58 AM
To: Rhonda West
Subject: FW: [External] Development Variance Permit No. VP-582

From: lyndon@ponichproperties.com <lyndon@ponichproperties.com>
Sent: Wednesday, June 21, 2023 4:13 PM
To: Barb Puddifant <bpuddifant@salmonarm.ca>
Subject: [External] Development Variance Permit No. VP-582

To Whom It May Concern,

Please see the attached email below dated January 13, 2021 in regards to the Proposed Amendment to Zoning Bylaw No. 2303 located at 31-4th St. SE, Salmon Arm. The email outlines our concerns for the parking provisions that were proposed for the development and it is still a concern for consideration in this new Development Variance Permit No. VP-582. Back in January of 2021, we were sent a notice from the City of Salmon Arm along with a site drawing of the proposed development at 31-4th St. SE which only depicted 4 parking stalls. The same site drawing has been sent out with this new variance to reduce the number of parking stalls from 5 to 4. We have never seen a site drawing or proposal for development that showed 5 parking stalls as part of the development. As we expressed in our email on January 13, 2021, the lack of sufficient parking on the property will lead to an increase to street parking that is similar to the north end of 4th St. SE in front of the MapleLanes Townhomes development. 4th St. SE was never built to accommodate the additional volume of street parking for R-5 high density residential zoning and it's only increasing. At times, there is only room for one vehicle to maneuver through the roadway. There is little to no room for emergency vehicles like a fire truck. There is little to no room for snow clearing equipment in the winter and 4th St. SE is often neglected during winter months. In the staff report for the proposed variance permit, it is noted that city staff do not consider the reduction of onsite parking to be significant. Also in the staff report is a Letter of Rationale from Brentwell Construction suggesting that off-street parking on 4th St. and Okanagan Ave. could be used, without negatively impacting neighboring dwellings. It seems rather convenient for city staff and Brentwell Construction to make these assumptions as they don't conduct business or live on 4th St SE. Another issue at hand with the proposed variance permit for the reduction of 5 parking stalls down to 4 is that the development was never built with 5 parking stalls. The developer never built 5 parking stalls on the property but somehow still got occupancy permits from the city. How did this happen? Was this an oversight by city staff? This appears to be a situation were the developer is asking for forgiveness after the construction of the developed property rather than

P154

asking for permission during or before construction. In summary, we are asking council to please consider that 4th St. SE was never built to handle an abundance of street parking that already currently exists and that any additional street parking from recent and future developments seriously jeopardizes pedestrian traffic and vehicle traffic, especially emergency vehicle traffic. Thank you for your time.

Concerned Neighbour

----- Original Message -----

Subject: Fwd: Proposed Amendment to Zoning Bylaw No. 2303

Date: 2023-06-21 13:57

From: Patricia ponich <patandmurray@me.com>

To: Lyndon Wirth <lyndon@ponichproperties.com>

Sent from my iPad

Begin forwarded message:

From: Patricia ponich <patandmurray@me.com>

Date: January 13, 2021 at 11:31:20 AM PST

To: cityhall@salmonarm.ca

Subject: Proposed Amendment to Zoning Bylaw No. 2303

To Whom It May Concern,

I am writing in regards to the rezoning proposal at 31- 4th St. SE. As the owner of the neighbouring apartment building (Patricia Manor) located at 51- 4th St. SE, I am concerned about the provisions for parking in the proposal. It appears that only 4 parking stalls are in the provisions and that will be insufficient. After the development of Maplelane Townhomes located at 150 4th St. SE, it lead to a huge increase in street parking to the south end of 4th St. This was due to the lack of sufficient parking that should have been in the provisions for that particular development. Our concern is that the lack of sufficient parking for the proposal at 31- 4th St. SE will lead to the same increase to street parking to the north end of 4th St. As you are already well aware, 4th St. SE was not built to accommodate the volume of street parking we already have and certainly not built to accommodate more.

Now that you know my concern, my question is: what is the city's plan for off site/street parking on 4th St. SE with the proposal of another R-5 (high density residential) lot knowing that there is already high volume street parking issues that exist?

Thank you for taking my concerns and question. I look forward to hearing your response.

Murray Ponich

Sent from my iPad

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Item 23.1

CITY OF SALMON ARMNOTICE OF PUBLIC HEARING

Notice is hereby given that the Council of the City of Salmon Arm will hold a Public Hearing virtually and in the Council Chambers at City Hall, 500 – 2 Avenue NE, Salmon Arm, British Columbia, on Monday, June 26, 2023 at 7:00 p.m.

1) **Proposed Zoning Bylaw Text Amendment:**

District of Salmon Arm Zoning Bylaw No. 2303 is hereby amended as follows:

- i) To Section 2.0 Definitions, after “Accessory Use” and before “Accommodation Unit”, the following:

Accessible Car Space means a car parking space designated for individuals with mobility limitations, who hold a valid accessible parking permit.

Accessible Van Space means a parking space designated for those with mobility issues designed to allow room for people to load or unload a wheelchair, scooter, walker or similar device that is used to transport a person who has limited ability and hold a valid accessible parking permit.

Accessible Parking Stall means either an Accessible Car Space or an Accessible Van Space.

- ii) After Section 11 of Appendix I: Off – Street Parking and Loading, the following:

12. Accessible Parking Stalls

- .1 Accessible Car Spaces are a minimum of 5.8m depth x 2.4m width. Accessible Van Spaces are a minimum of 5.8m depth x 3.3m width, with an additional minimum aisle width of 1.5m. The additional aisle may be shared between neighbouring Accessible Van Spaces.

- .2 Accessible Parking Stalls must be:

- (a) clearly identified by both paint markings on the parking space and a freestanding Sign in front of the space that is not less than 1.2m above ground measured to the bottom of the Sign and incorporating the international symbol of accessibility for persons with disabilities. Accessible Van Spaces signage shall also include the words “van accessible”;
- (b) treated with a firm and slip-resistant surface;
- (c) provided with a curb letdown from the shared access aisle to any raised pedestrian sidewalk that provides connectivity to the Building;

- (d) constructed with a slope not exceeding 2%; and
- (e) marked with high-colour-contrast diagonal pavement lines on the access aisle

- .3 Of the required stalls for all permitted uses, the minimum number of Accessible Parking Stalls shall be provided in accordance with the following table:

Total Number of Parking Spaces required	Total Number of Accessible Parking Stalls to be Provided	Accessible Car Spaces to be provided	Accessible Van spaces to be provided
0-5	0	0	0
6-25	1	1	0
26-50	3	2	1
51-100	4	3	1
100+	6	4	2

- .4 Should Accessible Parking Stalls be provided that are in addition to those in Section 12.3 then those Accessible Parking Stalls must be in addition to the required number of parking stalls.
- .5 Parking facilities that are used exclusively for buses, trucks, delivery vehicles, law enforcement vehicles, and vehicular impound are not required to include accessible spaces. However, if such lots are accessed by the public (e.g., impounded vehicle retrieval), one (1) Accessible Parking Stall is to be provided.

Applicant: City of Salmon Arm

Reference: Bylaw No. 4590/ZON-1269

SA Observer June 14 and 21

To: His Worship Mayor Harrison and Members of Council

Date: May 25, 2023

Subject: Zoning Bylaw Amendment Application No. 1269
Accessible Parking Regulations

STAFF RECOMMENDATION

THAT: A bylaw be prepared for Council's consideration, amending Zoning Bylaw No. 2303, as follows, by adding:

- i) To Section 2.0 Definitions, after "Accessory Use" and before "Accommodation Unit", the following:

Accessible Car Space means a car parking space designated for individuals with mobility limitations, who hold a valid accessible parking permit.

Accessible Van Space means a parking space designated for those with mobility issues designed to allow room for people to load or unload a wheelchair, scooter, walker or similar device that is used to transport a person who has limited ability and hold a valid accessible parking permit.

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- (b) treated with a firm and slip-resistant surface;
- (c) provided with a curb letdown from the shared access aisle to any raised pedestrian sidewalk that provides connectivity to the Building;

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- .3 Of the required stalls for all permitted uses, the minimum number of Accessible Parking Stalls shall be provided in accordance with the following table:

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0-5	0	0	0
6-25	1	1	0
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51-100	4	3	1
100+	6	4	2

- .4 Should Accessible Parking Stalls be provided that are in addition to those in Section 12.3 then those Accessible Parking Stalls must be in addition to the required number of parking stalls.
- .5 Parking facilities that are used exclusively for buses, trucks, delivery vehicles, law enforcement vehicles, and vehicular impound are not required to include accessible spaces. However, if such lots are accessed by the public (e.g., impounded vehicle retrieval), one (1) Accessible Parking Stall is to be provided.

PURPOSE

To introduce Zoning Bylaw text amendments that would add accessible parking regulations into the Zoning Bylaw, in order to have enforceable minimum standards.

BACKGROUND

Prior to 2018 accessible parking regulations were addressed by the BC Building Code. However, with revisions to the BC Building Code, the specific parking regulations were removed. This was viewed as a way in which to harmonize the BC Building Code with the National Building Codes and standards. Prior to the Code changes in 2018, the Province communicated with local governments that the accessible parking regulations would be removed from the Code and if communities desired accessible parking regulations then those requirements would have to be included in the Zoning Bylaw (see Appendix 1). Under the previous regulations (BC Building Code requirements) if more than 50 parking spaces were required for a development, one of every 100 stalls had to be accessible with a minimum width of 3.7m. The City of Salmon Arm did not make the recommended changes to the Zoning Bylaw at that time. There are no current regulations governing accessible parking stalls.

In formulating the proposed amendments, staff researched information published by the Province and regulations of other communities. In 2020, the BC Office of Housing and Construction Standards published the *Building Accessibility Handbook*, an illustrated supplement to the BC Building Code. The *Building Accessibility Handbook* offers recommendations for accessible car spaces, location and signage (Appendix 2). The proposed amendments align with those recommendations in the *Building Accessibility Handbook*.

Staff also researched the accessible parking regulations for Kamloops, Kelowna, Vernon, Nelson and Victoria in an effort to find a consistent format or rationale to formulate a parking schedule. Each community bylaw considers the same general factors, including - number of car spaces, number of van spaces, dimensions of stalls, surfacing and identification of the stalls, and access to building. However, each community has a slightly different formula for the number of required stalls. The following table is a summary of accessible parking space requirements compared to the proposed accessible parking space scale.

Table 1. Community Comparison: Number of Required Accessible Parking Stalls

	Total Spaces Required: 0-5 Stalls (#of Accessible Car Space / # Accessible Van Spaces required)	Number of Total Spaces Required: 6-25 (#of Accessible Car Space / # Accessible Van Spaces required)	Number of Total Spaces Required: 26-50 (#of Accessible Car Space / # Accessible Van Spaces required)	Number of Total Spaces Required: 51-100 (#of Accessible Car Space / # Accessible Van Spaces required)	Number of Total Spaces Required: +100 (#of Accessible Car Space / # Accessible Van Spaces required)
Kelowna	0 / 0	1/0	2-3/1	3/1	Increases 1 stall per 100 stalls/2
Kamloops*	0/*	1/*	2/*	3-4/*	5-8 stalls until +200 then 2% of overall spaces
Nelson♦	1/0	2/0	3/0	4/0	Increases 1 stall for every 15 additional stalls
Victoria♦	0	0/1	1/1	2-3/1	1 for every 25 stalls/scaled to increase as accessible car spaces increases

*At least 50% of accessible spaces provided must be van accessible.

♦additional spaces required for health or hospital uses.

The proposed bylaw amendments touch on each of the above mentioned factors found in parking regulations of other municipalities as well as the *Building Accessibility Handbook* – stall type, stall dimensions, stall identification and design. It should be noted that the accessible parking spaces, as proposed, are not in addition to the required number of spaces, the accessible spaces are to be provided within the required total number of spaces. This aligns with the formulas of other communities mentioned previously. For example, if a development required 150 parking stalls, then four of those stalls would have to be accessible car spaces and three would have to be accessible van spaces for a total of seven spaces within the 150 overall parking space count.

The proposed changes to the Zoning Bylaw would provide consistency to development, in particular multifamily and commercial development. Effectively, the proposed amendments increase the required number of spaces from one of every 100 stalls to five (three accessible car stalls, 2 accessible van stalls) in 100 stalls and include location and signage details not required under the current regulations. The proposed amendments align more consistently with the current provincial guidelines and the regulations of other communities. Further, the proposed amendments account for increased demand of accessible parking that comes with population growth and the more inclusive design of buildings, infrastructure and amenities.



Melinda Smyrl, MCIP, RPP
Planner



Gary Buxton, MCIP, RPP
Director of Planning and Community
Services

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Information Bulletin

Building and Safety Standards Branch

PO Box 9844 Stn Prov Govt

Victoria BC V8W 9T2

Email: building.safety@gov.bc.ca

Website: www.gov.bc.ca/buildingcodes

No. B18-09

December 17, 2018

Regulatory Changes to Accessible Parking Requirements

The purpose of this bulletin is to provide information about the removal of historical accessible parking requirements from the BC Building Code and resources to support local governments in regulating accessible parking in their bylaws.

Legislation

Part 14 of the *Local Government Act* [RSBC 2015] enables local governments and the Islands Trust to make decisions on planning and land use within their jurisdiction. Section 525 of the *Local Government Act* provides local governments with the authority to establish off-street parking requirements, including specific design standards for accessible parking.

The *Building Act* [SBC 2015] establishes the Province as the primary authority to establish building requirements. The *Building Act* was adopted to support consistency in the building regulatory system by eliminating the patchwork of building requirements that varied across the province. At the same time, the Province recognized that the need for consistency must be balanced with flexibility in order for local governments to meet specific community needs. Section 5 of the *Building Act* allows for such flexibility by providing local governments the authority to establish building requirements for matters identified as unrestricted by regulation.

There are two reasons for which a matter may be unrestricted under Section 5 of the *Building Act*:

- The matter is subject to a particular location or unique circumstance; therefore, the local government is best positioned to set the requirements; or
- A local government aims to achieve an objective under an existing statutory authority and the enacted building requirement is necessary to achieve that objective.

Background

In February 2016, the Province approved accessible parking spaces as an unrestricted matter under the *Building Act*, for which local governments could retain or establish their own requirements in bylaws. The Building and Safety Standards Branch distributed an information bulletin titled [Building Act: Update for Local Governments](#) to support local governments.

The Building and Safety Standards Branch consulted with stakeholders about accessibility requirements in the BC Building Code in February 2018. The consultation feedback on parking generally indicated that the BC Building Code's historical parking requirements were insufficient.

To address the regulatory overlap between the BC Building Code and municipal bylaws and in support of harmonizing the BC Building Code with the National Code, accessible parking provisions are not included in the BC Building Code 2018, which became effective December 10, 2018.

Regulatory Change

The BC Building Code 2018 is harmonized with the National Building Code 2015, which does not include requirements for accessible parking spaces.

While previous editions of the BC Building Code did provide the minimum requirements for accessible parking in instances where off-street parking was either required by local government bylaw or provided voluntarily by the building owner, the regulatory overlap between the *Local Government Act* and the BC Building Code had the potential to cause confusion regarding which requirements should be followed. Removing historical accessible parking requirements from the BC Building Code 2018 clarifies that local governments are best suited to regulate accessible parking spaces according to their communities' needs. Local governments that do not already have their own accessible parking requirements in their bylaws may wish to consider amending their bylaws to incorporate accessible parking requirements.

The BC Building Code 2018 requires a greater level of building accessibility by combining the requirements of the National Building Code 2015 with BC's historical requirements. In aligning more closely with the National Building Code, the BC Building Code achieves greater consistency not only with the National Building Code, but also with codes from other Canadian jurisdictions.

Resources

Several resources are available to support enhancing accessible parking, as outlined below.

The [Accessible Design for the Built Environment standard](#) (CSA B651-18) provides guidance on accessible parking standards. Local governments who do not already regulate accessible parking may adopt these standards or establish requirements that work best for their communities.

The City of Ottawa developed [Accessibility Design Standards](#) to support the design of accessible on and off-street parking.

The [Accessibility for Ontarians with Disabilities Act](#): Integrated Accessibility Standards includes requirements governing the design of public spaces in the built environment.

The Social Planning and Research Council, with input from various communities, developed an [Accessible Community Bylaw Guide](#). For a sample Model Accessible Parking Bylaw, please review pages 72-25.

British Columbia Building Code 2018

Although accessible parking is no longer regulated by the BC Building Code, guidance to support local governments to establish accessible parking requirements in their bylaws is available in the Notes of the BC Building Code.

Implications

Local governments that do not already have accessible parking requirements in their bylaws may wish to develop requirements that meet the specific needs of their communities. Bylaws with existing accessible parking requirements will continue to apply without overlap with the BC Building Code.

Local governments are best positioned to set accessible parking requirements based on the demographics, types of buildings developed, and the specific needs of their communities.

Communities without specific bylaw provisions will be unable to enforce minimum standards for accessible parking after December 10, 2018.

Scheme	BC Building Code 2012	BC Building Code 2018
Local Government Bylaw with Accessible Parking Requirement	<p>Local bylaw applies.</p> <p>Building owners must provide the minimum number of accessible parking spaces in the BC Building Code or, if accessible spaces are required in the local bylaw, the minimum number of accessible spaces in the bylaw.</p> <p>Building owners must comply with which ever requirement is greater.</p>	Local bylaw applies.
Local Government Bylaw without Accessible Parking Requirement	Where parking is required by local government, or parking is provided voluntarily by the building owner, building owners are required to comply with the minimum accessibility requirements in the BC Building Code.	The 2012 accessibility requirements are provided in the Notes of the 2018 BC Building Code. Local governments can amend their bylaw to reproduce these requirements or to include their own. In the absence of accessible parking requirements in bylaws, local governments will be unable to enforce minimum standards for accessible parking.
Code Provisions	<p>One of every 100 spaces must be accessible when 50 or more spaces are provided.</p> <p>Minimum width of 3.7m required.</p>	Guidance provided in the Notes of the BC Building Code.

More Information

Please direct any questions about developing new bylaws to:

Ministry of Municipal Affairs and Housing
Planning and Land Use Management Branch
Telephone: 250-387-3394
Email: PLUM@gov.bc.ca

Please direct any questions about technical code requirements to:

Ministry of Municipal Affairs and Housing
Building and Safety Standards Branch
Telephone: 250-387-3133
Email: Building.Safety@gov.bc.ca

Full text of Part 14 of the *Local Government Act* – Planning and Land Use Management:
http://www.bclaws.ca/civix/document/id/complete/statreg/r15001_14

Full text of the *Building Act*:
<http://www.bclaws.ca/civix/document/id/complete/statreg/15002#part1>

Full text of the *Accessibility for Ontarians with Disabilities Act*:
<https://www.ontario.ca/laws/statute/05a11>

For more information about the changes to accessibility requirements, please see technical bulletin
[18-05: Accessibility in the British Columbia Building Code 2018](#).

- 2) Except as required by Sentence (3), access is not required
- a) to *service rooms*,
 - b) to elevator machine rooms,
 - c) to janitor's rooms,
 - d) to *service spaces*,
 - e) to crawl spaces,
 - f) to *attic or roof spaces*,
 - g) reserved,
 - h) reserved,
 - i) within portions of a *floor area* with fixed seats in an *assembly occupancy* where those portions are not part of the accessible path of travel to spaces designated for wheelchair use,
 - j) within floor levels of a *suite of residential occupancy* that are not at the same level as the entry level to the *suite*,
 - k) reserved, or
 - l) within those parts of a *floor area* that are not at the same level as the entry level, provided facilities and uses provided on any raised or sunken level are also accessible on the entry level.
- 3) In an *assembly occupancy*, the number of spaces designated for wheelchair use within rooms or areas with fixed seats shall conform to Table 3.8.2.3. (See also Article 3.8.3.21. for additional requirements.)

Intent: To exempt certain areas of buildings from the requirements of Sentence 3.8.2.3.(1), which would otherwise require an accessible path of travel, on the basis that it is impractical and onerous to provide access to and from these areas.

Attributions [F74-OA2]

Intent: To limit the probability of an insufficient number of spaces for manual wheelchairs, which could lead to people who use manual wheelchairs being excluded from certain rooms and areas.

Table 3.8.2.3.
Designated Wheelchair Spaces
Forming Part of Sentence 3.8.2.3.(3)

Number of Fixed Seats in Seating Area	Number of Spaces Required for Wheelchairs
<u>50 and under</u>	2
<u>51 – 150</u>	4
<u>151 – 300</u>	5
<u>301 – 500</u>	6
501 – <u>5 000</u>	<u>6, plus one additional space for each increment of up to 150 in excess of 501 fixed seats</u>
5 001 and over	<u>36, plus one additional space for each increment of up to 200 in excess of 5 001 fixed seats</u>

The 2018 edition of the British Columbia Building Code has increased the ratio for required accessible viewing spaces.

3.8.2.4. Path of Travel to Storeys Served by Escalators and Moving Walks

- 1) In a *building* in which an escalator or inclined moving walk provides access to any floor level above or below the entrance floor level, an interior *accessible* path of travel shall also be provided to those floor levels. (See Note A-3.8.2.4.(1).)

A-3.8.2.4.(1) Path of Travel to Storeys Served by Escalators and Moving Walks.

In some buildings, escalators and inclined moving walks are installed to provide transportation from one floor level to another floor level so as to increase the capacity to move large numbers of persons. Some buildings located on a sloping site are accessible from street level on more than one storey and an escalator or inclined moving walk is provided for internal movement from floor to floor. In both these situations, a person with a physical disability must be provided with an equally convenient means of moving between the same floor levels within the building. This can be accomplished by providing elevators or a platform-equipped passenger-elevating device.

- 2) The route from the escalator or inclined moving walk to the *accessible* path of travel that leads from floor to floor as required by Sentence (1) shall be clearly indicated by appropriate signs. (See also Article 3.8.2.10.)

3.8.2.5. Path of Travel to Parking Areas and Passenger-Loading Zones

(See Note A-3.8.2.5.)

A-3.8.2.5. Parking Areas. In localities where local regulations or bylaws do not govern the provision of or dimensions of accessible parking spaces, the following provides guidance to determine appropriate provisions. If more than 50 parking spaces are provided, parking spaces for use by persons with physical disabilities should be provided in the ratio of one for every 100 parking spaces or part thereof. Where parking spaces are provided, parking spaces for use by persons with physical disabilities should also be provided for each accessible viewing position and for each accessible sleeping room or bed space. Parking spaces for use by persons with physical disabilities should

- (1) be not less than 2 400 mm wide and provided on one side with an access aisle not less than 1 500 mm wide,
- (2) have a firm, slip-resistant and level surface,
- (3) be located close to an entrance required to conform to Article 3.8.2.2.,
- (4) be clearly marked as being for the use of persons with physical disabilities, and
- (5) be identified by a sign located not less than 1 500 mm above ground level, with the International Symbol of Access (Figure A-3.8.2.5.-A).

Attributions [F73-OA1]

Intent: To limit the probability that people using a manual wheelchair or other manual mobility assistance device will not be able to move about within a building without the assistance of another person.

Attributions [F73-OA1]

Intent: To limit the probability that people using a manual wheelchair or other manual mobility assistance device will not be able to find the way to an accessible path of travel in the building.



Figure A-3.8.2.5.-A
“International Symbol of Access” sign

A general guide for the slip resistance of materials is provided in the Appendix of this handbook.

Asphalt, concrete and firm, compacted gravel are acceptable parking surfaces. Curb ramps should be not less than 1500 mm wide. Parallel parking spaces should be not less than 7000 mm long. If more than one parking space is provided for persons with physical disabilities, a single access aisle can serve two adjacent parking spaces. The arrangement shown in Figure A-3.8.2.5.-B allows the shared use of an access aisle to serve two adjacent parking spaces provided for use by persons with physical disabilities. Parking to accommodate vans and other vehicles equipped with platform lifts or side ramps should be provided greater dedicated space. The design of the path of travel should accommodate loading to and from lifts and ramps, where intended. Vertical clearance must also be considered.

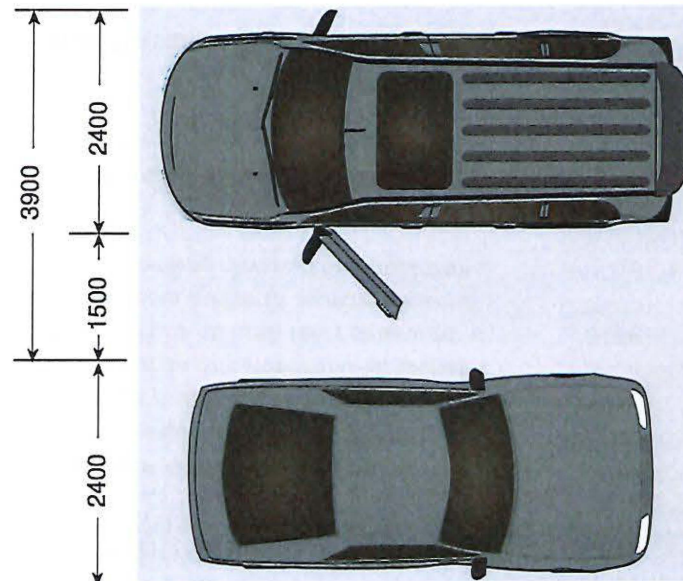


Figure A-3.8.2.5.-B
Shared access aisle

The access aisle may serve more than one parking stall and should have the same level surface as the parking stalls it serves. Consider the movement around doors and ramps so that there is enough space and it is not necessary to travel behind other cars or be in a position where it is difficult to be seen by other drivers. Figure 3.8.2.5. shows a shared aisle serving two stalls. The CSA B651, Accessible Design for the Built Environment standard is another source of information for accessible parking stall quantities and design.

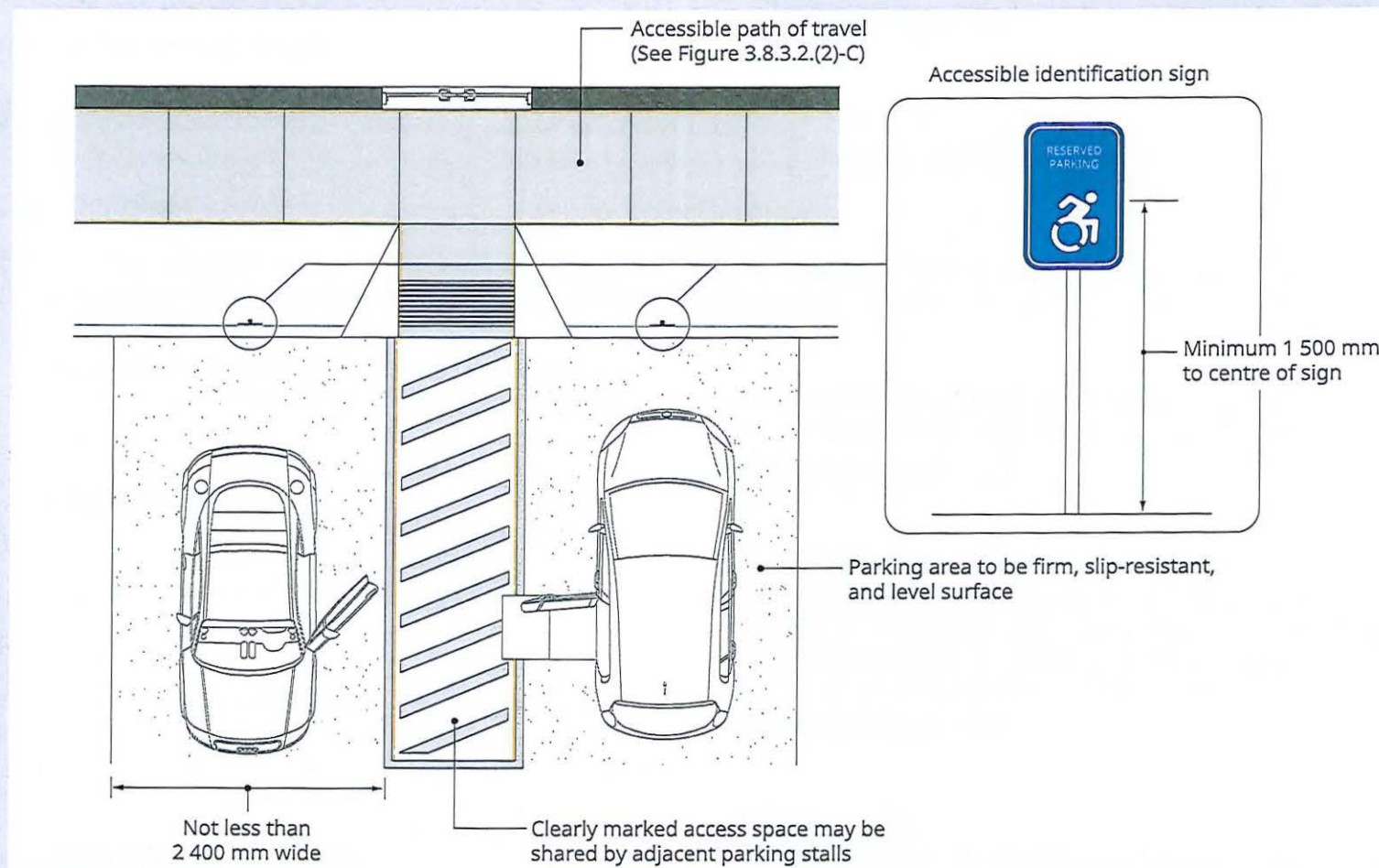


Figure 3.8.2.5.
Parking stall access aisles

- 1) An *accessible* path of travel shall be provided between parking stalls for persons with disabilities and an *accessible* entrance referred to in Article 3.8.2.2. (See Note A-3.8.2.5.(1).)

A-3.8.2.5.(1) Path of Travel to Parking. It is not intended that a separate accessible entrance must be provided from the parking area. The designer may choose to designate the entrance leading to the parking area as the required entrance or to provide a properly identified and unobstructed path of travel from the parking area to the entrance which is accessible. The entrance chosen should, in any case, be the closest entrance to the parking area and one normally used by the occupants of the building. Long paths of travel are not recommended.

- 2) Where a passenger-elevating device serves one or more indoor parking levels, an *accessible* path of travel shall be provided between each parking level containing stalls for persons with disabilities and all other parts of the *building* required to be *accessible* in accordance with Subsection 3.8.3.

- 3) Passenger-loading zones shall comply with Subsection 3.8.3. and be provided with an accessible path of travel to an accessible entrance referred to in Article 3.8.2.2.

Attributions [F73-OA1]

Intent: To limit the probability that people using a manual wheelchair or other manual mobility assistance device will not be able to travel between exterior parking spaces and a building entrance without the assistance of another person.

Attributions [F73-OA1]

Intent: To limit the probability that people using a manual wheelchair or other manual mobility assistance device will not be able to travel between indoor parking spaces and a building entrance without the assistance of another person.

Attributions [F73-OA1]

Intent: To state the application of Subsection 3.8.3. regarding exterior passenger-loading zones.

Where there are several buildings with parking areas or passenger-loading zones, parking stalls and loading zones should be designed and located to accommodate access to all buildings by people with disabilities and close to an accessible entrance.

The design should leave adequate space for side- and rear-loading vehicles.

It is recommended that the number of parking stalls be calculated to suit specific needs. Some buildings such as medical clinics may need more accessible parking stalls than other buildings.

3.8.2.6. Controls and Outlets

- 1) Except as provided in Sentence 3.5.2.1.(3), controls for the operation of *building services* or safety devices, including electrical switches, thermostats, faucets, door and window hardware and intercom switches, that are intended to be operated by the occupant and are located in an *accessible floor area* shall comply with Subsection 3.8.3. (See Note A-3.8.2.6.(1).)

Attributions [F74-OA2]

Intent: To state the application of Subsection 3.8.3. regarding controls.

Intent: To direct Code users to Sentence 3.5.2.1.(3) for the requirement regarding controls in passenger elevators.

Item 23.2

CITY OF SALMON ARM

NOTICE OF PUBLIC HEARING

Notice is hereby given that the Council of the City of Salmon Arm will hold a Public Hearing virtually and in the Council Chambers at City Hall, 500 – 2 Avenue NE, Salmon Arm, British Columbia, on Monday, June 26, 2023 at 7:00 p.m.

1) Proposed Zoning Bylaw Text Amendment:

District of Salmon Arm Zoning Bylaw No. 2303 is hereby amended as follows:

- a) Section 2.2 – Definitions – Secondary Suite – e) and f) to read:
 - e) Must be located within a building or portion of a building of residential occupancy; and
 - f) Must be located within a building or portion of building where both dwelling units constitute a single real estate entity.
- b) Amend the R-5 Zone – Section 10.3.13 to add “Secondary Suite” as a permitted use.

Applicant: Brentwell Ventures Ltd./Crevier, L. & S.

Reference: Bylaw No. 4579/ZON-1264

SA Observer June 14 and 21

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Item 24.1

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the bylaw entitled City of Salmon Arm Zoning Amendment Bylaw No. 4590 be read a third time.

[ZON-1269; City of Salmon Arm; Text Amendment; Accessible Parking Regulations]

CITY OF SALMON ARM

BYLAW NO. 4590

A bylaw to amend "District of Salmon Arm Zoning Bylaw No. 2303"

WHEREAS notice of a Public Hearing to be held by the Council of the City of Salmon Arm in the Council Chambers at City Hall, 500 – 2 Avenue NE, Salmon Arm, British Columbia and by electronic means, on June 26, 2023 at the hour of 7:00 p.m. was published in the and , 2023 issues of the Salmon Arm Observer;

AND WHEREAS the said Public Hearing was duly held at the time and place above mentioned;

NOW THEREFORE the Council of the City of Salmon Arm in open meeting assembled enacts as follows:

1. "District of Salmon Arm Zoning Bylaw No. 2303" is hereby amended by adding:

i) To Section 2.0 Definitions, after "Accessory Use" and before "Accommodation Unit", the following:

Accessible Car Space means a car parking space designated for individuals with mobility limitations, who hold a valid accessible parking permit.

Accessible Van Space means a parking space designated for those with mobility issues designed to allow room for people to load or unload a wheelchair, scooter, walker or similar device that is used to transport a person who has limited ability and hold a valid accessible parking permit.

Accessible Parking Stall means either an Accessible Car Space or an Accessible Van Space.

ii) After Section 11 of Appendix I: Off – Street Parking and Loading, the following:

12. Accessible Parking Stalls

.1 Accessible Car Spaces are a minimum of 5.8m depth x 2.4m width. Accessible Van Spaces are a minimum of 5.8m depth x 3.3m width, with an additional minimum aisle width of 1.5m. The additional aisle may be shared between neighbouring Accessible Van Spaces.

.2 Accessible Parking Stalls must be:

- (a) clearly identified by both paint markings on the parking space and a freestanding Sign in front of the space that is not less than 1.2m above ground measured to the bottom of the Sign and incorporating the international symbol of accessibility for persons with disabilities. Accessible Van Spaces signage shall also include the words "van accessible";
 - (b) treated with a firm and slip-resistant surface;
 - (c) provided with a curb letdown from the shared access aisle to any raised pedestrian sidewalk that provides connectivity to the Building;
 - (d) constructed with a slope not exceeding 2%; and
 - (e) marked with high-colour-contrast diagonal pavement lines on the access aisle
- .3 Of the required stalls for all permitted uses, the minimum number of Accessible Parking Stalls shall be provided in accordance with the following table:

Total Number of Parking Spaces required	Total Number of Accessible Parking Stalls to be Provided	Accessible Car Spaces to be provided	Accessible Van spaces to be provided
0-5	0	0	0
6-25	1	1	0
26-50	3	2	1
51-100	4	3	1
100+	6	4	2

- .4 Should Accessible Parking Stalls be provided that are in addition to those in Section 12.3 then those Accessible Parking Stalls must be in addition to the required number of parking stalls.
- .5 Parking facilities that are used exclusively for buses, trucks, delivery vehicles, law enforcement vehicles, and vehicular impound are not required to include accessible spaces. However, if such lots are accessed by the public (e.g., impounded vehicle retrieval), one (1) Accessible Parking Stall is to be provided.

2. SEVERABILITY

If any part, section, sub-section, clause of this bylaw for any reason is held to be invalid by the decisions of a Court of competent jurisdiction, the invalid portion shall be severed and the decisions that it is invalid shall not affect the validity of the remaining portions of this bylaw.

3. ENACTMENT

Any enactment referred to herein is a reference to an enactment of British Columbia and regulations thereto as amended, revised, consolidated or replaced from time to time.

4. EFFECTIVE DATE

This bylaw shall come into full force and effect upon adoption of same.

5. CITATION

This bylaw may be cited as "City of Salmon Arm Zoning Amendment Bylaw No. 4590"

READ A FIRST TIME THIS 12th DAY OF JUNE 2023

READ A SECOND TIME THIS 12th DAY OF JUNE 2023

READ A THIRD TIME THIS DAY OF 2023

APPROVED PURSUANT TO SECTION 52 (3) (a) OF THE TRANSPORTATION ACT
ON THE DAY OF , 2023

For Minister of Transportation & Infrastructure

ADOPTED BY COUNCIL THIS DAY OF 2023

MAYOR

CORPORATE OFFICER

Item 24.2

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor

Seconded: Councillor

THAT: the bylaw entitled City of Salmon Arm Zoning Amendment Bylaw No. 4579 be read a third time.

[ZON-1264; Brentwell Construction Ltd./Crevier, L. & S.; 31 4 Street SE; Text Amendment; Addition to Definitions and to R-5 (High Density Residential Zone)]

CITY OF SALMON ARM

BYLAW NO. 4579

A bylaw to amend "District of Salmon Arm Zoning Bylaw No. 2303"

WHEREAS notice of a Public Hearing to be held by the Council of the City of Salmon Arm in the Council Chambers at City Hall, 500 – 2 Avenue NE, Salmon Arm, British Columbia and by electronic means, on June 26, 2023 at the hour of 7:00 p.m. was published in the June 14 and June 21, 2023 issues of the Salmon Arm Observer;

AND WHEREAS the said Public Hearing was duly held at the time and place above mentioned;

NOW THEREFORE the Council of the City of Salmon Arm in open meeting assembled enacts as follows:

1. "District of Salmon Arm Zoning Bylaw No. 2303" is hereby amended as follows:
 - a) Section 2.2 – Definitions – Secondary Suite – e) and f) to read:
 - e) Must be located within a building or portion of a building of residential occupancy; and
 - f) Must be located within a building or portion of building where both dwelling units constitute a single real estate entity.
 - b) Amend the R-5 Zone – Section 10.3.13 to add "Secondary Suite" as a permitted use.

2. SEVERABILITY

If any part, section, sub-section, clause of this bylaw for any reason is held to be invalid by the decisions of a Court of competent jurisdiction, the invalid portion shall be severed and the decisions that it is invalid shall not affect the validity of the remaining portions of this bylaw.

3. ENACTMENT

Any enactment referred to herein is a reference to an enactment of British Columbia and regulations thereto as amended, revised, consolidated or replaced from time to time.

4. EFFECTIVE DATE

This bylaw shall come into full force and effect upon adoption of same.

5. CITATION

This bylaw may be cited as "City of Salmon Arm Zoning Amendment Bylaw No. 4579"

READ A FIRST TIME THIS 12th DAY OF JUNE 2023

READ A SECOND TIME THIS 12th DAY OF JUNE 2023

READ A THIRD TIME THIS DAY OF 2023

APPROVED PURSUANT TO SECTION 52 (3) (a) OF THE TRANSPORTATION ACT
ON THE DAY OF , 2023

For Minister of Transportation & Infrastructure

ADOPTED BY COUNCIL THIS DAY OF 2023

MAYOR

CORPORATE OFFICER

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Item 26

CITY OF SALMON ARM

Date: June 26, 2023

Moved: Councillor Wallace Richmond

Seconded: Councillor Cannon

THAT: the Regular Council Meeting of June 26, 2023, be adjourned.

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INFORMATIONAL CORRESPONDENCE – June 26, 2023

1.	V. Morris – Email dated June 15, 2023 – Foreshore Trail	N
2.	G. Armstrong – Email dated June 15, 2023 – Road Safety	N
3.	K. Wilkinson – Email dated June 16, 2023 – Clearcut of Appleyard Property	N
4.	B. Reynaud – Email dated June 14, 2023 – Clearcut in Raven	N
5.	D. Fredlund – Email dated June 21, 2023 - Ducks	N
6.	A. Varnes, Program Manager, Shuswap District Arts Council – Information Release dated June 13, 2023 - Wednesday on the Wharf	N
7.	D. Mills, Shuswap Cycling Society – Letter dated June 9, 2023 - Request to use Klahani Park – 8 th Annual Shuswap Cross, Cyclocross Race - September 17, 2023	A
8.	L. Payne – Email dated June 16, 2023 – Request to use Marine Park to honor Indigenous History Month – June 30, 2023	A
9.	J. Bellhouse, Executive Director, Shuswap Trail Alliance – Email dated June 8, 2023 – Request for Letter of Support for Rubberhead Jump Line Project	A
10.	H. Scribner, Administrator & Board Secretary, MIABC – Email dated June 13, 2023 – MIABC Voting Delegate	A
11.	A. Slater, General Manager, SILGA – Email dated June 9, 2023 – SILGA Youth Representative at UBCM Convention	N
12.	P. Jones, Mayor, District of North Saanich – Letter dated June 21, 2023 – Province of British Columbia’s Home for People Action Plan	N
13.	Shuswap Watershed Council – Media Release – Shuswap watershed groups warn of economic impacts of potential Zebra and Quagga Mussel infestation, emphasize importance of prevention measures	N
14.	Interior Health – News Release dated June 9, 2023 – Thompson Region Family Obstetrics Clinic will accept new referrals starting next week	N

N = No Action Required
A = Action Requested

S = Staff has Responded
R = Response Required

Rhonda West

From: Rhonda West
Sent: Thursday, June 15, 2023 12:04 PM
To: Rhonda West
Subject: FW: [External] Online Form Submittal: Mayor and Council

Mayor and Council

First Name Vivian

Last Name Morris

Address: St SE

Return email address:

Subject: Foreshore Trail

Body

Dear Mayor and Council,

I was so pleased with the foreshore trail upgrades paid for with covid money last year. The idea was that these upgrades would mean no trail closure due to flooding. You may well know that the trail is flooded now so that was not achieved. I was also pleased to see \$175, 000 for trail development west of town. However, as I've mentioned before, moving onto another trail when our foreshore trail is not complete, in terms of consistent trail quality seems premature. We need to make all of the foreshore trail good quality and safe. Beyond the boardwalk, the trail is narrow and rocky. People fall there frequently. I've long held that the city does not have a vision for the trail. Trails in other towns are the crown jewels of those towns. There is so much potential in our foreshore but it will take vision and money to realize it. Without the vision financial planning is not realistic. Throwing \$50,000 at it every few years based on whims (our former mayor liked to walk the foreshore so put money into it) and unexpected funds is better than nothing. However, the flooding this year has highlighted that we need a vision. I realize it is complicated by the agreement with SABNES, but leaving the management of this precious asset to a group of aging volunteers with limited funds has resulted in what you see today: rotting platforms and a dangerous trail at the Raven end. Please someone on council take on this vision and champion it!

Vivian Morris

Would you like a
response:

Yes

Disclaimer

Written and email correspondence addressed to Mayor and Council may become public documents once received by the City. Correspondence addressed to Mayor and Council is routinely published within the Correspondence Section of Regular Council Agendas.

Email not displaying correctly? [View it in your browser.](#)

Rhonda West

From: Rhonda West
Sent: Thursday, June 15, 2023 12:04 PM
To: Rhonda West
Subject: FW: [External] Online Form Submittal: Mayor and Council

Mayor and Council

First Name Grant
Last Name Armstrong
Address: Shuswap St SW

Return email address:

Subject: Road safety.

Body My wife and I live in the Graystone building facing Shuswap St. We are concerned about the unchecked vehicle speed between 5th Avenue and 10th Avenue. The area has significant pedestrian traffic with senior citizens and children. There are only 2 crosswalks in this stretch. There are several driveways accessing the street. In the several years we have lived here we have never seen radar monitoring speed. I suggest regular radar monitoring and the installation of speed reduction bumps to manage vehicle speeds that far exceed the safe legal limits.
 Respectfully submitted,
 Grant Armstrong

Would you like a response: Yes

Disclaimer

Written and email correspondence addressed to Mayor and Council may become public documents once received by the City. Correspondence addressed to Mayor and Council is routinely published within the Correspondence Section of Regular Council Agendas.

Email not displaying correctly? [View it in your browser.](#)

Rhonda West

From: Rhonda West
Sent: Friday, June 16, 2023 9:30 AM
To: Rhonda West
Subject: FW: [External] Online Form Submittal: Mayor and Council

From: noreply@civicplus.com <noreply@civicplus.com>
Sent: June 16, 2023 7:59 AM
To: Alan Harrison <aharrison@salmonarm.ca>; David Gonella <dgonella@salmonarm.ca>; Debbie Cannon <dcannon@salmonarm.ca>; Kevin Flynn <kflynn@salmonarm.ca>; Louise Wallace-Richmond <lwallacerichmond@salmonarm.ca>; Sylvia Lindgren <slindgren@salmonarm.ca>; Tim Lavery <tlavery@salmonarm.ca>; Erin Jackson <ejackson@salmonarm.ca>
Subject: [External] Online Form Submittal: Mayor and Council

Mayor and Council

First Name Kari
 Last Name Wilkinson
 Address: Street SW
 Return email address:
 Subject: Clearcut of Appleyard Property
 Body Mayor Harrison and Council,

I read the story about the Sunday AM clearcut of the Appleyard property - without proper permits or City of SA approvals.

I don't need to go into all of the abhorrent consequences to the birds and wildlife on this property - since it was done during nesting season; nor the detestable disregard for following the due course for development process; nor the blatant disregard for the surrounding neighbourhood.

I sincerely hope you will make an EXAMPLE of why future developers should not follow the example set by these property owners. Clearly a fine is in order - but in the event that money is not a concern for this developer; perhaps NOT being granted a development permit for a couple of decades would be an appropriate consequence. Their actions with the clearcut of the forest without proper permitting, respect for local wildlife and

neighbouring properties, respect to the City of Salmon Arm gives me little confidence that these property owners will follow other building guidelines. Be harsh in your decision with them.

Would you like a response:

Yes

Disclaimer

Written and email correspondence addressed to Mayor and Council may become public documents once received by the City. Correspondence addressed to Mayor and Council is routinely published within the Correspondence Section of Regular Council Agendas.

Email not displaying correctly? [View it in your browser.](#)

Rhonda West

From: Rhonda West
Sent: Wednesday, June 14, 2023 10:16 AM
To: Rhonda West
Subject: FW: [External] Online Form Submittal: Mayor and Council

From: noreply@civicplus.com <noreply@civicplus.com>
Sent: Wednesday, June 14, 2023 10:07 AM
To: Alan Harrison <aharrison@salmonarm.ca>; David Gonella <dgonella@salmonarm.ca>; Debbie Cannon <dcannon@salmonarm.ca>; Kevin Flynn <kflynn@salmonarm.ca>; Louise Wallace-Richmond <lwallacerichmond@salmonarm.ca>; Sylvia Lindgren <slindgren@salmonarm.ca>; Tim Lavery <tlavery@salmonarm.ca>; Erin Jackson <ejackson@salmonarm.ca>
Subject: [External] Online Form Submittal: Mayor and Council

Mayor and Council

First Name Blair

Last Name Reynaud

Address:

Return email address:

Subject: Clearcut in Raven

Body First time in 27 years that I have felt compelled to express my opinion. The person who decided to disregard and flaunt the rules by cutting down the forest in Raven on a weekend, and will easily pay the fine, should be punished by not issuing a building permit of any sort for any structure on that lot. This should also deter anyone else from planning the same stunt. I hope someone has the backbone to deal with this. Thanks for taking the time to read this.

Would you like a response: No

Disclaimer
 Written and email correspondence addressed to Mayor and Council may become public documents once received by the City. Correspondence addressed to Mayor and Council is routinely published within the Correspondence Section of Regular Council Agendas.

Rhonda West

From: Alan Harrison
Sent: Wednesday, June 21, 2023 8:56 AM
To: Rhonda West
Subject: FW: [External] Online Form Submittal: Mayor and Council

From: noreply@civicplus.com <noreply@civicplus.com>
Sent: June 21, 2023 8:28 AM
To: Alan Harrison <aharrison@salmonarm.ca>; David Gonella <dgonella@salmonarm.ca>; Debbie Cannon <dcannon@salmonarm.ca>; Kevin Flynn <kflynn@salmonarm.ca>; Louise Wallace-Richmond <lwallacerichmond@salmonarm.ca>; Sylvia Lindgren <slindgren@salmonarm.ca>; Tim Lavery <tlavery@salmonarm.ca>; Erin Jackson <ejackson@salmonarm.ca>
Subject: [External] Online Form Submittal: Mayor and Council

Mayor and Council

First Name Dean

Last Name Fredlund

Address:

Return email address:

Subject: Ducks

Body I am concerned that ducklings have no openings on Lakeshore Rd to get to water. I have personally seen 4 events where cars gave stopped and tried to help. Maybe some openings could happen?
 Thank you
 S
 Dean Fredlund

Would you like a response: Yes

Disclaimer
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For immediate release

June 13 2023

Summer is fast approaching, and that has the folks at the Shuswap District Arts Council gearing up for another season of terrific live music.

2023 marks the 30th year of Wednesday on the Wharf, Salmon Arm's very own by-donation live music concert series. Every Wednesday evening at 6.45pm in July and August, audiences will gather at Marine Peace Park to soak up the evening sun, connect with friends, and take in a fantastic array of live music. With a lineup that includes well-known locals and exciting out-of-town talent, WOW 2023 promises to deliver a captivating musical experience.

Music lovers will recognize many of the names on the bill this year, starting with Vernon's own modern-celtic Cod Gone Wild, who will open the series on July 5th. Indigenous-Folk singer Kym Gouchie, last in Salmon Arm in fall 2022, will appear as a trio on July 13, followed by the up-and-coming Métis pop/folk/indie five piece band Kaely Jade on July 20th. To round out the month, the internationally-based Gabriel Palatchi Trio will get the crowd moving with latin-jazz and funk-tango rhythms on July 27th.

August will be off to a hopping start, courtesy of the 1930's swing- and jump-blues sounds of the Alberta-based Misery Mountain Boys on August 2nd. Lillooet/Pemberton-based The Spiritual Warriors, who wowed audiences last year with their fusion of roots-reggae and indigenous vocals, will bring their laid-back rhythms to the WOW stage on August 9th. As part of a community kick-off on August 16th, ROOTS and BLUES featured artists and award-winning Francophone folk greats Le Vent du Nord will enliven the park with their highly rhythmic and soulful music, drawn from across the Celtic diaspora. Local favorites Josh + Bex will play as a five piece on August 23rd, and soothe away any post-festival blues with their folk-inspired smooth harmonies and gentle lyrics. And finally, local favorite and award-winning country music gentleman Ben Klick and his band will close out the series on August 30th.

As always, audiences can bring their lawn chairs, blankets, and picnics down to the park, and know there will be plenty of room for dancing. Donations collected at intermission support the concert series, all of which would not be possible without the support of WOW's incredible sponsors.

The Arts Council thanks the following sponsors for their enthusiasm and support: Series sponsors Askew's Foods, the Salmon Arm Folk Music Society, Armstrong Regional

Cooperative, SASCU Credit Union, Chad Eliason Mortgage Broker, H&R Block, Shuswap Rotary Club, and the Prestige Harbourfront Resort Hotel. Performance Sponsors include Okanagan College, DeMille's Farm Market, Stella-Jones Inc, Sterling Land Wealth Advisory Group, Johnston Meier Insurance Agencies Group, Grant Thornton LLP, ROOTSandBLUES, Shuswap Orthodontics, and Acorn Music. The Arts Council gratefully acknowledges the support of the BC Arts Council, The BC Gaming Commission, the City of Salmon Arm, and the BC Touring Council.

—

For more information contact

Astrid Varnes
Program Manager, Shuswap District Arts Council
wow@salmonarmartscentre.ca
250 832 1170



**SHUSWAP
CYCLING CLUB**
www.shuswapbike.com

Shuswap Cycling Club
6690 Okanagan Ave SE
Salmon Arm, BC V1E 1Y2

June 9, 2023

Dear Mayor Harrison and Councilor Members,

The Shuswap Cycling Society would like to host the 8th annual Shuswap Cross, Cyclocross race in Salmon Arm at Klahani Park (6391 10 Ave S.E.) on Sunday September 17th, 2023. The 2022 event was very successful, and we are looking forward to hosting this event again this year. This event is a race in the Interior Cyclocross Series - a series of races in the Interior of BC (www.bcinteriorcross.ca).

The Shuswap Cyclocross event is a family friendly event with participants and spectators attending both locally and from around the Interior. Our club enjoys hosting events in beautiful Salmon Arm and it gives us the opportunity to invite more people into our City and experience all we have to offer.

Enclosed are the Cyclocross rules and approximate course design. We will forward the Certificate of Insurance (naming the City of Salmon Arm, CSRD and Shuswap Recreation Society as named insured) as soon as it is available.

The Shuswap Cycling Society is a great organization and is a strong believer in promoting healthier lifestyles and supporting the Shuswap economy.


Thank you for your assistance and support in putting on this event.

Doris Mills
Shuswap Cycling Society
250-833-8573
doris@dorismills.com

2020 Cyclocross - Klahani Park

Approximate route for 2020 Cyclocross race at Klahani Park
October 4, 2020

Legend

 2020 Cyclocross Race

Google Earth

Image City of Salmon Arm



100 m

BC INTERIOR CYCLOCROSS

Racer Guidelines



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Categories

Categories are listed below in order of ability, apart from youth categories—which are based on age—and single-speed categories:

Men's Categories

1. Elite Men
2. Masters Men (40+)
3. Junior Elite Men (U19)
4. Intermediate Men
5. Novice Men
6. U17/U15/U13 Men
7. Single-Speed Men

Women's Categories

1. Elite Women
2. Masters Women (40+)
3. Junior Elite Women (U19)
4. Intermediate Women
5. Novice Women
6. U17/U15/U13 Women
7. Single-Speed Women

Race Day Schedule

Registration

Registration will be open for at least a half hour prior to the start of each race.

Pre-Riding

Due to time constraints at many of our race locations, organizers are only required to provide one half hour of open course pre-riding to racers. Racers will be allowed to pre-ride the course **ONLY** during allotted times. Outside of this race courses will be considered **CLOSED** other than to those whose category is currently racing. Any racers caught pre-riding the course during a time when pre-riding is not allowed, such as during another category's race, may be disqualified from their race.

Race Schedule

The following outlines the race durations and the order of the starting grids:

Race 1 (Morning Race)

Time: 45 minutes

Categories: Single-Speed Men, U17/U15/U13 Men, Intermediate Women, Novice Men, U17/U15/U13 Women, Single-Speed Women, Novice Women

Race 2 (Kids Race)

Time: 10-20 minutes (depending on participation numbers, ages and course layout)

Categories: Under 12

Race 3 (Afternoon Race)

Time: 60 minutes

Categories: Elite Men, Masters Men, U19 Men, Intermediate Men, U19 Women, Elite Women

Bicycle/Equipment Rules

Bicycle and equipment guidelines are divided into **STRICT** and **HONOUR SYSTEM** rules.

STRICT rules are enforceable by BCICX officials on race day. This may mean that a rider will be asked to remedy the equipment problem, be required to race in a different category, or be disqualified from the race if there is no other option available.

HONOUR SYSTEM rules are not enforced by BCICX officials on race day and racers are encouraged to self-govern regarding these rules. If you see something unsafe or someone pushing the limits of tire size talk to them first before bringing it up with the BCICX officials.

All Categories

STRICT - All bicycles must be in good working order.

STRICT - All extraneous parts should be removed—fenders, racks, lights, etc.

STRICT - Both front and rear brakes must be equipped.

STRICT - Bicycles with a motor or pedal assist of any type are not allowed.

STRICT - Tires must not be "slick"—they must have knobs or traction bars of some kind and in sufficient quantity to be safely ridden on the course being raced.

Elite, Masters, Junior Elite (U19)

STRICT - Handlebar must be a drop bar.

STRICT - Must have STI-type† or single-speed road brake/shift levers.

STRICT - Wheels must be 700c.

STRICT - Bicycles equipped with suspension are not allowed.

HONOUR SYSTEM - Tires must be max 33mm wide.

Intermediate

STRICT - Handlebar must be a drop bar.

STRICT - Must have STI† or single-speed road brake/shift levers.

STRICT - Wheels must be 700c.

STRICT - Bicycles equipped with suspension are not allowed.

HONOUR SYSTEM - Tires must be max 45mm wide.

Novice, U17/U15/U13

STRICT - Handlebar must be a drop or mountain bike bar.

HONOUR SYSTEM - Tires must be max 66mm/2.6" wide.

Single Speed

STRICT - Handlebar must be a drop or mountain bike bar.

STRICT - Bike must be affixed with only a single chainring and rear cog or shifters must be sufficiently disabled (to be determined by BCICX officials) on a geared bike.

HONOUR SYSTEM - Tires must be max 45mm/1.75" wide.

† STI-type levers are those designed to be run on a drop bar. This excludes "cross" or "frog" levers and all mountain bike or v-brake style levers even if they would feasibly fit and function on a drop bar.

Points System

Points Tracking

Overall series standings will be calculated for each rider in each category using the total points accumulated during all attended races in the series. Single-speed categories raced in addition to an afternoon race category is the only way two titles can be earned.

Points are not transferable between categories and racers are responsible for signing up for and racing in the appropriate category at each race. If a racer registers in the wrong category, their points will be recorded in that category for that race.

The following table shows the point award distribution for each place up to 60th:

Place	Points	Place	Points	Place	Points	Place	Points	Place	Points	Place	Points
1	200	11	95	21	60	31	45	41	35	51	25
2	175	12	90	22	58	32	44	42	34	52	24
3	155	13	85	23	56	33	43	43	33	53	23
4	140	14	80	24	54	34	42	44	32	54	22
5	130	15	75	25	52	35	41	45	31	55	21
6	120	16	71	26	50	36	40	46	30	56	20
7	115	17	69	27	49	37	39	47	29	57	19
8	110	18	66	28	48	38	38	48	28	58	18
9	105	19	64	29	47	39	37	49	27	59	17
10	100	20	62	30	46	40	36	50	26	60	16

Double Points Races

The series premiere earns racers double points.

Category Upgrades/Downgrades

A rider who is lapped more than once by a significant portion of their race category during a race except due to mechanical failure may be asked by officials to race in a lower category during their next race if such a category exists.

A rider that laps more than half the field in their category during a race may be asked to race in the next category up from their current one at the next race if such a category exists.

Any requested upgrades will be discussed well ahead of time and with deference to racer preference.

Starting Grid

For the first race of the series the starting grid will be based upon the last season's overall results. Racers who did not accumulate points in the last season will be asked to self-seed behind these racers.

After the first race the overall series points will be used to form the starting grid for each category. The rider with the highest accumulated points total will be in the first slot of the first row, then the rider with the second highest accumulated points total will be beside him or her, and so forth down the line and through the rows within each category.

Any rider from another series wishing to start according to their points total in that series must present a copy of the standings from that series to officials at registration.

Rhonda West

From: Rhonda West
Sent: Tuesday, June 20, 2023 2:28 PM
To: Rhonda West
Subject: FW: [External] June 30th

From: Launa Payne <indigenoustriseup@gmail.com>
Sent: Friday, June 16, 2023 10:08 AM
To: Erin Jackson <ejackson@salmonarm.ca>
Cc: Sarah Zuidhof <szuidhof@salmonarm.ca>
Subject: [External] June 30th

Hi Erin,

We hope you are doing well. On June 30th, we are planning a lunch hour event at the Wharf Park (Marine Park) to honor Indigenous History month. We would like to have a yoga session, share some traditional food and teas. Could we secure a park permit for this event? It will be from 11-1.

In Friendship,
Launa and Sherrelle
Indigenous Rise Up

Rhonda West

From: Rhonda West
Sent: Tuesday, June 13, 2023 10:21 AM
To: Rhonda West
Subject: FW: Letter of Support for Rubberhead Jump Line Project

From: Jen Bellhouse <jen@shuswaptrails.com>
Sent: Thursday, June 8, 2023 11:28 AM
To: Visitor Info <visitorinfo@salmonarm.ca>
Subject: [External] Letter of Support for Rubberhead Jump Line Project

Hi Sapphire,

We have made it to the second stage of an application process with the new BC Destination Development Fund for a new jump line at Rubberhead, and they are requesting a letter of support from a local or regional destination management organization to help demonstrate tourism values. The grant portal will be open for 2 weeks in mid-June.

As Rubberhead is kinda Salmon arm I thought it would be good to get a letter from Salmon Arm Visitor info as well as Shuswap Tourism.

Some more details of the project are:

The Rubberhead Jump Line Project will add a black diamond-rated jump line to the network with upgrades to the upper section of the ravine. The Rubberhead trail network currently incorporates over 20 kilometers of primarily mountain bike trails, with some hiking and winter snowshoe use. The Shuswap, although well known for its mountain biking trails, is lacking a progressive jump line. Building a jump line will provide another style of mountain bike riding which will increase the variety of trails for users in turn attracting new riders to the area.

The Rubberhead Jump Line has been identified as a priority with high trail-based destination tourism value in the Shuswap Regional Trails Strategy and builds on the Shuswap Tourism Strategy's goal of expanding four-season recreation, growing nature-based tourism businesses, improving quality of life amenities, and attracting new investment.

The Rubberhead Jump Line Project continues to build on the region's need for expanded four-season destination tourism and recreation experiences, and the need for improved active transportation amenities that improve quality of life and attract new investment. This need is demonstrated in the notable reduction of visitors to the Shuswap during the spring/fall shoulder and winter off-season.

Are you able to provide a letter of support, or does it need to go through council?

Thanks!
 Jen

Jen Bellhouse (she/her)
 Executive Director

The Shuswap Trail Alliance
250-804-3530
jen@shuswaptrails.com
www.shuswaptrailalliance.com

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*The Shuswap Trail Alliance is privileged to operate under the Shuswap Trails Protocol within Secwépemc First Nation territory.*

## Rhonda West

---

**From:** Rhonda West  
**Sent:** Tuesday, June 13, 2023 10:42 AM  
**To:** Rhonda West  
**Subject:** FW: MIABC Voting Delegate

**From:** Heidi Scribner <[hscribner@miabc.org](mailto:hscribner@miabc.org)>  
**Sent:** Tuesday, June 13, 2023 10:25 AM  
**To:** Erin Jackson <[ejackson@salmonarm.ca](mailto:ejackson@salmonarm.ca)>  
**Subject:** [External] MIABC Voting Delegate

Dear Erin,

The Municipal Insurance Association of BC's (MIABC's) 36th Annual General Meeting (AGM) is scheduled to take place on Tuesday, September 19th in Vancouver in conjunction with the UBCM Convention.

In accordance with Article 6.13 of the Reciprocal Insurance Exchange Agreement (RIEA), the following voting delegate and two alternates have been registered with the MIABC to vote your interests at this year's AGM. If you would like to change the delegate and/or alternates, please forward a resolution of your Council/Board directing these changes to [hscribner@miabc.org](mailto:hscribner@miabc.org) no later than Monday, August 14th, 2023.

The AGM Booklet with further voting information will be distributed on Tuesday, August 22nd, 2023.

Voting Delegate: Councillor Chad Eliason  
 Email address: [celiason@salmonarm.ca](mailto:celiason@salmonarm.ca)

Alternate #1: Councillor Kevin Flynn  
 Email address: [kflynn@salmonarm.ca](mailto:kflynn@salmonarm.ca)

Alternate #2: Councillor Debbie Cannon  
 Email address: [dcannon@salmonarm.ca](mailto:dcannon@salmonarm.ca)

Best regards,

Heidi Scribner  
 Administrator & Board Secretary

Municipal Insurance Association of BC  
 Email: [hscribner@miabc.org](mailto:hscribner@miabc.org)  
 Direct: 604-449-6347  
 Main: 604-683-6266

## Rhonda West

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**From:** southern interior local government <yoursilga@gmail.com>  
**Sent:** Friday, June 9, 2023 1:58 PM  
**To:** Town Of Oliver; Jaleen Rousseau; Sun Peaks Resort Municipality; City Of Enderby; RDNO; kelly bennett; RDOS; Loretta Eustache; Kamloops Council; Marg Coulson; District Of Barriere; Collette Beggs; City Of Armstrong; District Of Peachland; Sandra Ballan-Brown; Christy Malden; Theresa William; Barb Puddifant; TNRD; City Of Revelstoke; Cheryl Hardisty; Town Of Princeton; Rhonda West; Tasha Buchanan; Jennifer Sham; District of Sicamous Corporate; John Thomas; Village Of Clinton; Village Of Cache Creek; Sarah Smith; Town Of Osoyoos; info-rdco; Village Of Chase; Township Of Spallumcheen; District Of Coldstream; Kelly McIntosh; Murray daly; District Of West Kelowna; Village Of Lytton; City Of Merritt; CSRD corporate administration; City of Vernon; District Of Lillooet; District Of Logan Lake; Village Of Keremeos; Village Of Lumby; District of Lake Country ...; Melany Helmer; Tom Kadla; katie soltis; SLRD; Sabrina Vergata; City of Penticton; Trevor Seibel; becky harmata; linda brick; Village Of Ashcroft; City Of Kelowna; District of Summerland; Barb Puddifant; District Of Clearwater  
**Subject:** [External] SILGA Youth Representative at UBCM convention  
**Categories:** FOLLOW UP

Good afternoon everyone,

For 2023 SILGA is pleased to announce the resumption of their "Youth Representative at UBCM" program. Please note for 2023 there is room for only one individual in the current budget. I have attached the policy for your information.

Please reach out to your local youth councils or high schools and if a youth is interested, please have them write a letter to the SILGA board outlining why they would deserving of being the recipient for 2023. Deadline is July 5th.

### **POLICY STATEMENT:**

It will be the policy of SILGA to reimburse up to 2 youth (**in 2023 one only**) each year for the cost of travel, accommodation, meals and out of pocket expenses incurred to attend the UBCM convention.

### **POLICY BACKGROUND:**

To promote youth involvement and interest in local government, SILGA will annually sponsor up to 2 youth (**in 2023 one only**) to attend the UBCM convention. A call for nominations will be sent by SILGA after each annual convention to all SILGA members with the youth representatives chosen at the June SILGA executive meeting. Deadline for nominations for 2023 is July 4th.

A SILGA member local government must first nominate a youth from their community. A brief statement written by the youth explaining why they want to attend along with a summary of their interests and accomplishments should accompany the nomination.

The local government of the selected youth will mentor them during the week of the convention. The expectation is the youth will shadow the mentoring council to all their minister meetings, attend the sessions/presentations/tour (based on the youth's interest) and attend the networking sessions (SILGA luncheon), if possible. The youth can also join the SILGA board during their meetings. The youth will be requested to provide a written report to SILGA outlining their experiences and the impact the week had for them.

### **Definition of "Youth"**

- School age secondary students registered in a public school, an independent school, Distributed Learning program or as a home-schooled learner
- up to the age of 19 on or after July 1 of the current school year

SILGA will spend up to \$5,000/year (**for 2023, maximum will be \$2,500**) for the cost of this program. Receipts will be required. Sponsoring local governments are requested to cover the allocated conventions costs for the selected youth and then submit receipts to SILGA for reimbursement. UBCM offers special student registration prices; contact UBCM directly to register and use the complimentary form provided by UBCM.

#### **POLICY DETAILS:**

1. Transportation:
  - To pay compensation for air travel at the lowest available air fare; or
  - To pay compensation for the use of private vehicles at the rate equivalent to that paid by the Province of British Columbia, to a maximum of the lowest economy air fare.
  - Only the driver is entitled to reimbursement for car mileage; the driver must submit the names of the passengers with the expense account.
2. Accommodation (due to weather conditions/distance travelled/other circumstances):
  - To pay compensation for hotel rooms at cost and with a receipt required; or
  - allowance of \$30.00 per night may be claimed (no receipts required).
3. Other Expenses:
  - For all meetings and other authorized travel where required meals are not provided at the event, compensation for meals will be as follows:
 

|           |                             |
|-----------|-----------------------------|
| Breakfast | \$15 including tips and tax |
| Lunch     | \$25 including tips and tax |
| Dinner    | \$35 including tips and tax |

On the date of departure, travel must start before 7:00 am to claim breakfast; before 12:00 noon to claim lunch; and, on the date of return, travel must end after 6:00 pm to claim dinner.

All other expenses occurred for hospitality expenses and other non-specified expenses shall be reimbursed at cost when receipts are provided, subject to Executive approval.

SILGA looks forward to receiving the letters!

Thanks, Alison

--

Alison Slater, BComm, CFP, ARCT  
 General Manager  
 PO Box 27017 Cityview PO  
 Kamloops, BC V2E 0B2  
 250-851-6653  
[www.silga.ca](http://www.silga.ca)





Via email: [HOUS.minister@gov.bc.ca](mailto:HOUS.minister@gov.bc.ca)

June 21, 2023

The Honourable Ravi Kahlon  
Ministry of Housing  
PO Box 9844 Stn Prov Govt  
Victoria, BC V8W 9T2

Dear Honourable Kahlon:

**Re: Province of British Columbia's Home for People Action Plan**

---

At its Regular Council meeting held June 19, 2023, the District of North Saanich Council approved the following resolution:

*"That the Mayor be authorized to send a letter to the Minister of Housing, with copies to the MLA for Saanich North and the Islands and all members of the Union of British Columbia Municipalities, regarding the recently announced action plan "Homes for People" and request that the Minister take into consideration the following:*

- 1. The diversity and size of communities throughout the province and their unique housing needs;*
- 2. The differences between rural and urban communities and their availability of infrastructure; and,*
- 3. The significant impact on existing local infrastructure capacity to service increased development and density.*

*And that the Minister be further advised that the District of North Saanich is concerned that broad legislative changes may curtail the local planning authority vested in local governments and expressed in their Official Community Plans and Zoning bylaws, for which significant public input has been received and accounted for in these important planning policy instruments."*

A good portion of North Saanich is in the Agricultural Land Reserve (ALR); as such, we have concerns regarding the potential conflict between residential and agricultural land use. We have struggled with this very issue in recent years as have other communities surrounded with rural areas and have experienced development pressure.

Respectfully, we request you consider that there are other communities, just as unique as ours, for which a province-wide, "one-size-fits-all", approach to increasing housing supply may not be in their best interest and may result in communities that no longer resemble the ones that people chose to live in. If the Province targeted support to communities either better suited or desirous of increased density, British Columbians would have the ability to choose the housing type and the community that is the best fit for them.

We thank you for your thoughtful consideration of our concerns on this very important initiative.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Jones". The signature is fluid and cursive, with the first name "Peter" and last name "Jones" clearly distinguishable.

Peter Jones  
Mayor

cc: Adam Olsen, MLA for Saanich North and the Islands  
Members of the Union of BC Municipalities



c/o Fraser Basin Council  
 200A – 1383 McGill Road  
 Kamloops, BC V2C 6K7  
 250.314.9660  
[www.shuswapwater.ca](http://www.shuswapwater.ca)



## MEDIA RELEASE

For immediate release

### Shuswap watershed groups warn of economic impacts of potential Zebra and Quagga Mussel infestation, emphasize importance of prevention measures

The Shuswap Watershed Council (SWC) and the Columbia Shuswap Invasive Species Society (CSISS) are raising the alarm about new information released in a report from the Province of BC. The report, published at the end of May, summarizes the potential costs to British Columbia if invasive Zebra and Quagga Mussels (ZQM) were to arrive in BC waters.

The report estimates an annual cost range from \$64 – 129 million to deal with the impacts of invasive mussels. This estimate is up from a 2013 study that estimated the costs of a ZQM invasion to be approximately \$53 million, annually.

“The potential economic and ecological impact of a Zebra or Quagga mussel infestation in the Shuswap and across BC is tremendous. These cost estimates underscore the importance of preventing an invasion of ZQM to beautiful BC,” says Erin Vieira, Program Manager for the Shuswap Watershed Council.

The report breaks down the cost estimates on an annual basis, as follows: hydro infrastructure (\$17.2 – 23.3 million), municipal and domestic water supply infrastructure (\$8 – 49.7 million), agriculture and golf course irrigation (\$2.5 – 5.3 million), maintenance to boats and marinas (\$3.7 – 8.1 million), lost profits and revenues from the tourism industry (\$2.5 – 12.6 million), loss in residential property values and property taxes due to reduced water quality and shoreline values (\$30.2 million). These costs would be borne by rate payers, tax payers, business and property owners. The report clarifies that if accidentally introduced to BC, it would take time for ZQM to establish and reproduce and costs would increase gradually over time to the levels mentioned in the report.

The report highlights that although ZQM have been prevented from establishing in the Pacific Northwest, favourable conditions in BC’s freshwater ecosystems make them a significant risk. To-date, ZQM occur in Manitoba, Ontario, and Quebec as well as over 24 American states.

The primary way that ZQM spread is via watercraft and other water gear. Adult mussels can attach themselves directly, and juvenile mussels float freely in trapped water within boats and other items. The mussels can survive a long journey from one waterbody to another attached to watercraft, despite being out of water for several days.





“Preventing the spread of invasive mussels is key. Watercraft users should [clean-drain-dry](#) every time they move their watercraft - that includes boats, paddleboards, kayaks and canoes, inflatable dinghies, personal watercraft, and more,” says Robyn Hooper, Executive Director of CSISS. “All it takes is one contaminated boat or watercraft launching into BC waters, and our freshwater could be altered forever.”

Travellers coming to BC with a watercraft are required to stop at watercraft inspection stations along their travel route. A member of the BC Conservation Officer service will inspect, and if necessary, decontaminate travellers’ watercrafts.

“The threat of invasive mussels is never going away,” says Vieira. “The Shuswap Watershed Council is committed to continuing with our work to educate and advocate for better protection measures from the provincial and federal governments in order to minimize the risk of an invasion.”

The full report from the Province, “Potential Economic Impact of Zebra and Quagga Mussels in BC” (May 2023) is available on the provincial website, <https://www2.gov.bc.ca/gov/content/invasive-mussels>.

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About: The [Shuswap Watershed Council](#) is a watershed-based partnership that works on water quality and safe recreation in the Shuswap. The [Columbia Shuswap Invasive Species Society](#) is a non-profit organization dedicated to the prevention, management, and reduction of invasive species in the Columbia Shuswap region.

Contact: For more information, please contact Erin Vieira at the Shuswap Watershed Council c/o the Fraser Basin Council in Kamloops at 250 314-9660 or Robyn Hooper at the Columbia Shuswap Invasive Species Society in Revelstoke at 1-855-785-9555.





## NEWS RELEASE

**For Immediate Release | June 9, 2023**

# Thompson Region Family Obstetrics Clinic will accept new referrals starting next week

**KAMLOOPS** – Interior Health and Thompson Region Division of Family Practice are pleased to announce that the Thompson Region Family Obstetrics (TRFO) clinic will begin accepting new referrals for expectant parents starting next week.

"This clinic is a vital resource for new and expecting families in Kamloops and surrounding communities who require access to local maternity care," said Minister of Health Adrian Dix. "I want to applaud all the efforts that allowed these services to resume."

Collaborative efforts between the Ministry of Health, Thompson Region Division of Family Practice, local maternity care providers, and Interior Health have addressed concerns related to the stability of the clinic, which resulted in a temporary interruption to referrals for new expectant parents.

The TRFO clinic provides care for parents and families in Kamloops and surrounding communities, like Merritt, Barriere, Ashcroft, Lillooet, Lytton, and Clearwater starting from early pregnancy up to six weeks following the birth of their babies. The clinic supports on average about 600 to 700 deliveries per year.

"Interior Health knows how important access to stable, quality care is for expectant parents and families," says Susan Brown, Interior Health CEO. "We are committed to working with all partners to ensure this clinic is successful moving forward and to keeping patients at the heart of all these discussions."

The TRFO clinic will start accepting new referrals next week, and work collaboratively with the newly opened antenatal care clinic to ensure timely access to care for expectant parents.

"TRFO physicians believe that the support provided by IH and the Ministry of Health for the clinic will help to ensure its ongoing sustainability," says Dr. Shaun Davis, co-lead of the TRFO physician group. "We are optimistic that the supports put in place will allow for the permanent recruitment of family doctors who work in obstetrical care. The collaboration with the antenatal care clinic will ensure timely access to all maternity services in Kamloops."

*The Thompson Region Family Obstetrics clinic is located on the first floor of the Clinical Services Building at Royal Inland Hospital. It is open from 9 a.m. to 5 p.m. and offers 24-hour call shifts.*

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Interior Health would like to recognize and acknowledge the traditional, ancestral, and unceded territories of the Dākelh Dené, Ktunaxa, Nlaka'pamux, Secwépemc, St'át'imc, Syilx, and Tsilhqot'in Nations where we live, learn, collaborate and work together.

#### MEDIA, FOR INFORMATION:

PHONE 1.844.469.7077 EMAIL [media@interiorhealth.ca](mailto:media@interiorhealth.ca)



# Subdivision and Development Servicing Bylaw No. 4293



Bylaw 4293

Schedule A – Map

Schedule B – Design Manual

Part 1 - Servicing Standards

Part 2 - Specification Drawings

Part 3 - Construction Specifications

Schedule C – Forms

Schedule D – Approved Materials List

## CITY OF SALMON ARM

### BYLAW NO. 4293

#### A Bylaw to Require Works and Services in Connection with the Subdivision and Development of Land

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WHEREAS Section 506 of the Local Government Act empowers the Council to enact a bylaw to regulate and require the provision of works and services in respect of the subdivision of land, to require the connection of water, sewer and drainage systems to City systems in accordance with bylaw standards, to require parcels of land not connected to City water systems to have a potable water source of a specified capacity, and to require the construction of on-site and off-site works as a condition of the approval of a subdivision or the issue of a building permit;

AND WHEREAS Section 507 of the Local Government Act empowers the Council to require an owner of land being subdivided or developed to provide excess or extended services as defined in that Section;

NOW THEREFORE, the Council of the City of Salmon Arm, in open meeting assembled, enacts as follows:

#### 1.0 GENERAL

##### 1.1 TITLE

This bylaw may be cited for all purposes as “City of Salmon Arm Subdivision and Development Servicing Bylaw No. 4293.”

##### 1.2 DEVELOPMENT AREAS

In this bylaw, a reference to a Development Area is a reference to an area designated on Schedule A to the bylaw.

##### 1.3 INTERPRETATION

In this bylaw, unless the context otherwise requires:

**“Approving Officer”** means the person appointed by Council as *Approving Officer* under Section 77 of the Land Title Act, and includes a *Deputy Approving Officer*.

**“Arterial Street”** means a *Street* designated as an *Arterial Street* in the City of Salmon Arm *Official Community Plan*.

**“Boulevard”** means the area between a *Parcel Line* and the traveled portion of a *Street* or *Highway*, excluding curb and gutter and sidewalks.

**"Building"** means any *Structure* used or intended for supporting or sheltering any use or occupancy.

**"Building Official"** means the person or persons designated by the City of Salmon Arm as Building Inspectors, Plumbing Inspectors or Plan Checkers, and includes supervisors for these positions.

**"City"** means the City of Salmon Arm.

**"City Engineer"** means a person designated by the City of Salmon Arm as the *City Engineer* or duly authorized representative.

**"Council"** means the duly elected *Council* of the City of Salmon Arm.

**"Collector Street"** means a *Street* designated as a *Collector Street* in the City of Salmon Arm *Official Community Plan*.

**"Contractor"** means the *Owner/Developer* or the person appointed by the *Owner/Developer* to construct the *Works and Services* required by this bylaw.

**"Cul-de-sac"** means a *Street* that does not permit through traffic, with a turn-around at the end.

**"Development"** means the alteration of land by the construction, installation, extension or alteration of any *Building* or *Structure* which requires a *Building Permit*.

**"Director of Development Services"** means a person designated by the City of Salmon Arm as the *Director of Development Services* or a duly authorized representative.

**"Final Approval"** means endorsement of a *Subdivision* plan by the *Approving Officer* in accordance with the Land Title Act or Strata Property Act.

**"Frontage"** means the boundary of a *Parcel* abutting a *Street*.

**"Highway"** includes a *Street*, road, *Lane*, walkway, trail, bridge, viaduct and any other way open to public use, but does not include a private right-of-way on private property.

**"Lane"** means a public way 10.0 metres (32.8 ft.) or less in width but more than 4.5 metres (14.7 ft.) in width.

**"Low Density Residential Development"** means any residential *Building* conforming to the *Official Community Plan* designation of Low Density, or any *Single Family Dwelling* including a detached or attached secondary suite.

**"Multi-family"** means any residential *Building* consisting of three or more dwelling units.

**"Official Community Plan"** means a community plan that is adopted by the *Council* of the City of Salmon Arm pursuant to Part 14, Division 4 of the Local Government Act.

**"Owner/Developer"** means a person or persons registered in the Land Title Office as the *Owner* of a *Parcel*.

**"Parcel"** means a lot, block, bare land strata lot, or other area in which land is held or into which it is subdivided, but does not include a *Highway*.

**"Parcel Line"** means a line dividing one *Parcel* from another *Parcel*; or from a *Highway*; or from a natural body of water.



***"Parcel Line Adjustment"*** means a change in boundaries between two or more *Parcels* that does not create additional *Parcels* but shall not include a *Parcel Line Adjustment* where one of the *Parcels* is divided by a *Highway*, Canadian Pacific Railway *Parcel* or right-of-way or natural body of water and as a result of the boundary adjustment the portion divided by the *Highway*, Canadian Pacific Railway *Parcel* or right-of-way or natural body of water is created as a separate *Parcel*.

***"Professional Engineer"*** means a person registered or licensed as such under the provisions of the Engineers and Geoscientists Act of B.C.

***"Single Family Dwelling"*** means any *Building* consisting of one dwelling unit as defined in Zoning Bylaw No. 2303, as amended.

***"Street"*** includes a *Highway*, road or *Cul-de-sac*, but excludes a *Lane*, trail, path, walkway, bridge, viaduct or any private access or private roadway and includes a frontage road that is adjacent to a Controlled Access *Highway*.

***"Subdivision"*** means the division of land into two or more *Parcels* and includes a *Subdivision* under the Strata Property Act.

***"Subdivision Potential"*** means the property may be considered for *Subdivision* under the current zoning.

***"Structure"*** means any construction fixed to, supported by or sunk into land or water, including swimming pools, satellite dishes, parkades, and retaining walls, but does not include concrete, asphalt, brick or tile surfaced areas.

***"Works and Services"*** means any public facility or utility which is required by this bylaw and without restricting the generality of the foregoing includes: the supply and distribution of water, including fire hydrants; the collection and disposal of sewage; the collection and disposal of storm/drainage water; ditching; street lighting; dedicated and constructed *Highways*, including asphalt or concrete pavement surface, curb & gutter, sidewalks, trails, fences, *Boulevards*, pavement markings, traffic signals, signage, park benches, street trees, and planters, and the supply and distribution of electrical power.

2.0 ADMINISTRATION

- 2.1 The purpose of this bylaw is to require and regulate the provision of *Works and Services* in respect of the *Subdivision and Development* of land within the *City*.
- 2.2 As a condition of the approval of a *Subdivision* or the issuance of a Building Permit, the *Owner/Developer* of the land shall provide *Works and Services* in accordance with the standards prescribed in this bylaw and shall pay all related administration and inspection fees in accordance with the City of Salmon Arm Fee for Services Bylaw.
- 2.3 The *Council* delegates to the *Approving Officer* the authority to prescribe all forms of agreement and other documents required in the administration of this bylaw, to execute all such agreements and all covenants, statutory rights of way, park land dedication agreements and other instruments connected with the *Subdivision or Development* of land.
- 2.4 The *Council* delegates to the *City Engineer* the authority to maintain an approved products list for the purposes of this bylaw.
- 2.5 Unless otherwise defined herein, all words or expressions in this bylaw shall have the same meaning as like words or expressions contained in the Land Title Act, Local Government Act or Interpretation Act.
- 2.6 If any part, section, sub-section, clause, or sub-clause of this bylaw for any reason is held to be invalid by the decision of a Court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remaining portions of this bylaw.

### 3.0 DESIGN REQUIREMENTS

The *Owner/Developer* shall design and construct at their expense:

- 3.1.1 All onsite *Works and Services* specified in Table 1; and,
- 3.1.2 Except as otherwise provided in Section 5.0 of this bylaw, all offsite *Works and Services* specified in Table 1 on that portion of a *Highway(s)* immediately adjacent to the site, up to the centre line of that adjacent *Highway(s)*, as their requirement is directly attributable to the *Development*.

The determination of which *Works and Services* are required shall have regard for:

- (i) a need for increased flow or capacity of the service(s); or
- (ii) a need to upgrade the service(s) due to safety concerns, including but not limited to concerns regarding integration with existing services, created by the *Subdivision* or *Development* permitted by the Building Permit.

3.2 The City Engineer may require an *Owner/Developer* to design and construct *Works and Services* that are excess or extended services as defined in Section 507 of the *Local Government Act*, and for the purposes of Section 508 of the *Local Government Act* may:

- 3.2.1 Determine the proportion of the cost that relates to the excess or extended nature of the services;
- 3.2.2 Determine what parcels of land will be served by the services;
- 3.2.3 Determine what part of the cost is associated with service to each of the benefiting parcels;
- 3.2.4 Determine the amount of a latecomer charge to be imposed in respect of each of the benefiting parcels;
- 3.2.5 Execute on behalf of the *City* a latecomer agreement in respect of the services, and prescribe a form for such agreements; and
- 3.2.6 Levy latecomer charges in accordance with such agreements including simple interest at the rate of Prime Interest Rate plus two percent (2.0%), as established by the financial institution with which the *City* deals, calculated annually, and pay such charges and interest to the *Owner/Developer* in accordance with the terms of the relevant agreement.

3.3 Where this bylaw requires that the *Owner/Developer* construct excess or extended services as defined by Section 507 of the *Local Government Act* or the City Engineer requires excess or extended services under Section 3.2 of this bylaw, Council may deem the costs of these *Works and Services* to be excessive. In such a case, the costs shall be the responsibility of the *Owner/Developer* and the *Owner/Developer* may enter into a latecomer agreement in accordance with Section 508 of the *Local Government Act*, in the

form prescribed for that purpose by the *City Engineer*. Where the *City* agrees to cost share a portion or all of the excess or extended services, then the latecomer agreement shall include cost sharing provisions.

- 3.4 All *Works and Services* required for *Subdivision* or *Development* shall be constructed, at a minimum, to the specifications set out in Schedule B unless a change in the Design Criteria or Technical Specifications is required for engineering reasons and has been approved in writing by the *City Engineer*, and such a change does not alter the service level prescribed by this bylaw. Compliance with the specifications shall be certified on engineering drawings by a *Professional Engineer*.
- 3.5 Every *Parcel* created by *Subdivision* shall have not less than one *Frontage* on a *Street* and the *Street* or *Streets* shall be constructed to the standards and specifications set out in Schedule B.
- 3.6 Every *Street* in a *Subdivision* shall be constructed to the standards and specifications set out in Schedule B, according to the level of service described in Section 4 and 5 of this bylaw.
- 3.7 The minimum *Parcel Frontage* shall be not less than ten percent (10%) of the perimeter of the *Parcel*, except where lesser *Frontage* is approved by the *Approving Officer*.
- 3.8 Panhandle *Parcels* shall not be created by *Subdivision* unless:
- 3.8.1 The *Parcel* has no further *Subdivision Potential* or, where the *Parcel* has further *Subdivision Potential*, the panhandle access is located such that as future *Subdivision* occurs it may be dedicated and constructed as a *Street*;
- 3.8.2 The *Parcel* contains the required minimum *Parcel* area as specified in the Zoning Bylaw, exclusive of the panhandle; and
- 3.8.3 The width of the panhandle is at least:
- 6.0 metres where the *Parcel* has no further *Subdivision Potential*;
- 20.0 metres where the *Parcel* has further *Subdivision Potential*; or,
- 8.0 metres where a covenant is placed on title limiting the *Development* to a strata *Subdivision* in a form acceptable to the *Approving Officer* and the *Director of Development Services*.
- 3.9 Statutory rights-of-way shall be provided at time of *Subdivision* where water, sewer or drainage works required by this bylaw are not located in dedicated highways, and statutory right of way areas shall be of the following minimum widths:

| # of Utilities in Corridor | Width of Utility Right-of-Way |
|----------------------------|-------------------------------|
| One (1) - Utility          | 6.0m                          |
| Two (2) - Utilities        | 6.5m                          |
| Three (3) - Utilities      | 7.0m                          |

Statutory rights-of-way widths may be increased as determined by the *City Engineer* to satisfy slope and access requirements, size and depth of utility.



#### 4.0 SERVICING REQUIREMENTS

- 4.1 All *Works and Services* required to be designed, constructed and installed at the expense of the *Owner/Developer* shall be designed, constructed and installed to the standards prescribed in this bylaw before the *Approving Officer* approves the *Subdivision* or the *Building Official* issues the Building Permit unless the *Owner*:
- a) deposits with the *City* a cash deposit, or an irrevocable Letter of Credit in a form and from a financial institution, acceptable to the *City*, in the amount of 125% of the construction cost, as estimated by the *Owner/Developer's Professional Engineer* and accepted by the *City Engineer*, for installing and paying for all *Works and Services* required under the bylaw; and
  - b) Enters into a Servicing Agreement with the *City* in the form prescribed for that purpose by the *City Engineer*, to construct and install the required *Works and Services* by a specified date or forfeit to the *City* the Security Deposit.
- 4.2 Where the *Works and Services* required under this bylaw cannot, in the opinion of the *City Engineer*, be constructed in accordance with sound civil engineering principles due to the limited scale of the project, the time of the year in which they would be constructed or any other technical reason, then the requirement may be fulfilled by the payment of cash equal to 100% of the amount estimated by the *City* as the cost of the required *Works and Services*. This cash payment may be used by the *City* at a time in the future, chosen by the *City* in its sole discretion, to construct such *Works and Services*.
- 4.3 Prior to the construction or installation of any *Works and Services*, the *Owner/Developer* shall submit for approval two (2) sets of engineering drawings in accordance with Schedule B. If the drawings are satisfactory, one set will be stamped "Approved for Construction" by the *City Engineer* and returned to the *Owner/Developer*. "Approved for Construction" engineering drawings shall be valid for a period of twelve (12) months.
- 4.4 All *Works and Services* shall be installed by the *Owner/Developer* to the *Parcel Line* or the extension thereof of the *Subdivision* or *Parcel* being developed that is furthest from the existing termination point of *Works and Services* except
- 4.4.1 where it is essential that *Works and Services* be extended beyond the *Subdivision* or *Parcel* to tie into *City* water mains, sanitary sewer mains, storm sewer mains or drainage systems; or
  - 4.4.2 where in the opinion of the *City Engineer* extension of a particular work or service would result in unutilized infrastructure, in which case the work or service shall terminate at the point specified by the *City Engineer*; or
  - 4.4.3 where the *Approving Officer* has approved a phased *Subdivision* with a separate plan of *Subdivision* required for each phase, in which case the *Works and Services* need be constructed only to the *Parcel Line* in the current phase that is furthest from the existing termination point.
- 4.5 All *Works and Services* which are to become the property of the *City*, shall, unless situate upon, over or under a *Highway*, be the subject of a grant of statutory right-of-way in a form acceptable to the *City*.

- 4.6 Unless otherwise specifically approved by the *City Engineer*, the design and construction of new or modifications to existing pump stations, control stations, meter stations, and reservoirs for the *City's* water and sewer utilities shall be undertaken by the *City*. Where *Owner/Developers* are under this bylaw financially responsible for the work, they shall post adequate security prior to the *City* commencing work, in the amount estimated by the *City Engineer* as the cost of the work, in the form of cash or an irrevocable letter of credit. Any deficiency in the security in relation to the actual cost of the work shall be a debt of the *Owner/Developer* to the *City*, and any surplus shall be returned to the *Owner/Developer*.
- 4.7 Upon completion of all *Works and Services*, the *Owner/Developer* shall be responsible for and shall make good all defects, imperfections, or deficiencies which become apparent, during the one-year period following the date of issuance by the *City Engineer* of a Certificate of Substantial Completion in respect of the *Works and Services* (the "Maintenance Period").
- 4.8 Should the *Owner/Developer* or *Contractor* fail to make good any defects, imperfections, or deficiencies after being given at least seven days notice in writing by the *City Engineer* during the Maintenance Period, the *City* shall be entitled to make alternative arrangements for the execution of the repairs and to recover the costs from the *Owner/Developer* or *Contractor*.
- 4.9 Upon expiration of the Maintenance Period and correction of all deficiencies and defects in the *Works and Services*, the *City Engineer* shall return any unused security to the *Owner/Developer*.
- 4.10 All traffic signage and pavement markings required on *City* property or lands to be transferred to the *City* will be installed by the *City* at the Owner's expense. Where required by the *City Engineer*, the *Owner/Developer's* engineering consultant shall provide traffic signage and pavement marking drawings to the *City*.

TABLE 1: Service Levels for Subdivision and Development (1)

| SERVICE                                                                                                                                                                                                                               | SERVICE LEVEL                                  | DEVELOPMENT AREA |       |            |                  |             |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------|-------|------------|------------------|-------------|----------------|
|                                                                                                                                                                                                                                       |                                                | Urban            | Rural | Industrial | Light Industrial | City Centre | Urban Hillside |
| <i>Highways:</i><br><br>Road Standards, including curb, gutter, paving, etc. shown on applicable specification drawing. Collector and Arterial Road Standards shall be applied where designated in the <i>Official Community Plan</i> | RD-1 - Urban Local (18m)                       | X                |       |            |                  |             | X              |
|                                                                                                                                                                                                                                       | RD-2 - Urban Local (20m)                       | X                |       |            |                  |             | X              |
|                                                                                                                                                                                                                                       | RD-3 - Urban Collector (20m)                   | X                |       |            |                  |             | X              |
|                                                                                                                                                                                                                                       | RD-4 - Urban Arterial (25m)                    | X (7)            |       |            |                  |             | X (7)          |
|                                                                                                                                                                                                                                       | RD-5 - Town Centre (Varies)                    | X                |       |            |                  | X           |                |
|                                                                                                                                                                                                                                       | RD-6a - Industrial Area (20m)                  |                  |       | X          |                  |             |                |
|                                                                                                                                                                                                                                       | RD-6b - Light Industrial (20m)                 |                  |       |            | X                |             |                |
|                                                                                                                                                                                                                                       | RD-7 - Rural Local (20m)                       |                  | X     |            |                  |             |                |
|                                                                                                                                                                                                                                       | RD-8 - Rural Collector (20m)                   |                  | X     | X          |                  |             |                |
|                                                                                                                                                                                                                                       | RD-9 - Rural Arterial (25m)                    |                  | X (7) | X (7)      |                  |             |                |
|                                                                                                                                                                                                                                       | RD-14 - Canoe Beach Drive (20m)                | X                |       |            |                  |             |                |
|                                                                                                                                                                                                                                       | RD-15 - Urban Local Hillside (18m)             |                  |       |            |                  |             | X              |
|                                                                                                                                                                                                                                       | RD-16 - Urban Single Lane Local Hillside (12m) |                  |       |            |                  |             | X              |
| Road dedication                                                                                                                                                                                                                       | Based on applicable road cross-section (2)     | X                | X     | X          | X                | X           | X              |
| Water                                                                                                                                                                                                                                 | City Water System including fire hydrants      | X                | (8)   | X          | X                | X           | X              |
|                                                                                                                                                                                                                                       | Alternate Water Supply                         |                  | X (6) |            |                  |             |                |
| Sanitary                                                                                                                                                                                                                              | City Sewer System                              | X                |       | X (3)      | X (3)            | X           | X              |
|                                                                                                                                                                                                                                       | Sewage Disposal to Ground System               |                  | X     | X          | X                |             |                |
| Storm                                                                                                                                                                                                                                 | City Storm Sewer System                        | X                |       | X          | X                | X           | X              |
|                                                                                                                                                                                                                                       | Open Channel System                            | X (10)           | X     | X          | X                |             | X (10)         |
|                                                                                                                                                                                                                                       | Ground Discharge                               | X (10)           | X     | X          | X                |             | X (10)         |
| Hydro, Telecommunications (Civil Works Required)                                                                                                                                                                                      | Overhead Distribution to Property Line         | (4)              | X     | X          | X                |             | (4)            |
|                                                                                                                                                                                                                                       | Underground Distribution to Property Line      | X (5)            |       |            |                  | X (5)       | X (5)          |
|                                                                                                                                                                                                                                       | Overhead Service (within lot)                  | (4)              | X     | X          | X                |             | (4)            |
|                                                                                                                                                                                                                                       | Underground Service (within lot)               | X                |       |            |                  | X           | X              |
| Natural Gas (Optional)                                                                                                                                                                                                                | Underground                                    | X                | X     | X          | X                | X           | X              |
| Street Lighting                                                                                                                                                                                                                       | Schedule B, Part 1, Section 8.0                | X                | (9)   | X          | X                | X           | X              |
| Sidewalk/Multi-use Path (11)                                                                                                                                                                                                          | One Side (Limited Local)                       | X                | X     | X          | X                |             | X              |
|                                                                                                                                                                                                                                       | Two Sides (inc. high & medium density local)   | X                |       |            |                  | X           | X              |
| Bike Lanes / Paved Shoulders (11)                                                                                                                                                                                                     |                                                |                  | X     | X          |                  |             |                |
| Street Tree & Blvd. Appurtenances                                                                                                                                                                                                     | Street Trees/Park Benches/Planters             |                  |       |            |                  | X           |                |
| Trail and Roadside Corridors                                                                                                                                                                                                          | CGS-7 to CGS-12                                | X                | X     | X          | X                | X           | X              |

- 1 The applicable service level is indicated with an X.
- 2 Dedication is capped at a 20 metre wide ROW and is not required for *Development*. Statutory ROW may be required to accommodate infrastructure.
- 3 Required where the *City* system is within 100 metres and a gravity connection is possible.
- 4 Small *Subdivisions* and *Developments* do not require underground distribution where they are in an area of existing overhead distribution and the *City Engineer* in consultation with BC Hydro approves overhead works.
- 5 Three-phase BC Hydro distribution to be located underground only where a tri-party cost sharing agreement is in place between the *Owner/Developer*, BC Hydro and the *City*.
- 6 The *Owner/Developer* is required to grant a potable water treatment covenant in a form acceptable to the *Approving Officer*.
- 7 The *Owner/Developer* is to construct adjacent arterial road *Frontage* with one traffic lane (second lane funded by *City* if required).
- 8 Extension of municipal system into the rural area is permitted where supported by the OCP.
- 9 If street lighting is required for safety purposes. Rural Street lighting covered under Policy 5.5.
- 10 With specific approval from the *City Engineer* as part of an integrated stormwater management plan. *Owner/Developer* may be required to grant an Alternative Stormwater maintenance covenant in a form acceptable to the *Approving Officer* and the *Director of Development Services*.
- 11 Sidewalk, Multi-use Paths and Bike lanes shall be installed as per the appropriate road cross-section where indicated in the OCP

## 5.0 EXEMPTIONS

Exemptions to the servicing requirements in Section 4.0 are permitted as follows:

5.1 At the time of *Parcel Line Adjustment*, the provision of new *Works and Services* shall not be required where:

5.1.1 Existing *Works and Services* have sufficient capacity for any demands directly attributable to the proposed *Parcel Line Adjustment*.

5.2 At the time of *Development*, paving of a *Street* shall not be required where:

5.2.1 The *Development* is located in a Rural Development Area; and

5.2.2 The *Development* has *Frontage* on a *Street* constructed to a gravel standard in accordance with Schedule B (Specification Drawing No. RD-7).

5.3 At the time of *Development*, the provision of new *Works and Services* shall not be required where:

5.3.1

a) The *Development* is limited to the construction of an addition to a *Low Density Residential Dwelling* or the construction of a *Building or Structure* accessory to a *Low Density Residential Dwelling*; and

b) Existing *Works and Services* have sufficient capacity for any demands directly attributable to the proposed *Development*.

5.3.2

a) The *Development* is limited to the construction of an addition or the construction of a *Building or Structure* accessory to any existing building not addressed in Section 5.3.1;

b) The size of the addition or accessory building is equal to or lesser than 50 m<sup>2</sup>; and

c) Existing *Works and Services* have sufficient capacity for any demands directly attributable to the proposed *Development*.

5.3.3

a) The *Development* is limited to a façade upgrade or internal renovation on any existing *Building*; and

b) Existing *Works and Services* have sufficient capacity for any demands directly attributable to the proposed *Development*.



- 5.4 At the time of *Subdivision*, the provision of underground distribution wiring, ornamental street lighting, constructed *Highways* including curb and gutter, sidewalks, trails, roadside corridors, *Boulevards* and signage shall not be required where:
- 5.4.1 The *Subdivision* is located in an Urban Development Area;
  - 5.4.2 The *Parcel* being subdivided is zoned and intended for a *Low Density Residential Development*;
  - 5.4.3 The total *Parcel* area is less than 1800m<sup>2</sup>;
  - 5.4.4 New *Street* or *Street* extensions are not required to service the *Subdivision*; and
  - 5.4.5 Existing *Works and Services* have sufficient capacity for any demands directly attributable to the proposed *Development*.
- 5.5 At the time of *Development*, the provision of underground distribution wiring, ornamental *Street* lighting, paved frontage roads, curb and gutter, sidewalks, trails, roadside corridors, *Boulevards* and signage shall not be required where:
- 5.5.1 The *Development* is zoned and intended for construction of a *Low Density Residential Development*;
  - 5.5.2 New *Highways* or highway extensions are not required to service the *Development*; and
  - 5.5.3 Existing *Works and Services* have sufficient capacity for any demands directly attributable to the proposed *Development*.
- 5.6 At time of *Development* where a sanitary main extension would be required to provide the sanitary connection under Section 4.1 of this bylaw, connection to the City sanitary sewer system shall not be required where:
- 5.6.1 The *Development* is located in an Urban Development Area;
  - 5.6.2 The *Development* is zoned and intended for the construction of a *Low Density Residential Development* or the construction of an addition to a *Low Density Residential Development* or the construction of a *Building* or *Structure* accessory to a *Low Density Residential Development*;
  - 5.6.3 The closest point of the subject property is greater than 100 metres away from the closest accessible termination of the City sanitary sewer system.
  - 5.6.4 New highways or highway extensions are not required to service the development; and
  - 5.6.5 The Owner/Developer agrees to install an on-site sanitary collection and treatment system in accordance with the Sewerage System Regulation.

CITATION AND REPEAL

- 5.7 “City of Salmon Arm Subdivision and Development Servicing Bylaw No. 4163” and amendments thereof are hereby repealed.
- 5.8 This bylaw may be cited as "City of Salmon Arm Subdivision and Development Servicing Bylaw No. 4293”

READ A FIRST TIME THIS 12th DAY OF JUNE 2023

READ A SECOND TIME THIS 12th DAY OF JUNE 2023

READ A THIRD TIME THIS DAY OF 2023

ADOPTED BY THE *COUNCIL* DAY OF 2023

\_\_\_\_\_  
MAYOR

\_\_\_\_\_  
CORPORATE OFFICER

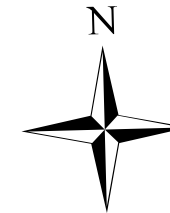
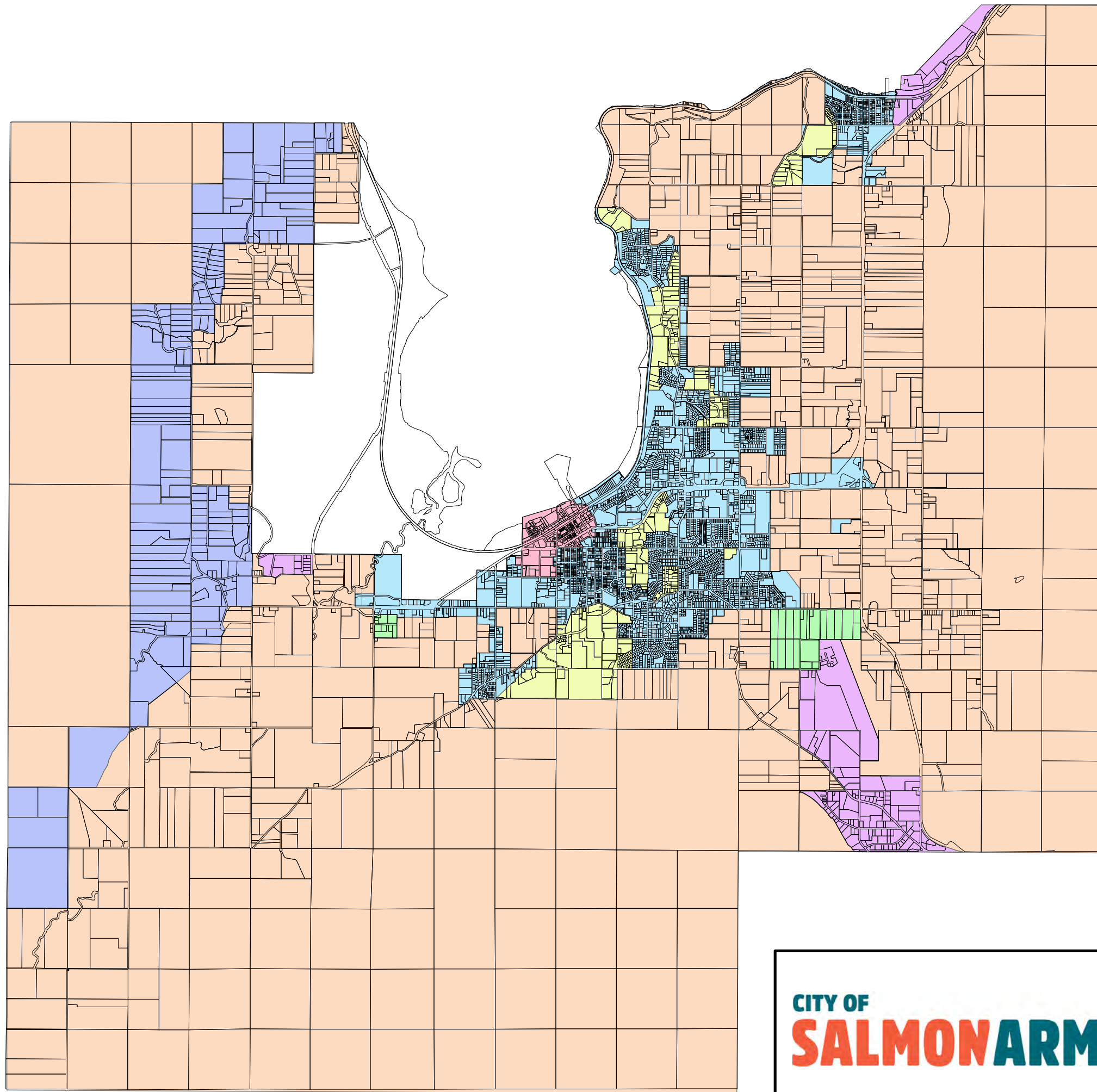
# **Subdivision and Development Servicing Bylaw No. 4293**

## **Schedule “A”**



## **CITY OF SALMON ARM**

### **MAP 1**



## Legend

-  Industrial Development Area
-  Light Industrial Development Area
-  Rural Development Area
-  Urban Development Area
-  Town Centre Development Area
-  Rural Hillside Development Area
-  Urban Hillside Development Area

- NOTE:**
1. In the event of a discrepancy between this Schedule 'A' Bylaw No. 4163 and the Official Community Plan land maps, the land mapping shall take precedence.
  2. Where the boundary between an "Urban Development Area" and a "Rural Development Area" is shown to be along a highway, the entire highway right-of-way is deemed to be within the "Urban Development Area"
  3. A more detailed map is available for viewing on the City of Salmon Arm's Geographical Information System at City Hall or at <https://salmonarm.ca/>
  4. Roadways along the boundary of two different development areas shall meet the higher service level standard.



# **Subdivision and Development Servicing Bylaw No. 4293**

## **Schedule “B” – Part 1**



## **CITY OF SALMON ARM**

## **DESIGN CRITERIA**

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**GENERAL:** The following design standards are to be used as requirements of all developments except where otherwise exempt in the bylaw or standards. Where a proposed design meets the level of service prescribed by the bylaw, alternative design solutions may be evaluated and approved at the discretion of the City Engineer.

## **1.0 INTRODUCTION**

### **1.1 The Use of This Design Criteria Manual**

This Design Criteria Manual replaces all previous versions and revisions. Always ensure that you are using the most recent version. It is the Design Engineer's responsibility to verify that the current criteria are being used prior to initiating and submitting detailed design.

### **1.2 Intent of These Standards**

This manual has been prepared for the Design Engineer and the development community for the design of engineering facilities and systems in the City of Salmon Arm. It is intended to provide the minimum design criteria and standards for proposed City works. The Design Engineer remains fully responsible to ensure that designs meet the minimum design criteria, accepted engineering principles, and are adequate for the site conditions and anticipated use.

### **1.3 Application of These Design Criteria**

The minimum criteria and standards defined in this manual shall apply to the preparation of all engineering designs and drawings for projects in the City of Salmon Arm. Design Engineers are encouraged to seek innovative and superior solutions, where appropriate, to achieve better technical and economical solutions. A Design Engineer who wishes to adopt criteria not specifically included in or variant from those within this manual, shall justify the proposed change in a signed and sealed letter/report submitted to the City Engineer for review and approval. Submissions must demonstrate that the proposed change is equivalent to or better than the standards contained in this manual and provides the level of service prescribed by the bylaw.

The Design Engineer must be satisfied that the design criteria contained herein are applicable to the project at hand, and must apply more stringent criteria where appropriate. The Applicant and Design Engineer are fully responsible for designing to standards which exceed these standards when specific site conditions dictate that more stringent performance measures are required. All design and construction details for City infrastructure shall be in accordance with this Design Criteria Manual, the Subdivision and Development Services Bylaw, Fire Prevention Bylaw, other applicable Bylaws and with the Standard Drawings and Specifications, as adopted by the City.

Where conflicts or discrepancies appear between this manual, Standard Drawings and/or Specifications, the Design Engineer shall review the conflict or discrepancy with the City and shall obtain the City's approval to an agreed drawing or specification prior to proceeding. The criteria that shall apply are those in place at the time of the latest letter of Preliminary Layout Approval (PLA) or extensions thereto, in the case of subdivision applications.



#### **1.4 Revisions to These Design Criteria**

The criteria and design parameters contained in this manual are subject to review and re-evaluation and the City reserves the right to initiate revisions or additions to these criteria as and when it deems it is necessary to make such revisions.

The City encourages submissions from Design Engineer's wishing to amend the City's Design Criteria. Such submissions shall be in a report format, signed and sealed by a Professional Engineer (where info is technical in nature), and shall include clean and succinct expressions of concern, suggestions for alternatives including benefits and recommendations proposed to address improvements to the current Design Criteria.

The City may, at its sole discretion, review, assess and accept, adopt, or reject in whole or in part, the submissions and/or the recommendations from a Design Engineer for inclusion within the Design Manual at a future date.

#### **1.5 Interpretation of the Design Criteria**

The City Engineer reserves the right to the final decision with regard to the interpretation of the intent of the Design Criteria, and with regard to the acceptability of changes from the Standards, or Standards proposed by the Design Engineer.

#### **1.6 Statutory Requirements for Approvals**

The Design Engineer shall remain responsible for compliance with all the statutory requirements of the City and other relevant authorities which are mandated to regulate and approve such works and shall arrange for and secure all approvals from the appropriate authorities.

Where this Design Criteria Manual refers to: bylaws, acts, regulations and standards, this shall mean the most recent edition or amendment of the referenced document. It is the responsibility of the Design Engineer to ensure the most recent edition of amendment is being used.

Where due to amendment of statutory requirements, conflicts or inconsistencies with this Design Criteria Manual arise, the Design Engineer is responsible for applying the more stringent requirements, and shall refer the issue to the City Engineer.

#### **1.7 Certifications**

Design Engineers shall accept responsibility for all aspects of their design and inspections associated with their design. The Design Engineer must be in good standing and registered with the Engineers and Geoscientists BC (EGBC) and be currently practicing in the appropriate engineering discipline. Additionally the Engineer's Firm must have a Permit to Practice from EGBC. By way of the Design Engineer's seal and Permit to Practice number they are certifying that the works have been designed and inspected to good engineering standards and in accordance with the latest edition of the City of Salmon Arm Design Criteria Manual, Standard Drawings and Specifications adopted by the City of Salmon Arm. All submissions including drawings, reports, calculations, cost estimates, inspection reports or other such information as required are to be submitted under the Design Engineer's seal and signature.

## **2.0 PRE-DESIGN, DESIGN and CONTRACT ADMIN**

### **2.1 Legal Surveys**

Project legal survey and preparation of plans for registration at the Land Title Office, shall be completed by a registered British Columbia Land Surveyor (B.C.L.S).

All project legal survey plans prepared by a B.C.L.S shall be submitted in electronic format.

### **2.2 Design Surveys**

Surveys shall be conducted in a manner so as not to create a nuisance to traffic or the general public. The permission of registered property owners is required before entering private property.

All elevations shall be referenced to Geodetic Survey of Canada (GSC) datum.

All drawing coordinates shall be consistent with established survey coordinates to the City's benchmark system.

### **2.3 Geotechnical Report**

Where a geotechnical engineering review is required in accordance with the provisions contained in this bylaw or by the Approving Officer, the Owner/Developer shall appoint a qualified Professional Engineer or Geoscientist to complete a geotechnical investigation and report addressing the potential areas of concern as listed below and as required.

The City requires that all works and services installations shall have a level of safety for any and all geotechnical failures with a 10.0% probability of failure occurring in a 50 year period (a return period of 1:500 year), or the prevailing standard as set by the B.C. Building Code, whichever is more stringent.

The geotechnical report must clearly state that the land is safe for the intended purpose and that the City of Salmon Arm may use and rely on the findings and recommendations contained in the report.

The Owner/Developer shall be responsible for completing the recommended improvements prior to Subdivision or Development and/or may be required to register a Section 219 Restrictive Covenant.

#### **2.3.1 Category A - Building foundation design and site drainage**

- 1) The design engineer shall undertake field investigations for the purpose of classification of the native soils in the laboratory. Where groundwater is prevalent the depth of the groundwater table shall be determined.
- 2) All necessary test pits or boreholes shall be logged and locations accurately shown on a site plan and attached as an addendum to the report.
- 3) The details and results of the laboratory analysis is to be provided in the report. In addition, the engineering properties of the subsoils must also be provided.
- 4) The engineer must review the site and provide a detailed assessment and recommendations for the items below. Where recommendations vary from B.C. Building Code requirements a Section 219 covenant must be registered on title to

ensure compliance with geotechnical report and future related works shall be supervised by a qualified engineer.

- a) General grading and site preparation;
- b) Ground preparation for foundation/crawl spaces;
- c) Design specifications for any retaining walls to be constructed;
- d) Foundation perimeter, roof and general site drainage including a recommendation on connecting roof leader drainage to the storm sewer where necessary;
- e) Frost protection for foundations, and
- f) Provide general comments on the constructability of the proposed development and make any additional recommendations deemed necessary to meet the prescribed level of safety.

#### **2.3.2 Category B - Pavement Structural design for private access corridors and public roads**

- 1) The engineer must complete field investigations, laboratory analysis and reporting as noted in Category “A”, Items 1 and 2.
- 2) The engineer must complete pavement evaluation and design based on the AASHTO guide (latest version) based on a 25 year design life. The pavement structure design must be no less than that recommended in accordance with the provisions contained in this bylaw.
- 3) The report must provide detailed recommendations on the following:
  - a) Subgrade preparations;
  - b) Sub-base, base and asphalt construction methods;
  - c) Construction of sidewalks and curb & gutter, and
  - d) Trench excavation and backfill within road allowances and statutory rights-of-way.

#### **2.3.3 Category C - Landslide Assessments for Proposed Development**

Where a geotechnical engineering report in reference to a potential land stability risk is required by the Approving Officer, for subdivision approval, issuance of a development or building permit, the report must be conducted in accordance with the “Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia” as prepared by the Association of Professional Engineers and Geoscientists of BC, as amended.

The Geotechnical Engineer shall provide an APEGBC Appendix D: Landslide Assessment Assurance Statement with the submission of each report and with any revised report.

### **2.4 Flood Risk Assessment**

Where an engineering report in reference to a potential flood risk is required by the Approving Officer, for subdivision approval, issuance of a development or building permit or for a flood plain bylaw exemption, the report must be conducted in accordance with the “Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC” as prepared by the Association of Professional Engineers and Geoscientists of BC, as amended.

## **2.5 Traffic Impact Analysis**

Where a Traffic Impact Analysis (TIA) is required by the Approving Officer, for rezoning or subdivision approval, the Owner/Developer shall appoint a qualified Professional Engineer to complete a TIA and report.

The Terms of Reference for the TIA shall be prepared by the Engineer and submitted to the City for approval prior to proceeding with the TIA. A sample Terms of Reference can be obtained from the City's Engineering Department.

## **2.6 Qualified Professional Engineer**

Where works and services are required in accordance with the provisions contained in this bylaw, the Owner/Developer shall appoint a qualified Professional Engineer hereinafter referred to as the Consulting Engineer, to undertake all project engineering survey, design, field reviews and record drawings in accordance with the provisions of this bylaw. The Owner/Developer shall provide a confirmation of Professional Assurance, Certificate Schedule 'C', F-10 signed by a Professional Engineer

Proof of Engineers Professional Liability Insurance (Errors and Omissions) shall be provided for all projects where the cost of the works and services exceeds One Hundred Thousand Dollars (\$100,000.00)

## **2.7 Design Drawing Submission**

The design drawing submission shall be provided electronically in pdf format and shall also include the following:

- Two (2) complete sets of ANSI 'D' or ARCH 'D' size design drawing prints (See Section 2.8), date stamped, sealed and signed by a Professional Engineer, for approval. All design drawings shall be submitted in the City of Salmon Arm standard format as shown in the Specifications Drawings. Additional sets of drawings are to be submitted upon request at the Owner/Developers cost
- Design sheets and calculations for proposed storm and sanitary sewer installations.
- Construction estimates for (a) off-site works and services and (b) on-site works and services shall be submitted with the design drawings. These construction estimates shall be prepared in a City of Salmon Arm format and shall reflect current construction costs in Salmon Arm and shall be signed and sealed by a Professional Engineer.
- PDF copies of the approved Hydro, Telecommunication, Natural Gas and CATV servicing drawings.
- Provincial Health Certificate to Construct Water Works for water works installations (This is generally received directly from IHA but if not received, will be requested from the Engineer).

## **2.8 Design Drawings**

A description of each of the most commonly required drawings is included below which includes a general guideline of the information to be included on each drawing.



### 2.8.1 Submission Set

Where applicable the following design drawings shall be submitted:

- Project Cover Sheet / Key Plan – Shall indicate the Designers Name, Address, telephone and Fax Number, the City's Project Number, the Site Location, the Legal Description of the properties involved, and an Index of the Design Drawings.
- General Notes & Details – Road cross sections on profile drawings, all other miscellaneous details on plan drawings.
- General Arrangement Plan – shall be a plan view drawing(s) at 1:1000 scale or 1:500 as appropriate, showing all existing and proposed infrastructure (including private utility company servicing and street lighting)
- Sanitary Drainage Plan – shall indicate proposed drainage boundaries for each pipe reach and their associated area, design flow/unit, population/unit. All external flows and future flows shall be indicated. Plans shall show basic lot information and all sanitary related infrastructure.
- Storm Drainage Plan – Shall indicate existing and proposed drainage boundaries for each pipe reach and their associated area and runoff coefficient. All external flows and future flows shall be indicated. Plans shall show basic lot information, existing contours, proposed grading and all storm related infrastructure.
- Plan and Profile Drawings – shall contain plan view (top) and profile (bottom) at 1:500 horizontal, 1:50 vertical, road design including curb and gutter, sidewalks and other related surface works, storm and sanitary sewers, service connections and related appurtenances, waterworks, service connections, fire hydrants and related appurtenances. Pipes and manholes shall be drawn at actual size in profile and hatching shall distinguish between water, sanitary and storm. Pipe widths shall be shown in plan view for pipes 600mm in diameter and larger and in profile view for all pipe diameters.
- Grading Plan – shall thoroughly detail any changes to existing grading both on-site and off-site. The plan shall provide adequate information to confirm overland flow patterns and routes, conformity to City design standards, impacts to adjacent lots, and constructability of lot (refer to Section 3.2.1). Pre-grade values shall be provided for lots that are less than three (3) times the minimum lot sizes. Pre-grade values are the depths below final grade that lots/roads should be left at pre-development to account for excavation spoils during construction bringing the site up to the final approved grade.
- Pavement Marking and Signage Plan – shall indicate all required pavement marking and signage including all required layout dimensioning.
- Utility Coordination Plan – shall indicate locations of all shallow utilities (hydro, tel, cable, gas), road crossing locations and all above ground appurtenances such as

pedestals, transformers, street lights, manholes, hydrants, street trees, inspection chambers, etc.

- Illumination Plan – shall indicate lamp locations, lamp (LED) types, spacing, areas of illumination and calculations. Illumination plan may require an exclusive site plan or may be included on General Arrangement Plan, depending on complexity of proposed work.
- Erosion and Sediment Control Plan – shall indicate all erosion and sediment control infrastructure and appurtenances (refer to Section 3.1).
- Landscaping and Irrigation Plan – shall indicate the location of the irrigation system and appurtenances as well as any proposed plantings (refer to Section 10.0).
- Lot Grading Plan (Building Permits) – shall thoroughly detail any changes to existing grading both on-site and off-site and any deviations from the approved grading plans. The plan shall provide adequate information to confirm overland flow patterns and routes, building elevation, conformity to City design standards, impacts to adjacent lots, driveway slopes, boulevard slopes, and constructability of lot (refer to Section 3.2.1).

Where colours are used on drawings, they should conform to best practices (sanitary is red, storm is green, water is blue).

#### 2.8.2 Existing Information

Existing information shall be illustrated with grayed back line work and/or dashed line types.

#### 2.8.3 Drawing Scale

The scale of all design drawings with exception of the general arrangement drawing shall be 1:500 Horizontal, 1:50 Vertical. Any deviation shall be first approved by the City Engineer.

### 2.9 Design Drawing Approval

City review and acceptance of Engineering Plans does not confirm the accuracy or adequacy of the design; nor does the City accept responsibility for any damages or costs incurred due to errors, omissions, or deficiencies in the design or location of any existing or new works and services.

### 2.10 Pre-Construction Requirements

#### 2.10.1 General

No construction shall occur unless and until engineering drawings have been accepted by the City. Such acceptance is indicated only by the signature of the City Engineer, or authorized delegate on the submitted design drawings and completed Permission to Construct, Schedule 'C', Form F-1. These drawings shall be referred to as the "CSA Approved Design Drawings".

### 2.10.2 Documentation

The Owner/Developer shall provide the following documentation after acceptance of the Engineering Submissions and before commencing any works within City of Salmon Arm rights of way as follows:

- A signed and sealed Servicing Agreement where required by the City Engineer.
- Proof of Insurance in accordance with the terms and conditions provided in the Servicing Agreement, naming the City of Salmon Arm as an 'Additional Insured'.
- Performance Security equal to 125% of the estimated off-site servicing costs (cash or clean irrevocable letter of credit).
- Professional Assurance Certificate, Schedule 'C', Form F-8, signed by a Professional Engineer.
- A copy of the Work Safe BC 'Notice of Project' and 'Letter of Good Standing'
- Prime Contractor Pre-construction Form, duly completed.
- A testing schedule for quality control of the constructed works including the name of the testing agency and the contact person.
- Outside Provincial and Federal Resource Agency approvals obtained (Ministry of Transportation, Ministry of Environment, Ministry of Health, Department of Fisheries and Oceans, etc.), where applicable.

## 2.11 **Post Construction and City Acceptance**

### 2.11.1 Construction Completion Report

Following completion of the works and services, the Consulting Engineer shall submit an electronic construction completion report to the City Engineer that contains the following documentation:

- Certificate of Inspection, Schedule 'C', Form F-2, signed and sealed by the Consulting Engineer.
- Inspection Records, including photos.
- Complete Materials and Performance Testing Report for all construction work (i.e., earthwork compaction, asphalt marshal/compaction densities, concrete testing, sewer leakage and pressure test, etc.) and (water system leakage and pressure test, bacteriological test results and certification in accordance with Flushing/Testing/Disinfection Report, Schedule 'C', Form F-11). All materials testing reports shall be sealed and signed by a professional Engineer certifying that all works tested meet and/or exceed the requirement of this bylaw;

- Fire Hydrant Flow Testing, Colour Coding and Stamping will be completed by the City's Utility Department, at the Owner/Developer's cost.
- Hydro, Telecommunications, Natural Gas and CATV acceptance letters of the completed work;
- Permit from Technical Safety BC for the completed streetlight/electrical system (this must be submitted within three (3) months of installation);
- IHA Construction Permit issued under Section 7 of the Drinking Water Protection Act;
- Signed 'Certificate of Reinstatements' from registered property owners where works have been undertaken on private property.
- Confirmation that all residents who have been directly affected by the works have been notified of the project completion and given the City's contact information should issues arise.
- Utility videos, complete with inspection report for all new sanitary and storm sewer installations;
- Confirmation that Canada Post has been notified of the completed subdivision/development;
- Certification that the rough lot grading has been completed to within +/- 100 mm of the approved final pre-grades;

#### 2.11.2 Substantial Completion

On completion of the Works and Services the Owner/Developer shall notify the City Engineer. The City Engineer, upon receipt of the notice and bound completion report prepared by the Consulting Engineer, shall inspect the Works and Services and, if necessary, issue a list of deficiencies that must be corrected. If the City Engineer determines the works and Services can be put into service and are substantially complete, a Certificate of Substantial Completion, Schedule 'C', Form F-4 shall be dated and issued. At this time monies held by the city shall be released, less 10% of the total cost of the Works and Services as a maintenance holdback and deficiency bonding as noted in Section 2.11.3.

#### 2.11.3 Deficiencies

Any deficiencies identified upon substantial completion shall be bonded in the amount of two (2) times the value of the deficiencies. Upon correction of the deficiencies, to the acceptance of the City Engineer, a Certificate of Completion, Schedule 'C', Form F-5 shall be dated and issued and the deficiency portion of the maintenance holdback released.

#### 2.11.4 Record Drawings:

At the conclusion of the project, and prior to release of the Owner/Developers Performance Security, the Owner/Developer shall submit one (1) set of Record Drawings



which have been revised, sealed and signed by a Professional Engineer, to illustrate the recorded works, plus an electronic copy containing the record drawings in AutoCAD DXF format and PDF format.

Record drawings, means design drawings sealed by a Professional Engineer to reflect design changes made during construction. These drawings are intended to incorporate addenda, change orders and other significant design changes and site instructions. These drawings must be signed, sealed and dated by the professional Engineer who assumes overall responsibility for the construction and must be provided whether private contractor or City crews installed the work.

Record Drawings shall indicate the installed location for Hydro, Telecommunications, Gas, CATV and Street Lighting mains and servicing.

#### 2.11.5 Utility Service Cards

Utility Service Cards shall be submitted in accordance with Specification Drawing No. SC-1 indicating the exact location and size of the water, sanitary and storm services, the lot and plan number, the street name, civic address, north arrow, lot lines, dimensions and bearings. Utility Service Card shall be submitted for each lot created by subdivision and/or the Development at the time of submission of the Record Drawing and must be provided whether private contractor or City crews installed the work.

UTM 11 coordinates are to be provided for water service curb stop, sanitary service inspection chamber and storm service inspection chamber, in addition to dimensions to property lines and/or property pins.

Utility Service Cards shall be submitted in PDF format with one (1) PDF file for each parcel. The file names shall follow the City standard format of all capitals, full road name, no use of suffixes on road number (ie 3200 3 STREET NE).

#### 2.11.6 Submission Deadlines

All record drawings and utility service cards shall be submitted to the City within 90 days of issuance of a 'Certificate of Substantial Completion' to the Owner/Developer, otherwise the City may, at their discretion, proceed with preparation and completion of the aforementioned information at the cost to the Owner/Developer

#### 2.11.7 Final Acceptance

The City Engineer will release the maintenance holdback, less the cost of any repairs chargeable to the Owner/Developer, upon expiration of the maintenance period when so requested by the Owner/Developer. Upon release of the maintenance holdback the City Engineer will issue a Certificate of Final Acceptance, Schedule 'C', Form F-6

### **3.0 SITE PREPARATION AND EARTHWORKS**

#### **A. DESIGN CRITERIA**

#### **3.1 Erosion and Sediment Control (ESC)**

##### **3.1.1 Erosion and Sediment Control Drawings**

Erosion and Sediment Control Plans will be required as part of the submission set for all subdivision and development proposals where ground disturbance is required. Plans will be designed using Best Engineering Practices to protect adjacent properties and City Infrastructure from adverse effect of erosion and/or sediment deposition to the satisfaction of the City Engineer.

The Erosion and Sediment Control plan should seek (i) to protect the soil surface from erosion where possible and (ii) capture all sediment on-site during each phase of the construction project. This includes requirements to control the amount, water quality, and velocity of runoff to ensure that no excessive sediment laden water is discharged, either directly or indirectly, into the City Drainage System or into the watercourses.

##### **3.1.2 Process**

A Professional engineer must review, sign, and seal the ESC plan to confirm the plan complies with the applicable City requirements and is consistent with the Federal Land Development Guidelines for the Protection of Aquatic Habitat. 2003.

All ESC facilities and works described in the plan must be installed, constructed, and operational in accordance with the approved ESC drawings before any clearing or Construction Works begin.

ESC measures shall be inspected at minimum once a week and before and after every major rainfall. The record of site inspections shall be available to the City upon request.

ESC measures shall not be removed until all disturbed or exposed soil areas are re-vegetated or stabilized.

ESC measures may require modification as development progresses. Modifications shall be approved in advance by the City Engineer.

##### **3.1.3 ESC Plan Requirements**

An erosion and sedimentation control plan must contain sufficient information to describe the site development, the proposed impacts, and the system(s) intended to control erosion and prevent offsite damage / impact from sedimentation. The plan must include:

- .1 Contact information / ownership form and a 24 hour emergency contact phone number for the Professional Engineer and Environmental Monitor responsible for the site;
- .2 A site location map attached with location and width of existing or proposed access(es) to the property;

- .3 Property lines and other legal designations of the subject property with location(s) of any existing/proposed lots, buildings, services, or connections to existing services from the site;
- .4 Erosion and Sedimentation Control (ESC) details (as noted below) that emphasize use of erosion source control as the primary method for dealing with erosion and sediment runoff. Design specifications for ESC facilities must comply with the requirements of the DFO Land Development Guidelines for the Protection of Aquatic Habitat 2003; and
- .5 Primary erosion and sediment site source controls including: the location of sediment control ponds that are designed to comply with DFO Site Runoff Water Quality Requirements; location of outfalls and appropriate mitigation controls; proposed contours and drainage flows; Gravel pads at all access points; location of silt fences; location of soil stockpile areas (to be covered up); location of perimeter and infiltration ditches; location of watercourse setback area and watercourses or water bodies; and temporary fencing around designated protection areas.

#### 3.1.4 ESC Best Management Practices

The following is a list of minimum source controls and best management practices required for each site and/or lot where applicable:

- .1 A gravel access pad (4.5 m wide and comprised of a minimum of 6 inches depth and 100 mm diameter angular rock) for each proposed lot at the point of entry onto the lots from the roadway. They shall be constructed and maintained to minimize the migration of sediment onto the roadways.
- .2 Physically mark clearing boundaries on construction sites and ensure temporary fencing is placed around the watercourse protection areas and any designated environmentally sensitive areas or features, as determined by the Professional Engineer or the City of Salmon Arm.
- .3 Install and maintain perimeter ditches, swales, and interceptor ditches on plans that divert runoff away from cleared areas during phased approach and divert runoff into staged primary and auxiliary sediment traps or sediment ponds where appropriate, prior to discharge off site.
- .4 Install and maintain filter fabric bags or equivalent inside any catch basins, on all road frontage catch basins and lawn basins collecting runoff from the construction site.
- .5 Vehicle/machinery access to and from the lot(s) shall be limited to the access pad, staging area, or prepared working road to minimize soil disturbance.
- .6 Roadways (fronting the respective lots) are to be swept free and cleaned on a regular basis (once a day or more frequently during rain events). Flushing of the roadway is prohibited.
- .7 Excavated/imported soils are not to be stockpiled/unloaded on road allowances, curbs, or sidewalks and if soils are stockpiled within the boundary of the lot, then the

- stockpiles shall be covered with polyethylene sheeting and weighted down. Breaks in the cover should be repaired immediately.
- .8 Sediment laden water that shall be removed by ESC measures, or pumper truck and shall not be released into City Facilities.
  - .9 Temporary graded areas, such as housing lots, must be protected from erosion through the use of straw, mulch and/or polyethylene tarps in non traffic areas and a gravel cap in zones of construction traffic where disturbed soils will be exposed for greater than three (3) months.
  - .10 Final graded or landscaped areas must have the appropriate permanent surface protection or landscaping in place as soon as possible.
  - .11 Where slopes exceed five percent, or where soil types consist predominantly of clays or fines, surface protection must be used from October 15th to May 15th or when rain events are expected.
  - .12 All bare and exposed areas that will be left dormant for longer than three (3) months are to be seeded and stabilized with native vegetative species prior to October 15th where possible.
  - .13 Every construction site where an ESC Plan has been issued must have a waterproof copy of the emergency contact information for the site owner, the designated professional engineer, and the designated contract administrator for the site in a location visible from outside the construction site, for the duration of the construction project.

### **3.2 Site Grading**

#### **3.2.1 Site Grading Plan**

A site grading plan shall illustrate final road and lot grading, lot access locations and grades. Site grading plans shall include, but not be limited to, existing contours, existing/proposed elevations, building envelope with proposed grades, building grades such as minimum/maximum finished floor elevations, lot slopes, location and extent of retaining walls, fencing, swales, control/containment of surface water, seasonal and permanent watercourses, vegetation, top and bottom of bank, bedrock outcroppings, overland flow routes, location and grading of statutory right-of-ways, cut/fill areas, areas of fill that exceed 1.0 meters in depth, limits of engineered fill, safe building setbacks (where required) and any other information as deemed necessary.

#### **3.2.2 Low Points**

Any ultimate low point in the roadway shall have provisions for safe overland flow to protect major flow routes.

#### **3.2.3 Overland flow routes**

Overland flow routes are to be designed as per criteria in Section 7.11 and detailed on the Site Grading Plan.



#### 3.2.4 Cut/fill plan

Cut Fill Plan is to be provided prior to the start of earthworks where cuts/fills are over 1.0 meters and on all developments within the Hillside Development Area as defined in Schedule A, Map 1. Large cut/fills to achieve flat yards are discouraged and will not be permitted in developments within the Hillside Development Area.

#### 3.2.5 Slope

Maximum allowable slope shall be 3:1, unless a Geotechnical report prepared by a qualified Professional Engineer has been provided which provides assurance of the slope stability for the proposed grading.

Minimum allowable slope shall be 2.0% for grassed areas and 0.5% for hard surfaces.

#### 3.2.6 Lot Grading

Lots shall be graded to drain away from building foundations. Sheet drainage of runoff onto City property is encouraged (as opposed to point loading).

#### 3.2.7 Swales

Swales along rear, front and side yards shall be used in conjunction with lot grading to protect the subject property from uphill drainage and protect downstream properties from site drainage.

Swales capturing drainage from two or more lots shall be protected by:

- A registered easement in favour of all upstream properties if contributing drainage is from private property.
- A Statutory right-of-way in favour of the City if contributing drainage is from public and private properties or from private properties.

Grass swales shall be graded at a minimum of 1.0%. Concrete swales shall be graded at minimum 0.5%

Swales shall be at a maximum depth of 0.7 meters.

#### 3.2.8 Retaining Walls

Retaining walls shall be detailed on lot grading drawings with existing and proposed grades and any related cut/fill slopes.

Retaining walls over 1.2 meters (4 feet) in height shall be designed by a professional engineer under City permit.

Private retaining walls shall not be constructed on City Boulevard or statutory right-of-ways.

Retaining walls shall not be used to support public infrastructure where a reasonable alternative exists, unless otherwise approved by the City Engineer.

#### 3.2.9 Statutory Right-of-ways

Statutory right-of-way must be graded to provide reasonable access for maintenance equipment.

3.2.10 Rough Grading

Rough grading and retaining as detailed on the site grading plan shall be completed by the owner/developer prior to the subdivision approval. Rough grading shall be completed within +/- 100mm of the final approved pre-grade.

**3.3 Site Restoration**

3.3.1 Restoration of Public Property

All offsite disturbed areas shall be restored to existing condition or better to the satisfaction of the City Engineer.

3.3.2 Restoration of Private Property

All disturbed areas on private property shall be restored to existing condition or better to the satisfaction of the property owner. Owner/developer to make all reasonable attempts to obtain written acceptance of restoration from each affected property owner. In the case of a dispute, the City Engineer will have ultimate approval of restoration works.

3.3.3 Restoration of Site

Site shall be restored as per the requirements of the approved Erosion and Sediment Control Drawing (refer to Section 3.1), or where there is not an approved Erosion and Sediment Control Plan, landscape as per the requirements in Section 10.0.

**B. MATERIALS**

Site Preparations and Earthworks materials shall be supplied in accordance with Schedule D – Approved Materials List

**C. CONSTRUCTION**

Site Preparation and Earthwork Construction shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

**D. TESTING**

Site Preparations and Earthwork Testing shall be in accordance Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

## **4.0 ROADS**

### **A. DESIGN CRITERIA**

#### **4.1 General**

Where the provisions of the Subdivision and Development Servicing Bylaw No. 4293 require the construction of roads, the applicant shall construct the roads consistent with the regulations, standards and specifications set out in this schedule.

#### **4.2 Approval Drawings**

Engineering drawings showing detailed design of roads shall be submitted to the City Engineering Department for approval prior to commencement of construction. These drawings shall show existing ground line and proposed alignment and grade of the roads, horizontal and vertical curve information and all other details as may be required. Grades shall be given at all changes in vertical and horizontal alignments for centreline and gutter lines. Elevations shall be shown on the drawings at all changes in vertical alignments and at regular station.

Curb Return profiles required for all radial installations.

#### **4.3 Geotechnical Evaluation**

The applicant shall be responsible for engaging the services of a qualified Geotechnical Engineer to investigate surface and sub-surface conditions within the proposed subdivision/development. The Geotechnical Engineer shall prepare a report outlining his finds and shall provide clear, definitive recommendations on the geometry and placement of fill sections, compaction requirements over and above those stipulated in this bylaw, cut slope geometry, pavement structures for roads, and any other geotechnical issues affecting road construction within the proposed subdivision/development.

#### **4.4 Road Classification**

The roads shall be designed in accordance with the road classification specified by the City of Salmon Arm in the Letter of Preliminary Subdivision Review and shall conform to the provisions of the City of Salmon Arm 'Official Community Plan'.

#### **4.5 Design Speed**

Design speeds shall be as listed below unless otherwise approved by the City Engineer.

|                     |         |                                               |
|---------------------|---------|-----------------------------------------------|
| Major Local Roadway | 50 km/h | (Directly connects to a Connector Road)       |
| Minor Local Roadway | 40 km/h | (Connects to Local Roads only or cul-de-sacs) |
| Town Centre         | 40 km/h |                                               |
| Industrial Roadway  | 50 km/h |                                               |
| Collector Roadway   | 70 km/h |                                               |
| Arterial Roadway    | 80 km/h |                                               |
| Hillside Local      | 30 km/h |                                               |
| Hillside Collector  | 50 km/h |                                               |
| Hillside Arterial   | 60 km/h |                                               |

## **4.6 Right of Way Widths**

### **4.6.1 Standard Right-of-way Widths**

Right of way width will be as noted in the applicable roadway cross-section

### **4.6.2 Additional Right-of-way Width**

Additional width may be required where necessary to permit turn lanes, roundabouts, bike lanes, or pathways.

### **4.6.3 Reduced Right of Way widths**

Reduced Right of Way widths may be considered where one or many of the following conditions exist:

Adjacent constraints such as CPR right of way or Indian Reserve;

Cul-de-sacs or other low volume roadways;

Historical reductions existing along roadways (variances); or

Where there will be future dedication on adjacent property.

### **4.6.4 Corner Cuts**

Corner cuts are required to be 3.0 meters x 3.0 meters on local streets and 5.0 meters x 5.0 meters on collector and arterial streets, at all street intersections. Additional dedication may be required to accommodate a Round-about.

## **4.7 Lanes**

New lanes are discouraged, but may be permitted under special circumstances with approval from the City Engineer. Lanes within existing rights-of-way shall conform to Specification Drawing No. RD-12a. New lanes shall conform to Specification Drawing No. RD-12b.

## **4.8 Cross-Sectional Elements**

### **4.8.1 Road Cross-Section**

Roads shall be constructed to the dimensions specified on Specifications Drawings No. RD-1 through RD-16.

### **4.8.2 Road Structure**

The road structures indicated on Specification Drawings No. RD-1 through RD-16 is the minimum acceptable road structure.

A Professional Engineer, registered in the Province of British Columbia, shall confirm that the road structure indicated on the specification drawings is capable of supporting the proposed loading for a 25 year lifespan, or recommend a more stringent road structure where conditions warrant.

Minimum cross slope of installed gravels shall be 3.0% unless otherwise approved by the City Engineer.



Base gravels shall daylight on all roadways without a municipal storm system or subdrains shall be provided. Where a low point exists on a roadway, subdrains shall be installed for a minimum 5m distance upstream and be connected into the low point catchbasins to allow proper drainage of base gravels into the municipal stormwater system. In other cases, subdrains may be required by the City Engineer in addition to the municipal storm system, where adverse geotechnical conditions warrant the installation.

#### 4.8.3 Boulevards

Boulevards are to be graded towards the street line including any driveway entrances, or hydraulic capacity calculations for the roadway will be required.

When Boulevard landscaping and irrigation is required the owner/developer shall prepare a landscaping and irrigation design drawing, in accordance with Section 10.0.

#### 4.8.4 Bike lanes

Bike lanes shall be provided in locations noted in the City of Salmon Arm 'Official Community Plan' and shall be constructed to the specifications indicated on the applicable Road Cross-Section design drawing.

#### 4.8.5 Ditches

Ditches shall be required on all high sides of Rural Roads and shall be of appropriate depth to drain the roadway base. Ditches may be required on the low side of rural roadways where roadway base drainage cannot be accommodated with existing topography.

Sheet drainage is preferred; point source loading may be permitted when outlets into an approved existing drainage route.

Ditches shall be vegetated or otherwise protected from erosion. Refer to Section 3.1.

#### 4.8.6 Curb and Gutter

Concrete Curb & Gutter shall be constructed in accordance with the cross-sections illustrated on Specification Drawings CGS-1, CGS-2 and CGS-3, for the applicable road cross-section.

#### 4.8.7 Sidewalks and Multi-use Paths

Concrete sidewalks shall be constructed in accordance with Specification Drawings No. CGS-4a and CGS-4b and shall be designed using best practices meeting the specifications outlined in the latest edition of the British Columbia Active Transportation Design Guide where possible.

Let downs shall be constructed as per CGS-5 and CGS-6.

Sidewalk shall be 150mm thick in all residential areas and 180mm thick in all commercial areas.

Multi-Use Paths to be constructed in accordance with Specification Drawing No. CGS-8.

The maximum and minimum grades for sidewalks and multi-use paths shall not exceed the maximum and minimum road grades.

Sidewalks and multi-use paths and adjacent appurtenances must be designed and constructed to permit snow clearing equipment to pass through uninhibited.

#### 4.8.8 Walkways

Concrete walkways shall be constructed in accordance with Specification Drawings No. CGS-7.

Walkway let downs shall be constructed in accordance with Specification Drawing CGS-6 and provided at all road intersections, walkways and mailbox locations.

The maximum grade for walkways shall be 15%. Although discouraged, concrete stairs may be considered where walkways must exceed 15% as approved by the City Engineer. Refer to Section 4.8.10.

Where a change in direction occurs in a walkway, provisions must be made in the design and construction to permit snow clearing equipment to pass through uninhibited.

#### 4.8.9 Crosswalks

Crosswalks within the Town Centre Development Area shall be thermoplastic crosswalk surfaces in accordance with the approved materials list.

#### 4.8.10 Stairs

Prior to authorizations of concrete stairs, alternate walk routes must be submitted for city review and approval. Only where other acceptable walk routes are not available, will the installation of stairs be considered. In all cases, concrete stairs must conform to B.C. Building Code and in accordance with Specification Drawing No. RS-1 and RS-2. Advance warning signage shall be placed at both ends of stairways.

Stairway landings shall not exceed 2% grade in any direction.

Handrails shall be installed on the concrete stairs in accordance with Specification Drawings RS-1 and RS-2.

#### 4.8.11 Pathways and Trails

Pathways and Trails are to be dedicated and installed at the direction of the City Engineer in locations identified in the Official Community Plan. The exact location shall be negotiated through the detailed design process. Trail type to be specified and constructed in accordance with Greenways Strategy “Weave it Green”. Pathways and Trails shall be constructed in accordance with Specification Drawings No. CGS-8 through CGS-12.

The maximum grade for pathways shall be 20%. Prior to the authorization of stairs, alternate walk routes must be submitted for City review and approval. Only where other acceptable walk routes are not available, will the installation of stairs be considered. In all cases, stairs must be built to B.C. Building Code. Refer to Section 4.8.10.

#### 4.8.12 Canada Post Boxes

Location of Canada Post mailboxes shall be shown on the design drawings as confirmed with Canada Post and be acceptable to the City Engineer.

Mailboxes locations shall be located in the boulevard adjacent to side lots, have sidewalk access and be in well lit areas, where possible.

#### 4.8.13 Transit Bays

Transit bays shall be constructed at locations determined by the City Engineer. Specifications are available upon request.

#### 4.8.14 Parking Bays

Parking bays are required on Urban Collector Roads where adjacent to medium and high density residential, Institutional or Commercial zoned properties in accordance with Specification Drawing RD-3.

#### 4.8.15 Sign Post Bases

Sign Post Bases shall be installed in accordance with Specification Drawing SP-1.

### 4.9 **Alignment Elements**

The design of road (vertical and horizontal) alignments shall be in accordance with the Transportation Association of Canada manuals; Geometric Design Guide for Canadian Roads and Urban Supplement to the Geometric Design Guide for Canadian Roads, as amended. Where there is a discrepancy between the guidelines and the parameters below, the bylaw value shall be used unless otherwise approved by the City Engineer:

| Design Parameter         |              | Design Speed (Km/h) |      |       |       |       |      |
|--------------------------|--------------|---------------------|------|-------|-------|-------|------|
|                          |              | 30                  | 40   | 50    | 60    | 70    | 80   |
| Minimum Radii            | 2% Super El. | 30                  | 65   | 115   | 185   | 290   | 400  |
|                          | 4% Super El. | 20                  | 45   | 80    | 130   | 200   | 280  |
|                          | 6% Super El. | -                   | -    | -     | -     | -     | 250  |
| Maximum Superelevation   |              | 4%                  | 4%   | 4%    | 4%    | 4%    | 6%   |
| Minimum Gutter Grade     |              | 0.7%                | 0.7% | 0.7%  | 0.7%  | 0.7%  | 0.7% |
| Minimum Centreline Grade |              | 0.5%                | 0.5% | 0.5%  | 0.5%  | 0.5%  | 0.5% |
| Maximum Centreline Grade |              | 12.0%               | 12%* | 12%** | 10.0% | 10.0% | 8.0% |
| Maximum cul-de-sac grade |              | 6%                  | 6%   | 6%    | 6%    | 6%    | 6%   |
| Minimum Crest (K) ***    |              | 2                   | 4    | 7     | 15    | 22    | 35   |
| Minimum Sag (K)***       |              | 4                   | 7    | 11    | 20    | 25    | 30   |

\* 6% Town Centre

\*\* 8% Industrial

\*\*\* May be reduced approaching a stopped condition

#### 4.9.1 Cross Slopes

Cross slopes shall be 2.0%, except at intersection and horizontal curves where approved by the City Engineer.

#### **4.10 Intersection Design**

##### **4.10.1 Round-Abouts**

The use of a round-about is encouraged over the use of a stop-controlled intersection or traffic lights. A round-about shall be designed using best engineering practice. A conceptual design shall be submitted to the City along with a design brief for approval prior to commencing detailed design.

##### **4.10.2 Maximum Grade**

The maximum grade for minor roads entering an intersection shall be +/-2% for a distance of 15 metres from the edge of pavement to the point of intersection of the vertical curve (without a stop condition) or +/- 3% for a distance of 15 metres from the stop bar to the point of intersection of the vertical curve.

##### **4.10.3 Angle**

Intersections shall meet substantially at right angles (between 70 degrees and 110 degrees)

##### **4.10.4 Curb Returns**

The following minimum curb return radii shall apply:

| Road Classification | Specification Drawing | Curb Return Radii |
|---------------------|-----------------------|-------------------|
| 18 m R/W Urban      | RD-1                  | 7.5 m             |
| 20 m R/W Urban      | RD-2                  | 7.5 m             |
| 20 m R/W Collector  | RD-3                  | 11.0 m            |
| 25 m R/W Arterial   | RD-4                  | 11.0 m            |
| 20 m R/W Rural      | RD-5                  | 13.0 m            |

Curb return design information is required to be shown on design drawings (i.e. gutter grades and elevations, direction of drainage, etc.). Curb returns shall be designed to avoid conflict with wheel paths, utility manholes, water valves, street lights, power poles, etc.

#### **4.11 Cul-De-Sacs**

##### **4.11.1 General**

Cul-de-sac streets should be avoided unless topographic or surrounding land constraints make continuation or projection of conventional roadways impractical.

##### **4.11.2 Grading**

Cul-de-sac design shall conform to Specification Drawing No. RD-10 and RD-11. Cul-de-sacs should be graded towards the street where possible or designed such that surface drainage has a suitable overland flow route.



#### 4.11.3 Driveways

Driveways on cul-de-sacs shall be 4.0m wide, within City Right-of-Way as measured along property line unless adequate snow storage can otherwise be provided. Driveway locations shall be shown on design drawings. Driveways shall be paired at property lines. A statutory Right-of-way may be required to accommodate snow storage where space is limited.

#### 4.11.4 Length

Cul-de-sac dead end roads shall not exceed 160 meters in length in Urban, Town Centre and Industrial Development Areas and 300 meters in length in Rural Development Areas. The measured length shall be along centreline from the centre of the first intersection having access from two alternate routes to the centre of the cul-de-sac. At the discretion of the City Engineer, a 'T' Turn Around (Specification Drawing No. RD-13) may be permitted for lanes and temporary dead ends for streets where subdivision/development is phased; however, provision must be made for snow storage.

### 4.12 **Pavement Marking and Signage**

A Pavement Marking and Signage drawing shall be provided with the design drawings.

Regulatory and information signs and pavement markings shall be supplied and installed in accordance with the latest version of the City of Salmon Arm's Pavement Marking and Signage Plan and as per TAC guidelines at the owners/developers full cost.

Sign Post Bases shall be in accordance with Specification Drawing No. SP-1.

### 4.13 **Access**

#### 4.13.1 Driveways

Standard driveway widths shall be 6.0m for residential and 8.0m for commercial developments. Maximum driveway widths shall be 8.0m for residential and 10.0m for commercial developments, where frontage widths are at minimum twice the driveway width and at the discretion of the City Engineer.

All driveway let downs where a sidewalk or multi-use path exists along the frontage shall be constructed as per Specification Drawing CGS-5.

A minimum clearance of 0.5m is required from the edge of asphalt to any infrastructure such as hydrants, light posts and transformers. Clearance to third party utility infrastructure such as transformers shall be confirmed with the applicable utility.

#### 4.13.2 Combined/Shared Access

Subdivision or development shall be designed by keeping to a minimum the number of access driveways connecting directly to an Arterial or Collector Street. Where driveways can be located onto local roadways no accesses on to Arterial or Collector Streets will be permitted.

Where possible, except in Rural areas, properties fronting Arterial or Collector Streets shall have shared driveway access.

4.13.3 Number of Accesses

Only one access will be permitted for each single family residential, duplex or medium density lot.

An additional access may be considered, at the discretion of the City Engineer, where the subject lot is a corner lot or where the street frontage is twice or greater the minimum frontage as specified in the Zoning Bylaw and where no safety issues are created. Multiple accesses may be considered for industrial, commercial, agricultural and high density lots, provided the distance between accesses is greater than 10 meters and there are no safety issues created.

4.13.4 Clearance to Intersection

Residential access locations shall be greater than 5.0 meters from an intersection, as measured from the ultimate property line closest to the intersection.

Industrial, commercial, agricultural, medium and high density access locations shall be greater than 12.0 meters from an intersection, as measured from ultimate property line closest to the intersection.

4.13.5 Servicing Conflicts

Lot Services and other above ground appurtenances shall be located outside of accesses unless otherwise approved by the City Engineer. Where services are allowed within the access, protection shall be provided in the form of concrete utility box.

4.13.6 Grade

The maximum grade for a lot access shall be 15% for a maximum distance of 25 meters as measured from the building. Access greater than 25 meters from the building to the edge of right of way shall conform to City of Salmon Arm Policy 3.11 and shall ensure the first 3.5m of the driveway has a grade of no greater than 7.0%. In all cases, boulevard grading shall conform to standard drawings. Designers shall ensure grade transitions on driveways account for vehicle clearance.

**B. MATERIALS**

Roads materials shall be supplied in accordance with Schedule D – Approved Materials List.

**C. CONSTRUCTION**

Roads construction shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

**D. TESTING**

Roads testing shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

## **5.0 WATER SYSTEMS**

### **A. DESIGN CRITERIA**

#### **5.1 General**

##### **5.1.1 Water for Domestic Purpose**

In any subdivision and/or development, a source of water for domestic purpose shall be available on each parcel, except where the intended use of the parcel does not require a supply of water for domestic purpose and the owner/developer grants a covenant in favour of the City of Salmon Arm at the time of subdivision, such covenant to limit the use of land within the parcel.

For the purpose of this subsection “Water for Domestic Purpose” means water which (subject to such approvals as may be required in accordance with the Public Health Act) is intended for use for household requirements including but not limited to the normal household requirements of sanitation, human consumption and food preparation, fire prevention and watering of domestic animals and poultry.

##### **5.1.2 Municipal or Alternative Water Source**

Where connection to the City’s water distribution is required, connection shall be provided in accordance with Sections 5.3.

Where connection to the City’s water system is not required by this bylaw, all parcels within a subdivision or development shall have an on-site potable source of groundwater or surface water available for domestic purpose in accordance with Section 5.2.

##### **5.1.3 Extension of Water Distribution System**

Where the provisions of the Subdivisions and Development Servicing Bylaw No. 4293 require the construction of a water distribution system, the applicant shall provide a water distribution system and storage facilities including watermain, valves, hydrants, service connections, pump stations and reservoirs consistent with the regulations, standards and specifications set out in this schedule. All standards not specifically described in this schedule shall be in accordance with appropriate American Water Works Association (AWWA) standards or as directed by the City Engineer.

#### **5.2 Alternative Water Source**

Where a City water distribution system is not available and installation of a new on-site water supply system is required, either a Professional Driven Approach (completed by a qualified Professional Engineer) or a Homeowner Driven Approach (completed by the homeowner and/or qualified well driller) may be required to certify quality and quantity of the alternative water source as described below.

Where installation of a new well is not required, homeowner to provide proof of water quality from within the previous twelve (12) months.

Where a significant change in density on the parcel is proposed through re-zoning, the City Engineer may require a quantity test to be completed on an existing well.



#### 5.2.1 Alternative Water Source Approval for Subdivision or Development

The Professional Driven Approach shall be used if any of the following is true, and the owner/developer must provide to the City the information that is required to enable the City to make that determination:

- The proposed subdivision will result in two or more additional parcels;
- The proposed parcels are each less than two (2) hectares in area;
- The proposed subdivision is not located within an area indicated as being within a known aquifer, as identified on BC Water Resources Atlas interactive mapping tool (as revised - <https://maps.gov.bc.ca/ess/hm/wrbc/>);
- The proposed subdivision is located within an area of concern for groundwater issues as identified on BC Water Resources Atlas interactive mapping tool (as revised - <https://maps.gov.bc.ca/ess/hm/wrbc/>);
- Proposed groundwater source is within 30 meters of any other existing groundwater source or source of potential contamination;
- The proposed water source is surface water;
- The proposed water source is a shallow well that the owner intended to install without hiring a Qualified Well Driller or a Qualified Pump Installer;
- Prior to commencing construction or testing, the Qualified Well Driller or Qualified Pump Installer engaged to provide a Well has provided an opinion, having been requested by the owner/developer to consider the matter, that drawdown interference, or water quality issues are likely to occur based on their personal knowledge of the area in which the Well is proposed; or
- The City has requested a review of the information provided, as required above, by a Qualified Registered Professional, and that professional recommends a professional directed approach.

#### 5.2.2 Professional Driven Approach (Groundwater)

A qualified professional shall perform or oversee a well test and Proof of Source Yield for each lot shall be provided as per the requirements in Section 5.2.7. Well logs shall be submitted to the Groundwater Protection Officer and the City. A representative number of well tests may be accepted on multiple lot subdivisions (three (3) or more) based on professional recommendations; however, in no case shall the tests be on less than 25% of the lots.

A qualified professional shall sample the well water and submit a sample to an authorized water testing laboratory for analysis of water quality as per the requirements in Section 5.2.5. Results shall be submitted to the Groundwater Protection Officer and the City.

Failed quality tests require sign off from a professional that treatment can be achieved to make water potable using readily available treatment methods.

Where treatment is required, a covenant shall be placed on the property as per the requirements in Section 5.2.6.

A report shall be provided conforming to the Guide to Conducting Well Pumping Tests (Ministry of the Environment). The report must be submitted by a groundwater geologist or professional engineer (whose field of competence lies within the groundwater fields), and indicate factors leading to the conclusion that the required supply of potable groundwater will be available for the foreseeable future giving due consideration to the possible interference with septic tanks, neighbouring wells, the effect on the aquifer of simultaneous pumping from other wells, and the seasonal fluctuation in ground water levels.

#### 5.2.3 Homeowner Driven Approach (Groundwater)

A qualified well driller or qualified pump installer shall perform a well test and provide Proof of Source Yield as per the requirements in Section 5.2.7. Well logs shall be submitted to the Groundwater Protection Officer and the City.

A qualified well driller or qualified pump installer shall sample the well water and submit a sample to an authorized water testing laboratory for analysis of water quality as per the requirements in Section 5.2.5. Results shall be submitted to the Groundwater Protection Officer and the City.

Failed quality tests require sign off from a professional that treatment can be achieved to make water potable using readily available treatment methods.

Where treatment is required, a covenant shall be placed on the property as per the requirements in Section 5.2.6.

Mapping shall be provided indicating the location of the well within each property and proximity to any other water sources or potential contamination sites (septic tanks, etc.).

#### 5.2.4 Surface Water

Proof of Source Yield shall be provided as per the requirements in Section 5.2.8.

A water quality test shall be completed as per the requirements in Section 5.2.5.

Failed quality tests require sign off from a professional that treatment can be achieved to make water potable using readily available treatment methods.

Where treatment is required, a covenant shall be registered on title as per the requirements in Section 5.2.6.

#### 5.2.5 Water Quality Testing

Where water quality testing is required for approvals the water must be tested and proven safe for human consumption. The certification must clearly state whether or not the water tested meets the limits imposed by the Canadian Drinking Water Guidelines (Current Edition) standards for the following parameters: alkalinity, Arsenic, Calcium, Chloride, Colour, Conductivity, Fluoride, Hardness (total), Iron, Magnesium, Manganese, Nitrate, Nitrite, pH, Potassium, Silicon, Sodium, Sulphate, Total Dissolved Solids, Turbidity, Uranium, Total Coli form, Fecal Coli form.

#### 5.2.6 Covenant

Where a covenant is required for approvals, the owner/developer must register on title of each lot serviced by an alternate water source a covenant in favour of the City of Salmon Arm relative to the required engineered treatment system necessary for any future development. The form of the covenant shall be approved by the Approving Officer and City Engineer.

#### 5.2.7 Proof of Source Yield (Groundwater)

Where proof of groundwater source yield is required for approval, proof that a supply of potable water for domestic purpose is available of not less than 9 litres (1.98 gallons) per minute for a period of 4 hours and with a sustained yield of not less than 2,250 litres (495 gallons) per day for a single family dwelling on a year round basis is available to each parcel shall be provided to the City in the form of a well test.

Well tests shall be conducted in accordance with the Guidelines of Minimum Standards in water Well Construction, Province of British Columbia ISBN 0-7719-8987-3 including well testing certification in accordance with Schedule C, Form F-7

#### 5.2.8 Proof of Source Yield (Surface Water)

Where proof of surface water source yield is required for approval, proof that a supply of potable water for domestic purpose is available with a sustained yield of not less than 2,250 litres (495 gallons) per day for a single family dwelling on a year round basis is available to each parcel in the form of surface water shall provide the City with:

- A water licence from the relevant provincial authority having jurisdiction for each parcel created by subdivision or development; or
- A letter signed by the relevant provincial authority having jurisdiction acknowledging that a water licence will be issued to each parcel being created by the subdivision application upon completion of the subdivision registration; and
- Evidence that the parcel owner will have legal access to the water source via an easement on private lands or a permit on Crown land where the surface water licence is not on the parcel being serviced

### 5.2.9 Water Treatment

Surface waters and/or ground water influenced by surface water will require treatment that will provide a minimum 3 log reduction (99.9%) of Giardia cysts. Additional treatment may be required for high risk water supplies. The Covenant referenced in Section 5.2.6 shall reflect the requirement for an engineered treatment system.

Where water quality tests fail in relation to a proposed subdivision, the subdivision shall not be approved unless a qualified professional has provided assurance that treatment can be achieved to make water potable using readily available treatment methods. The Covenant referenced in Section 5.2.6 shall reflect the requirement for an engineered treatment system.

Where treatment is required in relation to a proposed development, an occupancy permit shall not be issued unless an engineered treatment system has been installed and tested. A water sample shall be taken from the development upon installation of the engineered treatment system and sent for Water Quality Testing (Refer to Section 5.2.5).

## 5.3 **Municipal Water Source**

No construction shall commence until engineering drawings have been approved by the City Engineer and Ministry of Health.

### 5.3.1 City of Salmon Arm

Engineering Drawings showing detailed design of the necessary works shall be submitted to the City Engineer for approval.

These drawings shall show alignment, size, grade, class and depths of pipes, pipe bedding requirements, existing ground line and proposed final ground line over the pipe, location, elevation and detail of all fittings, valves and hydrants, location of all service connections, location, access to, size and details of any pump stations and reservoirs, all easements and all such other details as may be required. Where a water system is not yet available, rights of ways may be required to be provided by the applicant to allow for the eventual installation of this facility. Such rights of ways shall be registered in favour of the City of Salmon Arm at the applicant's expense.

### 5.3.2 Interior Health Authority

The watermain design shall conform to the requirements of Interior Health Authority (IHA).

The owner/developer shall submit a set of the water utility drawings to IHA for a permit issued under Section 7 of the BC Drinking Water Protection Act authorizing construction of the waterworks. The original permit shall be submitted to City Engineer prior to commencing construction.



## 5.4 Main Sizing

### 5.4.1 Pipe Flow Formula

Water mains shall be designed using a proven network analysis computer model based on the Hazen-Williams Formula,

$$Q = \frac{CD^{2.63}S^{0.54}}{278780}$$

Where,            Q = rate of flow in litres/second  
                      D = internal pipe diameter in mm  
                      S – Slope of hydraulic grade line in m/m  
                      C = Roughness coefficient

### 5.4.2 Minimum watermain sizes

The minimum watermain sizes are as follows:

|                                                     |       |
|-----------------------------------------------------|-------|
| Residential (Low and Medium Density)                | 150mm |
| Commercial, High Density Residential, Institutional | 200mm |
| Industrial                                          | 250mm |

Density shall be based on current Zoning or OCP designation, whichever is higher.

Where no further extensions are possible, watermain 100mm in diameter may be installed for domestic service on cul-de-sac roads beyond the last hydrant.

### 5.4.3 Design velocity

Design velocity shall not exceed 0.60 m/sec for Average Day Demand and 3.65 m/sec for Maximum Day Demand plus Fire Flow or Peak Hour Demand, whichever is greater.

### 5.4.4 Per Capita Demand

Watermain sizing design flows are as follows:

|                    |                         |
|--------------------|-------------------------|
| Average Day Demand | 900 litres/day/capita   |
| Maximum Day Demand | 2,000 litres/day/capita |
| Peak Hour Demand   | 3,600 litres/day/capita |

### 5.4.5 Non-Residential Demand

Equivalent Populations for non-residential demands are as follows:

|               |              |
|---------------|--------------|
| Commercial    | 90 people/ha |
| Institutional | 50 people/ha |
| Industrial    | 90 people/ha |

#### 5.4.6 Fire Flow Requirements

The following fire flows must be met for the noted zones and development:

|                                                                      |                |
|----------------------------------------------------------------------|----------------|
| Rural Areas                                                          | 30 litres/sec  |
| Low Density (Single Family Dwelling / Mobile Home<br>Parks / Duplex) | 60 litres/sec  |
| Medium Density (Triplex / Fourplex)                                  | 90 litres/sec  |
| Commercial / Institutional / Apartments                              | 150 litres/sec |
| Industrial                                                           | 225 litres/sec |

#### 5.4.7 Design Flows

Total design flows are to be the greater of the Maximum Day Demand for the population or equivalent population plus the Fire Flow, or Peak Hour Demand for the population or equivalent population.

#### 5.4.8 Design Pressures

Watermain pipe shall be designed to accommodate 1.5 times the maximum projected working pressure for the applicable pressure zone. Pressure zones shall generally be set at minimum pressure of 250kPa under peak hour conditions and a maximum pressure of 790kPa under static conditions. Pipe specification and material shall be noted on the drawings.

Minimum service pressures during Maximum Day Demand plus fire flow shall be as follows:

|                            |                  |                 |
|----------------------------|------------------|-----------------|
| Peak Hour                  |                  | 250kPa (40 psi) |
| Maximum Day Plus Fire Flow | Hydrant Pressure | 150kPa (20 psi) |
|                            | System Pressure  | 150kPa (20 psi) |

### 5.5 **Vertical Alignment**

#### 5.5.1 Grade

Watermain shall be installed at a minimum grade of 0.1%. Maximum grade shall be 20%. Exceptions may be granted by the City Engineer where grades in excess of 20% have been reviewed for trench dam and joint restraint requirements.

#### 5.5.2 Chambers

Chambers or manholes containing valves, blow-offs, meters, or other appurtenances should allow adequate room for maintenance, including headroom and side room and shall be a minimum 1050mm precast concrete. Access openings must be suitable for removing valves and equipment. The chamber is to be provided with a drain to a storm sewer or ditch, complete with backflow prevention, to prevent flooding of the chamber. Rock pits may be considered subject to suitable soil and groundwater conditions.

Insulation to prevent freezing should be provided where necessary.

### 5.5.3 High Points

Watermain shall be designed with a rising grade wherever possible to minimize high points in the main. Where a high point is unavoidable, either a service or air release valve shall be installed at that point.

### 5.5.4 Air Release and Vacuum Valve

Air Release and Vacuum Valves shall be installed at the high points in all watermain installations except where:

- the difference in elevation between the summit and valley is less than 600mm;
- it can be shown that air pockets will be carried by typical flows
- active service connections are suitably located to dissipate entrapped air.

For 100mm – 500mm watermain refer to Specification Drawings No. W-6, for 600mm – 1200mm watermain refer to Specification Drawing No. W-7.

Air valves must be vented to an appropriate above-grade location to eliminate any potential for cross connection in a flooded or contaminated chamber and shall be located within the sidewalk or boulevard.

### 5.5.5 Depth of Cover

The minimum pipe cover, from finished grade to top of pipe shall be 1.8 meters.

### 5.5.6 Vertical Clearance

The vertical clearance from bottom of watermain to top of sewer shall be the greater of 0.3m or the minimum clearance as set out in IHA's "Guidelines for the Construction of Waterworks". Actual clearance shall be labelled on approved design drawings.

Where the vertical clearance cannot be achieved, reduced clearance may be permitted where joints are wrapped with heat shrink plastic or packed with compound and wrapped with petrolatum tape in accordance with the latest version of AWWA Standards C217, and C214 or C209, as approved by IHA.

## 5.6 **Horizontal Alignment**

### 5.6.1 Location in Roadway

Watermain shall be aligned in accordance with those indicated on the Road Cross Section Specification Drawings.

### 5.6.2 Horizontal Curves

Horizontal curves in watermain will not be permitted, unless otherwise approved by the City Engineer. If horizontal curves are approved, they shall be uniform throughout the curve. The radius of the curvature shall not be less than 50 meters. The deflection in all cases must not exceed 50% of the manufacturer's recommendations for maximum deflection, unless otherwise directed by the City Engineer. Five (5) degree pre-manufactured bends to the same standards as the mainline pipe may be utilized to achieve the design radius.

#### 5.6.3 Horizontal Clearance

The horizontal clearance shall be the greater of 3.0m or the minimum clearance as set out in IHA's "Guidelines for the Construction of Waterworks". Actual clearance shall be labelled on approved design drawings.

Where the horizontal clearance cannot be achieved, reduced clearance may be permitted where joints are wrapped with heat shrink plastic or packed with compound and wrapped with petrolatum tape in accordance with the latest version of AWWA Standards C217, and C214 or C209, as approved by IHA.

#### 5.6.4 Chambers

Chamber lids locations shall not conflict with curbs, gutters or sidewalks and where possible and shall be located outside of the wheel path of normal traffic flow.

#### 5.6.5 Main Looping

Watermain shall be looped or interconnected at a maximum of 200 meter intervals. Provision shall be made for future looping, where required by the City Engineer.

#### 5.6.6 Dead End Watermain

Dead end watermain shall be avoided wherever possible. If not possible a blow off assembly shall be provided in accordance with Specification Drawing No. W-4.

### 5.7 Main Line Valve Size and Locations

Main line valves shall be the same diameter as the main line pipe and shall be located in the following locations (subject to Engineering/Operational review):

- three (3) valves required at a cross (+) fitting;
- two (2) valves located at a tee (T) fitting;
- As necessary to ensure maximum spacing of 200 meters.
- As necessary so that no more than 20 service connections are isolated at one time;
- As necessary so that no more than one (1) fire hydrant is out of service at any one time;
- On each end of a statutory right of way; and,
- On each side of a major crossing such as under the Salmon River, TCH or Canadian Pacific Railway.



## **5.8 Fire Hydrants**

### **5.8.1 Spacing**

For developments, additional fire hydrants shall be located and spaced in accordance with the requirements of the British Columbia Building Code and the City of Salmon Arm Fire Department.

For subdivision and developments, fire hydrant spacing shall be approximately, and in all cases shall not exceed 150 meters in low density residential zones and 90 meters in medium and high density residential zones, commercial, industrial and institutional zones and 300 meters in ALR/Rural zones.

The calculation for fire hydrant spacing and the distance to the principle entrance of a building shall be measured along centreline of the fronting road and shall not be separated by a controlled access highway for commercial, industrial or institutional zoned land.

### **5.8.2 Location/Clearance**

Fire hydrants shall be installed at property lines in mid-block locations and at intersections wherever possible.

Fire hydrants shall be located at minimum 2.0m from back of curb or 0.5m from back of sidewalk.

A 1.0 meter radius clearance, free of obstructions must be provided around all fire hydrants.

Where a fire hydrant requires to be installed behind a ditch, a 1.0 meter radius paved clearance must be provided around the fire hydrant, and a 6.0 meter culvert installed.

### **5.8.3 Connections**

Fire Hydrant connections shall be a minimum of 150mm in diameter.

### **5.8.4 Depth of Cover**

Minimum depth of cover shall be 1.8 metres. Where extra depth is required for the hydrant connection, the compression fitting shall be installed at 1.8 vertical metres and all required extensions shall be installed beneath the compression fitting.

## **5.9 Thrust Blocks and Joint Restraints**

Thrust blocks and/or adequate joint restraining devices must be provided at bends, tees, wyes, reducers, plugs, caps, valves, hydrants and blow offs. They shall be designed for a minimum 1725kPa water pressure. Refer to Specification Drawing No. W-1. Bends at 5 degrees must be in accordance to the manufactures specifications. Engineered calculations shall be provided to the City Engineer, when required, for all thrust block design based on fitting type, water pressure and soil conditions.

Precast thrust blocks will be permitted when approved by the City Engineer.

The restraint system must take into account potential future excavations in the vicinity of the water main.

## **5.10 Water Services**

All connections/disconnections to the City water infrastructure shall be in accordance with the Waterworks and Water Supply Bylaw No. 1274

### **5.10.1 Number of Connections**

Only one water service connection will be permitted per legal lot, including single family residential, multi-family sites, mobile home parks, institutional, commercial and industrial developments, except the owner/developer may provide separate water services to each single family unit that is developed in accordance with the Strata Property Act provided all units in the development are ground-oriented. Strata developments and other major developments will be permitted only one (1) connection unless otherwise approved by the City Engineer where site conditions warrant additional connections, fire flow requirements or where a single service is not practical.

### **5.10.2 Diameter**

New water services to single family dwellings shall be no less than 25mm in diameter, installed and located in accordance with Specification Drawings No. W-2 and SER-1. During development, existing water services under the minimum diameter may remain if the service has sufficient capacity for the proposed development and the service is under 25 years old with the approval of the City Engineer.

Water services to all other developments shall be sized in accordance with the current editions of the British Columbia Building Code.

Water service connections for fire hydrants, sprinklers or other fire control facilities shall be sized appropriately. The designer shall ensure the existing municipal water distribution system is adequate under maximum day demand for the flow and residential pressure desired at the point of connection.

### **5.10.3 Minimum Pressure**

Minimum residential water service working pressure during peak hour conditions shall be 210kPa at an elevation of 6.1 meters above the footing elevation at the building site.

### **5.10.4 Pressure Reducing Valves**

Services shall be protected with a pressure reducing valve at the structure on private property.

### **5.10.5 Curb Stop Location**

The curb stop at the end of each service pipe must be located 300mm from the property line, on the road right of way, and at the centre of each lot. Where such locations will conflict with other services, the location may be revised with the approval of the City Engineer. Where curb stops are located within driveways, or behind roll-over curb they shall be protected using a concrete utility box.

### **5.10.6 Tracer wire**

Tracer wire shall be installed with all water services.

## **5.11 Water Meters**

### **5.11.1 Water Meters**

Water meters are required for all developments (including single family and duplex dwellings). One meter per water service connection will be permitted except as noted below in Section 5.11.2. Refer to Specification Drawings No. W-10, W-11 and W-12.

All domestic water and irrigation water use are to be metered. Water for fire hydrants, sprinklers or other fire control facilities does not require metering.

The City will supply all water meters, complete with remote reader and strainer at the full cost of the owner/developer.

### **5.11.2 Credit Meters**

Except in parcels zoned R-1, R-2, R-3, R-7, R-8 or R9, the City will permit the installation of an irrigation credit meter at the owners/developers cost to assist with the sanitary sewerage user fees.

### **5.11.3 Meter Vaults**

Where there is more than one (1) dwelling per legal lot and/or the length of service is greater than 25 meters, or in other site specific cases as determined by the City Engineer, a meter vault will be required on the owner/developer's property within one (1) meter of property line (owner/developer to monitor). Installation shall be in accordance with Specification Drawing No. W-12.

## **5.12 Valve Box Marker**

In Rural areas only, a valve box marker shall be installed for all main line valves. Refer to Specification Drawing No. W-5.

## **5.13 Pump Stations Control Valves and Reservoirs**

City will directly retain consultants for the design and construction supervision of new or modifications to existing pump stations, reservoirs, control valves and metering stations and electrical and SCADA controls for the City's water utilities.

## **5.14 Corrosion Protection**

Where there is a potential for encountering corrosive soils, a geotechnical corrosion analysis on the alignment of any proposed metallic watermain and appurtenances should be conducted to determine the corrosiveness of the native soils. If the soils are determined to be corrosive, measures such as cathodic protection should be included to prevent the corrosion of the watermain and appurtenances.

#### **5.15 Cross Connection Control**

There shall be no connection permitted between a public water system and a private water system without approved backflow prevention.

All new buildings, irrigation systems, and municipal piping systems must be protected from backflow and in accordance with the BC Building Code, the Canadian Standards Association B64.10.07 or most current editions and the requirements of the city of Salmon Arm's Cross Connection Control Bylaw 3934.

#### **5.16 Abandonment of Mains**

Abandoned sections of utilities shall be removed in accordance with appropriate procedures unless otherwise approved by the City.

### **B. MATERIALS**

Water system materials shall be supplied in accordance with Schedule D – Approved Materials List.

### **C. INSTALLATION**

Water system materials shall be supplied in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

### **D. CLEANING, FLUSHING, DISINFECTING AND TESTING**

Water system cleaning, flushing, disinfecting and testing shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

The consulting engineer shall complete Schedule C, Form F-13 and submit copies of all laboratory testing results to the City Engineer prior to connection of the new water system to the existing municipal water distribution system.

## **6.0 SANITARY SEWER SYSTEM**

### **A. DESIGN CRITERIA**

#### **6.1 General**

##### **6.1.1 Sanitary connection**

In any subdivision and/or development, a sanitary collection system to the dwelling must be provided.

##### **6.1.2 Municipal or Alternative Sanitary System**

Where connection to the City's sanitary distribution is required, connection shall be provided in accordance with Section 6.3 and the City's Sewer Connection Consolidation Bylaw No. 1410.

Where connection to the City's sanitary system is not required by this bylaw, all subdivision/developments shall have an on-site sanitary disposal/treatment system in accordance with Section 6.2.

#### **6.2 On-site Sanitary Systems**

Where a City sanitary distribution system is not available and extension of the system is not required, an on-site sanitary collection and treatment system shall be installed as per the requirements of the provincial Sewerage System Regulation (BC Reg 326/2004) as revised.

Right of ways may be required to be provided by the applicant to allow for the eventual installation of sanitary sewer. Such rights of ways shall be registered in favour of the City of Salmon Arm at the applicant's expense.

#### **6.3 Municipal Sanitary System**

No construction shall commence until engineering drawings and sanitary design sheets have been approved by the City Engineer.

##### **6.3.1 Engineering Drawings**

Engineering drawings shall show alignment, size, grade, class and depths of pipes, pipe bedding requirements, existing ground line and proposed final ground line over the pipe, location, elevation and detail of all manholes and appurtenances, location of all service connections, inspection chambers, location, access to, size and details of any lift stations, existing and proposed drainage boundaries and loading information, all easements and all such other details as may be required.

##### **6.3.2 Design Sheets**

Pipe Sizing calculations shall be submitted in the form of a design sheet. Refer to Specification Drawing SAN-9.



## 6.4 Main Sizing

The Sanitary system shall be designed with sufficient capacity to collect and convey anticipated flows from the total catchment area to be served when fully developed.

The owner/developer Consulting Engineer to review latest Sanitary Master Plan undertaken by the City to confirm sufficient downstream capacity for the proposed development and future development within each respective catchment boundary.

### 6.4.1 Design Flow

The design flow shall be the Peak Wet Weather Flow (PWWF)

PWWF = Population (or equivalent) x ADWF x Peaking factor + Infiltration

Where: ADWF is Average Dry Weather Flow

### 6.4.2 Population

| Residential                               | People/Unit |
|-------------------------------------------|-------------|
| Low Density (<= 16 Units/ha)              | 3.3         |
| Medium Density (>= 17 and <= 45 Units/ha) | 2.5         |
| High Density (> 45 Units/ha)              | 1.8         |
| Non-Residential                           | PE/ha       |
| Commercial                                | 90          |
| Industrial                                | 50          |
| Institutional                             | 90          |

### 6.4.3 Average Dry Weather Flow

Average Dry Weather Flow shall be 450 litres per capita per day for residential and 28,000 L/HA/Day for ICI (Industrial, Commercial, and Institutional) properties.

### 6.4.4 Peak Flow Formula

Peak flows shall be calculated using a peaking factor determined by the Harmon Formula:

$$\text{Peaking Factor} = \frac{18 + P^{0.5}}{4 + P^{0.5}}, \text{ where } P = \text{population in thousands}$$

### 6.4.5 Infiltration

Infiltration allowance of 0.1 litres/second/hectare (8,640 litres/ha/day).

### 6.4.6 Pipe Flow Formula Gravity Main

Gravity Sewers shall be designed, for  $\frac{3}{4}$  depth, using Manning's Formula

$$Q = \frac{AR^{0.667} S^{0.5}}{n}$$

Where,

- Q = Design flow in m<sup>3</sup> per second
- A = Cross sectional area in m<sup>2</sup>
- R = Hydraulic radius in meters
- S = Slope of hydraulic grade line in m/m
- n = Roughness Coefficient

#### 6.4.7 Pipe Flow Formula Force Main

Force Mains shall be designed using the Hazens-Williams Formula,

$$Q = \frac{CD^{2.63}S^{0.54}}{278 * 780}$$

Where,  
Q = rate of flow in litres/second  
D = internal pipe diameter in mm  
S – Slope of hydraulic grade line in m/m  
C = Roughness coefficient

#### 6.4.8 Minimum sanitary main diameter

The minimum sanitary pipe diameter shall be 200mm.

#### 6.4.9 Velocities

The minimum velocity for gravity sewer mains shall be 0.76 m/s, except as noted in Section 6.5.1.

There is no maximum velocity for gravity sewer mains, however, where the velocity exceeds 3.65 m/s consideration should be given to possible scour and shock hydraulic problems.

### 6.5 Vertical Alignment

#### 6.5.1 Pipe Grade

The minimum pipe grades for pipes 375mm and smaller are:

| Pipe Size (mm) | 100  | 150  | 200  | 250  | 300  | 375  |
|----------------|------|------|------|------|------|------|
| Grade (%)      | 2.00 | 1.00 | 0.45 | 0.33 | 0.25 | 0.20 |

There is no specified maximum pipe grade; however, gravity and Force Mains installed at grades in excess of 20% shall be reviewed for anchor block, trench dam and joint restraint requirements. See Specification Drawing No. UT-3 and UT-5.

Upstream sections of sewers require steeper grades to ensure self-cleansing velocity under partial flow conditions. The following design alternatives are acceptable:

- The terminal section servicing six (6) or less sanitary connections shall have a grade of 1% greater than the minimum grade specified above.
- A sewer line servicing the 7<sup>th</sup> to 12<sup>th</sup> sanitary connection shall have a grade of 0.5% greater than the minimum grade specified in above.

#### 6.5.2 Hydraulic Losses Across Manholes

The minimum drop in invert level across manholes shall be:

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|                        |               |
|------------------------|---------------|
| Straight Run           | Minimum grade |
| Deflections up to 45°  | 50mm drop     |
| Deflections 45° to 90° | 65mm drop     |

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The crown of the incoming pipe must be at the same elevation as the crown of the outgoing pipe where a change in pipe diameter occurs through a manhole. (or the pipe diameter less the minimum drop where the drop exceeds the change in pipe diameter)

#### 6.5.3 Drop Manholes

An outside drop manhole shall be installed where the elevation of the inlet invert is 900mm, or greater, above the invert elevation of the centre of the manhole channel.

Internal drop manholes are not permitted.

Drop manholes shall be designed in accordance with Specification Drawing No. SAN-3 and shall only be used when incoming sewers cannot be steepened or where site conditions do not permit otherwise.

#### 6.5.4 Depth of Cover

The minimum depth of cover shall be 1.5 meters. City approval is required where sufficient cover is not feasible or available. Insulation may be required.

New sanitary sewers must be deep enough to provide gravity service to the furthest portion of a building envelope with normal basement elevations.

#### 6.5.5 Vertical Curves

Vertical curves of segmented storm main are generally not permitted, however, where specific permission has been granted by the City Engineer, mains in vertical curves shall be uniform throughout the curve, the radius of curvature shall be not less than 50 meters, the pipe grade shall be not less than 1.0% and the design velocity must exceed 0.91 m/s. The deflection in all cases however must not exceed 50% of the manufacturer's recommendations.

#### 6.5.6 Manhole Benching

Manhole benching to be 8:1 slope from crown of pipe.

### 6.6 **Horizontal Alignment**

#### 6.6.1 Location in Roadway

Mains shall be aligned as indicated on the applicable road cross section Specification Drawings.

#### 6.6.2 Horizontal Curves

Horizontal curves of segmented sanitary main are generally not permitted, however, where specific permission has been granted by the City Engineer, mains in horizontal curves shall be uniform throughout the curve. The radius of curvature shall be not less than 60 meters, the pipe grade shall be not less than 1.0% and the design velocity must exceed 0.9 m/s. The deflection of pipes in all cases must not exceed 50% of the manufacturer's recommendations for maximum deflection. Tracer wire shall be installed along the curved portion of the sewer.

#### 6.6.3 Sanitary Manholes

Manholes are required at all changes in grade, alignment, size and dead-end mains and not further apart than:

|                     |                 |            |                 |
|---------------------|-----------------|------------|-----------------|
| Pipe Size (mm)      | 375 and smaller | 450 to 900 | 1050 and larger |
| Maximum Spacing (m) | 125             | 155        | 185             |

Manhole lids shall not conflict with curbs, gutters or sidewalks, and where possible shall be located outside of the wheel path of normal traffic flow.

Manhole liners may be required at the City Engineer's request.

#### 6.6.4 Clean-outs

Clean-outs are not permitted in place of manholes except where the sanitary sewer main will be extended for future subdivision/development.

### 6.7 **Service Connections**

All connections/disconnections to the City sanitary sewer infrastructure shall be in accordance with the Sewer Connections Consolidation Bylaw #1410

#### 6.7.1 Number of Services

A single service shall be provided to each legal lot. Strata developments and other major developments will be permitted only one connection unless otherwise approved by the City Engineer where site conditions warrant additional connections or where a single service connection is not practical.

#### 6.7.2 Diameter

Sanitary sewer services shall be a minimum of 100mm diameter. Each service shall be installed with an inspection chamber at a minimum grade of 2.0%. Service connections shall be installed and located in accordance with Specification Drawings No. SER-1, SAN-4 and SAN-6.

Sanitary sewer services to multi-family sites, mobile home parks, institutional, commercial and industrial sites shall be sized (minimum 100mm diameter) as required by the current edition of the British Columbia Plumbing Code. Each service shall be installed with an inspection chamber and for sizes up to 150mm and with a manhole at

sewer main for sizes greater than 150mm. Refer to Specification Drawings No. SAN-4 and SAN-6.

**6.7.3 Depth and Grade**

Sanitary sewer services shall be designed to permit normal basement service to all proposed lots. In all cases, the minimum service grade is 2.0%. Pumping may be allowed with City Engineer approval; however, the service from the main to property line shall be a gravity line at 2.0% min.

**6.7.4 Connection into Manhole**

A service connection entering a manhole shall have its invert elevation at the crown of the highest main entering the manhole. The service connection shall discharge in the same direction as the benched flow in the sewer main.

**6.7.5 Inspection Chambers**

The inspection chamber at the end of each service pipe must be located 300mm from the property line, on the road right of way and offset 4.0m from the centre of each lot. Where such locations will conflict with other services, the location may be revised with the approval of the City Engineer. Where inspection chambers are located within driveways, they shall be protected using a Brooks Box or approved equivalent. Refer to Specification Drawings SER-1 and SAN-6.

**6.8 Force Mains**

**6.8.1 Diameter**

The minimum force main diameter shall be 100mm.

**6.8.2 Velocity**

The maximum force main velocity shall be 3.65 m/s and the minimum cleaning velocity shall be 0.9 m/s.

**6.8.3 High Points**

Air release and vacuum valves, suitable for sewage flow, shall be installed at the high points in all force main installations. Refer to Specification Drawing No. SAN-7.

**6.8.4 Tracer Wire**

Force main pipes shall be installed with a locating tracer wire.

**6.8.5 Connection to Manhole**

Force mains shall enter receiving manholes at crown to crown elevation and direct the flow into the receiving channel without excessive spray and in the direction of the receiving sewer flow.



## **6.9 Pump Stations**

The City will directly retain consultants for the design and construction supervision of new or modifications to existing pump stations and electrical and SCADA controls for the City's sewer utilities.

### **B. MATERIALS**

Sanitary sewer materials shall be supplied in accordance with Schedule D – Approved Materials List.

### **C. INSTALLATION**

Sanitary sewer installation shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

### **D. CLEANING, FLUSHING AND TESTING**

Sanitary sewer cleaning, flushing and testing shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

## **7.0 STORM WATER MANAGEMENT**

### **A. DESIGN CRITERIA**

#### **7.1 General**

All Subdivision and Development within the City of Salmon Arm shall be designed to minimize the effect on the natural hydrological and hydro geological regimes, while not compromising the safety of persons or property.

Reference may be made to ‘Stormwater Planning: A Guidebook for British Columbia’ (Ministry of Water, Land and Air Protection, May 2002) for example of low impact development and best management practices.

[http://www2.gov.bc.ca/assets/gov/topic/7BE6D1629C96685698920E29284EBCF4/stormwater\\_planning\\_guidebook\\_for\\_bc.pdf](http://www2.gov.bc.ca/assets/gov/topic/7BE6D1629C96685698920E29284EBCF4/stormwater_planning_guidebook_for_bc.pdf)

The stormwater design shall conform to the storm water management plan for each drainage basin as detailed in the current edition of the City of Salmon Arm ‘Comprehensive Drainage Planning’ report. The owner/developers consulting engineer to review the drainage master plans prepared by the City and confirm sufficient downstream capacity.

##### **7.1.1 Integrated Stormwater Management Plan**

An integrated stormwater management plan (report, drawings, design sheets, etc.) prepared by a Professional Engineer or Geoscientist with related experience is required for all subdivision and development where there is or will be an increase in the impermeable area on the site. The complexity of the plan should reflect the complexity of the development.

An integrated stormwater management plan shall use best management practices to minimize the effect to the natural hydrological and hydro geological regimes, while not compromising the safety of persons or property.

Design professionals must consider impacts of climate change, using best practices, in their integrated stormwater management solution.

A stormwater management plan shall attempt to achieve the following parameters where appropriate. Note: Mean Annual Rainfall (MAR) shall be calculated according to the method outlined in Stormwater Planning, A Guidebook for British Columbia (Ministry of Water, Land and Air Protection, 2002).

- Eliminate discharge (infiltrate or reuse) from impervious surface areas for storm events with rainfall depths up to one half of the 24-hour MAR, approximately 10mm.
- Capture of runoff exceeding one half of the 24-hour MAR (approximately 10mm) up to the 24-hour MAR (approximately 20mm) and release at the pre-development interflow rate to storm sewer or natural drainage course.

- For storm events that exceed the 24-hour MAR, safe conveyance of runoff shall be provided. Where storm sewer is available/required, flows up to and including the 25-year storm shall be conveyed in the sewer. Consideration for safe overland flow routes shall be at minimum to the 100-year storm.

#### 7.1.2 Municipal or Alternative Storm System

Where connection to the City's stormwater collection system is required, connection shall be provided in accordance with Section 7.3 and the City's Sewer Connection Consolidation Bylaw No. 1410.

Where connection to the City's stormwater collection system is not required by this bylaw, all subdivision/developments shall have an alternative stormwater system in accordance with Section 7.2.

### 7.2 **Alternative Stormwater Systems**

Where connection to the City's stormwater collection system is not required an alternative stormwater management system is required to address additional runoff created by subdivision or development. All stormwater management systems shall use best management practices to minimize the effect to the natural hydrological and hydro geological regimes, while not compromising the safety of persons or property. When necessary, changes to the natural drainage patterns shall not adversely affect upstream or downstream properties.

#### 7.2.1 Sheet Drainage

Sheet drainage over natural or landscaped areas is an acceptable means of dispersing stormwater from new development on lots where:

- impervious area is less than 10% of the total lot area or the proposed development footprint is less than 30m<sup>2</sup>;
- all setbacks have been adhered to as specified in the Zoning Bylaw, and;
- Topography is such that there is minimal chance of adverse impacts on adjacent lots.

A covenant is not required where this option is permitted.

#### 7.2.2 Infiltration Systems

Infiltration systems shall be designed to infiltrate the Mean Annual Runoff (MAR) into the native soils within 48 hours. They shall be designed as per the 'Underground Stormwater Infiltration – Best Practices for Protection of Groundwater Resources in British Columbia' (BC MOE, 2014).

MAR to be calculated according to the method outline in 'Stormwater Planning: A Guidebook for British Columbia (Ministry of Water, Land and Air Protection, 2002'.

All infiltration systems shall have pre-treatment which at minimum shall be a sump with an accessible cleanout.

A safe overflow route shall be provided for storms in excess of the capacity of the infiltration system.

A geotechnical report certifying that the operation of the system will not create or exacerbate geotechnical hazards shall be provided.

Depending on size of infiltration system, complexity, proximity to steep slopes or proximity to known stormwater related concerns, a full hydro geological investigation may be required to support the proposed infiltration system.

A covenant is required where this option is permitted. Refer to Section 7.2.4.

Infiltration systems should NOT be considered where there is a potential for slope instability or contamination of aquifers.

#### 7.2.3 Low Impact Development Infrastructure

Low Impact Development (LIDs) infrastructure such as absorbent landscaping materials, vegetated swales, permeable pavement, infiltration aids, etc. shall be reviewed on a case-by-case basis for conformity with the intent of the Section 7.0 of the City's Subdivision and Development Bylaw.

All LIDs shall be designed by a Professional Engineer with related experience and shall be certified upon installation.

Any LIDs that have an installation footprint and/or maintenance requirements shall be clearly identified on an individual lot plan along with an Operation and Maintenance report. A covenant shall be placed on title in accordance with Section 7.2.4.

#### 7.2.4 Covenant

Where a covenant is required for approvals, the owner/developer must register on title of each lot serviced by an on-site stormwater system, a covenant in favour of the City of Salmon Arm with reference to any geotechnical or Operation and Maintenance requirements. The form of the covenant shall be approved by the Approving Officer and City Engineer.

#### 7.2.5 Statutory Right of Way

Where a storm system is not yet available, right of ways may be required to be provided by the applicant to allow for the eventual installation of this facility. Such right of ways shall be registered in favour of the City of Salmon Arm at the applicant's expense.

### 7.3 **Municipal Stormwater Collection System**

No construction shall commence until engineering drawings, sewer design sheets and stormwater report have been approved by the City Engineer.

The storm drainage system shall include the entire area tributary to the storm drain and shall be designed with sufficient capacity to collect and convey anticipated storm runoff from the total catchment area to be served when fully developed.

### 7.3.1 Engineering Drawings

Engineering drawings shall show alignment, size, grade, class and depth of pipes, pipe bedding requirements, existing ground line and proposed final ground line over the pipe, location, elevation and detail of all manholes, catch basins and other stormwater related appurtenances, location of all service connections, inspection chambers, location, access to, size and details of retention or infiltration systems, existing and proposed drainage boundaries and loading information, major and minor flow routes, all easements and all such other details as may be required.

### 7.3.2 Stormwater Report

The Stormwater Report shall give an overview of the integrated stormwater plan and outline how the proposed stormwater system achieves the stormwater objectives outlined in Section 7.1.1 to the greatest extent possible. All calculations, design parameters, assumptions, etc. shall be outlined in the report.

### 7.3.3 Design Sheets

Rational Method design calculations are to be tabulated and submitted to the City as part of the Stormwater Report, refer to Specification Drawing ST-15.

## 7.4 **Design Flows**

### 7.4.1 Major and Minor Flow Calculations

For drainage basins greater than 10 hectares in size, design flows shall be based on computer storm modeling, or other methods acceptable to the City.

For drainage basins less than 10 hectare in size, the design flows shall be based on the rational method,

$$Q = RAIN$$

Where,  $Q$  = Peak Rate of Run-off in m<sup>3</sup>/sec

$R$  = Run-off coefficient

$A$  = Area of watershed in Hectares

$I$  – Average Rainfall Intensity in mm/hr

$N$  = 1/360

### 7.4.2 Peak Rate Run-off (Design Storms)

Minor Flow shall be the 1 in 25 year 24-hour Chicago Rainfall event peak rate of runoff.

Major Flow shall be the 1 in 100 year 24-hour Chicago Rainfall event peak rate of runoff less any piped minor flow.

Post-development design flows and capacity calculations shall include an additional ten percent (10%) upward adjustment applied to the rainfall intensity calculations and be consistent with recommendations in Legislated Flood Assessments in a Changing Climate in BC (EGBC, 2018).



#### 7.4.3 Pre-development Flow

Pre-development flows have been modelled through the City's Stormwater Master Plan (ISL, 2020). The watershed pre-development run-off rate Mean Annual Flood (MAF) is 1.3 L/s/ha and shall be used where development ultimately discharges into a water course or natural waterbody other than Shuswap Lake.

Where development runoff is conveyed through urban development (pipes/roads) to Shuswap Lake, the pre-development run-off rate shall be calculated using best practices assuming a true 'pre-development' forested/vegetated state of the development property.

#### 7.4.4 Run-off Coefficient

Run-off Coefficients, for slopes of 5% and flatter, shall be as follows:

| Description of Area                             | Gravel-Loam | Loamy Sand | Clay |
|-------------------------------------------------|-------------|------------|------|
| Forest/Woodlands                                | 0.05        | 0.10       | 0.15 |
| Public, Recreation, Open Space, Grassland (ALR) | 0.10        | 0.20       | 0.35 |
| Residential (Suburban, Lots > 0.4ha)            | 0.25        | 0.35       | 0.45 |
| Residential (Low Density)                       | 0.40        | 0.50       | 0.60 |
| Residential (Medium Density)                    | 0.50        | 0.60       | 0.70 |
| Residential (High Density)                      | 0.65        | 0.75       | 0.85 |
| Neighborhood Commercial                         | 0.50        | 0.60       | 0.70 |
| Heavy Commercial                                | 0.70        | 0.85       | 0.95 |
| Industrial                                      | 0.55        | 0.70       | 0.80 |
| Pavement or other impermeable surface           | 0.90        | 0.90       | 0.95 |

Where slopes exceed 5% the above run-off coefficients shall be increased by 10%, compound, for each 5% increment in slope.

#### 7.4.5 Rainfall Intensity

The rainfall intensity for the rational method can be extrapolated from the City rainfall Intensity/Duration/Frequency Curves (refer to Specification Drawing No. ST-7) or calculated by:

$$I = A \times T^B$$

Where, I = rainfall intensity in mm/hr  
T = Storm duration in hours  
A,B = constants

| Return Frequency |        |        |         |         |         |          |
|------------------|--------|--------|---------|---------|---------|----------|
| Parameter        | 2 Year | 5 Year | 10 Year | 25 Year | 50 Year | 100 Year |
| a                | 10     | 16.4   | 20.9    | 26.7    | 31.1    | 35.6     |
| b                | 0.706  | 0.786  | 0.821   | 0.854   | 0.873   | 0.888    |
| c                | 0.02   | 0.08   | 0.111   | 0.142   | 0.16    | 0.176    |

#### 7.4.6 Design Time of Concentration

The time of concentration is the time required for run-off to flow from the most remote part of the catchment area under consideration to the design node. The time of concentration can be calculated using the following formulas:

$$T_c = T_i + T_t$$

Where,  $T_c$  = time of concentration (minutes)

$T_i$  = inlet or overland flow time (minutes)

$T_t$  = travel time in sewers, ditches, channels or water courses (minutes)

Inlet Times ( $T_t$ ) - Minimum inlet times are 15 minutes for residential areas, and 10 minutes for industrial and commercial areas. Inlet times for larger areas can be calculated using the “Airport Method” or equivalent.

Travel Time ( $T_t$ ) – Travel time in sewers, ditches, channels or watercourses can be estimated using the modified Manning formula.

Additional information concerning drainage contributing areas and time of concentration is available in the current edition of the City’s current Stormwater Master Plan.

#### 7.4.7 Snow Melt

In all cases the Design Engineer (in determining the critical design conditions) is to consider the impact of snowmelt on the drainage system.

### 7.5 Minor System Design

#### 7.5.1 Design Storm

Storm sewers shall be designed for the 25 year peak storm return frequency.

#### 7.5.2 Pipe Flow Formula

Gravity storm sewer systems shall be designed for full flow, using Manning’s Formula as noted below:

$$Q = \frac{AR^{0.667}S^{0.5}}{n}$$

Where,  $Q$  = Design flow in m<sup>3</sup>/sec  
 $A$  = Cross sectional area in m<sup>2</sup>  
 $R$  = Hydraulic radius in meters  
 $S$  = Slope of hydraulic grade line in m/m  
 $n$  = Roughness Coefficient

The value of ‘n’ using Manning’s Formula shall be:

|                             |       |
|-----------------------------|-------|
| PVC, HDPE                   | 0.011 |
| Concrete                    | 0.013 |
| Corrugated Steel Pipe (CSP) | 0.024 |

### 7.5.3 Minimum Storm Main Diameter

The minimum pipe diameter shall be 250 mm for mains and 200 mm for catch basins.

### 7.5.4 Velocities

The minimum velocity shall be 0.75 m/s for gravity storm mains

There is no maximum velocity, however, where the velocity exceeds 3.65 m/s consideration shall be given to possible scour and shock hydraulic problems.

### 7.5.5 Design Flow Adjustment for LIDs

Where low impact development (LID) best management practices are used, mains may be sized according to the required capacity taking 50% of the groundwater recharge capability into consideration. The groundwater recharge component must be calculated and justified by a qualified hydrologist/engineer with experience in this field. Minimum sizes of mains must still be observed.

## 7.6 **Vertical Alignment**

### 7.6.1 Pipe Grade

The minimum slope for the first reach of permanent dead end sewer shall be 1%, where feasible. For sewers other than the first permanent dead end reach, the minimum pipe grades are:

| Size (mm) | 200* | 250  | 300  | 375  | 450  | 525  | 600  | 675  | 750  | 825  | 900  |
|-----------|------|------|------|------|------|------|------|------|------|------|------|
| Grade (%) | 2.00 | 0.40 | 0.32 | 0.23 | 0.20 | 0.18 | 0.15 | 0.12 | 0.10 | 0.09 | 0.07 |

\*Catchbasin leads only

There is no specified maximum pipe grade; however, mains installed at grades in excess of 20% shall be reviewed for anchor block, trench dam and joint restraint requirements. See Specification Drawing No. UT-3 and UT-5

### 7.6.2 Hydraulic Losses Across Manholes

The minimum drop in invert levels across manholes are:

|                        |               |
|------------------------|---------------|
| Straight Run           | Minimum grade |
| Deflections up to 45°  | 50mm drop     |
| Deflections 45° to 90° | 65mm drop     |

Horizontal changes of direction greater than 90 degrees are not permitted.

Where a change in diameter occurs across a manhole, the drop shall be a minimum of the difference in the diameters of the pipe or the drop specified above, whichever is greater.

### 7.6.3 Drop Manholes

An outside drop manhole shall be installed where the elevation of the inlet invert is 900mm, or greater, above the invert elevation of the centre of the manhole channel.

Internal drop manholes are not permitted.

Drop manholes shall be designed in accordance with Specification Drawing No. ST-16 and shall only be used when incoming sewers cannot be steepened or where site conditions do not permit otherwise.

### 7.6.4 Depth of Cover

The minimum depth of cover shall be 1.5 meters. City approval is required where sufficient cover is not feasible or available. Insulation may be required.

New storm sewers shall have sufficient depth to allow gravity connections from 0.3 meters below the existing or proposed basement floor elevation (at the furthest building envelope point).

### 7.6.5 Vertical Curves

Vertical curves of segmented storm main are generally not permitted, however, where specific permission has been granted by the City Engineer, mains in vertical curves shall be uniform throughout the curve, the radius of curvature shall be not less than 50 meters, the pipe grade shall be not less than 1.0% and the design velocity must exceed 0.91 m/s. The deflection in all cases however must not exceed 50% of the manufacturer's recommendations.

### 7.6.6 Manhole Benching

Manhole benching to be 8:1 slope from crown of pipe.

## 7.7 **Horizontal Alignment**

### 7.7.1 Location in Roadway

Mains shall be aligned as indicated on the applicable Road Cross-Section.

### 7.7.2 Horizontal Curves

Horizontal curves of segmented storm main are generally not permitted, however, where specific permission has been granted by the City Engineer, mains in horizontal curves shall be uniform throughout the curve, the radius of curvature shall be not less than 50 meters, the pipe grade shall be not less than 1.0% and the design velocity must exceed 0.91 m/s. The deflection in all cases however must not exceed 50% of the manufacturer's recommendations.

### 7.7.3 Storm Manholes

Storm Manholes shall conform to Specification Drawing No. ST-2.

Manholes are required at all changes in grade, alignment, size, dead end mains and at existing and planned intersecting storm sewers.

The maximum spacing between manholes shall be as follows:

---

|                     |              |        |                  |
|---------------------|--------------|--------|------------------|
| Pipe Grade (%)      | Less than 5% | 5%-10% | Greater than 10% |
| Maximum Spacing (m) | 150m         | 120m   | 60m*             |

---

\*or as directed by City Engineer

Combination catch basin-manholes are generally not permitted.

Manhole lids shall not conflict with curbs, gutters or sidewalks, and where possible shall be located outside of the wheel path of normal traffic flow.

#### 7.7.4 Clean-outs

Clean-outs/Inspection chambers are not permitted in place of manholes except where the storm sewer main will be extended for future subdivision/development.

Location shall not conflict with curbs, gutters or sidewalks, and where possible shall be located outside of the wheel path of normal traffic flow.

### 7.8 **Service Connections**

All connections/disconnections to the City Storm sewer infrastructure shall be in accordance with the Storm Connection Bylaw #1410.

#### 7.8.1 Number of Services

A single service shall be provided to each legal lot. Strata developments and other major developments will be permitted only one connection unless otherwise approved by the City Engineer where site conditions warrant additional connections or where a single service connection is not practical.

#### 7.8.2 Diameter

Storm sewer services to single family dwellings and duplexes shall be a minimum of 150mm diameter. Each service shall be installed with an inspection chamber at a minimum of 2.0%. Service connections shall be installed and located in accordance with Specification Drawings SER-1, ST-4 and ST-6.

All multi-family sites, mobile home parks, institutional, commercial and industrial sites shall have a storm sewer system designed adequately to service the parcel. In no case will the service be less than 150mm diameter.

#### 7.8.3 Depth and Grade

Storm sewer services shall be designed to permit normal basement service, as required by the Building Code, to all proposed lots. In all cases, the minimum service grade is 2.0%.

#### 7.8.4 Connection into Manhole

A service connection entering a manhole shall have its crown at the crown of the highest main entering the manhole. The connection shall discharge in the same direction as the flow in the sewer main.



#### 7.8.5 Inspection Chambers

The inspection chamber at the end of each service pipe must be located 300mm from the property line, on the road right of way and offset 3.0m from the centre of each lot. Where such locations will conflict with other services, the location may be revised with the approval of the City Engineer. Where inspection chambers are located within driveways, they shall be protected using a Brooks Box or approved equivalent. Refer to Specification Drawings SER-1 and ST-6.

Manholes will be required in place of inspection chambers for storm sewer connections as specified on Specification Drawing ST-5.

### 7.9 Foundation Perimeter Drains and Roof Leaders

Foundation perimeter drains shall be connected to a gravity storm system where possible, or otherwise outlet to an infiltration system (refer to Section 7.2.2). Where grade differences permit, foundation drains may be outlet within the property boundaries where doing so will not cause adverse impact to adjacent properties.

Connection of roof leaders shall be addressed as part of the overall integrated stormwater management plan. Roof drainage leaders are to be connected to the storm service only where geotechnical requirements dictate the need. Where direct connection is necessary, all efforts shall be made to slow runoff using LID techniques. Roof leaders shall not be directed onto impervious services which drain directly onto City right-of-way or adjacent properties.

### 7.10 Catch basins

#### 7.10.1 Spacing

Catch basins shall be installed at regular intervals along roadways, at intersections, and at low points. Refer to Specification Drawing No. ST-1 and ST-14.

Catch basins shall be spaced to drain a maximum area of 500m<sup>2</sup> on road grades up to 5% and 400m<sup>2</sup> on steeper grades.

In any event, catch basin spacing shall not exceed 75 meters.

#### 7.10.2 Double Catch Basins

Double catch basins are required at all low points when water is collected from two directions. A single catchbasin may be considered if the total catchment area is less than the allowable area noted above.

#### 7.10.3 Side Inlets

Side inlet catch basins are required where road grades exceed 5%.

#### 7.10.4 Catchbasin Leads

The minimum lead size diameter shall be 200mm for a single catch basin lead and 250mm for a double catch basin lead. The maximum length of a catch basin lead shall be 25 meters.

#### 7.10.5 Location

Wherever possible, catch basins are to be installed at the EC or BC for all curb returns. In no cases shall a catch basin be located in a wheelchair sidewalk ramp or driveways access.

#### 7.10.6 Rear Yard Catchbasin

Rear yard catch basins require a sump manhole at the connection to the mainline regardless of lead size. All infrastructure shall be protected by a Right-of-way in favour of the City.

### 7.11 **Major Flow Routing**

#### 7.11.1 General

The major system includes all drainage pathways that convey, detain, divert and intercept the major design storm runoff. The combined capacity of the major (overland) and minor (piped) systems must be able to safely contain storm flows resulting from the 1:100 year design storm.

Major flow routing over 0.05 m<sup>3</sup>/s shall be shown and sufficient design shall be carried out to provide assurance to the City Engineer that no serious property damage or endangering of public safety will occur under major flow conditions. The discharge point from the development for the major flow route shall be coordinated with the downstream routing to outfalls as determined by the City of Salmon Arm.

#### 7.11.2 Design Storm

Culverts shall be designed for the 100 year peak storm return frequency, unless otherwise specified by the City Engineer.

Culverts under Arterial roadways shall be designed for the 100 year peak storm return frequency with 50% blockage.

Ditches and overland flow routes shall be designed to accommodate 100 year peak storm return frequency (referred to as Major Storm) for the appropriate time of concentration, less any minor flows directed to the storm sewers.

Emergency flow routes shall be designed to accommodate the 100 year peak storm return frequency for the appropriate time of concentration.

All Storm flow calculations shall take into account Climate Change predictions per EGBC Best Practices.

### 7.11.3 Major Route Flow Sizing

Overland flow channel capacities shall be calculated using the Manning Formula at critical design sections. All habitable areas of buildings shall be above the major flow hydraulic grade line, except where specified flood prevention measures have been taken. Typical Manning Roughness Coefficient 'n' are:

- 0.018 for paved roadway
- 0.03 for grassed boulevards and swales
- 0.04 to 0.10 for irregular or treed channels

### 7.11.4 Location

Major flows shall be contained within public road allowances and right of ways, and shall discharge off-site to public road allowances and right of ways capable of accepting the design flows.

### 7.11.5 Major Flow on Roadways

Where the road is used to accommodate major flow, it shall be formed, graded and sufficiently depressed below the surrounding properties to provide adequate hydraulic capacity. On arterial roads, a minimum of 6.0m width (two (2) lanes) shall be free of ponding. On Collector and local roads, the entire roadway may be used as a major flood path with the maximum flow depth not to exceed 200mm.

Where roadways, used for major flows, intersect, care shall be taken to lower the intersection to allow flows to pass over the cross street. Where major flow routes turn at intersections similar care in the road grading design is required. Detailed grading of such areas shall be shown on drawings.

### 7.11.6 Erosion Protection

Major flow channels shall be designed to resist erosion or other detrimental effects at design flow.

Where major flow outfalls to a receiving water course, the velocity shall not exceed 1.5 m/s. An energy dissipater shall be provided to minimize erosion.

### 7.11.7 Storm Sewer

In areas where surface major flow routes cannot be provided, or where desired to enable lower building elevations, the pipes and culverts, which form a part of the minor system, may be enlarged or supplemented to accommodate the major flow.

## 7.12 **Hydraulic Grade Line**

### 7.12.1 General

All storm sewer designs must indicate the 100 year HGL. Where necessary, minimum basement elevations should be specified on the grading drawing to ensure a minimum of 0.3 meters of clearance from underside of slab to the 100 year HGL.

### 7.12.2 Hydraulic Grade Line Formula

Hydraulic Grade Line (HGL) shall be calculated using the Darcy – Weisbach equation as noted below and specified on profile drawings:

$$h_f = \frac{f \times L}{D} \times \frac{V^2}{2g}$$

Where,  $h_f$  = head loss due to friction in meters  
L = length of the pipe in meters  
D = hydraulic diameter of the pipe in meters  
V = average velocity of the fluid flow, equal to the volumetric flow rate per unit cross-sectional wetted areas (m/s)  
g = local acceleration due to gravity (m/s<sup>2</sup>)  
f = dimensionless coefficient called the Darcy Friction Factor

The starting HGL shall be the greater of the downstream pipe invert or the 100 year flood elevation of the water course/body

### 7.12.3 Inlet Control Devices

Inlet control devices (ICDs) may be installed in catch basin where need necessary to lower the HGL. Backflow preventers on storm drains, ICDs or Minimum Basement Elevations (MBEs) may be utilized at the discretion of the City Engineer. Backflow preventers on private services shall be located on private property.

## 7.13 **Drainage Ditches/Culverts**

Drainage ditches and culverts shall be sized based on the design storms referenced in Section 7.11.2.

In no cases, shall a culvert be less than 400mm in diameter.

Erosion control and/or additional velocity restricting designs may be required as determined by the City Engineer.

Inlet/outlet structures shall be installed on all culverts at roadway crossings as per Section 7.14.

Where fronting residential properties, due consideration shall be given to ease of maintenance.

## 7.14 **Inlet and Outlet Structures**

### 7.14.1 General

Inlet and Outlet Structures shall be designed, and submitted for approval, for each particular application. Precast Inlet and Outlet structures are preferred. Refer to Specification Drawing No. ST-8, ST-9 and ST-10.

Trash racks, energy dissipation, railings, monitoring devices, oil separators, inlet sumps, safety grates and rip-rap shall be provided as required.

#### 7.14.2 Safety Grates and Hand Rails

Lockable, hinged, manufactured safety grates are required on open inlets and outlets 300mm and larger. Refer to Specification Drawing No. ST-11

A handrail shall be installed around inlet/outlet structures 1.2 meters or larger in height.

#### 7.14.3 Erosion Control

Erosion control and/or additional velocity restricting designs may be required as determined by the City Engineer.

### 7.15 **Quality Control**

#### 7.15.1 General

Quality control shall be provided for flows up to 50% of the 2 year post development peak flow ('first flush' storm) or the 5 year pre-development peak flow, whichever is greater. Quality treatment facilities include, but are not limited to, oil/grit separators, trapping hoods, sumps, silt traps, detention storage facilities, grassed swales and constructed wetlands.

Treatment facilities should include provisions for maintenance equipment access.

#### 7.15.2 Oil/Water Separators (OWS)

Oil/water separators including coalescing plate separators shall be provided on the storm service, on private property, for all gas stations, vehicle service areas and storage areas for vehicles and construction equipment. A covenant must be placed on title alerting the property owner to the maintenance requirements, etc.

#### 7.15.3 Oil/grit Separators (OGS)

OGS shall be provided on the storm services, on private property, for sites with parking for 50 or more vehicles. OGS shall be a swirl concentrator or equivalent. Design details to be provided by supplier of proprietary system or by designer of equivalent.

OGS will be designed to treat a minimum of 90% of the annual runoff volume of the catchment area.

An internal high flow bypass shall be provided that conveys high flows directly to the outlet such that scour and re-suspension of material previously collected does not occur.

OGS shall be capable of removing 80% of the total suspended sediment load (TSS including fine and clay particles) and 95% of the floatable free oil.

Maintenance access shall be provided to and into the structure for removal of accumulated sediments and oils with a vacuum truck.

OGS shall be installed in a water tight concrete manhole or vault structure.

Where an OGS and detention storage are required, the OGS shall be installed immediately upstream of any required detention storage facility.



#### 7.15.4 Detention Storage Facilities

Underground detention facilities shall be complete with a sump upstream of the control orifice with an accessible clean-out, with exception to storage immediately downstream of an OGS unit (refer to Section 7.15.3).

Above ground detention facilities shall be complete with a sediment forebay with an access road for clean-out equipment. Design parameters may be made available upon request.

### 7.16 **Quantity Control**

#### 7.16.1 General

Quantity control is required on all development properties to minimize the effect to the natural hydrological and hydro geological regimes, while not compromising the safety of persons or property. Best efforts shall be made to provide quantity control to meet the criteria outlined in Section 7.1.1.

#### 7.16.2 Detention Facilities

The design of stormwater detention facilities shall be completed by a Professional Engineer qualified in hydrological design.

In general the City encourages detention facilities to be:

- Multi-use facilities that include recreational, environmental and aesthetic aspects as well as flow control and water quality control
- Accessible, including all inlet/outlet structures
- Above ground where possible. In pipe storage within City right of way is discouraged.

##### 7.16.2.1 Above Ground Detention

Detention basins shall be sized to match post-development to pre-development flows up to and including the 25 year storm with safe overland provisions for up to the 100 year storm. Detention basins shall have emergency overflow weirs and a sediment forebay with access road for operations and maintenance.

##### 7.16.2.2 Underground Detention

Where use of underground detention facilities is approved by the City, the facility shall be designed with sumps and access for operations and maintenance to the satisfaction of the City Engineer.

##### 7.16.2.3 Private Detention Facilities

Stormwater retention for commercial, industrial, institutional and multi-family residential may be at surface and/or underground. Rooftop and parking lot storage may be considered where appropriate. B.C. Building Code and City bylaw restrictions shall be met when designing rooftop storage.

7.16.3 Orifice

Orifice size shall be greater than 90mm unless otherwise approved by the City Engineer. Where smaller orifices are required, due consideration shall be given to minimize potential plugging of the orifice and to ensure appropriate emergency overflows and maintenance access is provided.

7.16.4 Infiltration Systems

Refer to Section 7.2.2.

7.16.5 Low Impact Development Infrastructure

Refer to Section 7.2.3.

7.16.6 Natural Drainage Courses

A natural drainage course may remain within private property, with provision for right of way unless under special circumstances such as where the City retains or acquires ownership for park or buffer use.

A natural drainage course shall not be altered or diverted, including altering the contributing drainage area, unless such alteration or diversion has been approved by the City Engineer and all other governing authorities.

Developments that outlet to a natural drainage course shall take all reasonable measures to mimic the naturally occurring hydrology of the basin using best management practices to slow the runoff to pre-development levels. In all cases, outlet to a natural drainage course shall not exceed 1.3 L/s/ha unless otherwise approved by the City Engineer.

Developments that outlet to natural drainage courses shall have suitable quality control, refer to Section 7.15

**B. MATERIALS**

Storm sewer materials shall be supplied in accordance with Schedule D – Approved Materials List.

**C. INSTALLATION**

Storm sewer installation shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

**D. CLEANING, FLUSHING, TESTING**

Storm sewer cleaning shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

## **8.0 STREET LIGHTING**

### **A. DESIGN CRITERIA**

#### **8.1 British Columbia Electrical Code**

The Street Lighting Design shall satisfy the BC Safety Authority Electrical Safety Regulation, Canadian Electrical Code including BC amendments.

#### **8.2 Materials**

Electrical materials used in the street lighting system shall be new, labelled and approved by the Canadian Standards Association or equivalent.

Conduit shall be Rigid PVC (RPVC) unless otherwise approved by the City Engineer.

Street Lights shall be Light Emitting Diode (LED) with 7 pin receptacle on all lights with dimmable driver and control (photo cell, shorting cap or controller).

#### **8.3 Levels of Illumination**

The average levels of illumination shall be in accordance with the Illuminating Engineering Society of North America (IESNA) RP-8-14.

Where a local road intersects with a Collector or Arterial (Major) roadways, the lighting levels shall meet or exceed the values recommended in IESNA RP-8-14, Table 8.

#### **8.4 Pole Type**

Davit poles and fixtures shall be located on all Collector and Arterial (Major) roads. Davit fixtures may be required at intersections other than Collector and Arterial, at the discretion of the City Engineer. Davit fixtures shall be located in industrial areas. Davit luminaries shall be in accordance with Specification Drawing No. SL-1 and SL-2, and in accordance with current Schedule “D” approved materials list.

Decorative top poles and fixtures shall be located within the Town Centre Development Area. Decorative top street lights shall be in accordance with Specification Drawing No. SL-3, SL-4, SL-5, SL-3-I and SL-4-I, and in accordance with current Schedule “D” approved materials list.

Residential type poles and fixtures shall be located on all local class classified roads and all areas not specified above. Residential type street lights shall be in accordance with Specification Drawing No. SL-3, SL-4, SL-5, SL-3-I and SL-4-I and in accordance with current Schedule “D” approved materials list.

Handhole shall be tamperproof.

### **8.5 Location**

Street light Poles shall be off-set as indicated on the applicable road cross-section.

Pole locations, in general shall be aligned with property lines and shall not conflict with driveways, fire hydrants, parking stalls or underground services. Poles shall be located as not to inhibit the movement of snow clearing equipment.

### **8.6 Electrical Service Connections**

Hydro service connections for street lights shall be made to a buried Hydro service box.

Electrical service connections shall be made to a junction box, power pole or lamp standard power base. All electrical designs must incorporate a power base.

### **8.7 Electrical Permit**

Safety Authority Electrical Permit must be submitted to the City within three (3) months of the application date.

### **8.8 Record Drawings**

#### **B. MATERIALS**

Street Lighting materials shall be supplied in accordance with Schedule D – Approved Materials List.

#### **C. INSTALLATION**

Street Lighting installation shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3. The locations of all Street Light conduits shall be recorded and included on the Record drawings, together with all street lights, identifying lights that have the power base.

#### **D. TESTING**

Street Lighting installation shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

## **9.0 HYDRO, TELECOMMUNICATIONS, GAS**

### **A. DESIGN CRITERIA**

#### **9.1 General**

Where civil works to support hydro, telecommunications and/or gas infrastructure are required by Bylaw No. 4293, the applicant shall construct the works consistent with the regulations, standards and specifications set out in this schedule.

The location of the utility within the road right-of-way shall be as per the applicable road cross-section. See Specification Drawings RD-1 through RD-16.

#### **9.2 B.C. Hydro**

B.C. Hydro servicing shall be designed to B.C Hydro Specifications.

B.C. Hydro drawings shall have received City approval prior to the commencement of construction.

Prior to commencement of work near energized overhead hydro as defined in WCB regulation – Part 19, the contractor shall complete a WorkSafe BC Form 30M33.

#### **9.3 Telecommunications**

Telecommunication servicing shall be designed in accordance with the material specifications of the applicable telecommunication operator and shall be compatible with all other underground utilities.

Telecommunication drawings shall have received City approval prior to the commencement of construction.

#### **9.4 Gas Distribution System**

Gas distribution system shall be designed in accordance with the material specifications of the applicable Gas distribution operator and shall be compatible with all other underground utilities.

Gas distribution system drawings shall have received city approval prior to the commencement of construction.

### **B. MATERIALS**

Hydro, Telecommunications and Gas materials shall be supplied in accordance with the applicable utility provider's standards.

### **C. INSTALLATION**

Hydro, Telecommunications and Gas installation shall be in accordance with the applicable utility provider's standards.

### **D. TESTING**

Hydro, Telecommunications and Gas testing shall be in accordance with the applicable utility provider's standards.



## **10.0 LANDSCAPING**

### **A. DESIGN CRITERIA**

#### **10.1 General**

Where provisions of the Subdivision and Development Servicing Bylaw No. 4293 require the construction of an irrigation system or vegetative planting, the applicant shall construct the works consistent with the regulations, standards and specifications set out in this schedule.

#### **10.2 Approval Drawings**

Engineering drawings showing the detailed design of the landscaping shall be submitted to the City Engineering Department for approval prior to commencement of construction. These drawings shall show basic road and lot network, location of all shallow utilities and above ground appurtenances (manhole lids, IC chambers, hydrants, transformers, street lights, etc.), location of the irrigation lines and appurtenances, the size, location and type of all plantings, topsoil depths, seeding locations and mixes.

The drawings shall conform to the City of Salmon Arm's Landscape Standards and Recommended Species Guide which are available from the City upon request.

#### **10.3 Boulevards**

Boulevards which are not required to be landscaped and irrigated shall be provided with a minimum of 300mm of topsoil and either hydro seeded or sodded. Alternative landscaping may be approved at the discretion of the City Engineer. Owner/ =Developer shall be responsible for proper care and maintenance of boulevard for entirety of 1 year maintenance period or until change of ownership of responsible parcel.

The minimum width for grass boulevards shall be 1.0m. Where a separated sidewalk at a distance less than 1.0m is unavoidable the area should either be additional concrete area, or decorative stone placed over a woven fabric weed barrier.

Hydroseeding and seeding within boulevards to conform to the approved materials list seed blend.

#### **10.4 Hydroseeding**

Disturbed areas that are not to be otherwise landscaped shall be hydroseeded where the slope is less than 10%. Hydroseeding in conjunction with erosion matting or other ESC controls shall be used where the slope is greater than 10%.

#### **10.5 Sodding**

Disturbed areas that are not to be otherwise landscaped shall be sodded where adjacent to existing dwellings/facilities. Sodded areas shall require

#### **10.6 Seeding**

Seeding is discouraged, but may be permitted by the City Engineer in areas that are low use and low risk for erosion.

#### **10.7 Irrigation**

Irrigation of the boulevards is required for all medium and high density residential developments and all Industrial/Commercial/Institutional developments.

Where the sidewalk is separated from the curb in residential areas, irrigation sleeves shall be installed, one per lot, and the location marked on the sidewalk by stamping the wet concrete with an arrow.

All infrastructure (i.e. sprinkler heads) to be installed a minimum of 5mm below the finished sidewalk grade, or in another manner to minimize damage during snow clearing procedures.

All irrigation services to have appropriate backflow prevention in accordance with the City's current Cross Connection Control Bylaw.

#### **10.8 Street Trees**

Street trees shall be installed as required by the City Centre Road Standard. Refer to Specification Drawings RD-5, TRE-1 and TRE-2.

Sufficient un-compacted soil space must be available to accommodate root growth or a soil cells must be provided with sufficient structural capacity to support surrounding infrastructure. Sufficient un-compacted soil space shall be 30 m<sup>3</sup> and minimum 2.5m in each dimension for a single tree or 15 m<sup>3</sup> and minimum 2.0m in each dimension per tree for multiple plantings.

Root barriers shall be installed to the depth of the adjacent City infrastructure.

City shall provide list of approved plantings upon request.

#### **10.9 Unit Paving**

Unit paving shall be provided to the City Centre Standard. Refer to Specification Drawings RD-5, CGS-13, and CGS-14

**B. MATERIALS**

Landscaping materials shall be supplied in accordance with Schedule D – Approved Materials List.

**C. INSTALLATION**

Landscaping installation shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended, current BCLNA guidelines, and Schedule B – Part 3.

**D. TESTING**

Landscaping testing shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

## **11.0 HILLSIDE DEVELOPMENT**

### **A. DESIGN CRITERIA**

#### **11.1 General**

Where developments are located within the Hillside Development Area as shown in Schedule A, Map 1 of the Subdivision and Development Servicing Bylaw No. 4293, the design criteria from Schedule B, Sections 1 through 10 shall apply except where amended below.

#### **11.2 Roads**

##### **11.2.1 Single Lane Roadways**

Use of single lane roadways (one-way traffic) may be permitted within an adequate road network where topography warrants. Single lane roadways are intended for single loaded roads and with under 25 units. Exceptions may be granted with approval by the City Engineer. Parking is to be restricted to the right side of the roadway only.

##### **11.2.2 Lanes**

Lanes may be considered where topographic limitations exist. Lanes are intended for single loaded roads and with under 10 units. Exceptions may be granted with approval by the City Engineer.

Lanes within new subdivisions shall conform to Specification Drawing no. RD-12b

##### **11.2.3 Rights-of-ways**

Right of ways may be a minimum of 18.0m for two-lane roadways and 10.0m for one-lane roadways where approved by the City Engineer.

##### **11.2.4 Sidewalks**

Sidewalk locations adjacent to a roadway may meander within the right-of-way where topography warrants and/or be outside of the roadway right-of-way and protected by statutory right-of-way.

##### **11.2.5 Boulevards**

Boulevards may be graded at a slope recommended by a geotechnical engineer. A minimum of 0.5m (low side) or 2.0m (high side) buffer at 2.0% slope towards the roadway must be maintained around all infrastructure or as needed to allow access to and properly support infrastructure.

The hydraulic capacity of the roadway shall be confirmed where part of the overland flow network.

Provisions for snow storage shall be made as required where adequate boulevard space is not provided.

#### 11.2.6 Turn-around

Hammer head turn-around (RD-13) will be permitted where topography prevents installation of full turn around (RD-11).

### 11.3 **Access**

Driveways on the low side must have a high point a minimum of 0.10m above the adjacent gutter line or as necessary to maintain the hydraulic capacity of the roadway without overflow onto private property.

Driveways shall conform to City of Salmon Arm Policy 3.11 and shall ensure the first 3.5m of the driveway has a grade of no greater than 7.0%.

Shared driveways and private lanes may be permitted where topography warrants, with the following provisions:

- Dead-end lanes shall service no more than six (6) lots and include turn-around provisions.
- Through lanes and shared driveways shall service no more than 15 lots.
- Minimum paved travel lane width shall be 4.0m with widening as necessary to permit safe vehicle movements.
- Land design must allow for access by emergency, garbage collection and moving vehicles at a design speed of 20km/hour.
- No parking shall be allowed on laneways. Guest parking must be accounted for in onsite design.
- For shared driveways, an appropriately sized and located area will be required for common garbage and recycling pick-up from the road.

### **B. MATERIALS**

Hillside Development materials shall be supplied in accordance with Schedule D – Approved Materials List.

### **C. CONSTRUCTION**

Hillside Development construction shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.

### **D. TESTING**

Hillside Development testing shall be in accordance with Master Municipal Construction Documents (MMCD) Platinum Edition Volume 2 (The MMCD Association, 2009) as amended and Schedule B – Part 3.



# **Subdivision and Development Servicing Bylaw No. 4293**

## **Schedule “B” – Part 2**



# **CITY OF SALMON ARM**

## **SPECIFICATION DRAWINGS**

## Subdivision and Development Servicing Bylaw No. 4293

### Schedule “B”, Part 2 – Standard Drawings

Master Municipal Construction Documents (MMCD) Platinum Edition Volume II (The MMCD Association, 2009) Standard Detail Drawings apply except where removed, replaced or supplemented as indicated below.

Table 2.1 – Standard Drawing Reference

| Dwg.                                      | MMCD Drawing Description                               |         | Dwg.   | CoSA Drawing Description                |
|-------------------------------------------|--------------------------------------------------------|---------|--------|-----------------------------------------|
| <b>Concrete and Miscellaneous Details</b> |                                                        |         |        |                                         |
| C0                                        | Index                                                  |         |        |                                         |
| C1                                        | Concrete Sidewalk, Infill and Barrier Curb             | Remove  |        |                                         |
| C2                                        | Concrete Sidewalk and Barrier Curb                     | Replace | CGS-4a | Separated Standard Sidewalk             |
| C3                                        | Concrete Sidewalk and Rollover Curb                    | Replace | CGS-4B | Standard Sidewalk                       |
| C4                                        | Concrete Curbs – Narrow Base                           | Replace | CGS-1  | Standard High-Back Curb & Gutter        |
| C5                                        | Concrete Curbs – Wide Base                             | Remove  |        |                                         |
| C6                                        | Concrete Median Curb and Interim Curbs                 |         | CGS-3  | Island or Median Curb                   |
| C7                                        | Driveway Crossing for Barrier Curbs                    |         | CGS-5  | Sidewalk Crossing at Driveway Entrance  |
| C8                                        | Wheelchair Ramp for Sidewalk, Infill and Barrier Curbs | Remove  |        |                                         |
| C9                                        | Wheelchair Ramp for Sidewalk, and Barrier Curbs        | Replace | CGS-6  | Wheelchair Sidewalk Ramp                |
| C10                                       | Concrete Walkway                                       | Replace | CGS-7  | Standard Walkway                        |
| C11                                       | Bicycle Baffle                                         |         |        |                                         |
| C12                                       | Removable Restriction Post                             |         |        |                                         |
| C13                                       | Chain Link Fence for Walkway                           | Replace | RS-3   | Chain Link Fence for Walkway            |
| C14                                       | Handrail on Concrete Retaining Wall                    |         |        |                                         |
|                                           |                                                        | Add     | CGS-2  | Roll-Over Curb & Gutter                 |
|                                           |                                                        | Add     | CGS-8  | Trail Type 1                            |
|                                           |                                                        | Add     | CGS-9  | Trail Type 2                            |
|                                           |                                                        | Add     | CGS-10 | Trail Type 3                            |
|                                           |                                                        | Add     | CGS-11 | Trail Type 4                            |
|                                           |                                                        | Add     | CGS-12 | Trail Type 5                            |
|                                           |                                                        | Add     | CGS-13 | Towncentre Intersection Pedestrian Bulb |
|                                           |                                                        | Add     | CGS-14 | Typical Paver Detail                    |
|                                           |                                                        | Add     | RS-1   | Reinforced Concrete Stairs              |

# Subdivision and Development Servicing Bylaw No. 4293

## Schedule “B”, Part 2 – Standard Drawings

| Dwg.                   | MMCD Drawing Description                            |         | Dwg.   | CoSA Drawing Description                                             |
|------------------------|-----------------------------------------------------|---------|--------|----------------------------------------------------------------------|
|                        |                                                     | Add     | RS-2   | Sidewalk Railing                                                     |
| <b>Concrete Base</b>   |                                                     |         |        |                                                                      |
|                        | CE1.1 – CE1.20                                      |         |        |                                                                      |
|                        |                                                     | Add     | SP-1   | Typical Sign Post Base                                               |
|                        |                                                     | Add     | SL-2   | 9.00m Davit Concrete Pedestal                                        |
|                        |                                                     | Add     | SL-5   | 5.00m Post Top Concrete Pedestal                                     |
| <b>Electrical</b>      |                                                     |         |        |                                                                      |
|                        | E0.1 – E10.11                                       |         |        |                                                                      |
| E4.1                   | Luminaire Pole (Type 2 Shaft)                       | Replace | SL-1   | 9.00m Davit Street Lights                                            |
| E4.2                   | Luminaire Pole (Type 2 Shaft)                       |         |        |                                                                      |
| E4.19                  | Post Top Luminaire Poles                            | Replace | SL-3   | Post Top Street Light                                                |
| E4.20                  | Post Top Luminaire Poles                            |         |        |                                                                      |
| E4.21                  | Service Base                                        |         |        |                                                                      |
| E4.22                  | Pole Accessories                                    | Remove  |        |                                                                      |
|                        |                                                     | Add     | SL-3-I | Post Top Street Light with Irrigation & Electrical Outlet            |
|                        |                                                     | Add     | SL-4   | Post Top Street Light/Power Base                                     |
|                        |                                                     | Add     | SL-4-I | Post Top Street Light/Power Base with Irrigation & Electrical Outlet |
|                        |                                                     | Add     | SL-6   | Bracket for Hanging Baskets                                          |
| <b>General Details</b> |                                                     |         |        |                                                                      |
| G0                     | Index                                               |         |        |                                                                      |
| G1                     | General Legend for Contract Drawings                | Replace | DD-LG  | ANSI ‘D’ Size Legend                                                 |
| G2                     | Legend for Materials                                |         |        |                                                                      |
| G3                     | Legend for Street Light and Traffic Signal Drawings |         |        |                                                                      |
| G4                     | Utility Trench                                      | Replace | UT-1   | Typical Utility Trench in Roadway                                    |
|                        |                                                     |         | UT-2   | Typical Utility Trench in Boulevard                                  |
| G5                     | Pavement Restoration                                |         |        |                                                                      |
| G6                     | Concrete Encasement for Water Main/Sewer Separation |         |        |                                                                      |
| G7                     | Concrete Protection for Underground Utilities       |         |        |                                                                      |

# Subdivision and Development Servicing Bylaw No. 4293

## Schedule “B”, Part 2 – Standard Drawings

| Dwg.             | MMCD Drawing Description |         | Dwg.   | CoSA Drawing Description                                                               |
|------------------|--------------------------|---------|--------|----------------------------------------------------------------------------------------|
| G8               | Pipe Anchor Blocks       | Replace | UT-3   | Anchor Blocks                                                                          |
|                  |                          | Add     | DD-PL  | ANSI ‘D’ Size Plan Sheet                                                               |
|                  |                          | Add     | DD-PP  | ANSI ‘D’ Size Plan/Profile Sheet                                                       |
|                  |                          | Add     | SC-1   | Utility Service Card                                                                   |
|                  |                          | Add     | UT-4   | Utility Main Relocation Details                                                        |
|                  |                          | Add     | UT-5   | Trench Dam Detail                                                                      |
|                  |                          | Add     | SER-1  | Typical Lot Servicing                                                                  |
| <b>Roadworks</b> |                          |         |        |                                                                                        |
| R0               | Index                    |         |        |                                                                                        |
| R1               | Paved Shoulders          |         |        |                                                                                        |
|                  |                          | Add     | RD-1   | 18m R/W Urban Local Road Cross-Section                                                 |
|                  |                          |         | RD-2   | 20m R/W Urban Local Road Cross-Section                                                 |
|                  |                          |         | RD-3   | 20m R/W Urban Collector Cross-Section                                                  |
|                  |                          |         | RD-4   | 25m R/W Arterial Collector Cross-Section                                               |
|                  |                          |         | RD-5   | Town Centre Development Area Road Cross-Section                                        |
|                  |                          |         | RD-6A  | Industrial Area Road Cross-Section                                                     |
|                  |                          |         | RD-6B  | New Industrial Park Cross-Section                                                      |
|                  |                          |         | RD-7   | 20m R/W Rural Local Road Cross-Section                                                 |
|                  |                          |         | RD-8   | 20m R/W Rural Collector Road Cross-Section                                             |
|                  |                          |         | RD-9   | 25m R/W Rural Arterial Road Cross-Section                                              |
|                  |                          |         | RD-10  | 18m R/W Urban Cul-de-Sac                                                               |
|                  |                          |         | RD-11  | 20m R/W Urban Cul-de-Sac                                                               |
|                  |                          |         | RD-11A | 20m R/W Temporary Cul-de-Sac                                                           |
|                  |                          |         | RD-11B | 10m R/W Temporary Cul-de-Sac                                                           |
|                  |                          |         | RD-12A | 7.3m R/W Lane                                                                          |
|                  |                          |         | RD-12B | 10.0m R/W Lane Cross-Section                                                           |
|                  |                          |         | RD-13  | Lane-‘T’ Turn Around                                                                   |
|                  |                          |         | RD-14  | Canoe Beach Drive 20M R/W Road Cross Section (50 <sup>th</sup> Street NE to Park Hill) |
|                  |                          |         | RD-15  | 18m R/W Urban Local Road Cross-Section (Hillside Development)                          |

# Subdivision and Development Servicing Bylaw No. 4293

## Schedule “B”, Part 2 – Standard Drawings

| Dwg.                            | MMCD Drawing Description                                    |         | Dwg.          | CoSA Drawing Description                                                  |
|---------------------------------|-------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------|
|                                 |                                                             |         | RD-16         | 12m R/W Urban Single Lane Local Road Cross-Section (Hillside Development) |
| <b>Storm and Sanitary Sewer</b> |                                                             |         |               |                                                                           |
| S0                              | Index                                                       |         |               |                                                                           |
| S1                              | Standard and Sump Manholes                                  | Replace | SAN-1         | Typical 1050mm Sanitary Manhole                                           |
|                                 |                                                             |         | ST-2          | Typical 1050mm Storm Manhole                                              |
| S2                              | Standard Manhole Connection Details                         | Remove  |               |                                                                           |
| S3                              | Manhole Connection Details – Drop and Ramp Type             | Replace | SAN-3         | Typical 1050mm Sanitary Drop Manhole                                      |
| S4                              | Inside Drop Manhole                                         | Remove  |               |                                                                           |
| S5                              | Precast Riser Manhole                                       |         |               |                                                                           |
| S6                              | Sewer Clean-out                                             |         |               |                                                                           |
| S7                              | Sanitary Sewer Service Connection                           | Replace | SAN-4         | Typical 100mm Sanitary Service Connection                                 |
| S8                              | Storm Sewer Service Connection                              | Replace | ST-4          | Typical 150mm Storm Service Connection                                    |
| S9                              | Inspection Chamber for 100 to 200 Sanitary Sewer Connection | Replace | SAN-6         | Inspection Chamber for Sanitary Connection                                |
| S10                             | Inspection Chamber for 250 to 375 Storm Sewer Connection    | Replace | ST-6          | Inspection Chamber for Storm Connection                                   |
| S11                             | Top Inlet Catchbasin                                        | Replace | ST-1A & ST-1B | Precast Reinforced Concrete Catchbasin                                    |
| S12                             | Lawn Drains                                                 |         |               |                                                                           |
| S13                             | Storm Sewer Inlet with Safety Grillage                      | Replace | ST-8          | Typical Cast in Place Inlet Structure (250 to 600mm dia. Storm Pipe)      |
| S14                             | Concrete Block Endwall                                      | Replace | ST-9          | Concrete Block Inlet/Outlet Structure (250 to 600mm dia. Storm Pipe)      |
| S15                             | Driveway Culvert with Concrete Block Endwalls               |         |               |                                                                           |
|                                 |                                                             | Add     | SAN-2         | H-20 Manhole Frame & Cover (Sanitary)                                     |
|                                 |                                                             | Add     | ST-3          | H-20 Manhole Frame & Cover (Storm)                                        |
|                                 |                                                             | Add     | SAN-7         | Air Release Valve – Forcemain                                             |
|                                 |                                                             | Add     | SAN-8         | Sanitary Dump Station                                                     |
|                                 |                                                             | Add     | ST-5          | Manhole Requirements for Storm Sewer Services                             |



## Subdivision and Development Servicing Bylaw No. 4293

### Schedule “B”, Part 2 – Standard Drawings

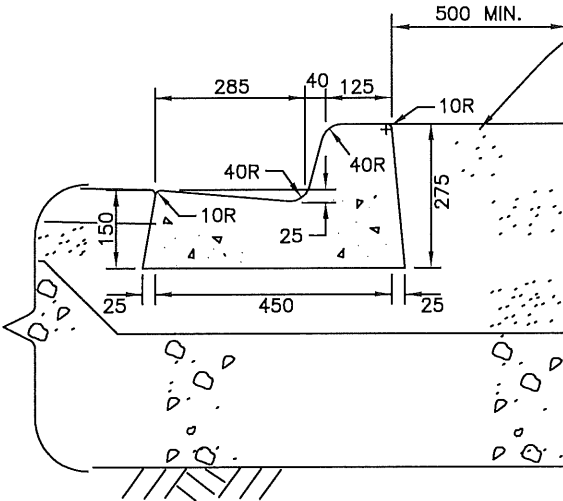
| Dwg.                       | MMCD Drawing Description                                  |         | Dwg.  | CoSA Drawing Description                                          |
|----------------------------|-----------------------------------------------------------|---------|-------|-------------------------------------------------------------------|
|                            |                                                           | Add     | ST-7  | Rainfall Intensity-Duration Data                                  |
|                            |                                                           | Add     | ST-10 | Typical Concrete Outlet Structure (250 to 1050mm dia. Storm Pipe) |
|                            |                                                           | Add     | ST-11 | Safety Grillage for Inlet/Outlet Structure                        |
|                            |                                                           | Add     | ST-12 | Twin Inlet Catch Basin Frame                                      |
|                            |                                                           | Add     | ST-13 | Typical Drainage Drywell                                          |
|                            |                                                           | Add     | ST-14 | Typical Catch Basin Drywell                                       |
|                            |                                                           | Add     | ST-15 | Storm Sewer Design Sheet                                          |
|                            |                                                           | Add     | SAN-9 | Sanitary Sewer Design Sheet                                       |
|                            |                                                           | Add     | ST-16 | Typical 1050mm Storm Drop Manhole                                 |
| <b>Waterworks</b>          |                                                           |         |       |                                                                   |
| W0                         | Index                                                     |         |       |                                                                   |
| W1                         | Typical Thrust Block Arrangements                         | Replace | W-1   | Thrust Block Details                                              |
| W2a                        | Water Service Connection – Service Box                    | Replace | W-2   | Typical 25mm Water Service Connection                             |
| W2b                        | Water Service Connection – Valve Box                      |         |       |                                                                   |
| W2c                        | Meter Installation – For 19mm and 25mm services           | Replace | W-10  | Residential Water Meter                                           |
| W2d                        | Meter Installation – For 38mm and 50mm Service Connection | Replace | W-11  | Commercial Water Meter                                            |
| W3                         | Gate Valve Installation                                   | Replace | W-5   | Standard Valve Box                                                |
| W4                         | Fire Hydrant Installation                                 | Replace | W-3   | Fire Hydrant Assembly                                             |
| W5                         | Test Point Installation                                   |         |       |                                                                   |
| W6                         | Air Valve Assemblies – 25mm and 50mm Valves               | Replace | W-6   | Air Release Valve (100 to 500mm dia. watermain)                   |
| W7                         | Air Valve Assembly - 100mm Valve                          | Replace | W-7   | Air Release Valve (600 to 1200mm dia. watermain)                  |
| W8                         | Blow-Off-For Watermain                                    | Replace | W-4   | Typical Blow-off Assembly                                         |
| W9                         | Blow-Down Chamber                                         |         |       |                                                                   |
| W10                        | Waterworks Chamber Drain                                  |         |       |                                                                   |
|                            |                                                           | Add     | W-8   | H-20 Manhole Frame & Cover                                        |
|                            |                                                           | Add     | W-9   | Fire Service Water Vault/Meter Detail                             |
|                            |                                                           | Add     | W-12  | Pit Setter                                                        |
| <b>Cathodic Protection</b> |                                                           |         |       |                                                                   |

# Subdivision and Development Servicing Bylaw No. 4293

## Schedule “B”, Part 2 – Standard Drawings

| Dwg.             | MMCD Drawing Description                                     |     | Dwg.  | CoSA Drawing Description                            |
|------------------|--------------------------------------------------------------|-----|-------|-----------------------------------------------------|
| W100             | Index                                                        |     |       |                                                     |
| W104             | Ground Level Test Station Details                            |     |       |                                                     |
| W105             | Big Fink Test Station Terminal                               |     |       |                                                     |
| W106             | Joint Continuity Bond                                        |     |       |                                                     |
| W107             | Wire Fastening Detail                                        |     |       |                                                     |
| W108             | Standard Test Station                                        |     |       |                                                     |
| W109             | Isolation Test Station                                       |     |       |                                                     |
| W110             | Sacrificial Anode Station at Isolation Test Point            |     |       |                                                     |
| W111             | Standard Sacrificial Anode Station                           |     |       |                                                     |
| W112             | Sacrificial Anode Station with Lateral or Service Connection |     |       |                                                     |
| W113             | Foreign Utility Test Station                                 |     |       |                                                     |
| W114             | Impressed Current Cathodic Protection Rectifier Installation |     |       |                                                     |
| W115             | Horizontal Anode Installation                                |     |       |                                                     |
| W116             | Semi-Deep Anode Well Installation                            |     |       |                                                     |
| W119             | Fire Hydrant Installation for HDPE Pipe                      |     |       |                                                     |
| <b>Landscape</b> |                                                              |     |       |                                                     |
|                  |                                                              | Add | TRE-1 | Typical Double Tree Stakes (for trees over 2m high) |
|                  |                                                              | Add | TRE-2 | Typical Tree (with Grate, Guard and Receptacle)     |

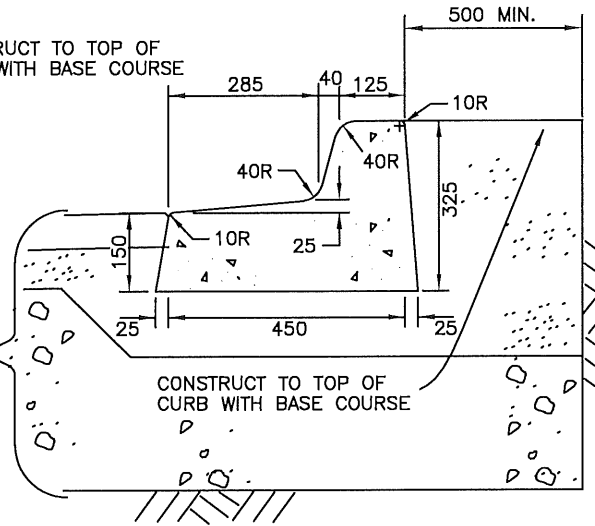
REFER TO ROAD STRUCTURE SPECIFICATIONS  
FOR ASPHALT, BASE AND SUB-BASE



HIGH-BACK CURB & GUTTER

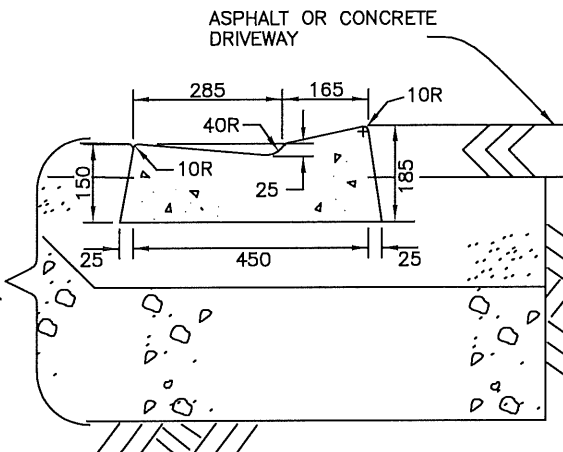
CONSTRUCT TO TOP OF  
CURB WITH BASE COURSE

REFER TO ROAD STRUCTURE SPECIFICATIONS  
FOR ASPHALT, BASE AND SUB-BASE



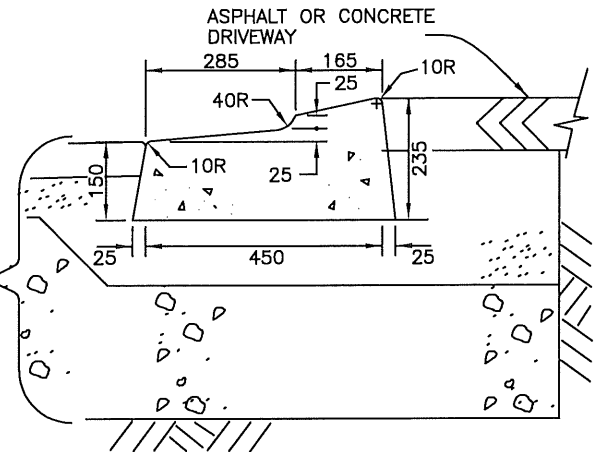
REVERSE GRADE HIGH-BACK  
CURB & GUTTER

REFER TO ROAD STRUCTURE SPECIFICATIONS  
FOR ASPHALT, BASE AND SUB-BASE



HIGH-BACK CURB & GUTTER  
AT LETDOWN CROSSING

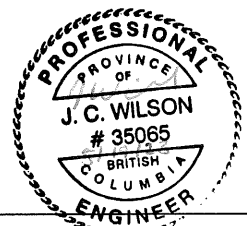
REFER TO ROAD STRUCTURE SPECIFICATIONS  
FOR ASPHALT, BASE AND SUB-BASE



REVERSE GRADE  
HIGH-BACK CURB & GUTTER  
AT LETDOWN CROSSING

NOTES:

- Control joints shall be cut & tooled into the concrete to a depth of 60% of the thickness of the concrete at intervals of 3.0m.



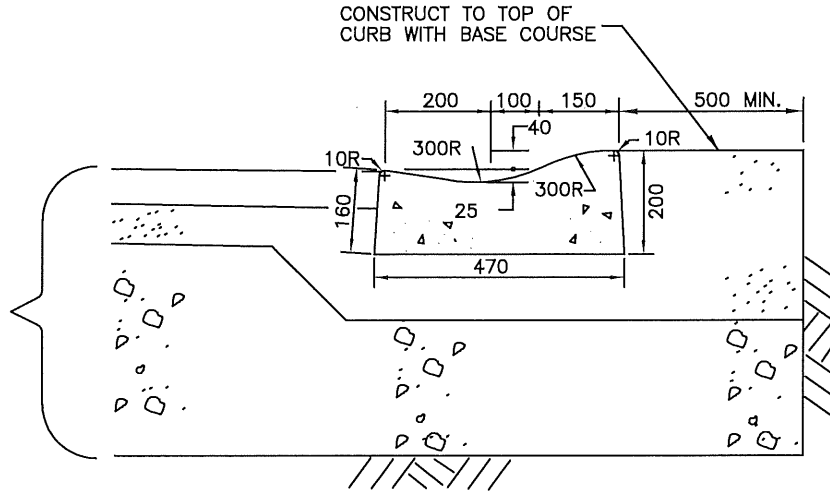
| CITY OF SALMON ARM |                     |          |
|--------------------|---------------------|----------|
| No.                | Revision            | Date     |
| A                  | ISSUED FOR APPROVAL | 07/14/16 |
|                    |                     |          |
|                    |                     |          |

Standard high-Back Curb & Gutter

| Date               | Approved            |
|--------------------|---------------------|
| 10-11-2016         | <i>J. C. Wilson</i> |
| Permit No. 1001265 | City Engineer       |

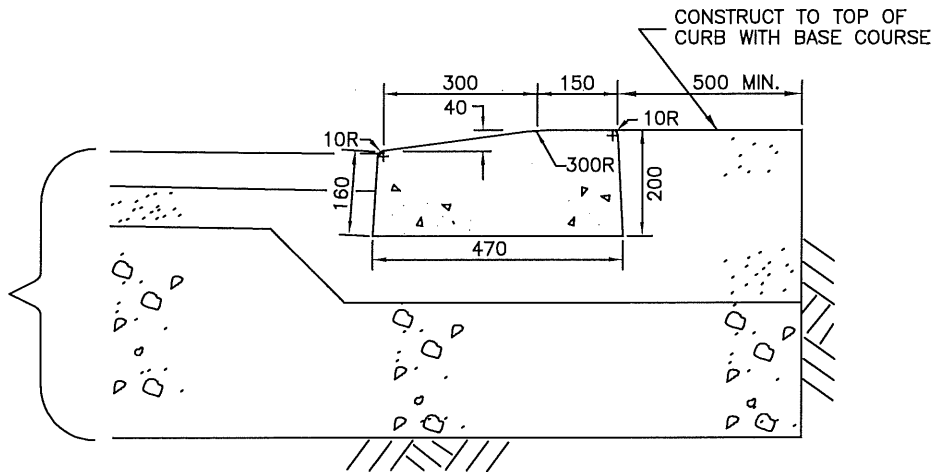
SPECIFICATION  
DRAWING No.  
CGS-1

REFER TO ROAD STRUCTURE SPECIFICATIONS  
FOR ASPHALT, BASE AND SUB-BASE



ROLL-OVER CURB & GUTTER

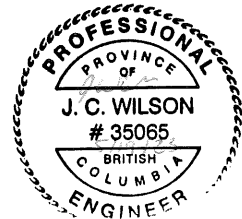
REFER TO ROAD STRUCTURE SPECIFICATIONS  
FOR ASPHALT, BASE AND SUB-BASE



REVERSE GRADE ROLL-OVER  
CURB & GUTTER

NOTES:

- Control joints shall be cut & tooled into the concrete to a depth of 60% of the thickness of the concrete at intervals of 3.0m.



CITY OF SALMON ARM

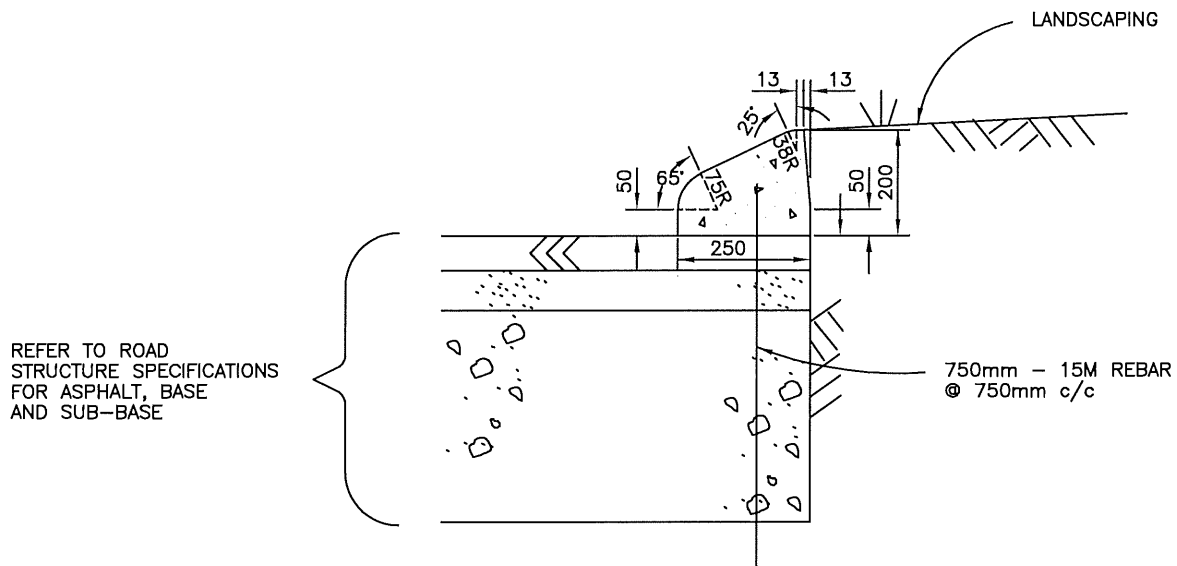
Roll-Over Curb & Gutter

| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

| Date       | Approved      |
|------------|---------------|
| 10-11-2016 |               |
|            | City Engineer |

SPECIFICATION  
DRAWING No.  
CGS-2

Adopted by Council February XX, 2023



**NOTES:**

- 1) 750mm – 19Ø Dowels every 750mm.
- 2) Control joints shall be cut & tooled into the concrete to a depth of 60% of the thickness of the concrete at intervals of 3.0m.



CITY OF SALMON ARM

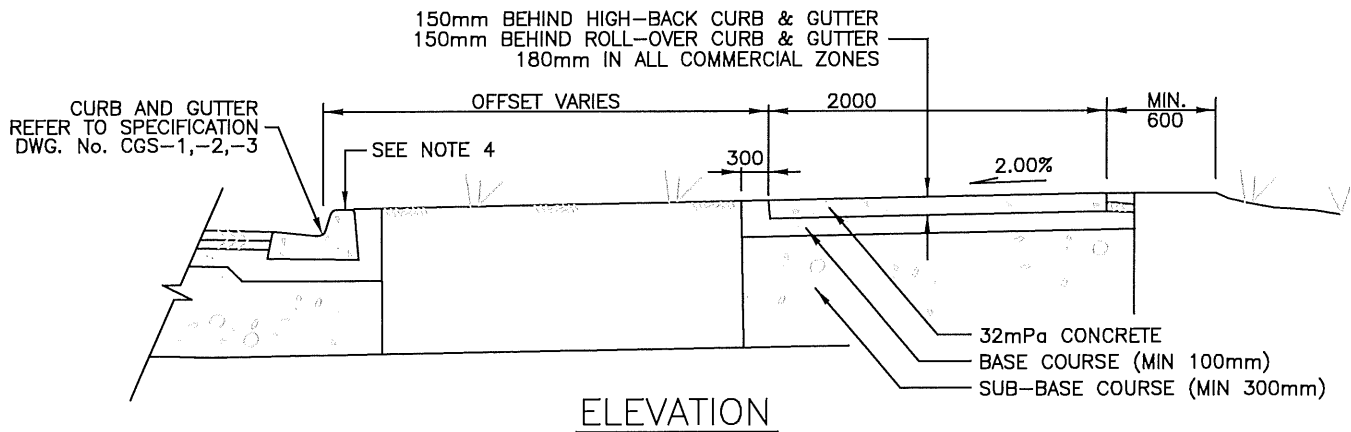
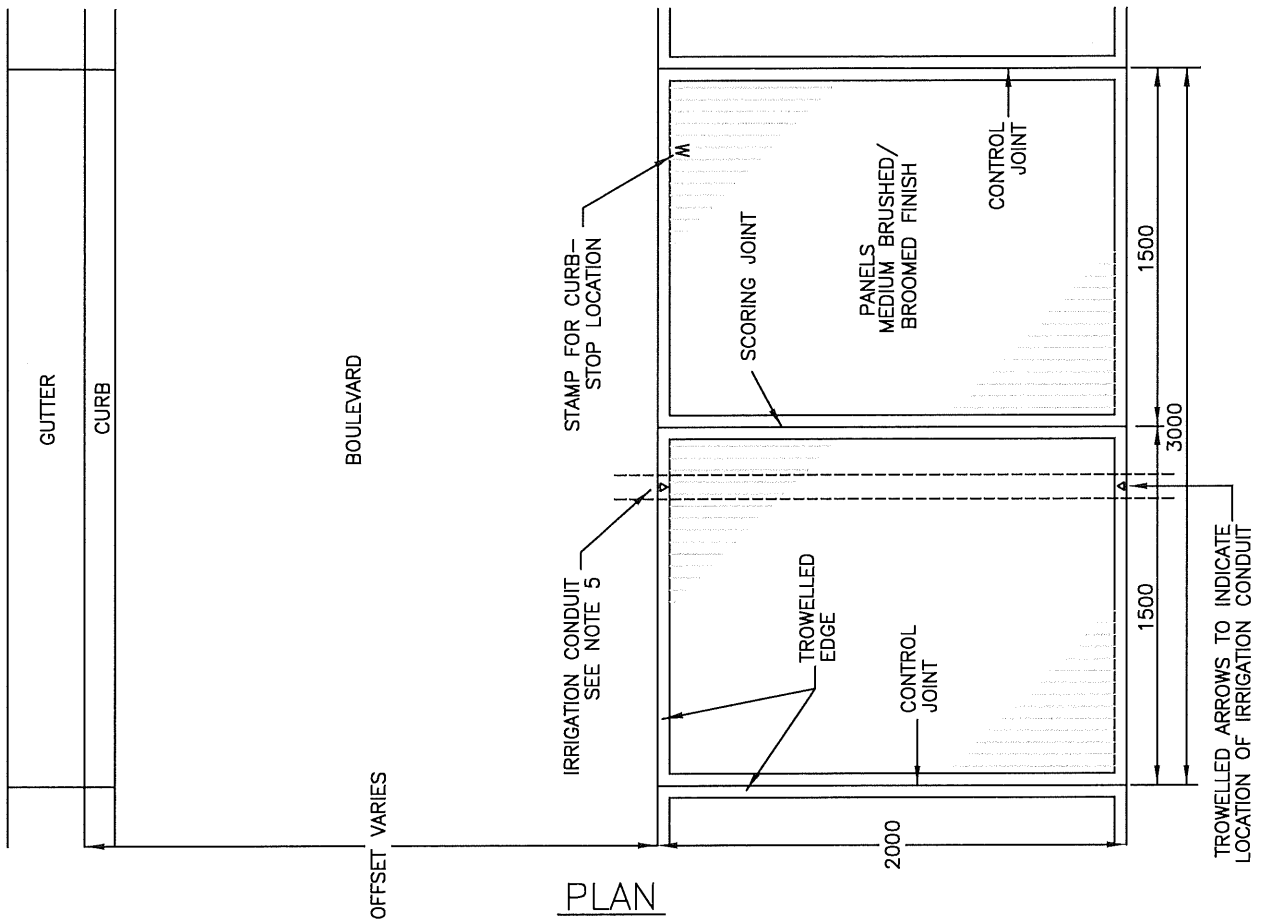
Island or Median Curb

| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

| Date       | Approved      |
|------------|---------------|
| 10-11-2016 |               |
|            | City Engineer |

SPECIFICATION  
DRAWING No.  
CGS-3

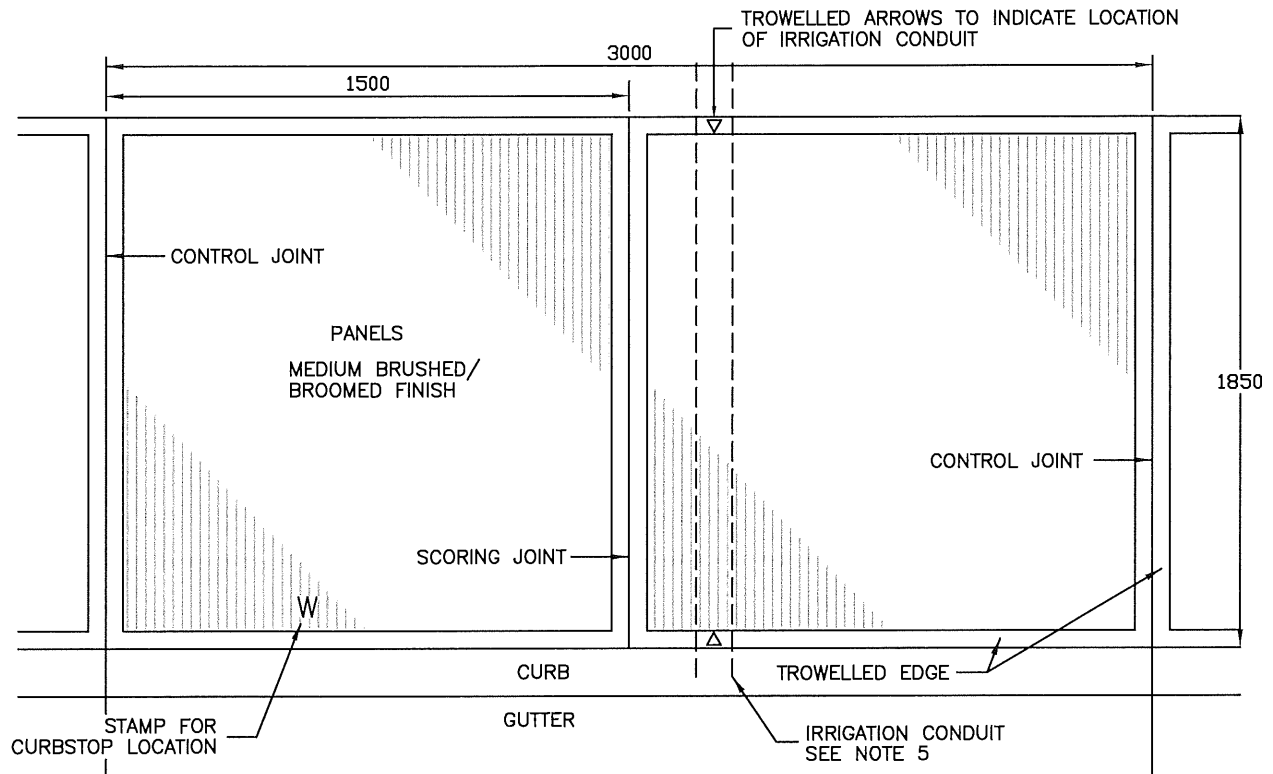




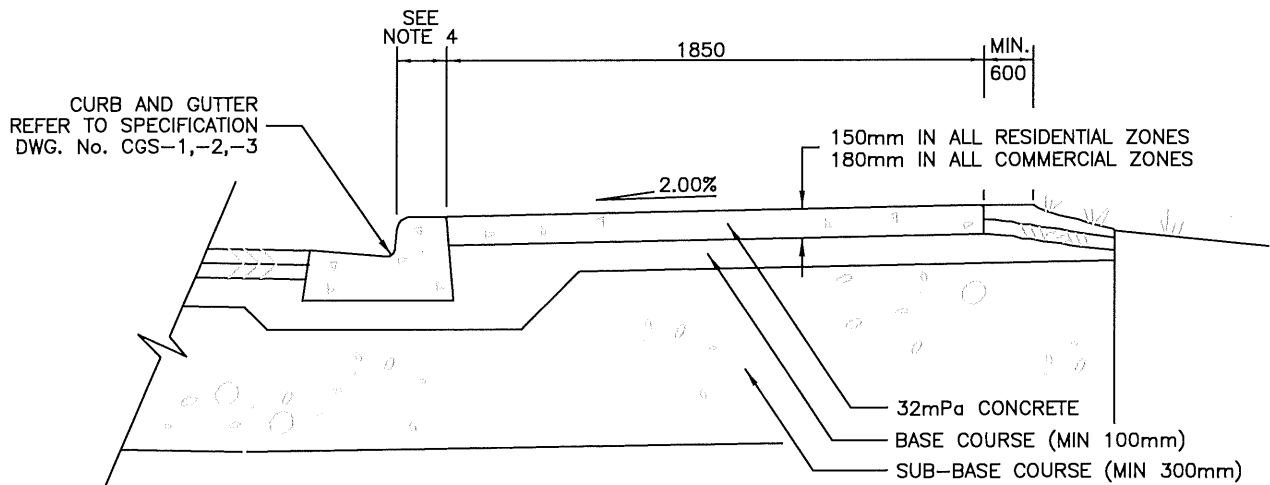
**NOTES:**

- 1) Control joints shall be cut to 60% depth of the concrete and trowelled 5mm wide, 15mm deep at 3.0m spacing.
- 2) Scoring joints shall be 5mm wide and 15mm deep.
- 3) Trowelled edges shall be 30mm wide.
- 4) Refer to CGS-5 for Driveway Crossings.
- 5) Where sidewalk is separated from roadway with boulevard.
- 6) Driveway aprons to be concrete between sidewalk & curb.

| CITY OF<br><b>SALMONARM</b> |                                       |          | STANDARD SEPARATED SIDEWALK |                   |                              |
|-----------------------------|---------------------------------------|----------|-----------------------------|-------------------|------------------------------|
| No.                         | Revision                              | Date     | Date                        | Approved          | SPECIFICATION<br>DRAWING No. |
| A                           | APPROVED                              | 10/11/16 | 01-06-2023                  | <i>Gabriel Be</i> | CGS-4A                       |
| B                           | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                             | City Engineer     |                              |



PLAN

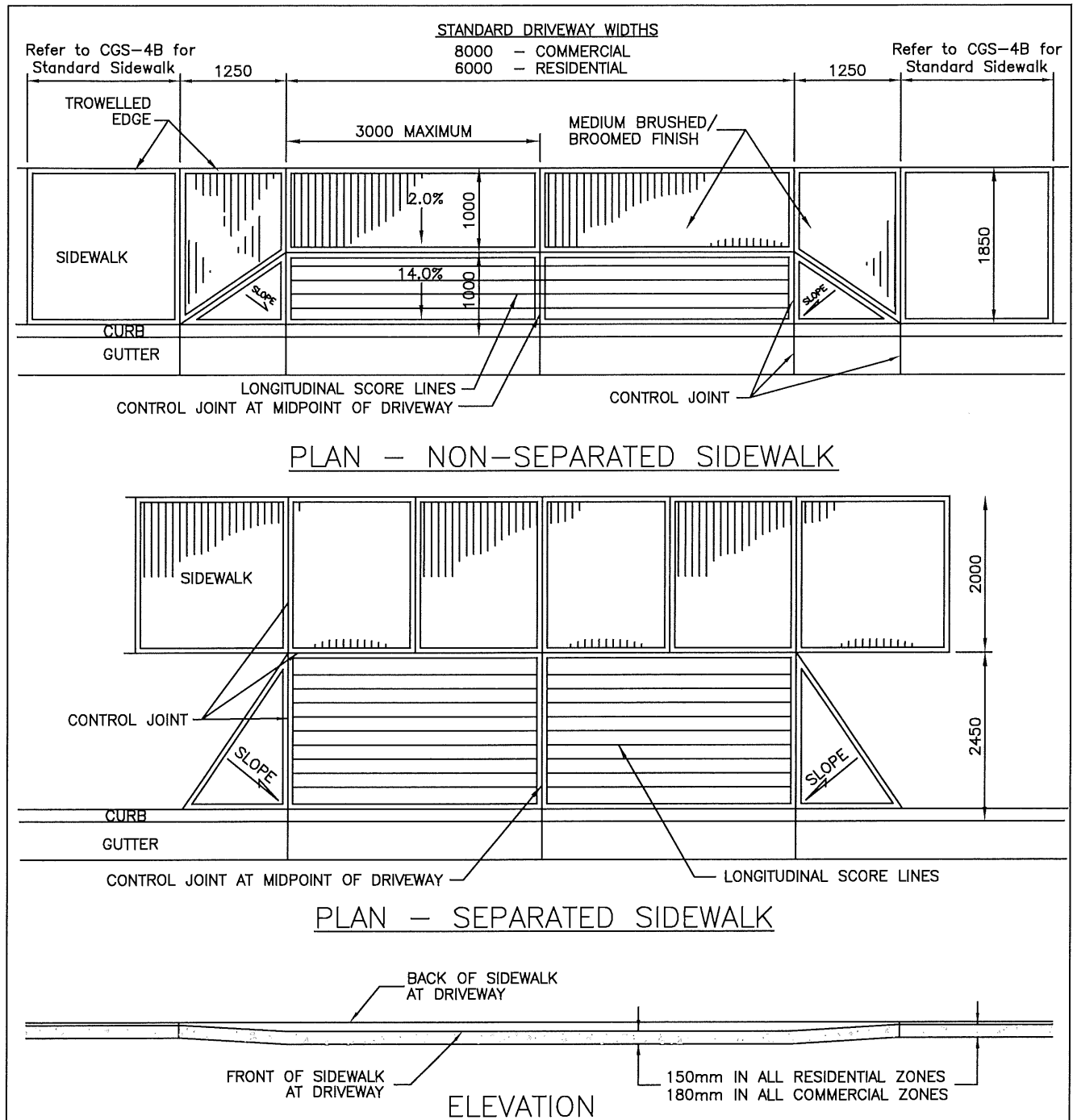


ELEVATION

**NOTES:**

- Control joints shall be cut to 60% depth of the concrete and trowelled 5mm wide, 15mm deep at 3.0m spacing.
- Scoring joints shall be 5mm wide and 15mm deep.
- Trowelled edges shall be 30mm wide.
- Refer to CGS-5 for Driveway Crossings.
- Where sidewalk is separated from roadway with boulevard.

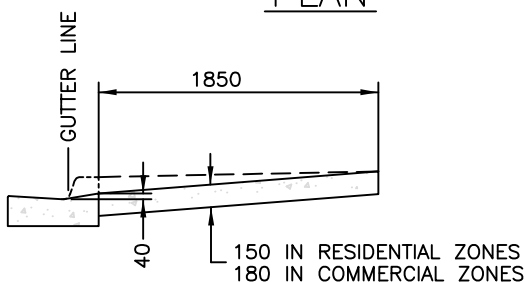
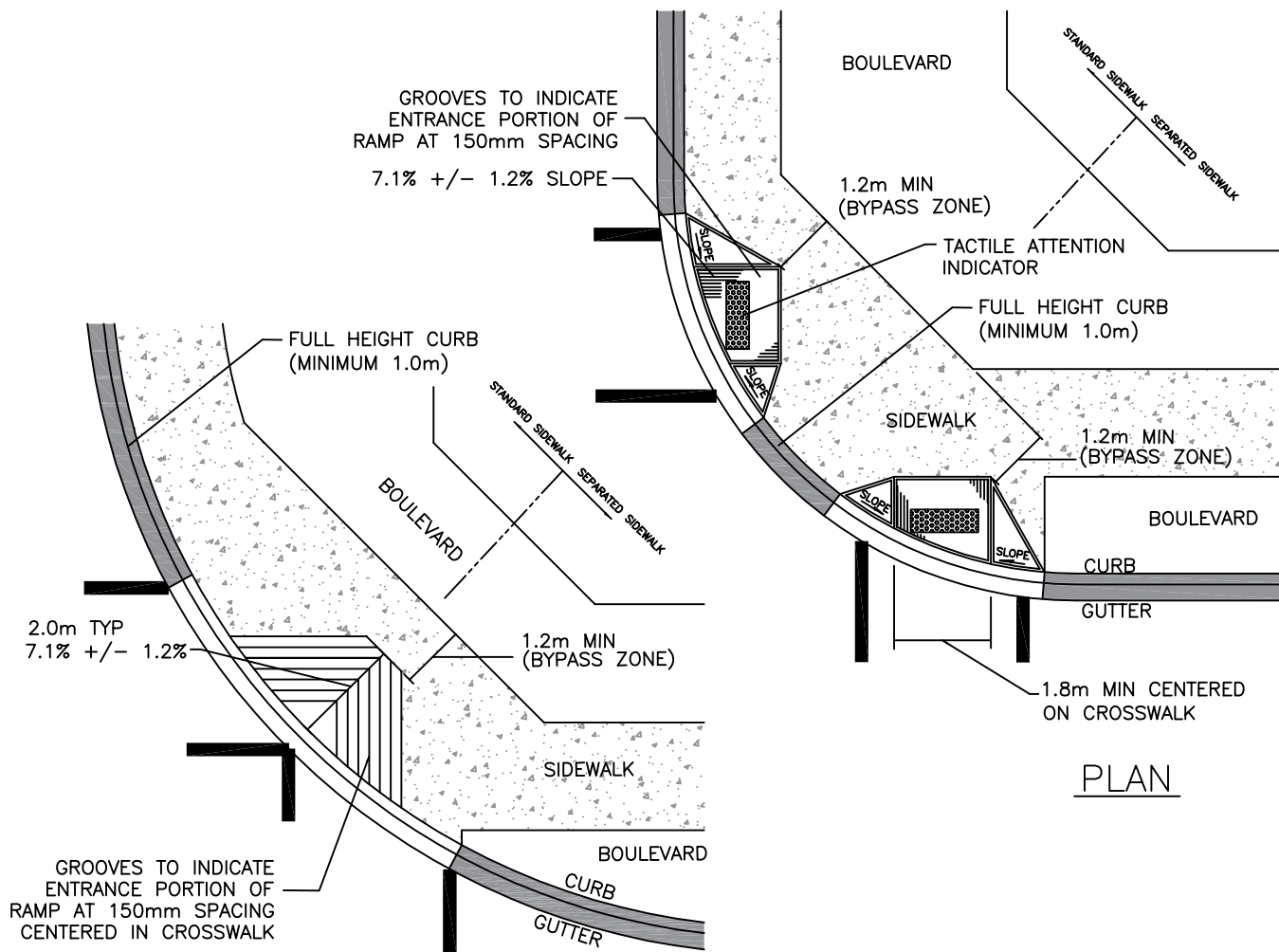
| CITY OF<br><b>SALMON ARM</b> |                                       |          | Standard Sidewalk |                   |                              |
|------------------------------|---------------------------------------|----------|-------------------|-------------------|------------------------------|
| No.                          | Revision                              | Date     | Date              | Approved          | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-23          | <i>Gabriel Bc</i> | CGS-4B                       |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                   | City Engineer     |                              |



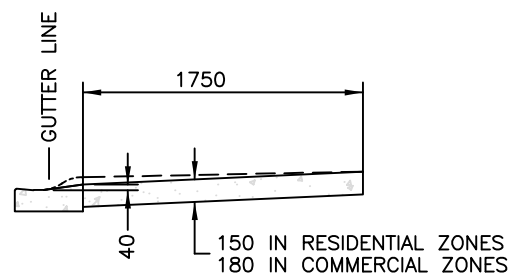
**NOTES:**

- 1) Control joints shall be cut to 60% depth of the concrete and trowelled 5mm wide, 15mm deep in 150mm driveway slab. Curb and gutter to a depth of 60% the thickness of the concrete.
- 2) Scoring joints shall be 5mm wide and 15mm deep and are required where control joints exceed 2.0m spacing.
- 3) Trowelled edges shall be 30mm wide.
- 4) Maximum Driveway widths shall be 10.0m for Commercial Driveways and 8.0m for residential driveways (maximum 50% of lot frontage). City Engineer approval is necessary for use of non-standard driveway widths.

|                               |                                       |          |                                               |                      |                              |
|-------------------------------|---------------------------------------|----------|-----------------------------------------------|----------------------|------------------------------|
| <b>CITY OF<br/>SALMON ARM</b> |                                       |          | <b>SIDEWALK CROSSING AT DRIVEWAY ENTRANCE</b> |                      |                              |
| No.                           | Revision                              | Date     | Date                                          | Approved             | SPECIFICATION<br>DRAWING No. |
| A                             | APPROVED                              | 10/11/16 | 01-06-2023                                    | <i>Gabriel Be...</i> | CGS-5                        |
| B                             | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |                                               | City Engineer        |                              |



STANDARD CURB AND GUTTER  
SECTION DETAIL

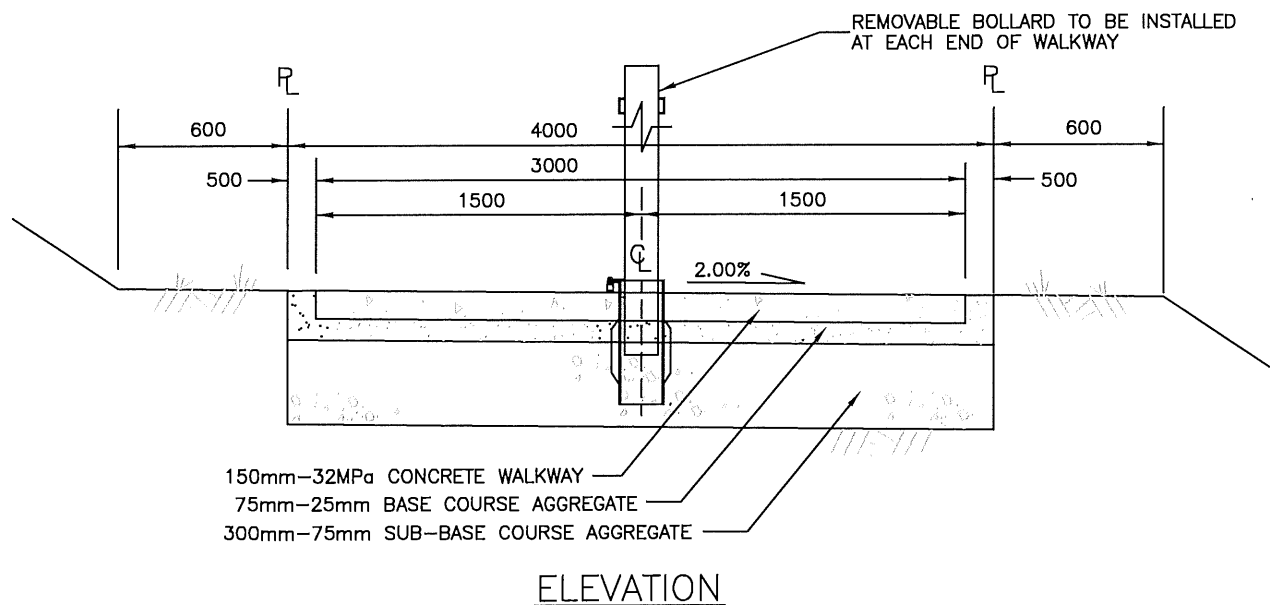
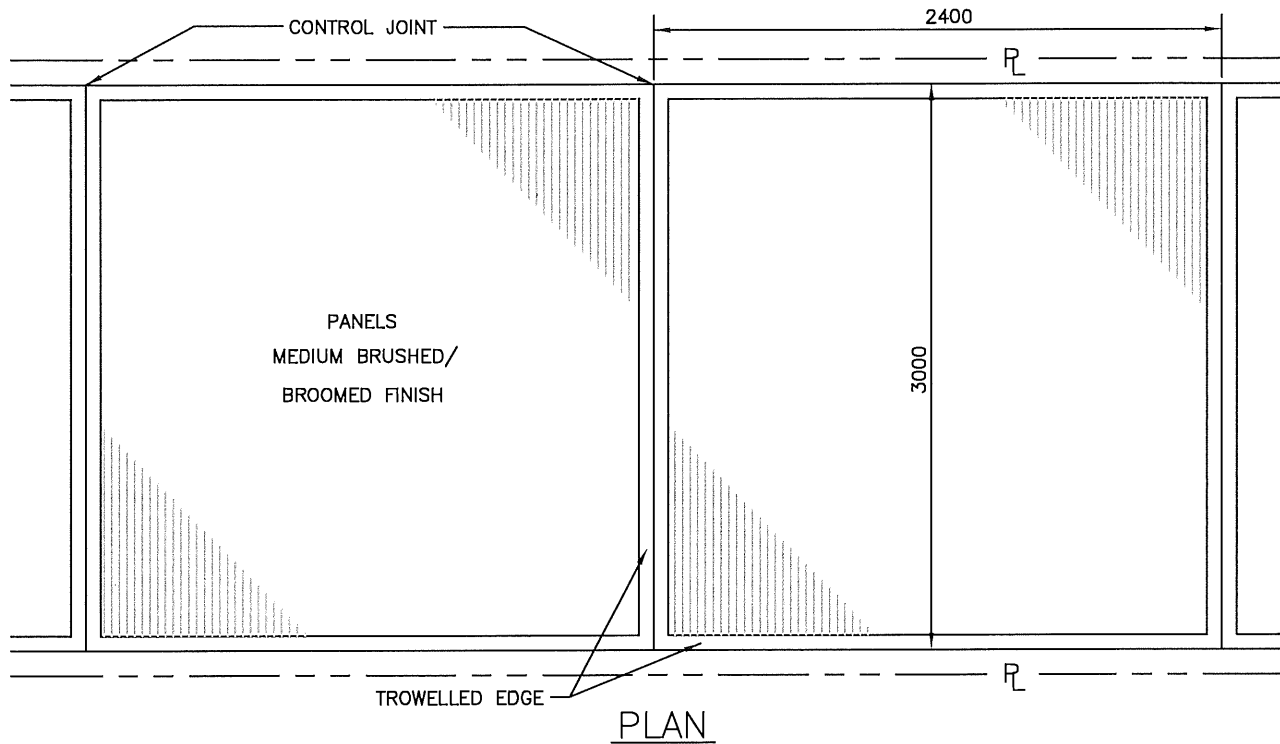


ROLL-OVER CURB AND GUTTER  
SECTION DETAIL

NOTES:

- Control joints shall be installed per the specification in Standard Drawing CGS-4A
- Tactile Attention Indicators shall be used in high traffic areas as determine by the City Engineer.
- Tactile Attention Indicators should extend the full width of the curb ramp and should start between 300 and 350 millimeters from the road face of the curb.


| CITY OF<br><b>SALMON ARM</b> |                                       |          | WHEELCHAIR SIDEWALK RAMP |                  |                              |
|------------------------------|---------------------------------------|----------|--------------------------|------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                     | Approved         | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023               | <i>Calvin Be</i> | CGS-6                        |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                          | City Engineer    |                              |



NOTES:

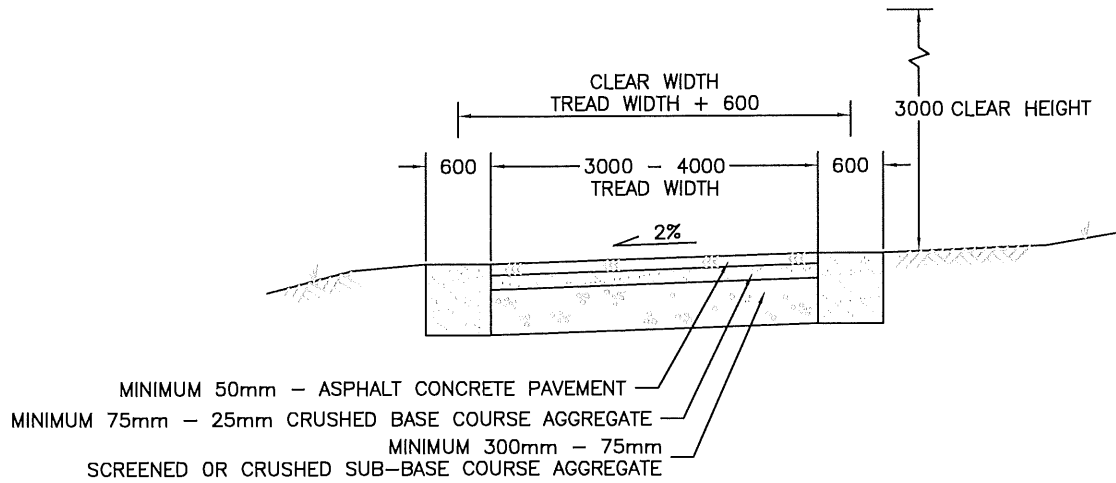
- 1) Control joints shall be cut to 60% depth of the concrete and trowelled 5mm wide, 15mm deep in 150mm driveway slab. Curb and gutter to a depth of 60% the thickness of the concrete.

- 2) Scoring joints shall be 5mm wide and 15mm deep and are required where control joints exceed 2.0m spacing.
- 3) Trowelled edges shall be 30mm wide.

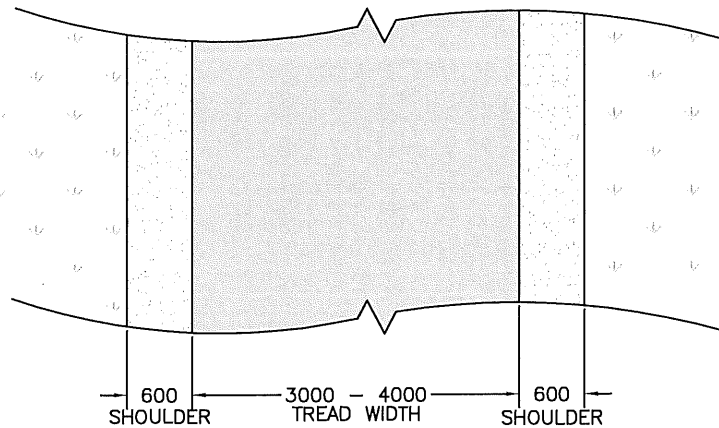
|                                     |                                       |          |                  |                                                                                      |                              |
|-------------------------------------|---------------------------------------|----------|------------------|--------------------------------------------------------------------------------------|------------------------------|
| <b>CITY OF</b><br><b>SALMON ARM</b> |                                       |          | Standard Walkway |                                                                                      |                              |
| No.                                 | Revision                              | Date     | Date             | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                                   | APPROVED                              | 10/11/16 | 01-06-23         |  | CGS-7                        |
| B                                   | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                  |                                                                                      |                              |
|                                     |                                       |          |                  | City Engineer                                                                        |                              |

Adopted by Council February XX, 2023






ELEVATION



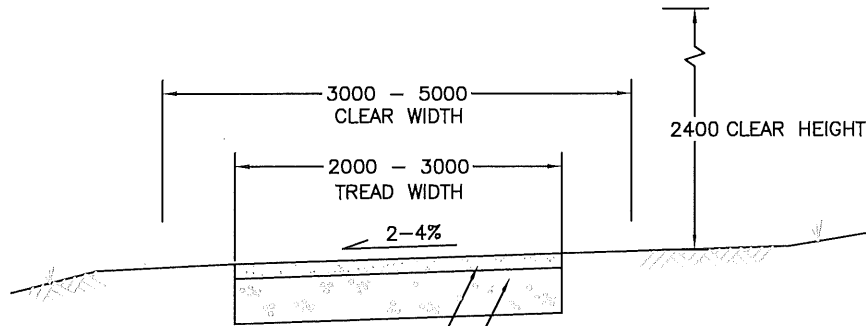
PLAN VIEW

NOTES:

- 1) Trail designed for high use
- 2) Beginner to intermediate user group
- 3) Base and tread materials shall be imported
- 4) Tread surface shall be cross-fall or crowned
- 5) ditching and culverts required for surface drainage
- 6) Base layers shall be below original ground, tread surface shall be near to original ground elevation

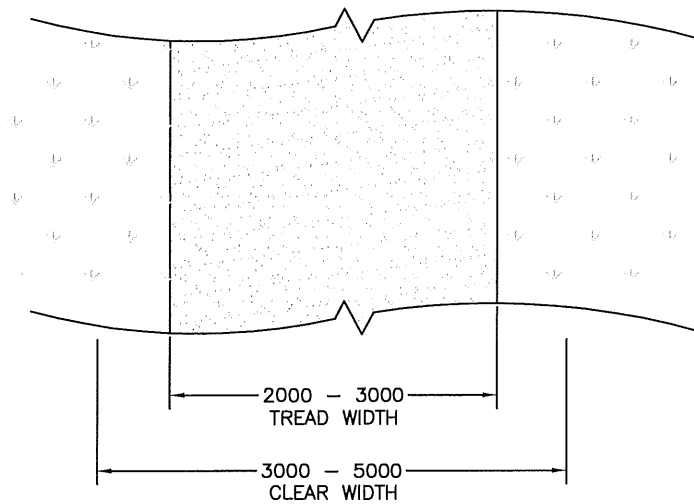
| CITY OF<br><b>SALMON ARM</b> |                                       |          | TRAIL TYPE 1 (MULTI-USE PATH) |                                                                                      |                              |
|------------------------------|---------------------------------------|----------|-------------------------------|--------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                          | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                    |  | CGS-8                        |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |                               |                                                                                      |                              |
|                              |                                       |          |                               | City Engineer                                                                        |                              |

Adopted by Council February XX, 2023



MINIMUM 75mm – 25mm BASE COURSE AGGREGATE  
MINIMUM 300mm – 75mm SUB-BASE COURSE AGGREGATE


### ELEVATIONS



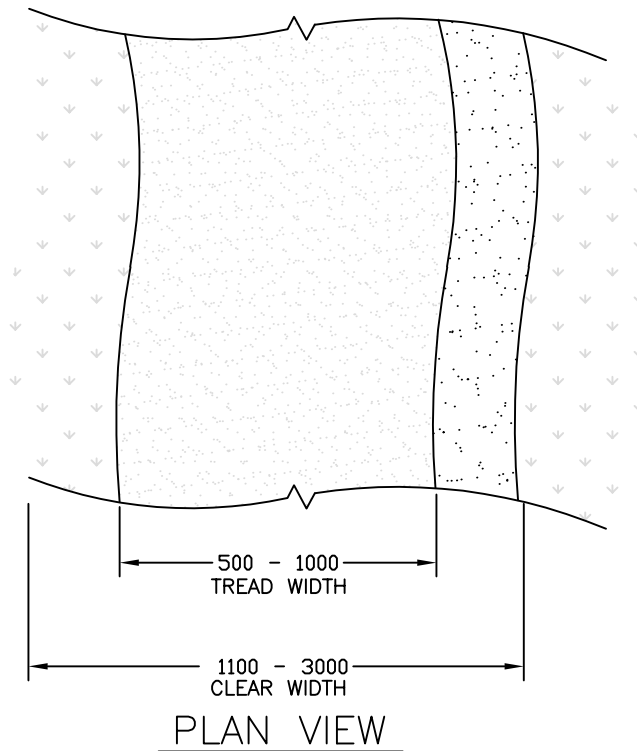
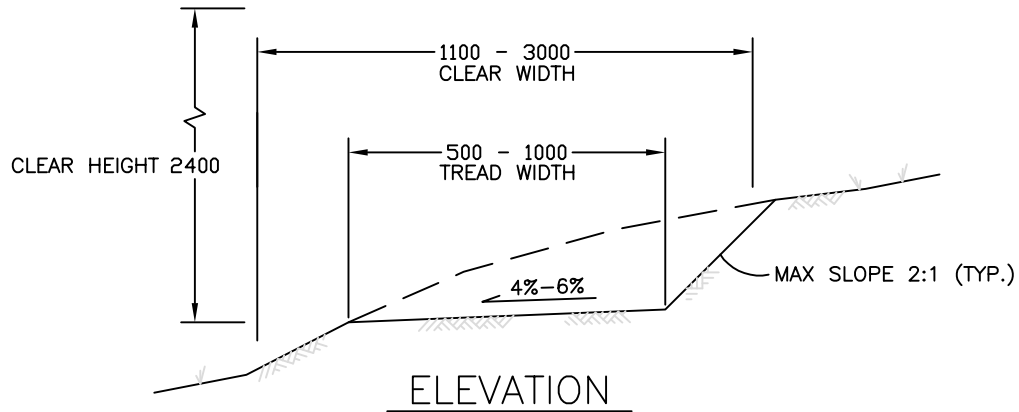
### PLAN VIEW

#### NOTES:

- 1) Trail designed for regular to high use
- 2) Beginner to intermediate user group
- 3) Base and tread materials shall be imported
- 4) Tread surface shall be crowned or cross-fall
- 5) ditching and culverts required for surface drainage
- 6) Base layers shall be below original ground, tread surface shall be near to original ground elevation

| CITY OF<br><b>SALMON ARM</b> |                                       |          | TRAIL TYPE 2 |                                                                                      |                              |
|------------------------------|---------------------------------------|----------|--------------|--------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date         | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01/06/2023   |  | CGS-9                        |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |              |                                                                                      |                              |
|                              |                                       |          |              | City Engineer                                                                        |                              |

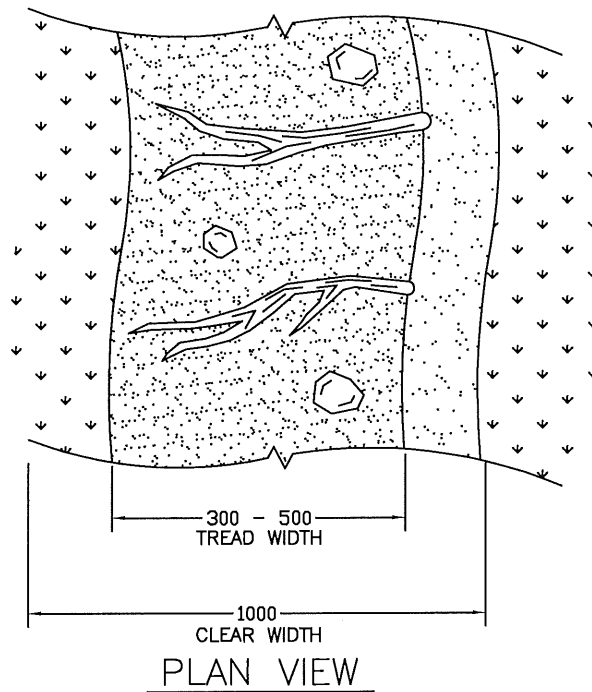
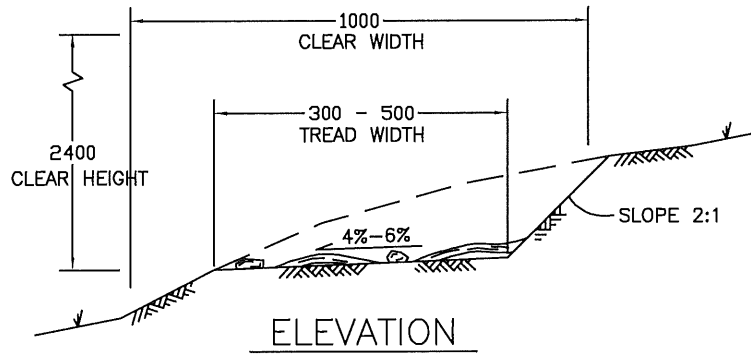
Adopted by Council February XX, 2023



# NOTES:

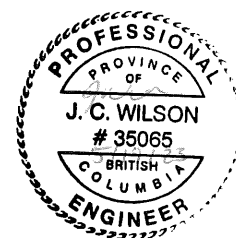
- 1) Trail designed for regular use
- 2) Beginner to advanced user group
- 3) Roots and rocks shall be removed from tread surface
- 4) Tread surface shall be of compacted native material
- 5) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.


| CITY OF<br><b>SALMON ARM</b> |                                       |          | TRAIL TYPE 3 |                  |                              |
|------------------------------|---------------------------------------|----------|--------------|------------------|------------------------------|
| No.                          | Revision                              | Date     | Date         | Approved         | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 |              | <i>Calvin Be</i> |                              |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023   | City Engineer    | CGS-10                       |



NOTES:

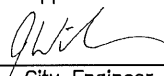
- 1) Trail designed for moderate to low use
- 2) Intermediate to advanced user group
- 3) roots and rocks may remain in tread surface
- 4) Tread surface shall be of native material
- 5) Roots shall run perpendicular to trail direction
- 6) Rocks left in tread shall be smooth and only left in tread if necessary
- 7) Large roots should be covered to protect them from damage
- 8) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.



 CITY OF SALMON ARM

TRAIL TYPE 4

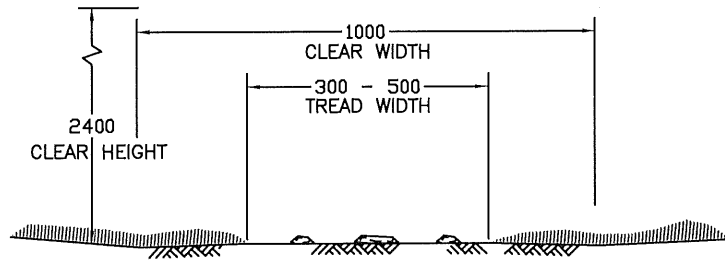
| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

| Date       | Approved                                                                                              |
|------------|-------------------------------------------------------------------------------------------------------|
| 10-11-2016 | <br>City Engineer |

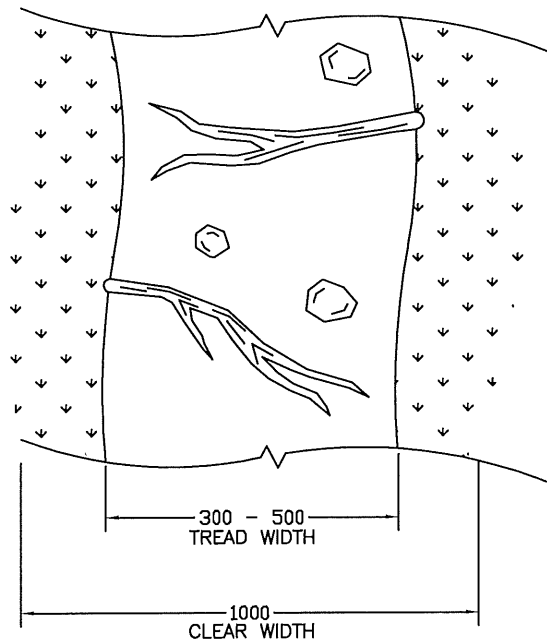
SPECIFICATION  
DRAWING No.

CGS-11

Adopted by Council February XX, 2023



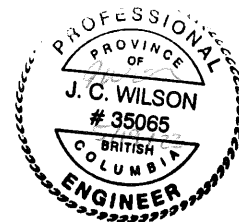
ELEVATION



PLAN VIEW

NOTES:

- 1) Trail designed for low use and low impact
- 2) Intermediate to advanced user group
- 3) roots and rocks may remain in tread surface
- 4) NOT for equestrian or motorized use
- 5) Avoid grubbing of trail, tread surface shall be created by natural wear of the native surface material
- 6) Boardwalks shall be used for highly sensitive areas



CITY OF SALMON ARM

TRAIL TYPE 5

| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

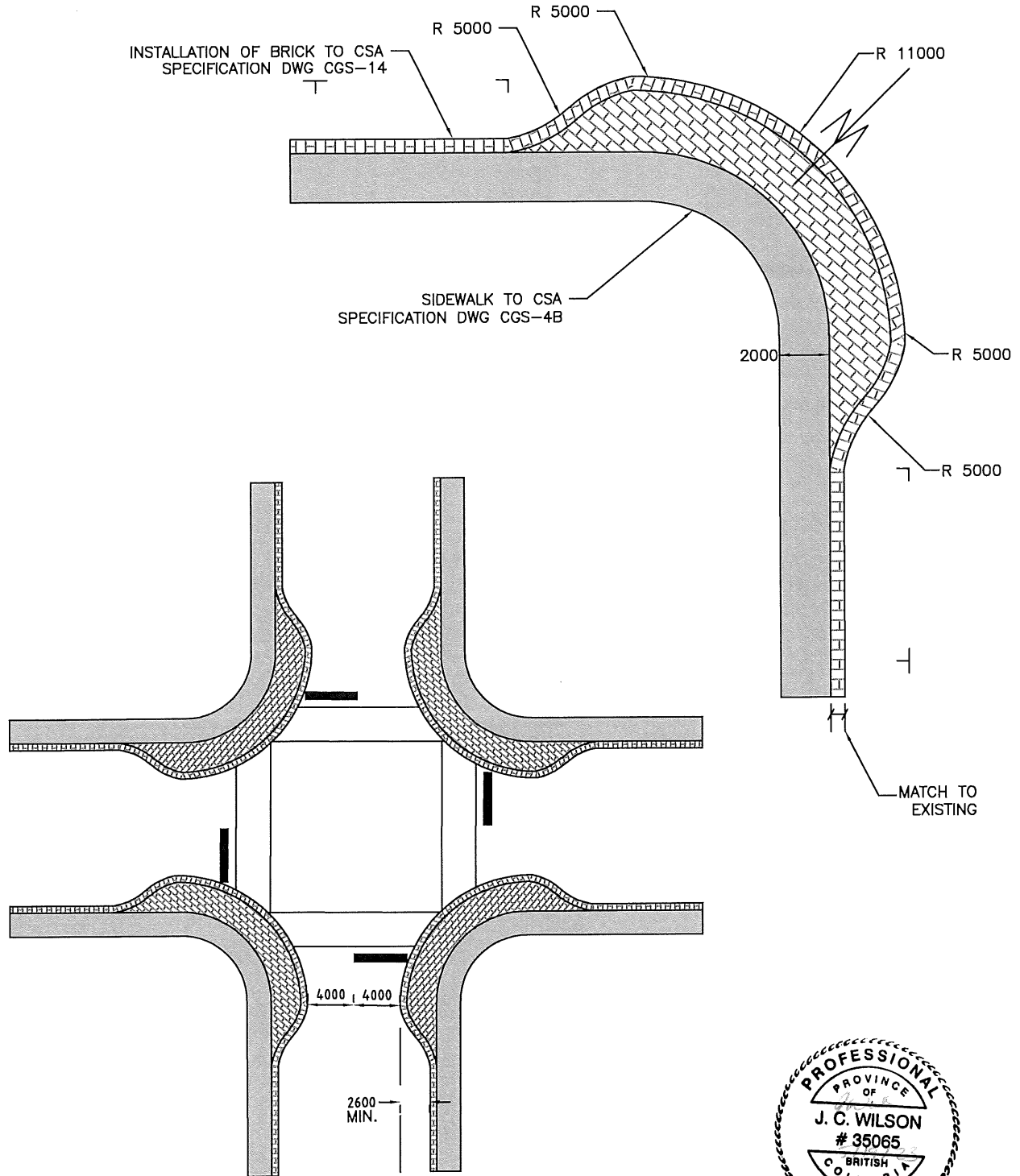
| Date       | Approved      |
|------------|---------------|
| 10-11-2016 |               |
|            | City Engineer |

SPECIFICATION  
DRAWING No.

CGS-12

Adopted by Council February XX, 2023





CITY OF SALMON ARM

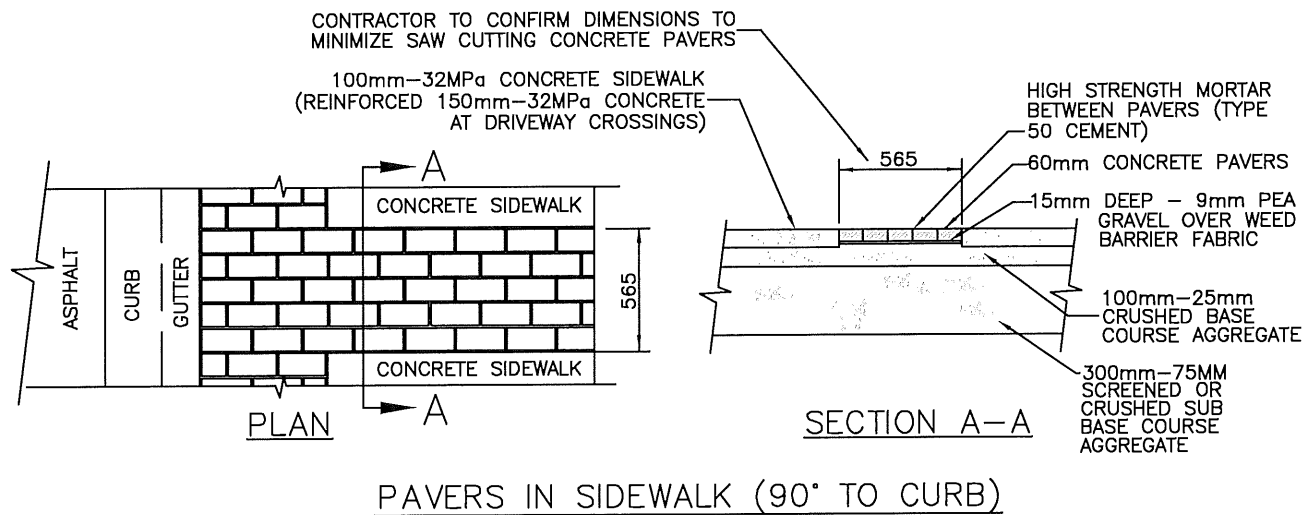
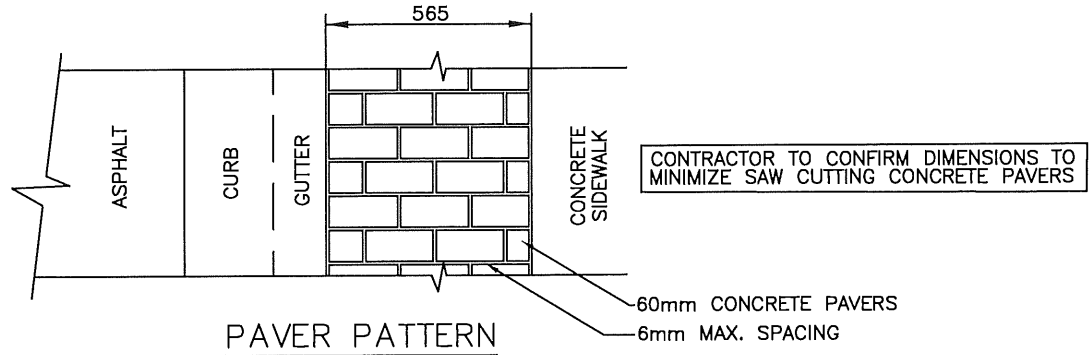
Towncenter Intersection Pedestrian Bulb


| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

| Date       | Approved      |
|------------|---------------|
| 10-11-2016 |               |
|            | City Engineer |

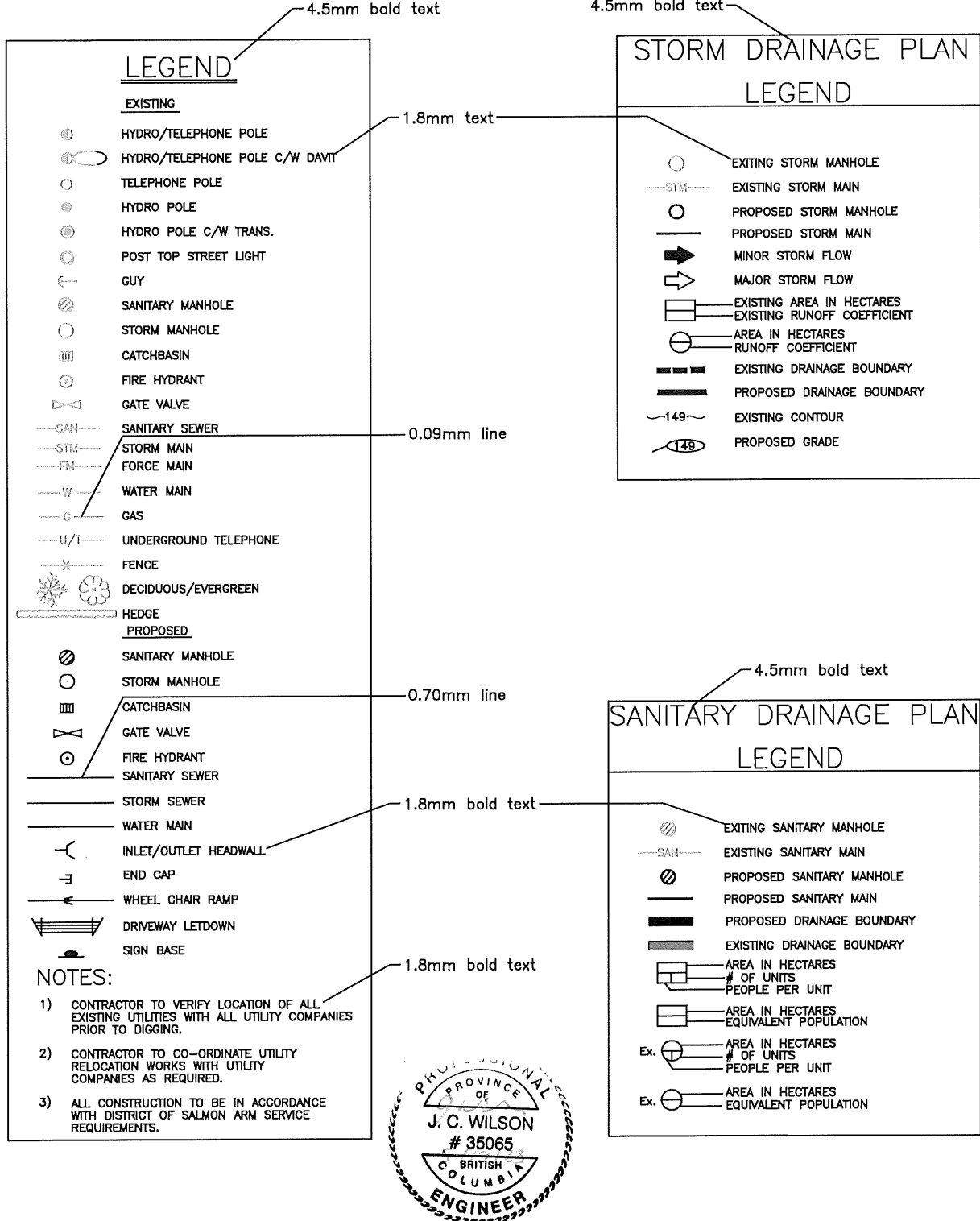
SPECIFICATION  
DRAWING No.  
CGS-13

Adopted by Council June XX 2023




| CITY OF<br><b>SALMON ARM</b> |                                       |          | Typical Paver Detail |                                                                                      |                              |
|------------------------------|---------------------------------------|----------|----------------------|--------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                 | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-23             |  | CGS-14                       |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                      |                                                                                      |                              |
|                              |                                       |          |                      | City Engineer                                                                        |                              |

Adopted by Council February XX, 2023



| CITY OF SALMON ARM |                     |          | ANSI 'D' Size Legend |               |                              |
|--------------------|---------------------|----------|----------------------|---------------|------------------------------|
| No.                | Revision            | Date     | Date                 | Approved      | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016           |               | DD-LG                        |
|                    |                     |          |                      | City Engineer |                              |

ANSI 'D' SIZE SHEET



KEY PLAN

LEGEND

86mm

7mm  
7mm  
7mm  
7mm

50mm

8mm  
10mm  
8mm  
10mm

1.8mm text

44mm

11mm  
15mm

0.25 line

0.50 line

1.5mm text

30mm

CONSULTANTS  
NAME

7.0mm text

25mm

CLIENT'S  
NAME/TITLE

7.0mm bold text

2mm

PROJECT TITLE  
AND LOCATION

2mm

80mm

DRAWING  
LOCATION  
TITLE

5.0mm bold text

OBJECT OF DWG.  
STATIONING OF DWG.

5.0mm text

CITY OF SALMON ARM  
APPROVED:

0.50 line

11mm  
11mm  
11mm

68mm

Plot points for pdf's and acad plots

CITY OF SALMON ARM

| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

ANSI 'D' Size Plan Sheet

Date

10-11-2016

Approved

City Engineer

SPECIFICATION  
DRAWING No.

DD-PL

ANSI 'D' SIZE SHEET

20mm x 20mm grid  
0.18 line

CITY OF SALMON ARM  
APPROVED:

KEY PLAN

LEGEND

86mm

0+000 EX. ELEV.  
PROP. ELEV.

0+050 EX. ELEV.  
PROP. ELEV.

0+100 EX. ELEV.  
PROP. ELEV.

0+150 EX. ELEV.  
PROP. ELEV.

0+200 EX. ELEV.  
PROP. ELEV.

0+250 EX. ELEV.  
PROP. ELEV.

0+300 EX. ELEV.  
PROP. ELEV.

CONSULTANTS  
NAME 30mm

CLIENT'S 25mm  
NAME/TITLE

PROJECT TITLE  
AND LOCATION

DRAWING 80mm  
LOCATION  
TITLE

OBJECT OF DWG.  
STATIONING OF DWG.

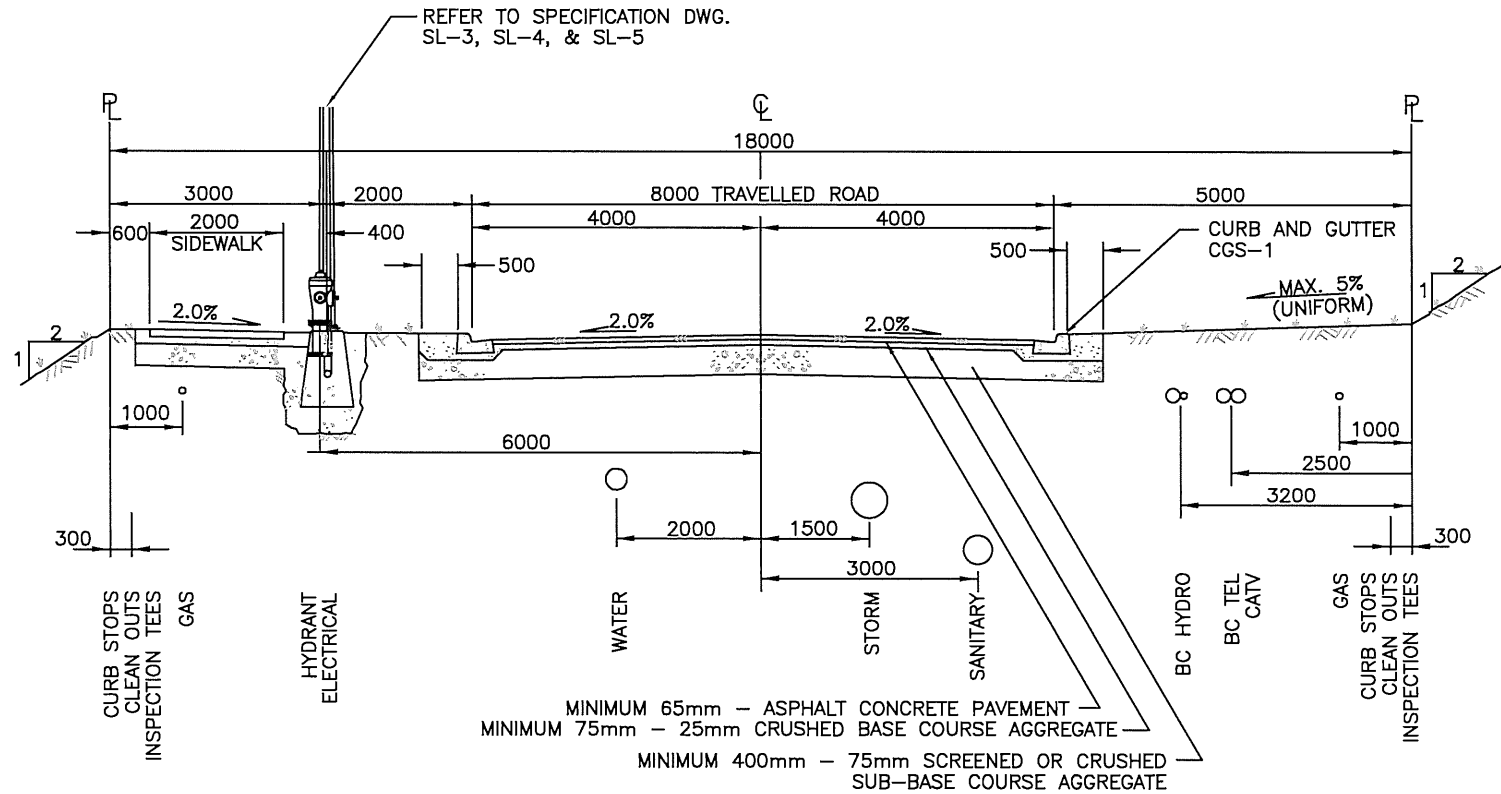
Plot points for  
pdf's and acad plots

CITY OF SALMON ARM

ANSI 'D' Size Plan/Profile Sheet

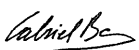
|     |                     |          |            |               |                              |
|-----|---------------------|----------|------------|---------------|------------------------------|
| No. | Revision            | Date     | Date       | Approved      | SPECIFICATION<br>DRAWING No. |
| A   | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016 |               | DD-PP                        |
|     |                     |          |            | City Engineer |                              |



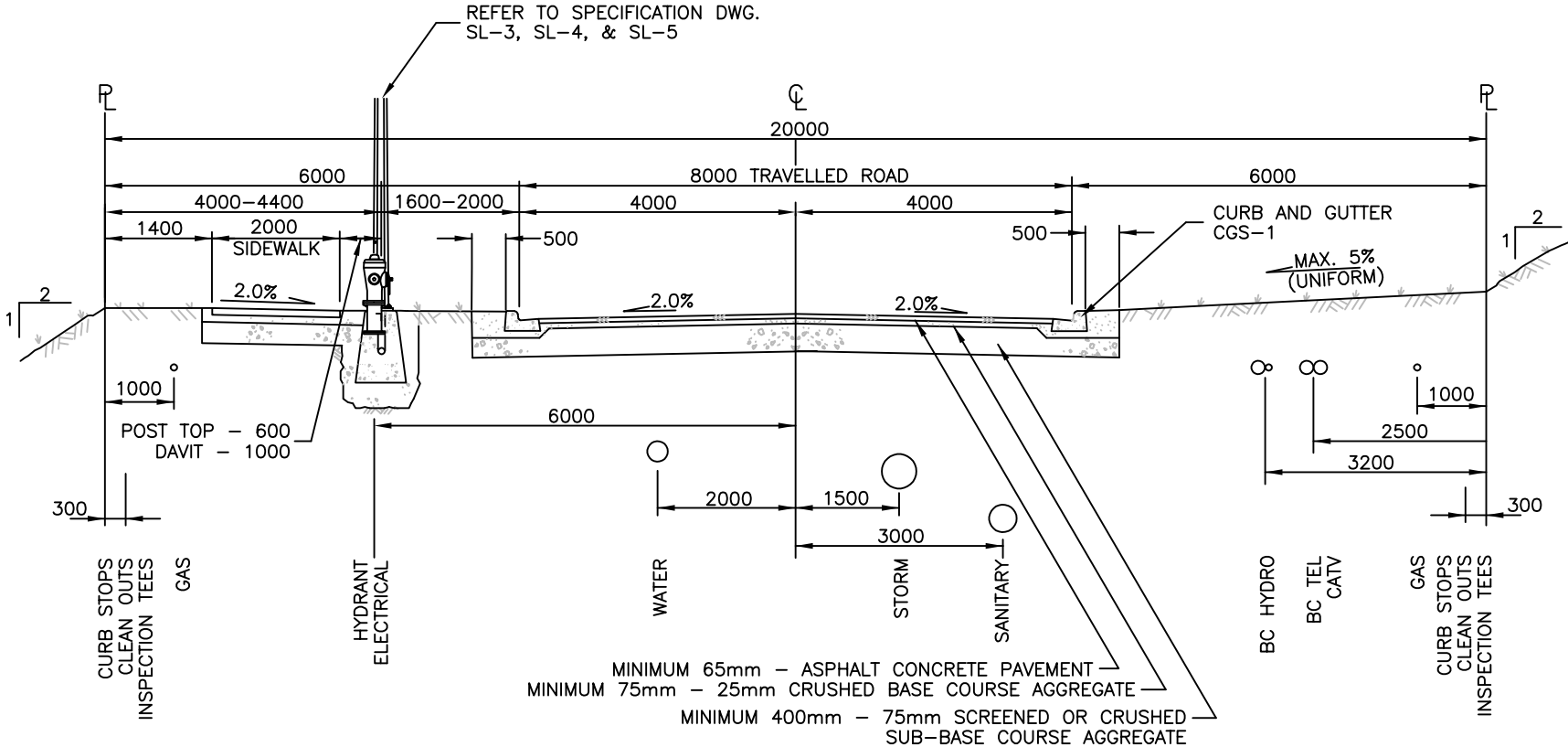


**NOTES:**

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.


| CITY OF<br><b>SALMON ARM</b> |                                       |          | 18m R/W Urban Local Road Cross-Section |                                                                                       |                              |
|------------------------------|---------------------------------------|----------|----------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                   | Approved                                                                              | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                             |  | RD-1                         |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |                                        |                                                                                       |                              |
|                              |                                       |          |                                        | City Engineer                                                                         |                              |

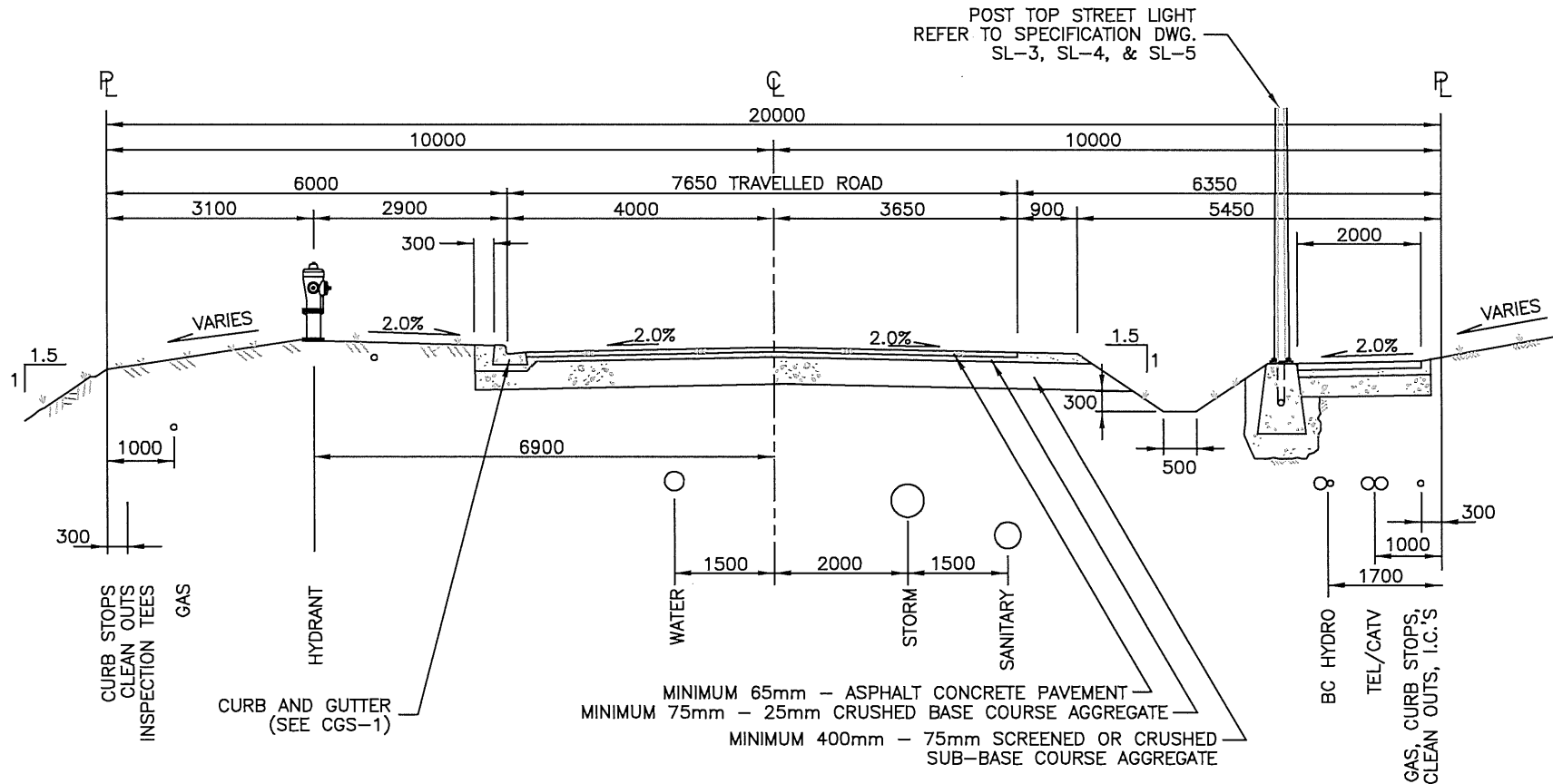
Adopted by Council February XX, 2023



**NOTES:**


- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.

| CITY OF<br><b>SALMON ARM</b> |                                       |          | 20m R/W Urban Local Road Cross-Section |                                                                                       |                              |
|------------------------------|---------------------------------------|----------|----------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                   | Approved                                                                              | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                             |  | RD-2                         |
| B                            | SDSB 4293 REV's - ISSUED FOR APPROVAL | 01/06/23 |                                        |                                                                                       |                              |
|                              |                                       |          |                                        | City Engineer                                                                         |                              |

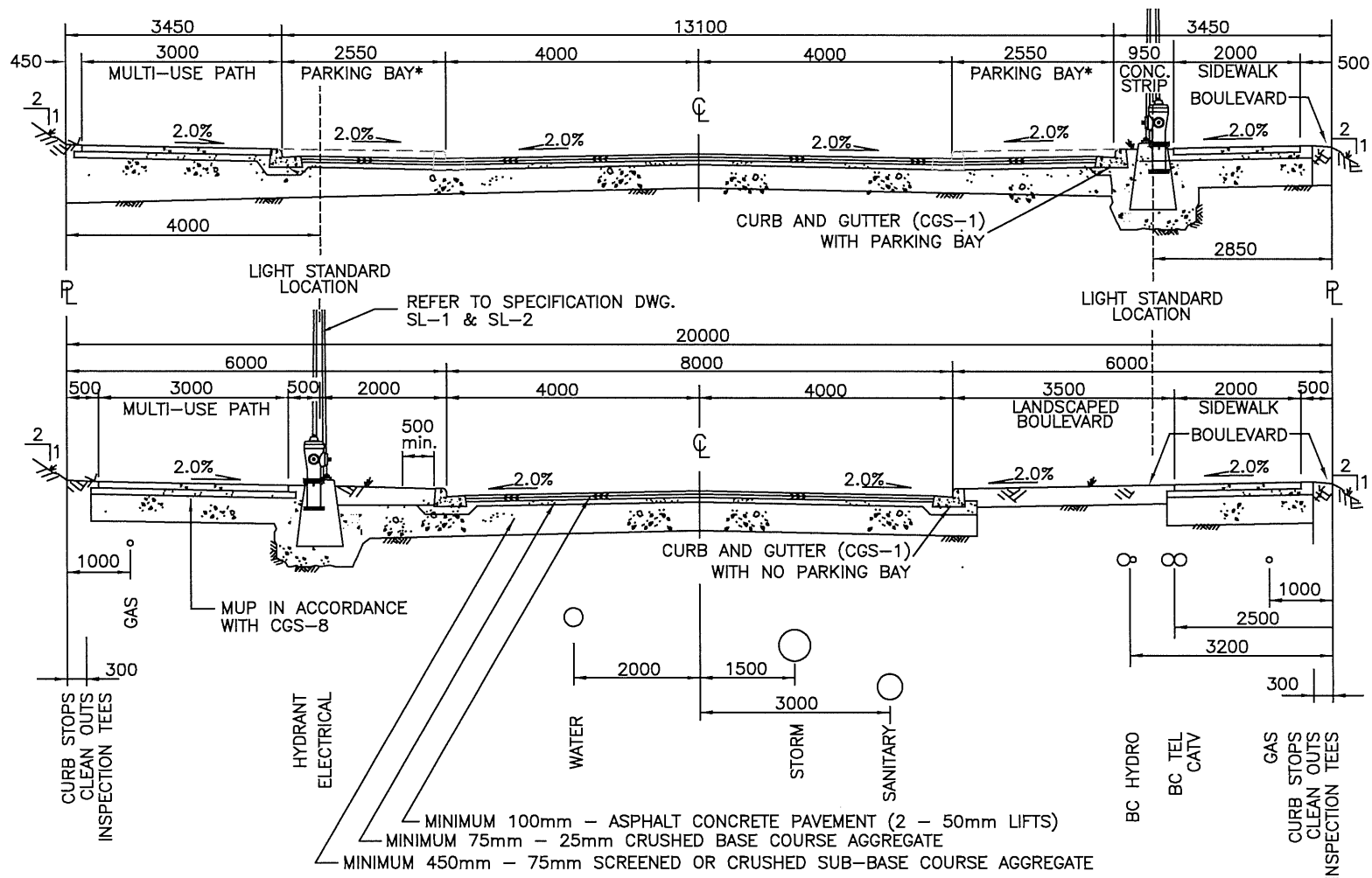


**NOTES:**

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 1.5H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.

| CITY OF<br><b>SALMON ARM</b> |                                       |          | TYPICAL 20TH STREET NE ROAD SECTION |                                                                                       |                              |
|------------------------------|---------------------------------------|----------|-------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                | Approved                                                                              | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                          |  | RD-2 (MOD)                   |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |                                     |                                                                                       |                              |
|                              |                                       |          |                                     | City Engineer                                                                         |                              |


Adopted by Council February XX, 2023

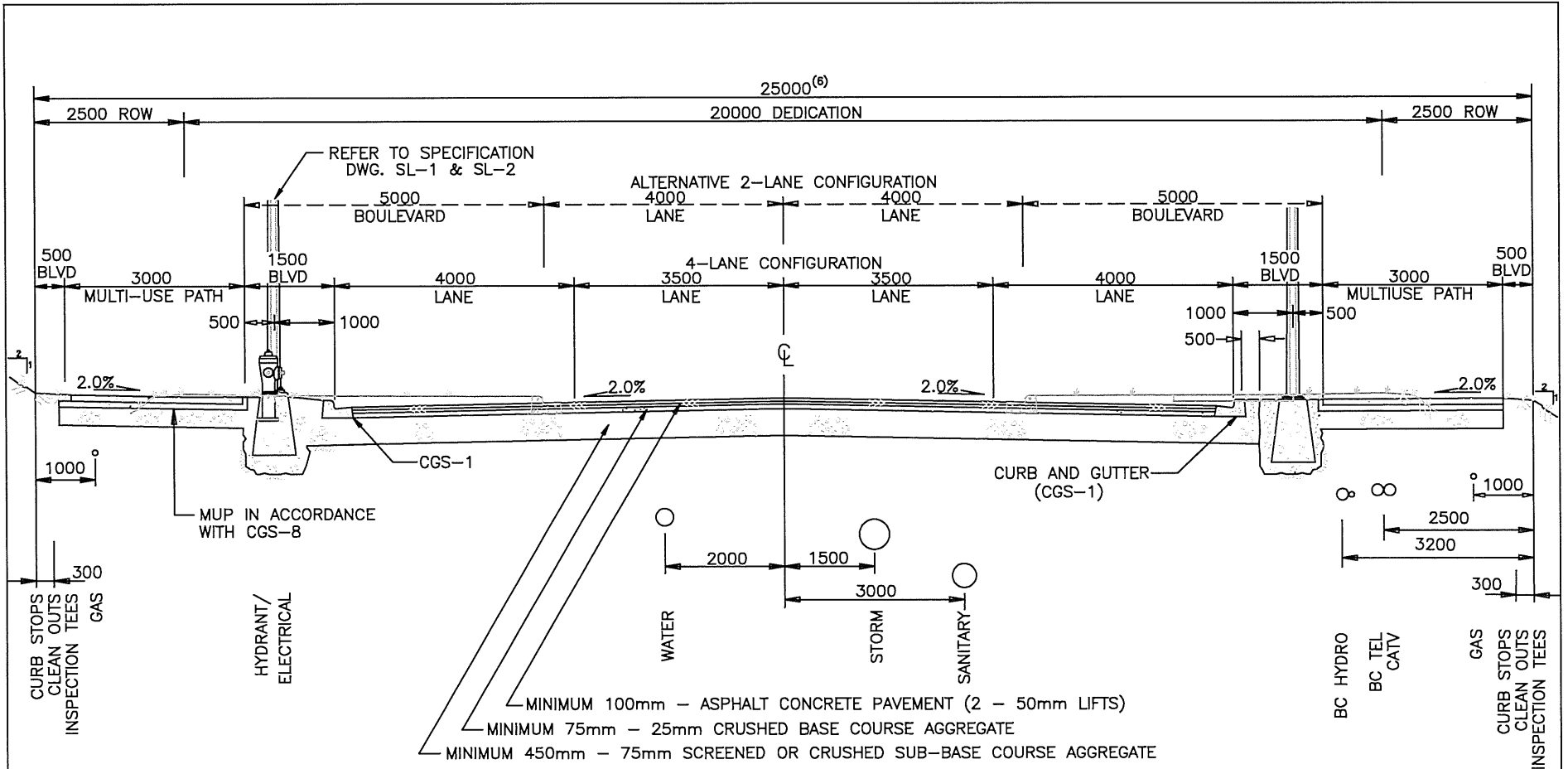


NOTES:

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.

\* Parking bay shall be located on either or both sides of the roadway per design criteria in Schedule B-1.0 section 4.8.14

|                                                                                |                                       |          |                                       |                                                                                                        |                                                                                                 |
|--------------------------------------------------------------------------------|---------------------------------------|----------|---------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <div style="text-align: center;"> <b>CITY OF</b><br/> <b>SALMON ARM</b> </div> |                                       |          | 20m R/W Urban Collector Cross-Section |                                                                                                        |                                                                                                 |
| No.                                                                            | Revision                              | Date     | Date                                  | Approved                                                                                               | SPECIFICATION<br>DRAWING No.<br><br><div style="font-size: 24pt; font-weight: bold;">RD-3</div> |
| A                                                                              | APPROVED                              | 10/11/16 |                                       |                                                                                                        |                                                                                                 |
| B                                                                              | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023                            | <br>City Engineer |                                                                                                 |
|                                                                                |                                       |          |                                       |                                                                                                        |                                                                                                 |

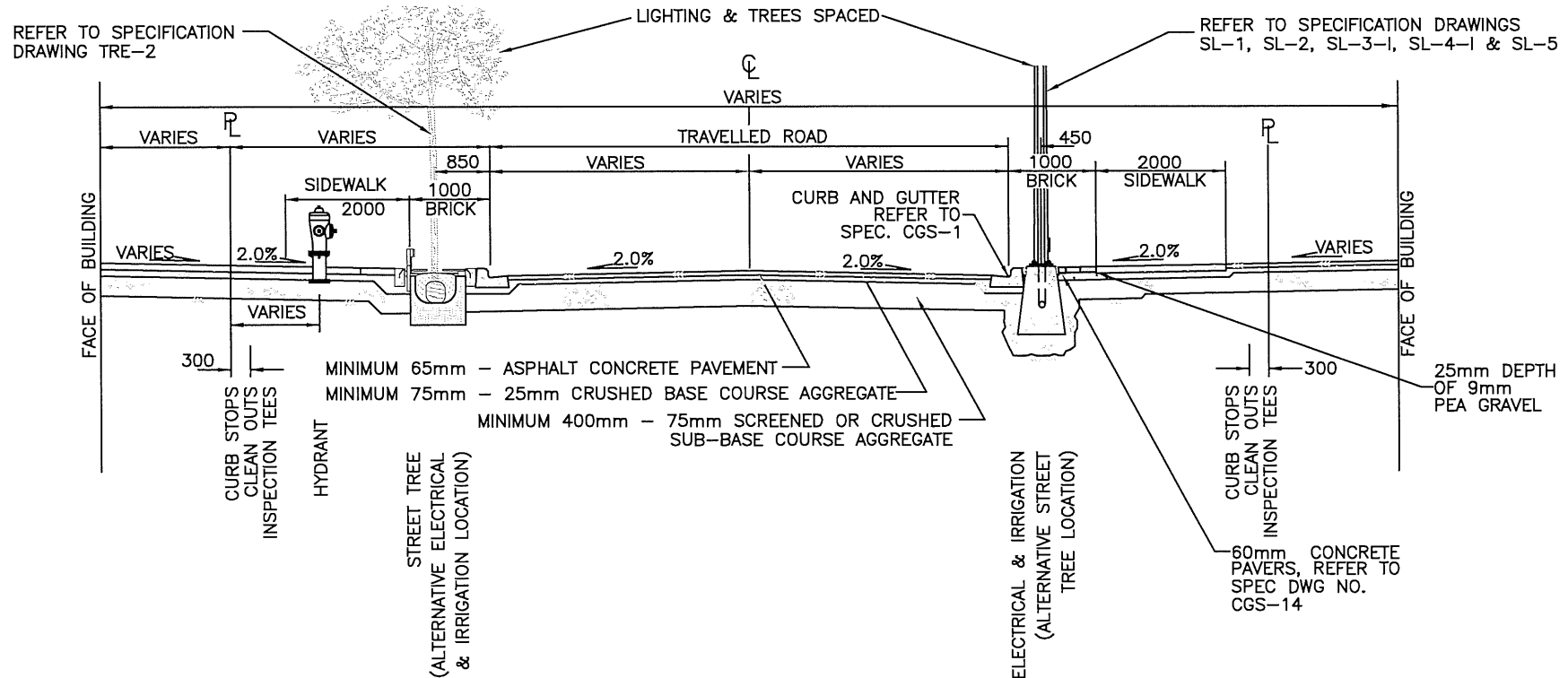


**NOTES:**

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.
- 5) Additional 3.5m x 3.5m ROW may be required for BC Hydro infrastructure.
- 6) Where 25.0m of dedication is not available, ROW shall be provided to supplement available dedication.


| CITY OF<br><b>SALMON ARM</b> |                                       |          | 25m R/W Urban Arterial Road Cross-Section |                  |                              |
|------------------------------|---------------------------------------|----------|-------------------------------------------|------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                      | Approved         | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                                | <i>Calvin Be</i> | RD-4                         |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                                           | City Engineer    |                              |





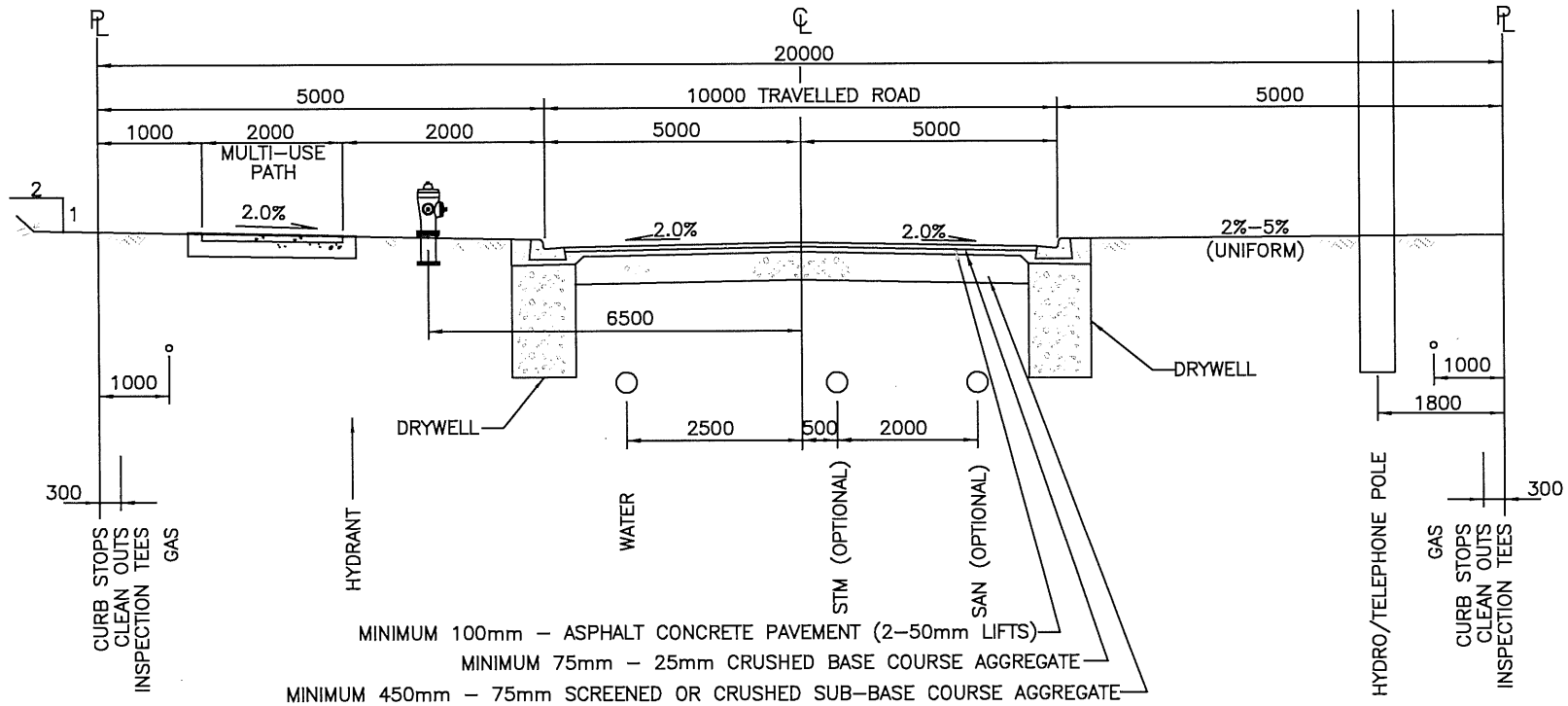
**NOTES:**

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.

| CITY OF<br><b>SALMON ARM</b> |                                       |          | Town Centre Development Area Road Cross-Section |                                                                                                        |                              |
|------------------------------|---------------------------------------|----------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                            | Approved                                                                                               | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                                      | <br>City Engineer | RD-5                         |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                                                 |                                                                                                        |                              |
|                              |                                       |          |                                                 |                                                                                                        |                              |

Adopted by Council February XX, 2023

Adopted by Council February XX, 2023

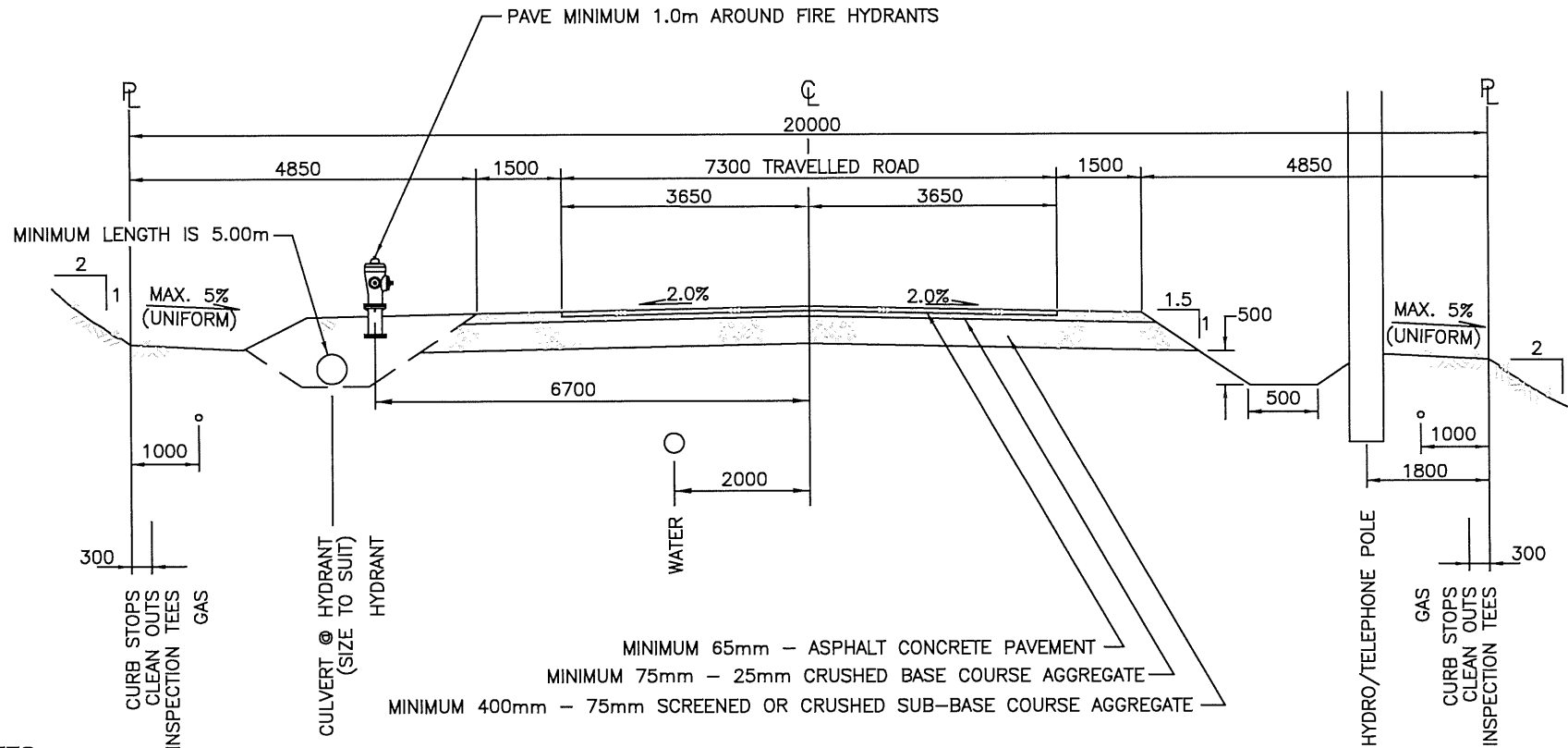


**NOTES:**

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.


| CITY OF<br><b>SALMON ARM</b> |                                       |          | New Industrial Park Cross-Section |                     |                              |
|------------------------------|---------------------------------------|----------|-----------------------------------|---------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                              | Approved            | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                        | <i>Calvin Be...</i> | RD-6B                        |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                                   | City Engineer       |                              |

Adopted by Council February XX, 2023

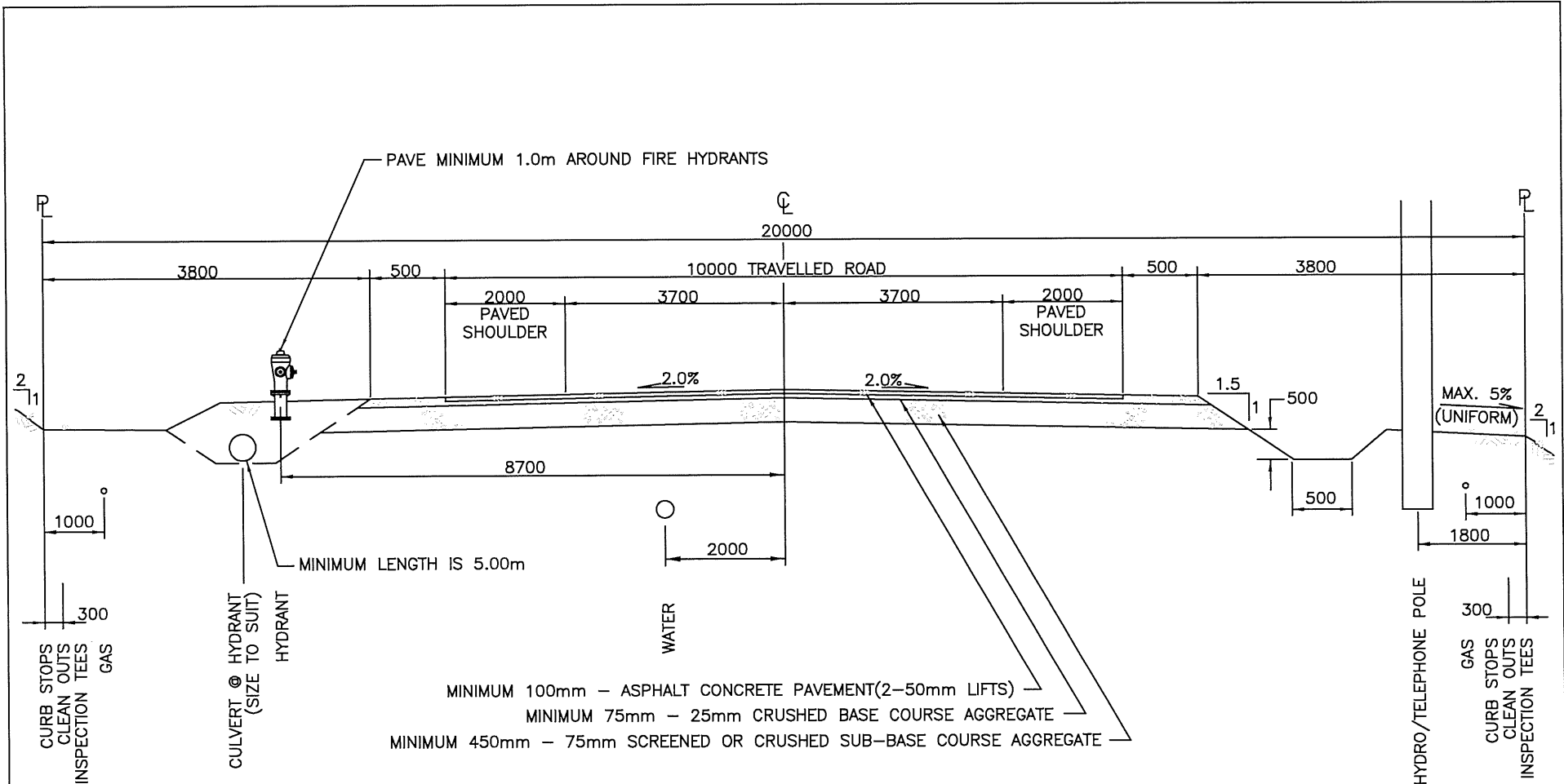


**NOTES:**

- 1) Where gravel surface is permitted, crossfall shall be 4.0%
- 2) Drainage shall be sheet drainage, no point load drainage permitted
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.


| CITY OF<br><b>SALMON ARM</b> |                                       |          | 20m R/W Rural Local Road Cross-Section |                                                                                       |                              |
|------------------------------|---------------------------------------|----------|----------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                   | Approved                                                                              | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                             |  | RD-7                         |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |                                        |                                                                                       |                              |
|                              |                                       |          |                                        | City Engineer                                                                         |                              |

Adopted by Council February XX, 2023



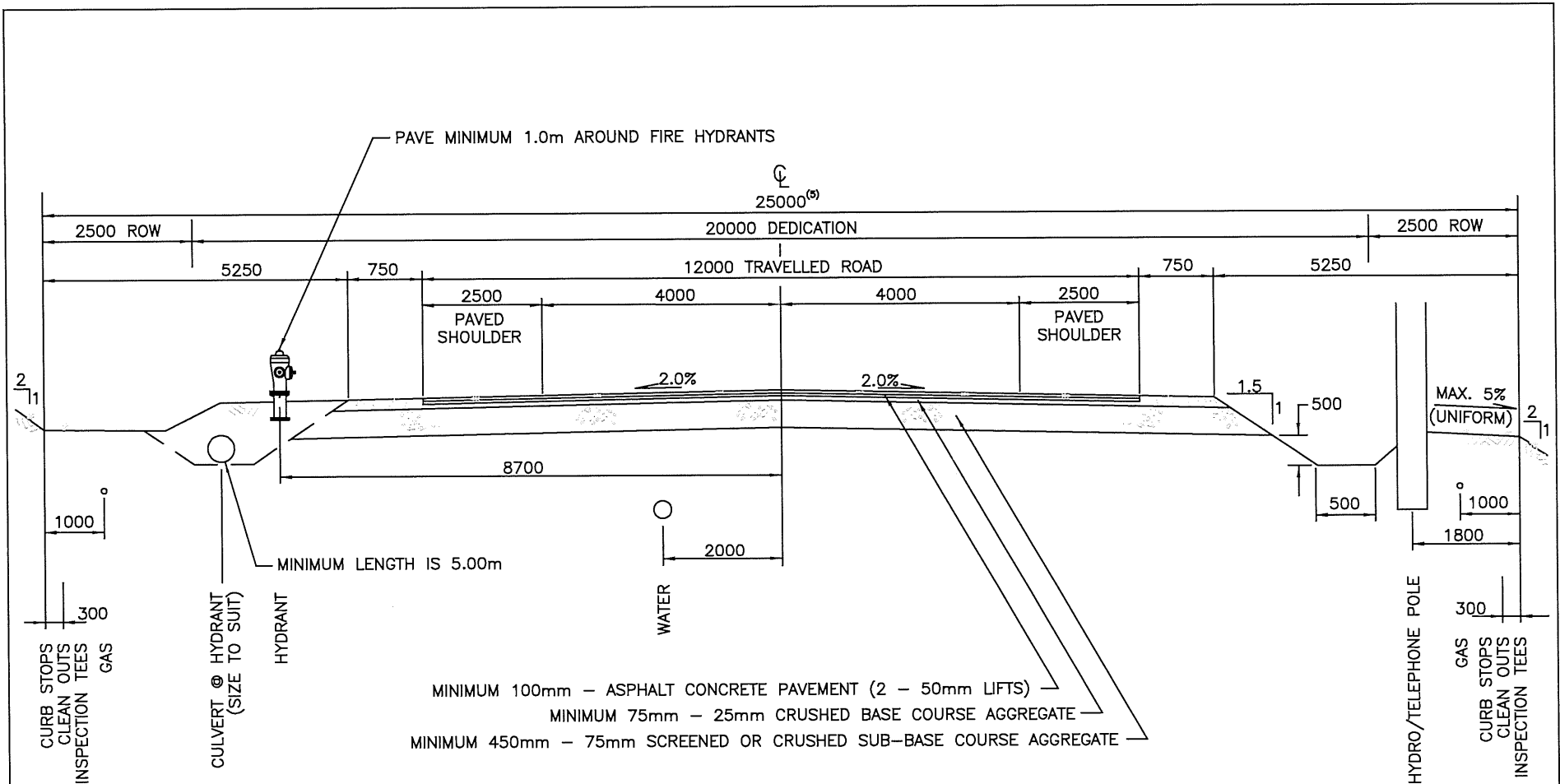
**NOTES:**

- 1) Where gravel surface is permitted, crossfall shall be 4.0%
- 2) Drainage shall be sheet drainage, no point load drainage permitted
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.
- 5) Where ROW exists and topography allows, an offset 3.0m multi-use path shall be installed and the paved shoulders may be reduced to a 1.5m gravel shoulder.

| CITY OF<br><b>SALMON ARM</b> |                                       |          | 20m R/W Rural Collector Road Cross-Section |                                                                                       |                              |
|------------------------------|---------------------------------------|----------|--------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                       | Approved                                                                              | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                                 |  | RD-8                         |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                                            |                                                                                       |                              |
|                              |                                       |          |                                            | City Engineer                                                                         |                              |

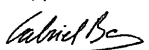
Adopted by Council February XX, 2023



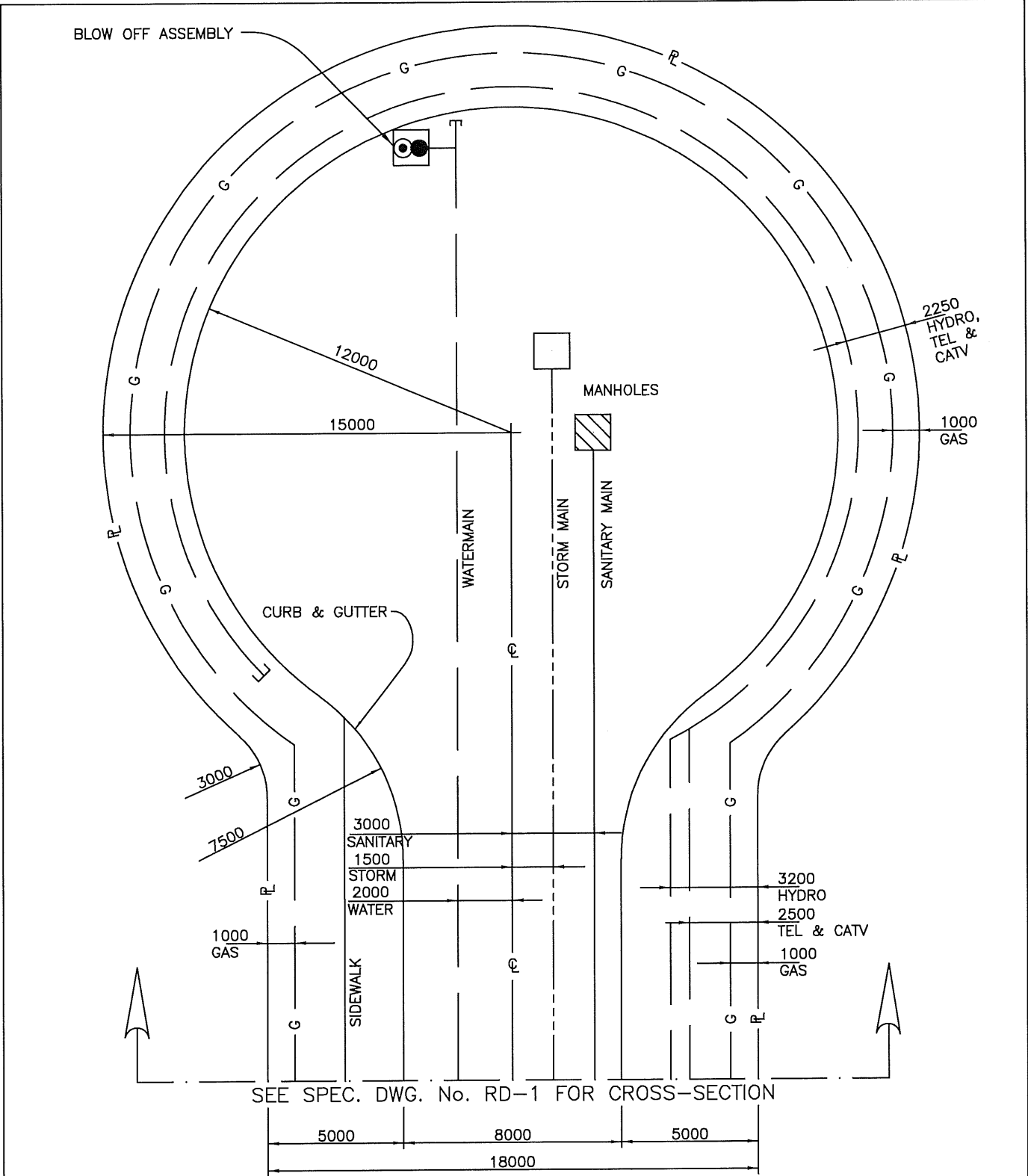


**NOTES:**

- 1) Where gravel surface is permitted, crossfall shall be 4.0%
- 2) Drainage shall be sheet drainage, no point load drainage permitted
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.
- 5) Where 25.0m of dedication is not available, ROW shall be provided to supplement available dedication.
- 6) Where sufficient ROW exists and topography allows, an offset 3.0m Multi-use path shall be installed and the paved shoulders may be reduced to 1.5m gravel shoulder.

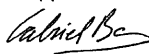
| CITY OF<br><b>SALMON ARM</b> |                                       |          | 25m R/W Rural Arterial Road Cross-Section |                                                                                       |                              |
|------------------------------|---------------------------------------|----------|-------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                      | Approved                                                                              | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                                |  | RD-9                         |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |                                           |                                                                                       |                              |
|                              |                                       |          |                                           | City Engineer                                                                         |                              |

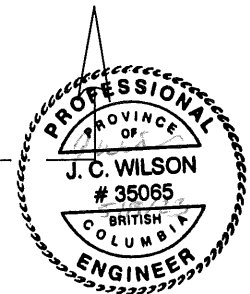
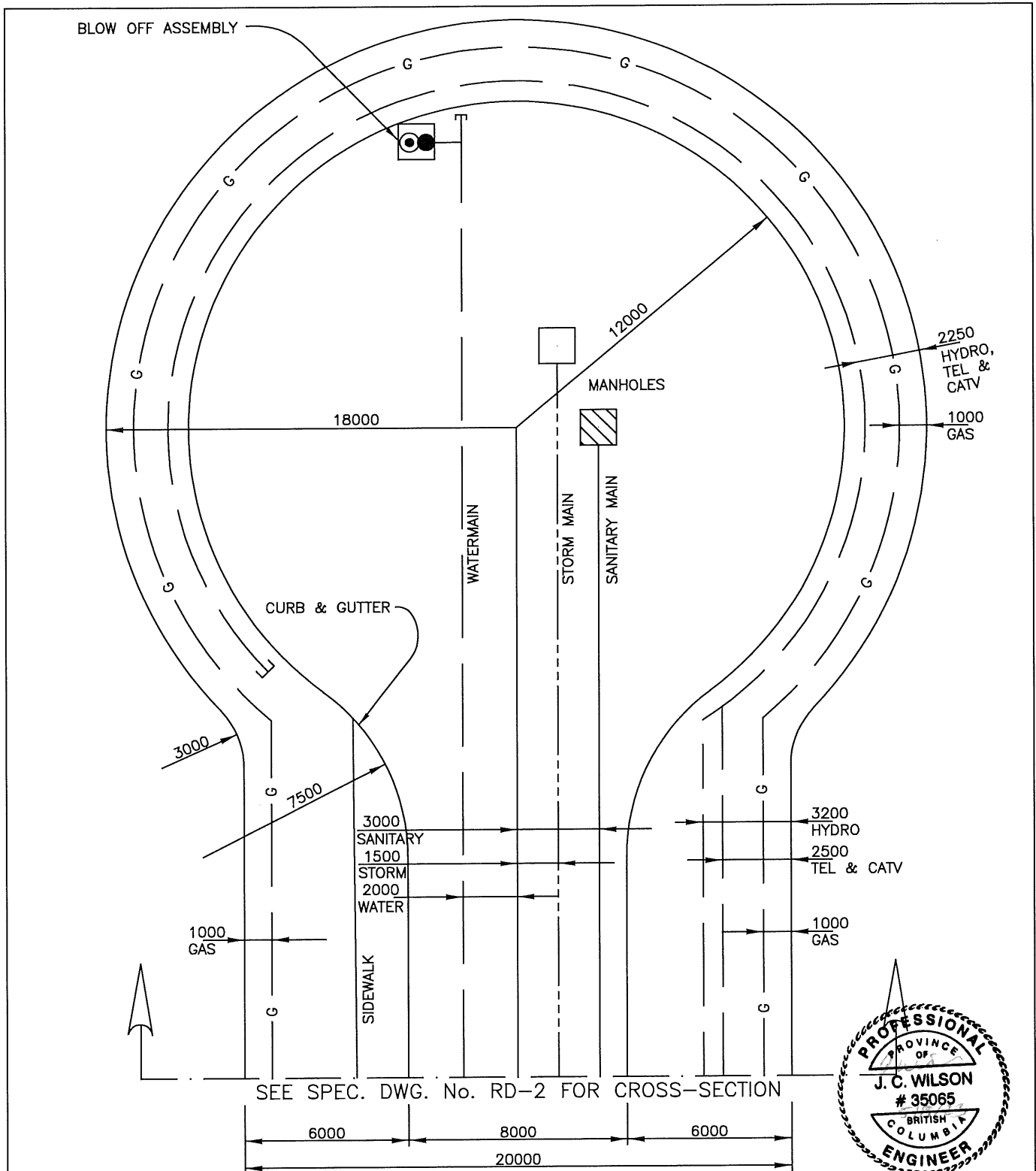
Adopted by Council February XX, 2023



NOTE:


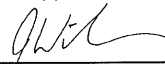
- 1) Fire Hydrant not to be located within Cul-de sac Right-of Way.
- 2) Refer to W-4 for Typical Blow off Assembly.
- 3) For Rural roads, cul-de-sac to have 10.75m radius for asphalt surface and edge of gravel shoulder to have 12.00m radius.

|                              |                          |          |                    |                                                                                      |                              |
|------------------------------|--------------------------|----------|--------------------|--------------------------------------------------------------------------------------|------------------------------|
| CITY OF<br><b>SALMON ARM</b> |                          |          | 18m R/W Cul-de-Sac |                                                                                      |                              |
| No.                          | Revision                 | Date     | Date               | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                            | ISSUED FOR APPROVAL      | 07/14/16 | 01-06-23           |  | RD-10                        |
| B                            | AMENDMENT BYLAW NO. 4293 | 01/06/23 |                    |                                                                                      |                              |
|                              |                          |          |                    | City Engineer                                                                        |                              |

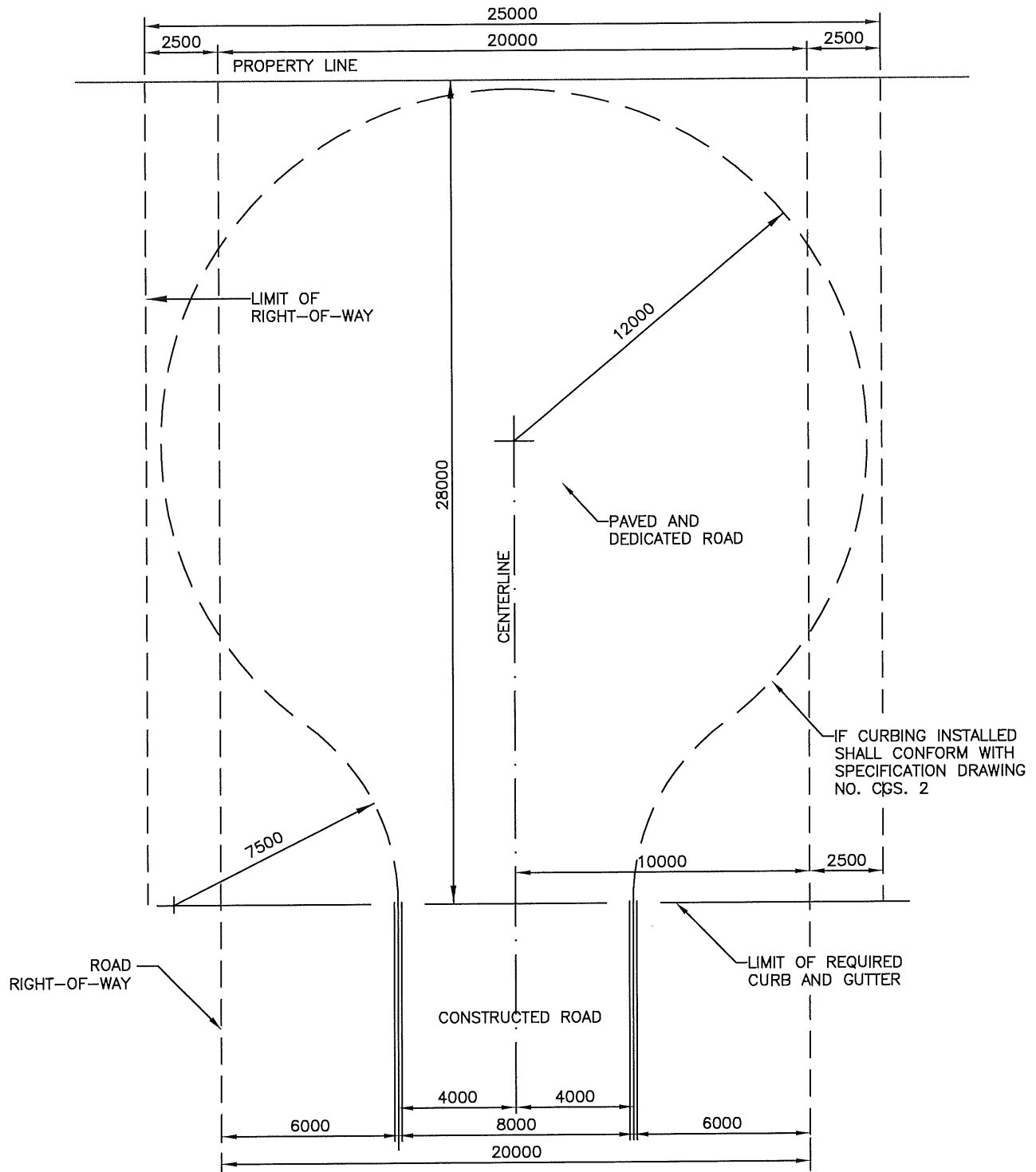


**NOTE:**

- 1) Fire Hydrant not to be located within Cul-de sac Right-of Way.
- 2) Refer to W-4 for Typical Blow off Assembly.
- 3) For Rural roads, cul-de-sac to have 10.75m radius for asphalt surface and edge of gravel shoulder to have 12.00m radius.

|                                                                                                               |                     |          |                           |                                                                                                       |                              |
|---------------------------------------------------------------------------------------------------------------|---------------------|----------|---------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
|  <b>CITY OF SALMON ARM</b> |                     |          | <b>20m R/W Cul-de-Sac</b> |                                                                                                       |                              |
| No.                                                                                                           | Revision            | Date     | Date                      | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
| A                                                                                                             | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                | <br>City Engineer | RD-11                        |
|                                                                                                               |                     |          |                           |                                                                                                       |                              |

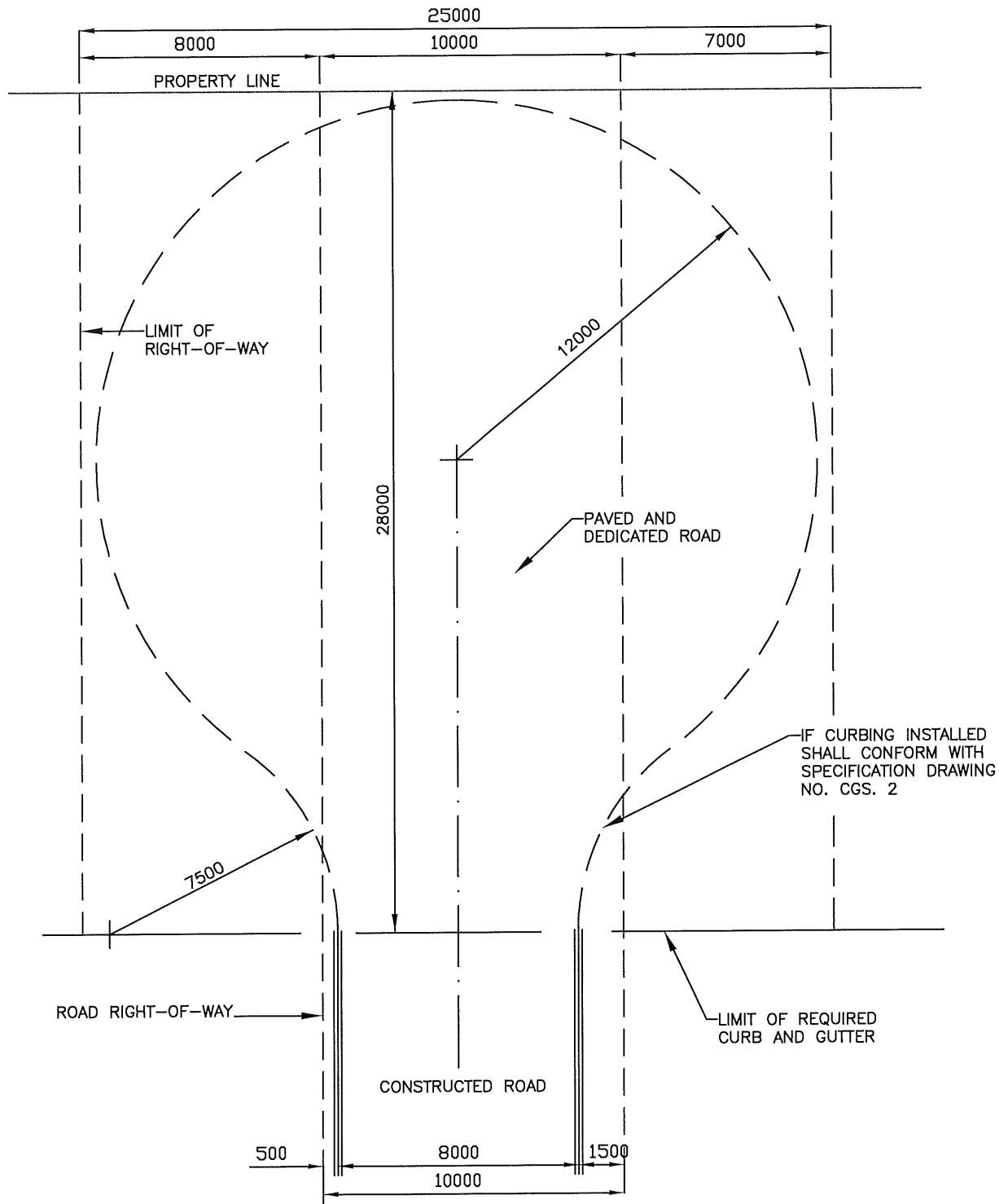
Adopted by Council February XX, 2023



**NOTE:**

- 1) For rural roads, cul-de-sac to have 10.75m radius for asphalt surface and edge of gravel shoulder to have 12.0m radius.

| CITY OF<br><b>SALMON ARM</b> |                     |          | Temporary Cul-de-Sac |                      |                              |
|------------------------------|---------------------|----------|----------------------|----------------------|------------------------------|
| No.                          | Revision            | Date     | Date                 | Approved             | SPECIFICATION<br>DRAWING No. |
| A                            | ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023           | <i>Gabriel Be...</i> | RD-11A                       |
|                              |                     |          |                      | City Engineer        |                              |

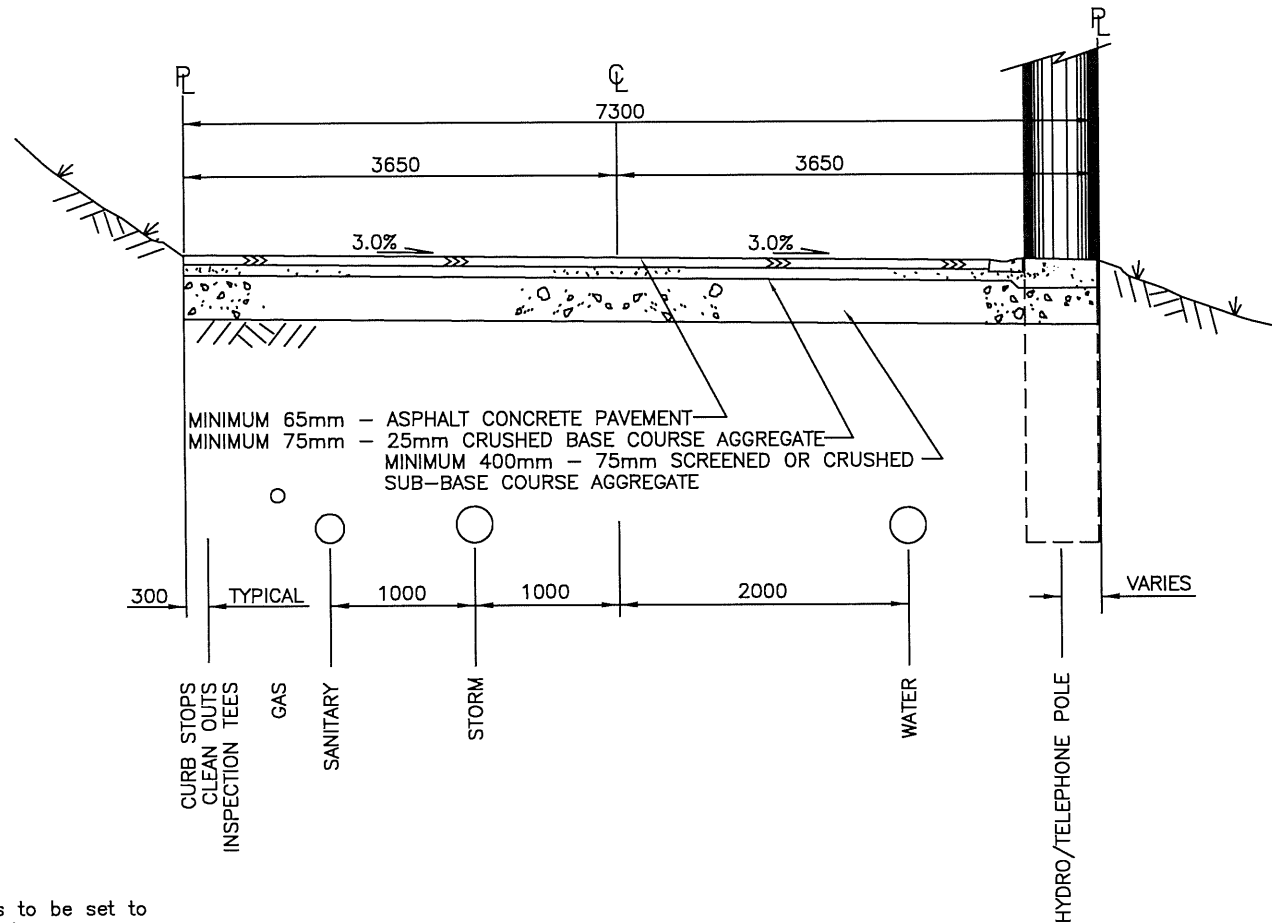

**NOTE:**

- 1) For rural roads, cul-de-sac to have 10.75m radius for asphalt surface and edge of gravel shoulder to have 12.0m radius.

| CITY OF<br><b>SALMON ARM</b> |                     |          | 10.0m R/W Lane – Temporary Cul-de-Sac |                      |                              |
|------------------------------|---------------------|----------|---------------------------------------|----------------------|------------------------------|
| No.                          | Revision            | Date     | Date                                  | Approved             | SPECIFICATION<br>DRAWING No. |
| A                            | ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023                            | <i>Gabriel Be...</i> | RD-11B                       |
|                              |                     |          |                                       | City Engineer        |                              |

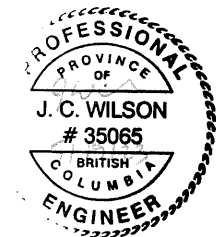
Adopted by Council February XX, 2023





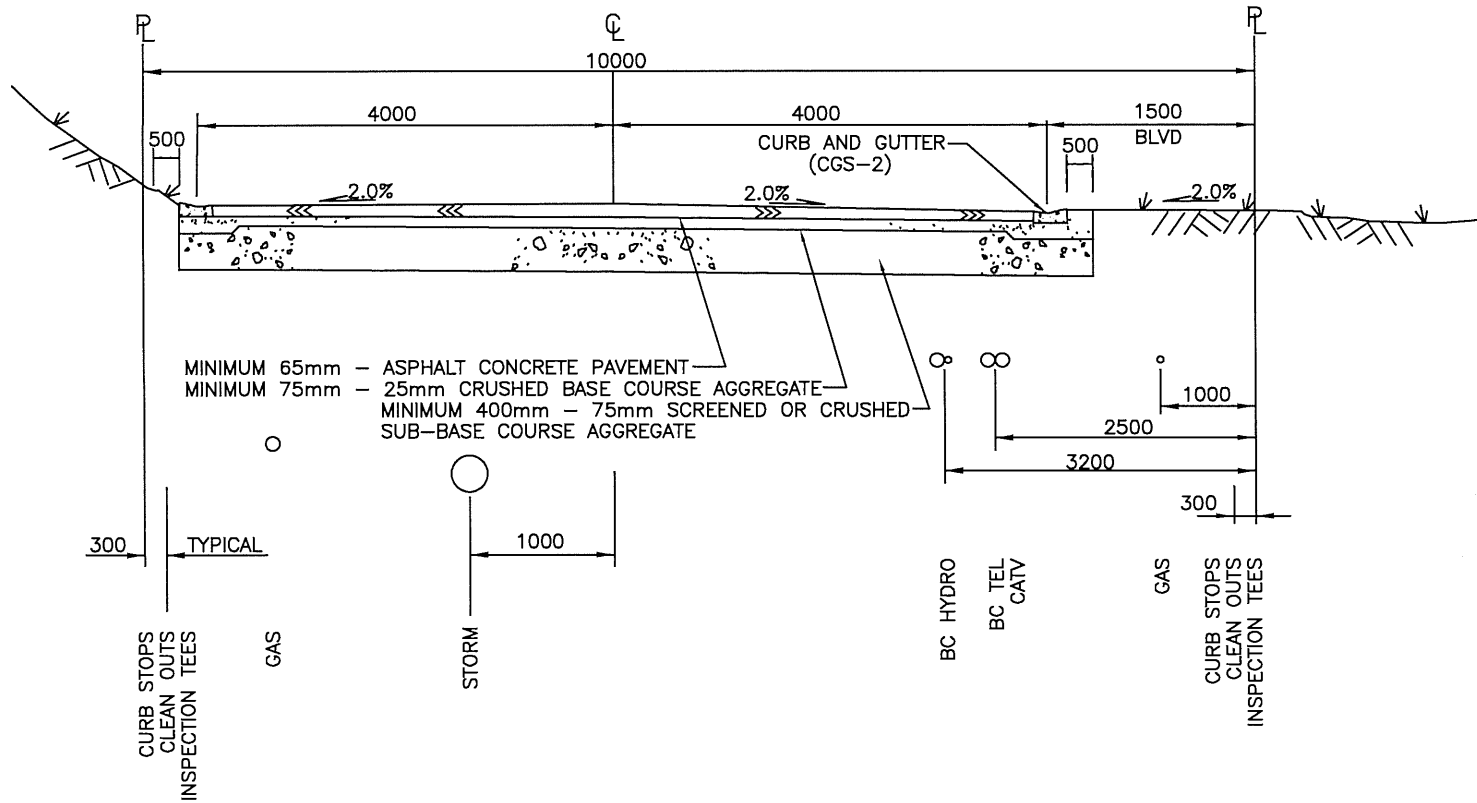
**NOTES:**

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.



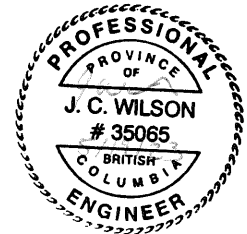
| CITY OF SALMON ARM |                     |          | 7.3m R/W Lane Cross-Section |                     |                           |
|--------------------|---------------------|----------|-----------------------------|---------------------|---------------------------|
| No.                | Revision            | Date     | Date                        | Approved            | SPECIFICATION DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                  | <i>J. C. Wilson</i> | RD-12A                    |
|                    |                     |          |                             | City Engineer       |                           |

Adopted by Council June XX, 2023




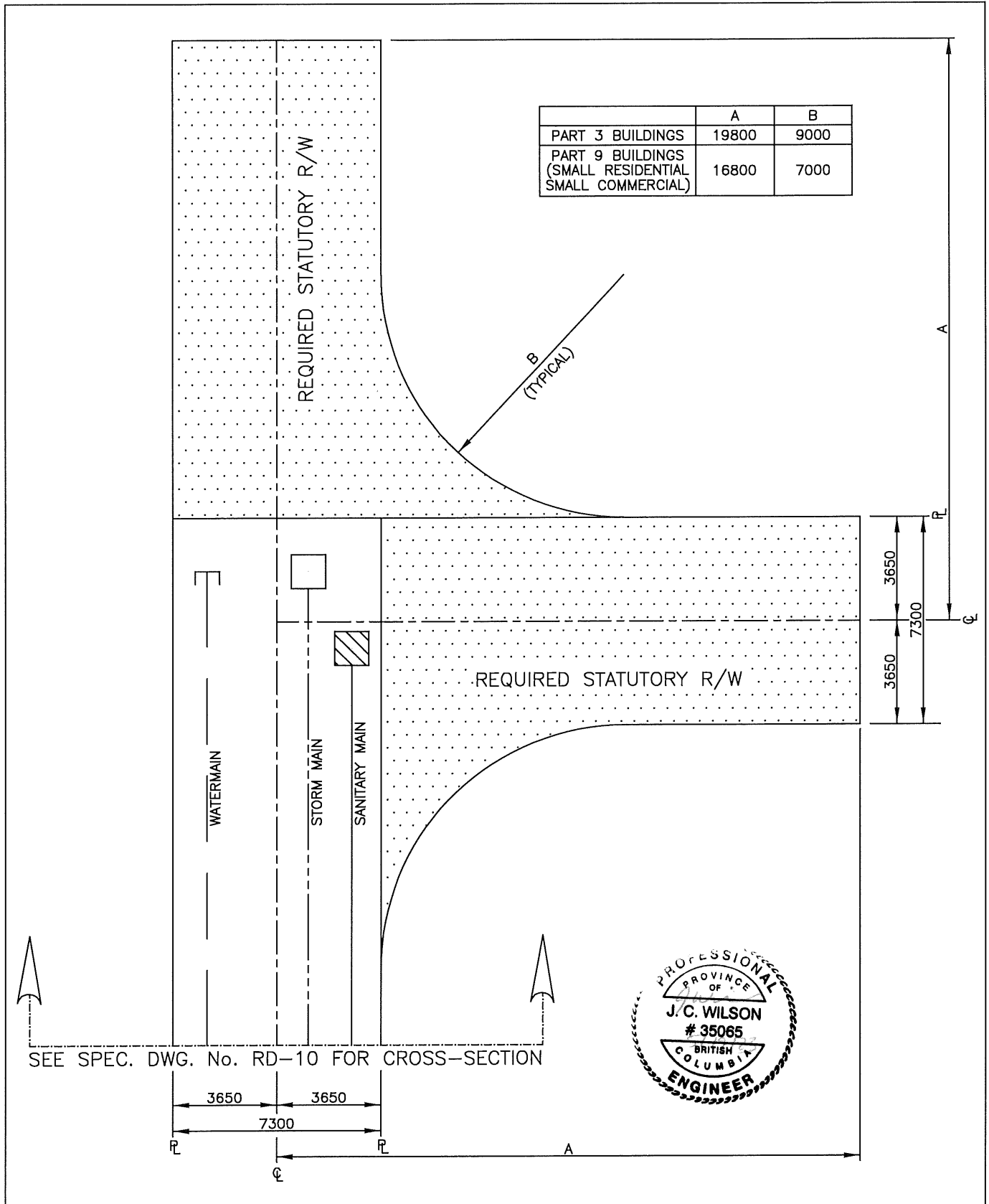
**NOTES:**


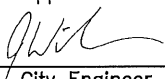
- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.

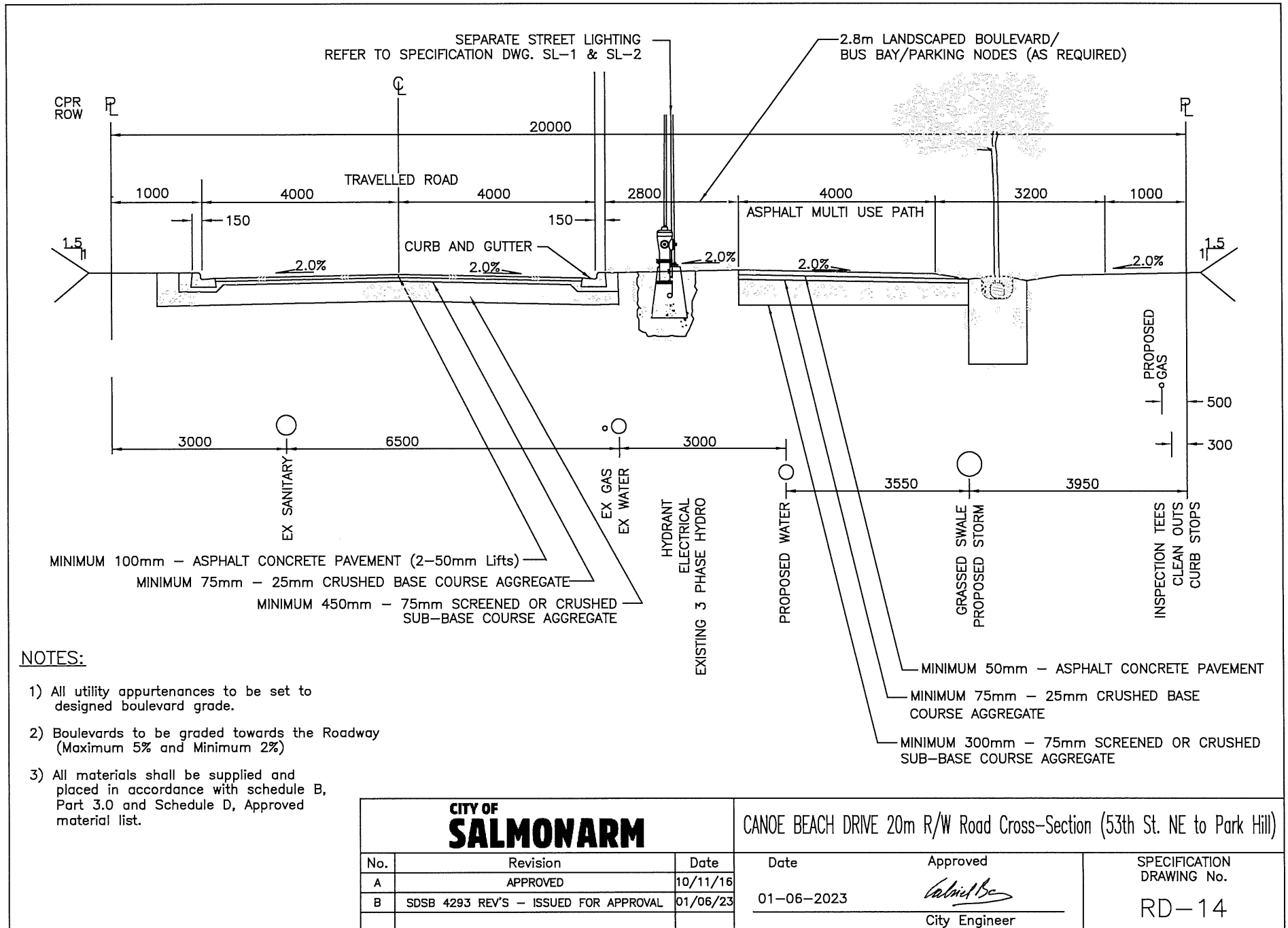


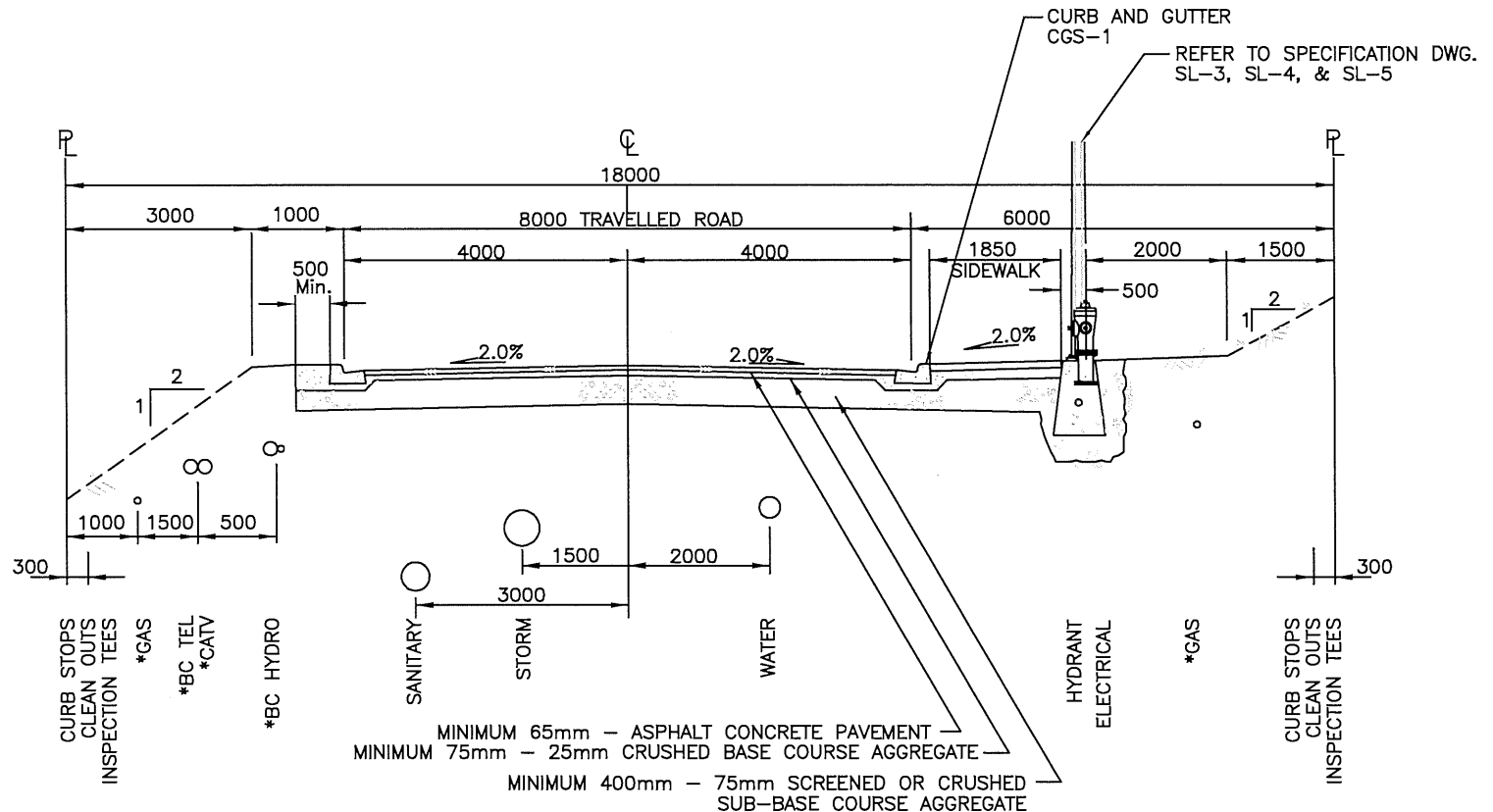
| CITY OF SALMON ARM |                     |          |
|--------------------|---------------------|----------|
| No.                | Revision            | Date     |
| A                  | ISSUED FOR APPROVAL | 07/14/16 |
|                    |                     |          |
|                    |                     |          |

| 10.0m R/W Lane Cross-Section |                                                                                                        |                           |
|------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------|
| Date                         | Approved                                                                                               | SPECIFICATION DRAWING No. |
| 10-11-2016                   | <br>City Engineer | RD-12B                    |



|                                                                                                        |                     |          |                        |                                                                                                       |                              |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
|  CITY OF SALMON ARM |                     |          | Lane – 'T' Turn Around |                                                                                                       |                              |
| No.                                                                                                    | Revision            | Date     | Date                   | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016             | <br>City Engineer | RD-13                        |
|                                                                                                        |                     |          |                        |                                                                                                       |                              |





\*Locations of utilities may vary to accommodate topographic issues

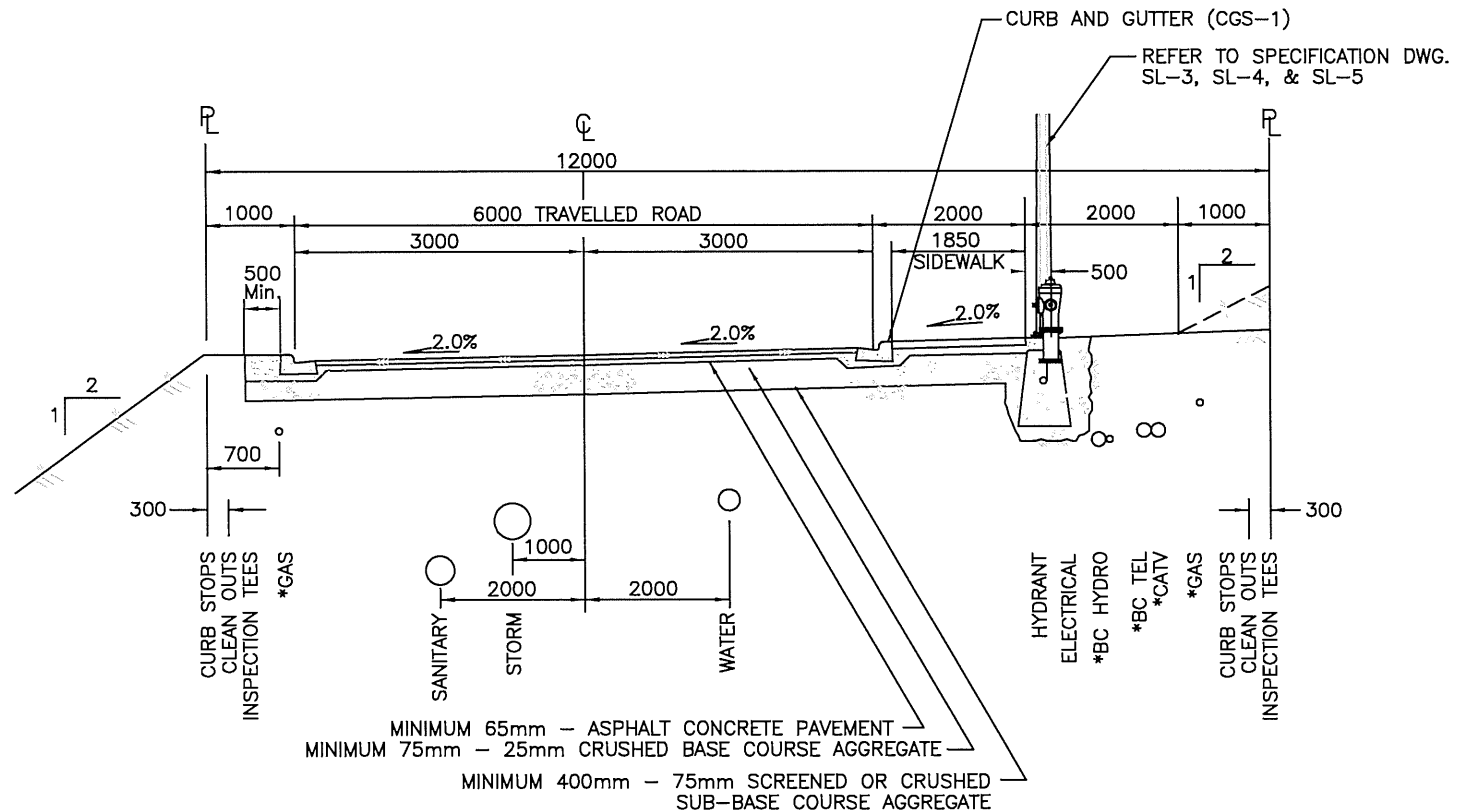
#### NOTES:

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Disturbed slopes shall be hydroseeded.
- 5) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.
- 6) Driveways on low side of road shall have a minimum highpoint 0.10m above road gutterline, or as required by the hydraulic capacity of roadway.
- 7) Locations of transformers/pedestals/junction boxes/service tubs to be confirmed on site specific basis.

| CITY OF<br><b>SALMON ARM</b> |                                       |          | 18m R/W Urban Local Road Cross-Section<br>(Hillside Development) |                  |                              |
|------------------------------|---------------------------------------|----------|------------------------------------------------------------------|------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                                             | Approved         | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 |                                                                  | <i>Calvin Be</i> |                              |
| B                            | SDSB 4293 REV's - ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023                                                       | City Engineer    | RD-15                        |

Adopted by Council February XX, 2023






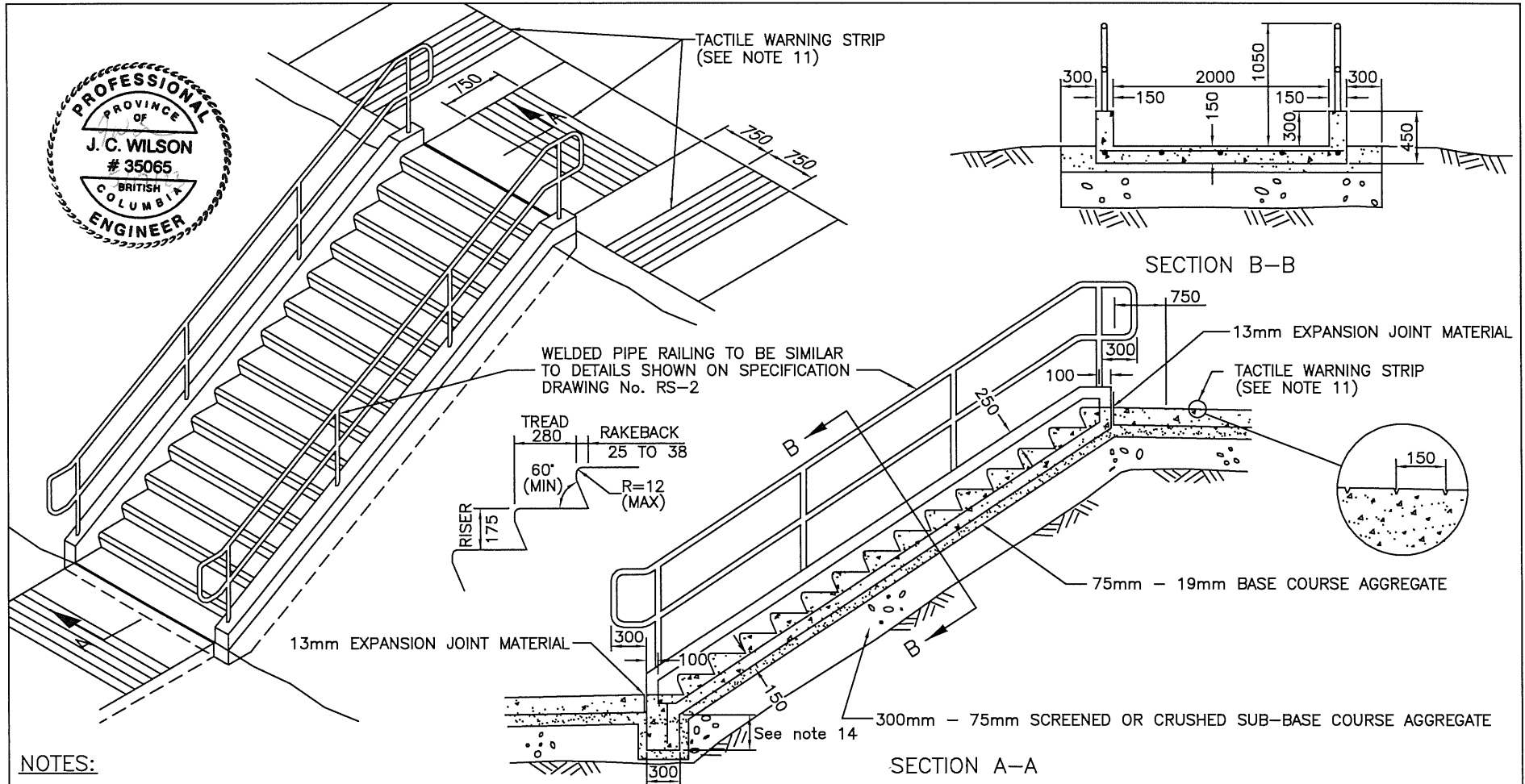
\*Locations of utilities may vary to accommodate topographic issues

#### NOTES:

- 1) All utility appurtenances to be set to designed boulevard grade.
- 2) Boulevards to be graded towards the Roadway (Maximum 5% and Minimum 2%)
- 3) All materials shall be supplied and placed in accordance with schedule B, Part 3.0 and Schedule D, Approved material list.
- 4) Disturbed slopes shall be hydroseeded.
- 5) Grades in excess of 2H:1V shall be recommended by a geotechnical engineer and approved by the City Engineer.
- 6) Driveways on low side of road shall have a minimum highpoint 0.10m above road gutterline, or as required by the hydraulic capacity of roadway.
- 7) Locations of transformers/pedestals/junction boxes/service tubs to be confirmed on site specific basis.

| CITY OF<br><b>SALMON ARM</b> |                                        |          | 12m R/W Urban Single Lane Local Road Cross-Section<br>(Hillside Development) |                                                                                       |                              |
|------------------------------|----------------------------------------|----------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                               | Date     | Date                                                                         | Approved                                                                              | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                               | 10/11/16 | 01-06-2023                                                                   |  | RD-16                        |
| B                            | SDSB 4293 REV'S -- ISSUED FOR APPROVAL | 01/06/23 |                                                                              |                                                                                       |                              |
|                              |                                        |          |                                                                              | City Engineer                                                                         |                              |

Adopted by Council February XX, 2023



**NOTES:**

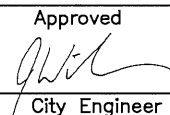
- 1) Concrete works shall be in accordance with CAN/CSA-A23.1-M04 & CAN/CSA-A23.2-M04 & CSA approved materials list.
- 2) Concrete shall be ready-mixed supplied by a company certified by the British Columbia Ready-mix Concrete Association for conformance for Concrete Production Facilities.
- 3) Minimum compressive strength of 32 MPa at 28 days.
- 4) Coarse aggregate of maximum particle size not exceeding 19mm.
- 5) Minimum cement content of 350 kg/m<sup>3</sup>.
- 6) Entrained air of 5-8%.
- 7) Slump: Between 10 - 25mm.
- 8) Maximum water: Cement ratio of 0.45
- 9) All reinforcing to be 15M steel bars placed as shown.
- 10) All external edges to be rounded to 13mm radius.
- 11) Tactile warning strips and signage to be located at top and bottom of stairs. Tactile strips to start minimum one tread width from last step.
- 12) Landing required every 3.7m in vertical height
- 13) Stairs to be built to B.C. Building Code Requirements.
- 14) Designed by Consulting Engineer.

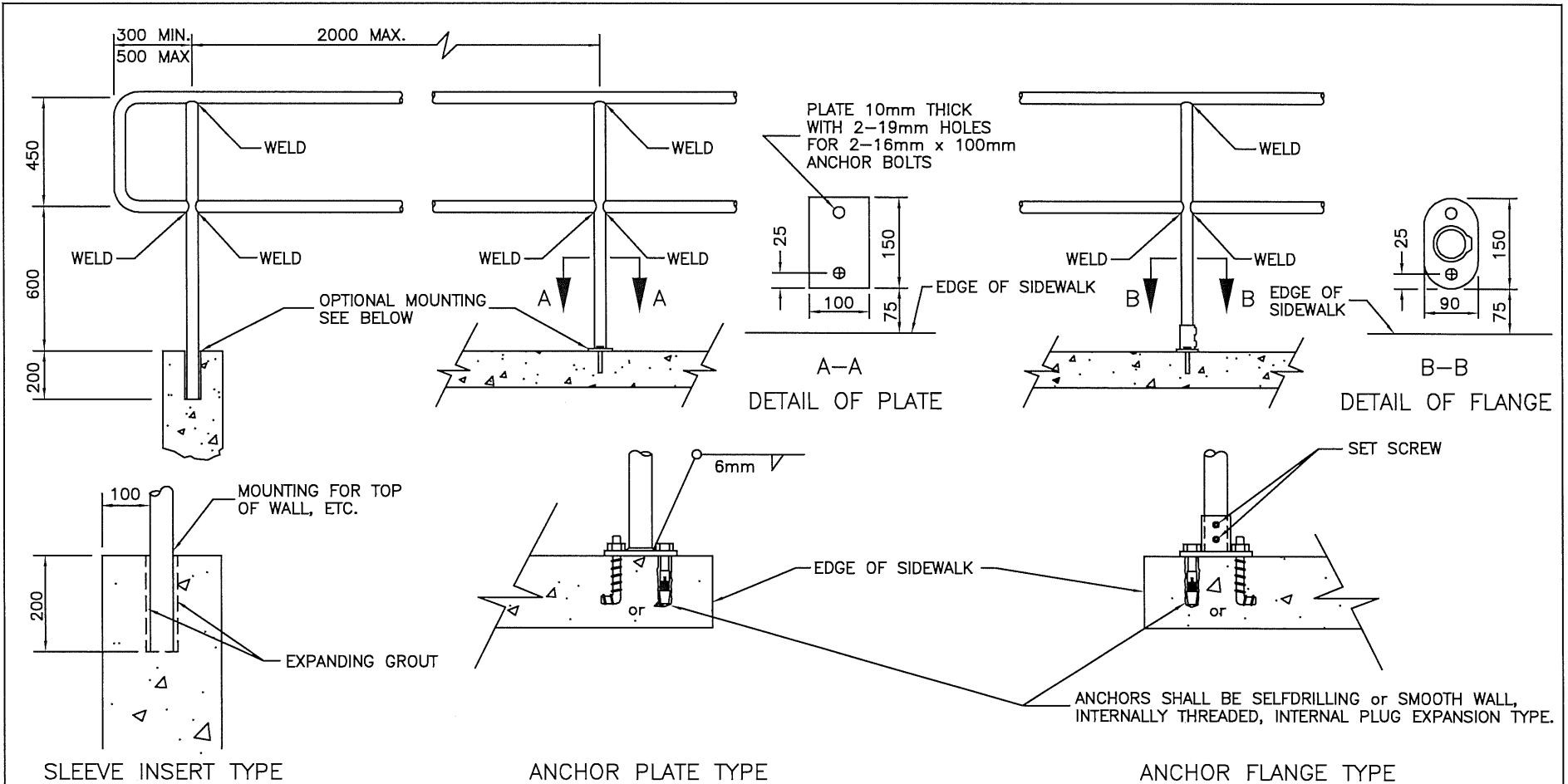


CITY OF SALMON ARM

| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

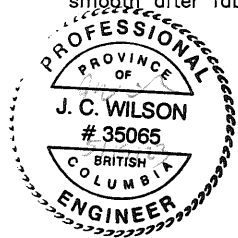
Reinforced Concrete Stairs

| Date       | Approved                                                                                               | SPECIFICATION DRAWING No. |
|------------|--------------------------------------------------------------------------------------------------------|---------------------------|
| 10-11-2016 | <br>City Engineer | RS-1                      |

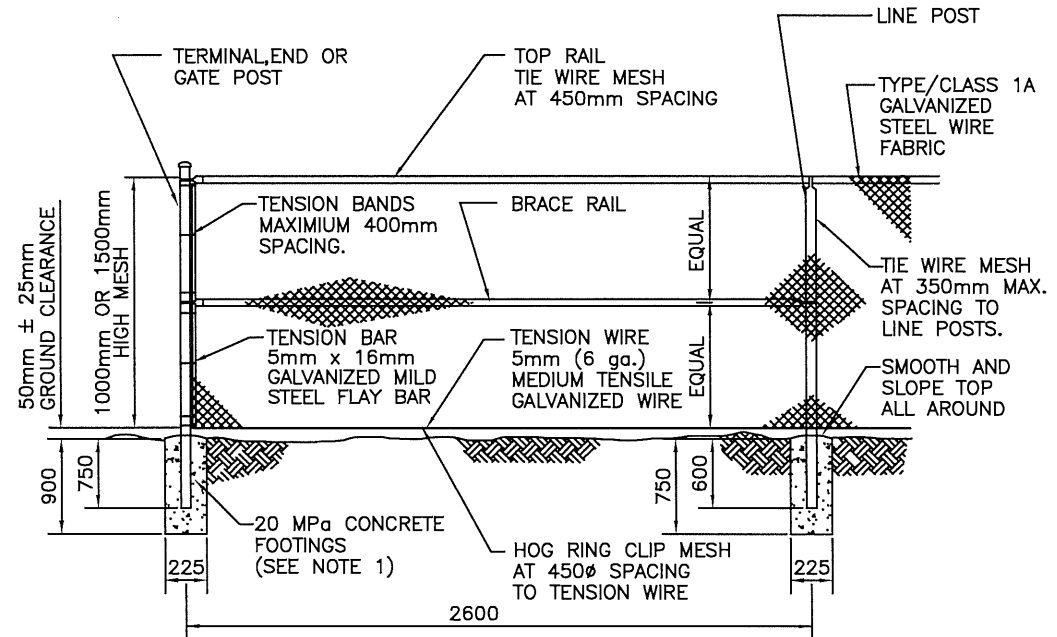
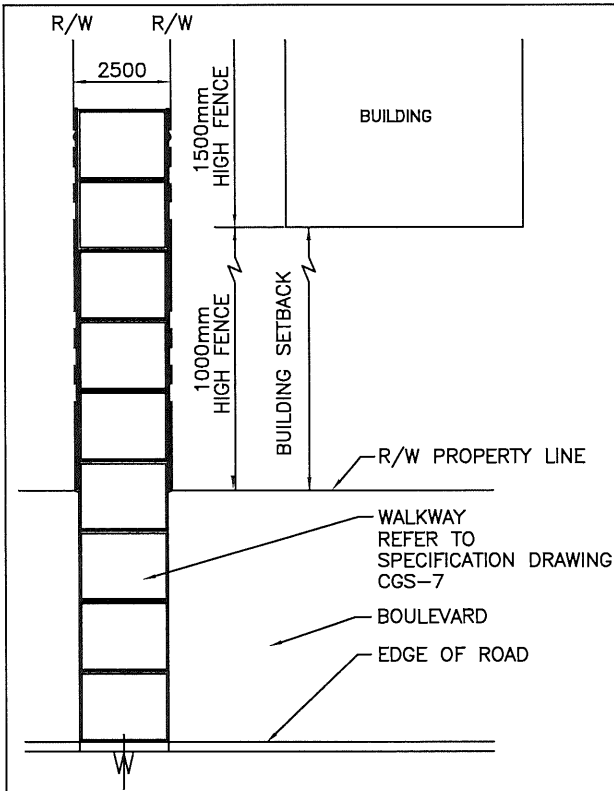


**NOTES:**

- 1) All posts and rails to be 48mm O.D. to A.S.T.M. A 120 'Standard' weight (Schedule 40).
- 2) Welds shall be full bead and shall have all rough edges ground smooth after fabrication.
- 3) Pipe fittings shall be malleable iron with case hardened set-screws conforming to A.S.T.M. A 47 grade 32510.
- 4) Final finish, upon completion of fabrication, to be factory powder coating as follows:
  - Min. 2.5–4 mil of epoxy thermosetting powder basecoat
  - Min 4–6 mil of polyester thermosetting powder topcoat
  - Color to be selected by owner



| CITY OF SALMON ARM |                     |          | Sidewalk Railing                     |                    |
|--------------------|---------------------|----------|--------------------------------------|--------------------|
| No.                | Revision            | Date     | Date                                 | Approved           |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                           | <i>[Signature]</i> |
|                    |                     |          |                                      | City Engineer      |
|                    |                     |          | SPECIFICATION<br>DRAWING No.<br>RS-2 |                    |

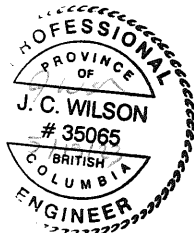


# NOTES:

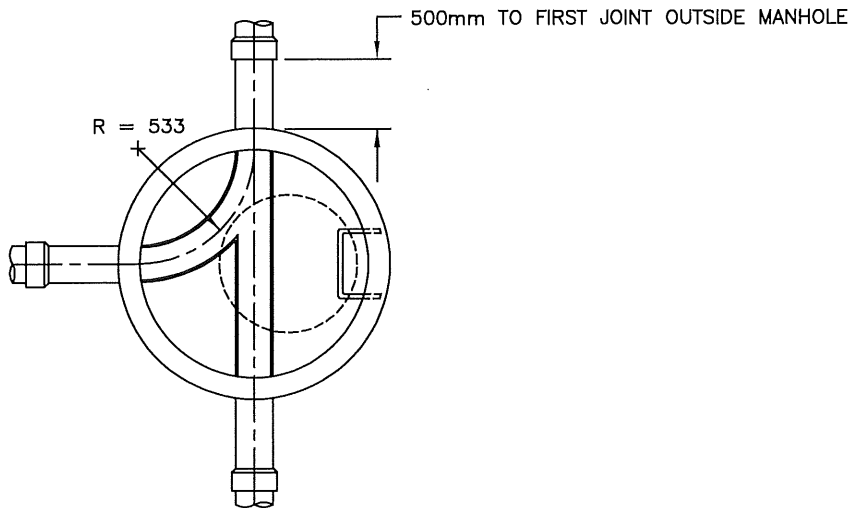
- 1) All concrete footings to be 20 MPa at 28 days.
- 2) Final finish to be Double Hot Dipped Galvanizing, minimum 360 g/m<sup>2</sup>.
- 3) Tension bar should go through every mesh loop and fastened to terminal and straining posts with tension bands as specified above

# POST AND RAIL SIZES – O.D. MINIMUM

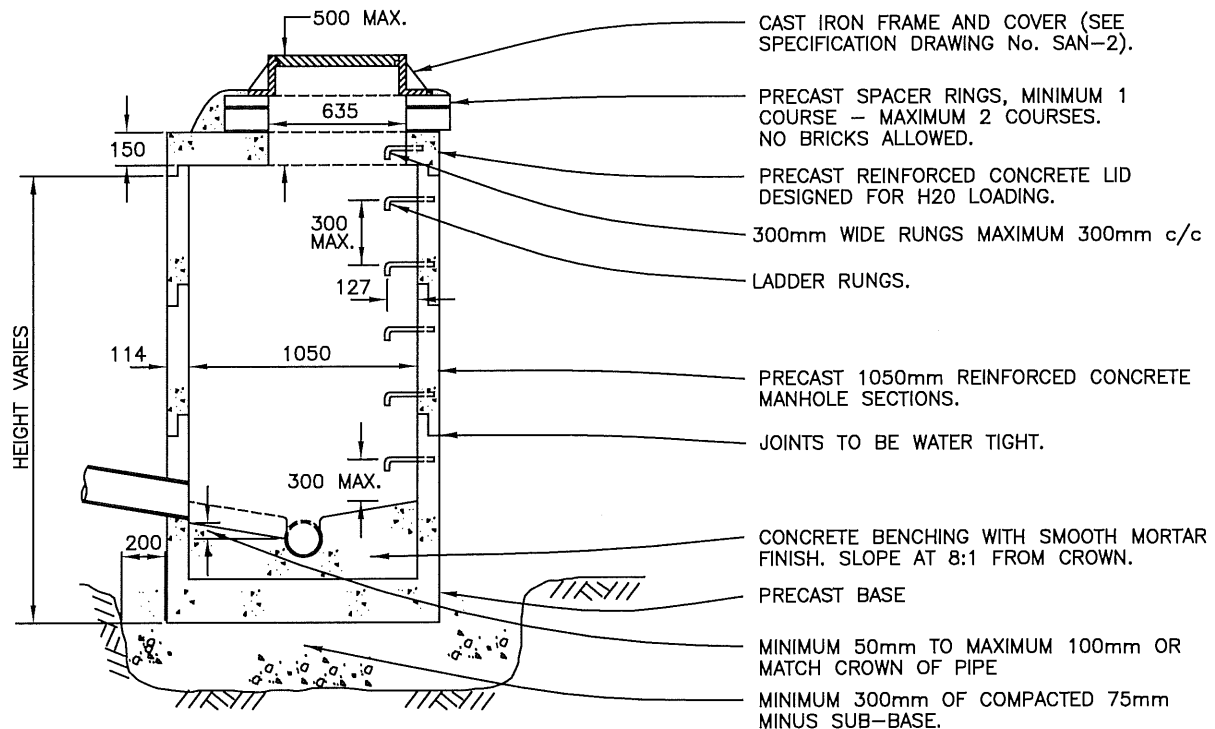
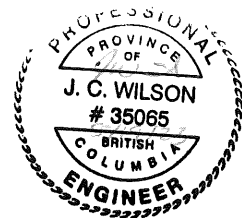
|                                                                                                                                                   | STANDARD  |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| LINE POSTS                                                                                                                                        | 60        |
| END, CORNER, & STRAINING POSTS                                                                                                                    | 90 Sch.40 |
| TOP RAILS                                                                                                                                         | 42        |
| HORIZONTAL BRACE RAILS*                                                                                                                           | 33        |
| *NOTE: DIAGONAL PIPE BRACES MAY BE SPECIFIED WHERE SOIL CONDITIONS WARRANT, ESPECIALLY WHERE TOP TENSION WIRE IS CALLED FOR IN PLACE OF TOP RAIL. |           |



|                    |                     |          |                                |                    |
|--------------------|---------------------|----------|--------------------------------|--------------------|
| CITY OF SALMON ARM |                     |          | Chain Link Fence for Walkway   |                    |
| No.                | Revision            | Date     | Date                           | Approved           |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                     | <i>[Signature]</i> |
|                    |                     |          |                                | City Engineer      |
|                    |                     |          | SPECIFICATION DRAWING No. RS-3 |                    |




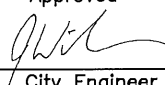
PLAN



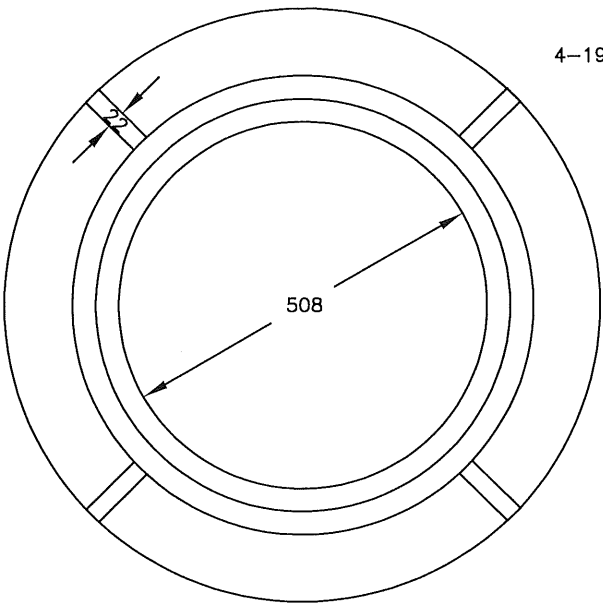
NOTES:

ELEVATION

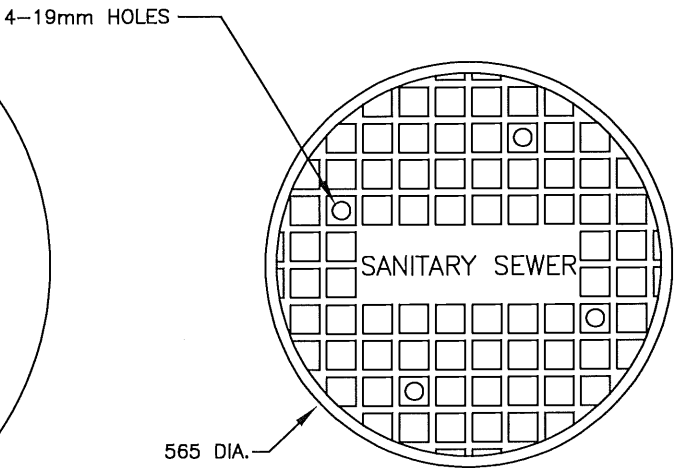
- 1) Manhole sections, lid, spacer rings & any breaks made into manhole sections shall be made water tight with approved sealants or gaskets inside and out.
- 2) All joints to have smooth mortar finish.
- 3) Top of pipe running through manhole to be broken out.
- 4) Frame & cover to be set at 5mm below finished asphalt design grade and cross-fall.
- 5) 1200mm Manhole required for pipes larger than 600mm and/or number of pipes exceed allowable for 1050mm manhole.
- 6) No low profile cast iron frame allowed, unless approved by the City Engineer.

|                                                                                                        |                     |          |                                 |                                                                                                       |                           |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|---------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
|  CITY OF SALMON ARM |                     |          | Typical 1050mm Sanitary Manhole |                                                                                                       |                           |
| No.                                                                                                    | Revision            | Date     | Date                            | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                      | <br>City Engineer | SAN-1                     |
|                                                                                                        |                     |          |                                 |                                                                                                       |                           |

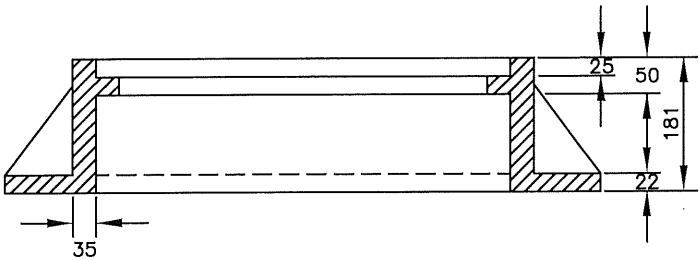




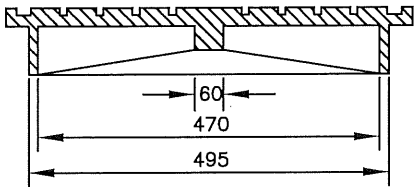
FRAME PLAN



COVER PLAN



FRAME ELEVATION



COVER ELEVATION

NOTES:

- 1) Frames and covers are to be designed to withstand H-20 loading.
- 2) Sanitary Sewer manhole covers shall be labelled: 'SANITARY SEWER'
- 3) No low profile cast iron frame allowed, unless approved by the City Engineer.
- 4) Bolt-down covers shall be used when directed by City Engineer.



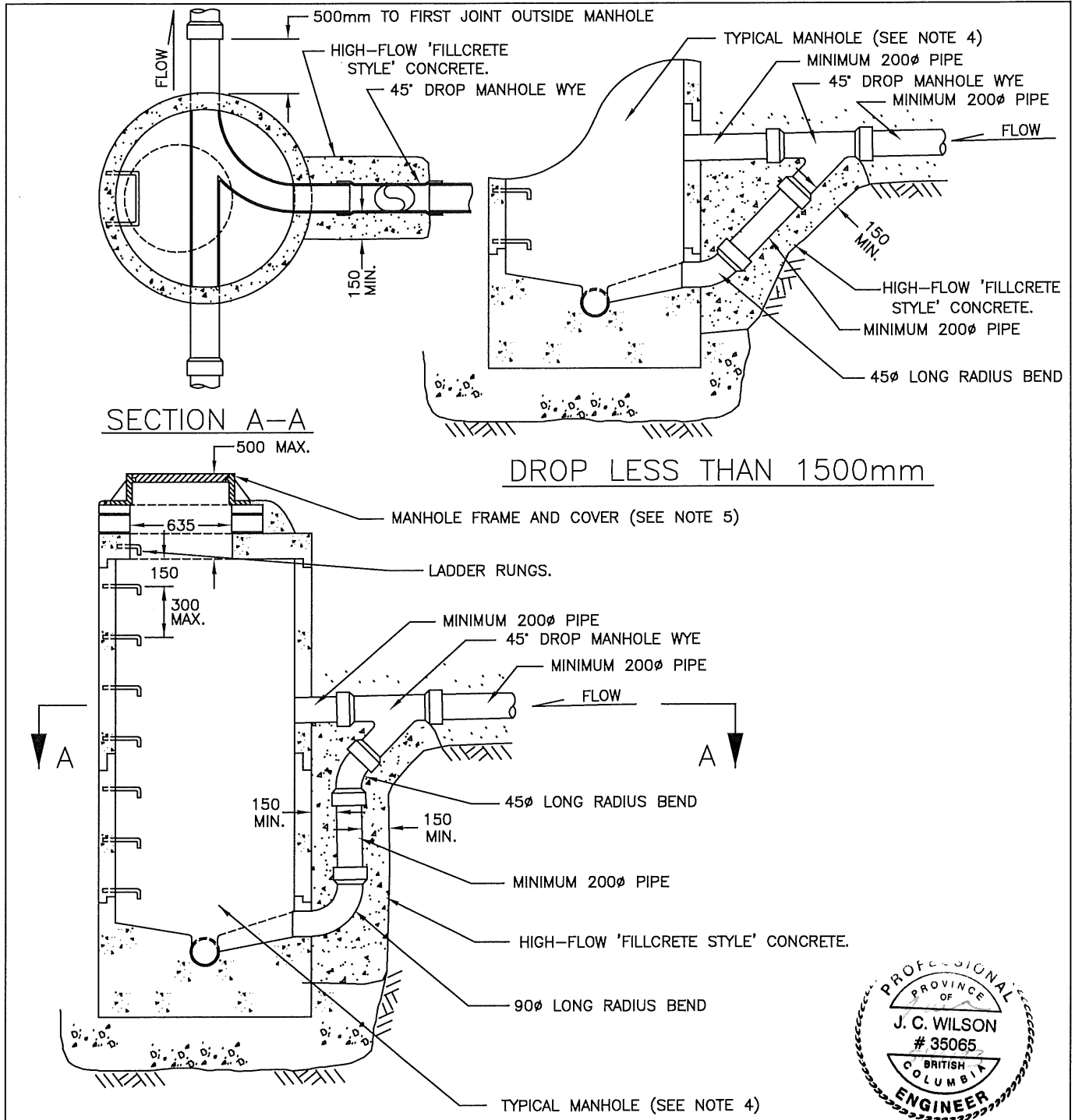
CITY OF SALMON ARM

H-20 Manhole Frame & Cover

| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

| Date       | Approved      |
|------------|---------------|
| 10-11-2016 |               |
|            | City Engineer |

SPECIFICATION  
DRAWING No.  
SAN-2


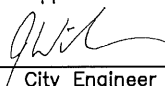


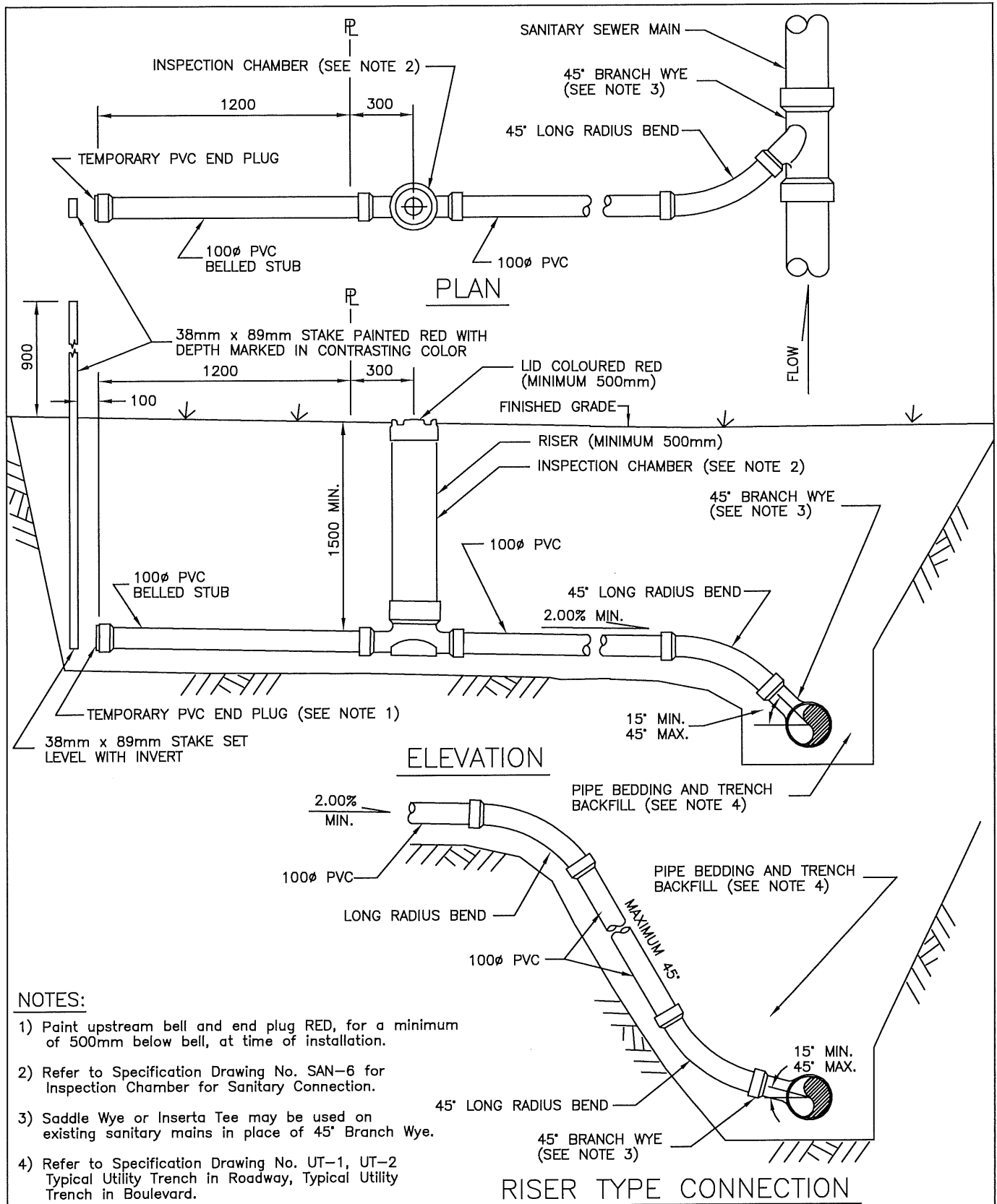
## DROP GREATER THAN 1500mm

### NOTES:

- 1) Inside ramps shall be utilized where the elevation of the invert is the same or below the crown of the through pipe (Refer to Specification Drawing San-1).
- 2) All joints to have smooth mortar finish.

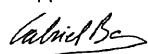
- 3) Encasement Concrete strength to be high-flow 'fillcrete style' concrete.
- 4) Refer to Specification Drawing No. San-1, Typical 1050mm Sanitary Manhole.
- 5) Refer to Specification Drawing No. San-2, H-20 Manhole Frame & Cover.
- 6) Inside drop to be approved by the City Engineer.

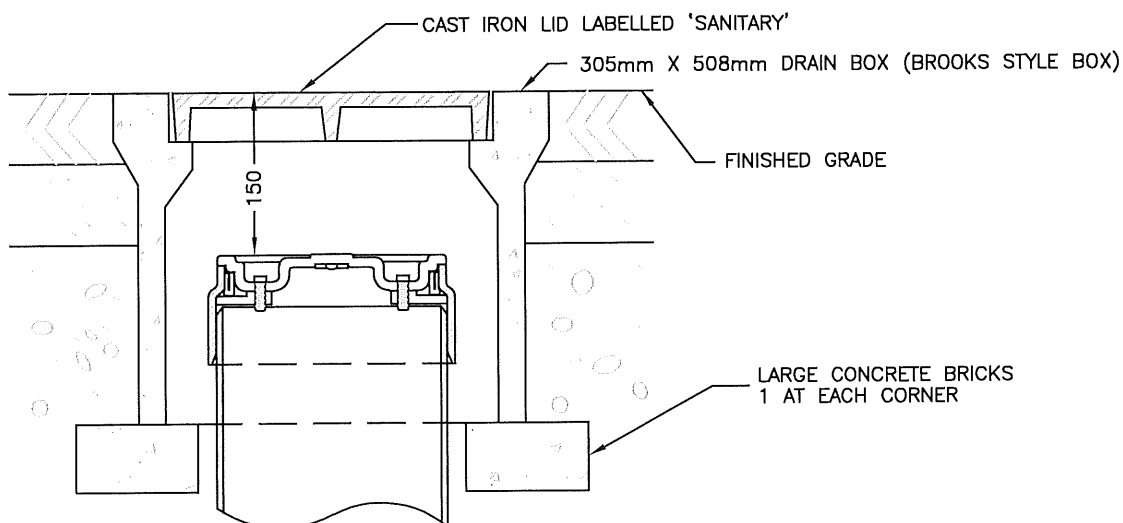
|                                                                                                        |                     |          |                                      |                                                                                                       |                           |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|--------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
|  CITY OF SALMON ARM |                     |          | Typical 1050mm Sanitary Drop Manhole |                                                                                                       |                           |
| No.                                                                                                    | Revision            | Date     | Date                                 | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                           | <br>City Engineer | SAN-3                     |



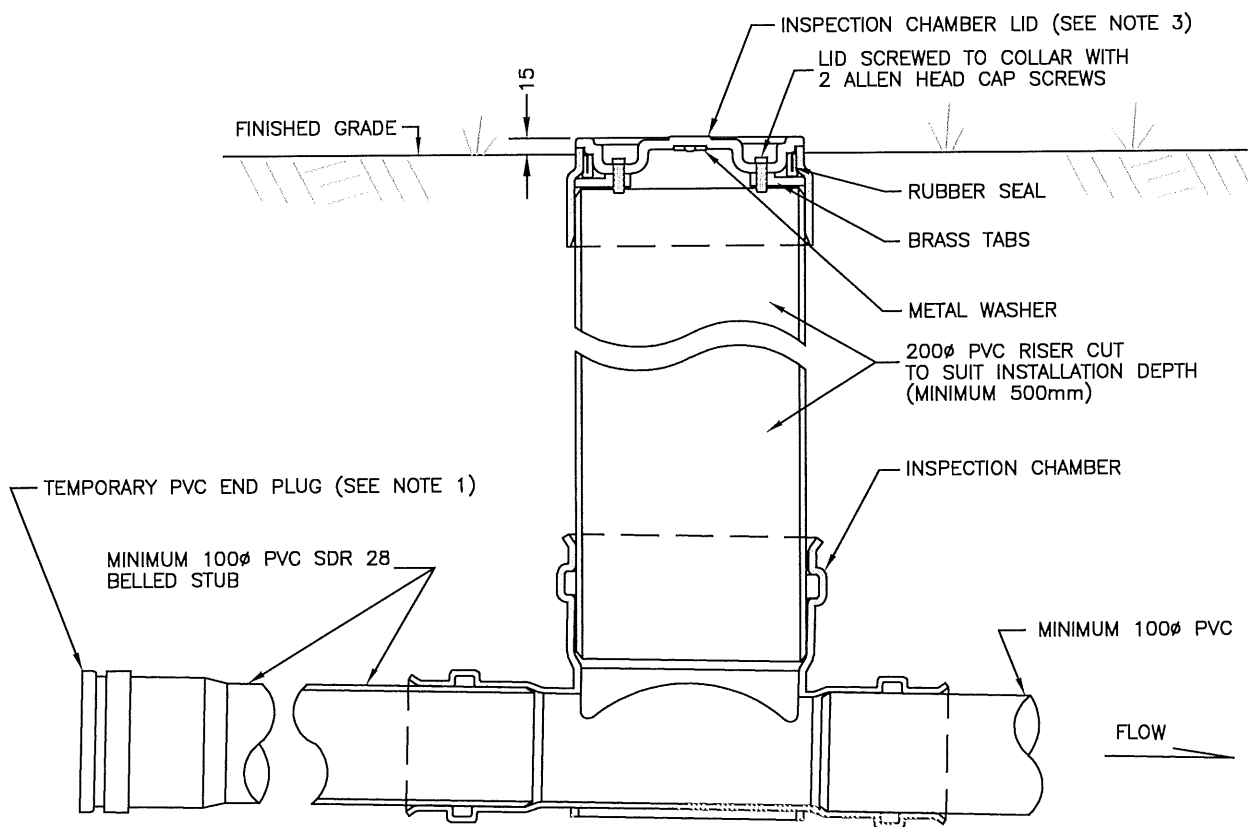
**NOTES:**

- 1) Paint upstream bell and end plug RED, for a minimum of 500mm below bell, at time of installation.
- 2) Refer to Specification Drawing No. SAN-6 for Inspection Chamber for Sanitary Connection.
- 3) Saddle Wye or Inserta Tee may be used on existing sanitary mains in place of 45° Branch Wye.
- 4) Refer to Specification Drawing No. UT-1, UT-2 Typical Utility Trench in Roadway, Typical Utility Trench in Boulevard.

| CITY OF<br><b>SALMON ARM</b> |                                       |          | Typical 100MM Sanitary Service Connection |                                                                                      |                              |
|------------------------------|---------------------------------------|----------|-------------------------------------------|--------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                      | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                                |  | SAN-4                        |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                                           |                                                                                      |                              |
|                              |                                       |          |                                           |                                                                                      |                              |



## INSTALLATION w/ DRAIN BOX (BROOKS STYLE BOX)

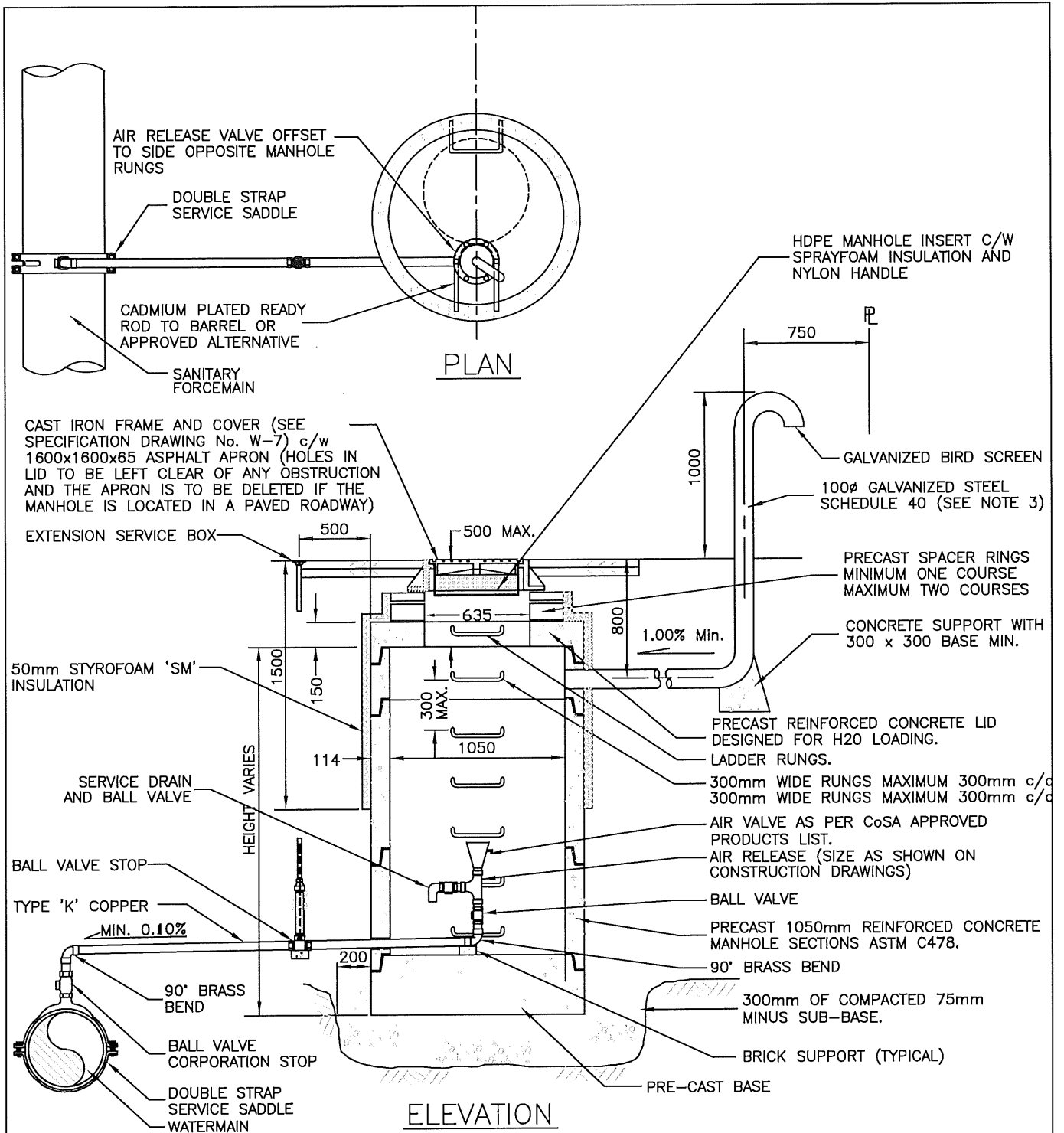


### NOTES:

- 1) Paint upstream bell and end plug RED, for a minimum of 500mm below bell, at time of installation.
- 2) Refer to Specification Drawing No. SAN-4 Typical 100mm Sanitary Connection.
- 3) Inspection chamber lid to be coloured red.

| CITY OF<br><b>SALMON ARM</b> |                                       |          | Inspection Chamber for Sanitary Connection |                     |                              |
|------------------------------|---------------------------------------|----------|--------------------------------------------|---------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                       | Approved            | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 |                                            | <i>Calvin Be...</i> |                              |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 | 01-06/2023                                 | City Engineer       | SAN-6                        |

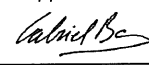
Adopted by Council February XX, 2023



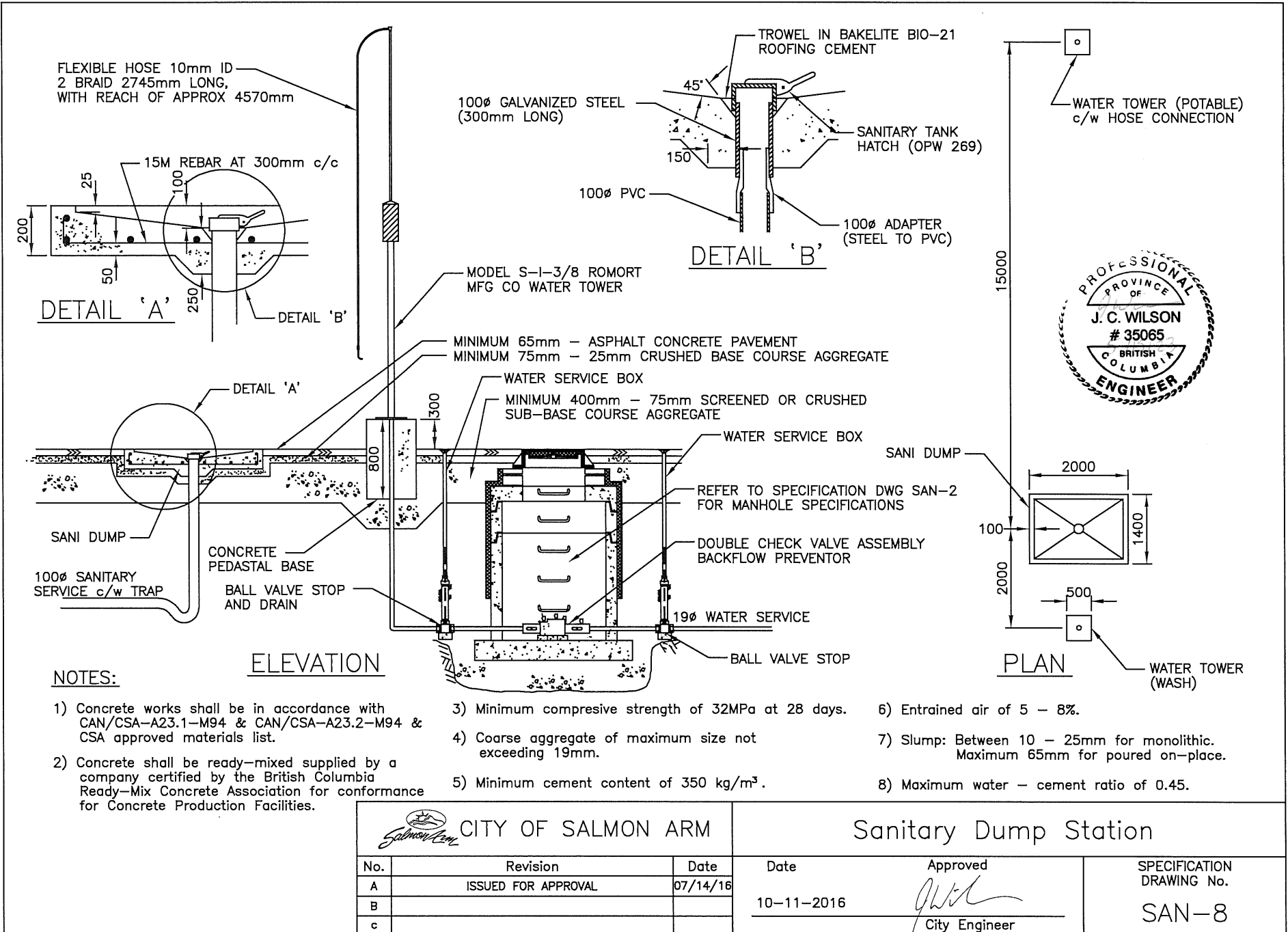
**NOTES:**

- 1) Frame & cover to be set at 5mm below finished asphalt design grade and cross-fall.
- 2) 100Ø vent to be used in rural areas only.
- 3) Combination Air Release where required by City Engineer.

| PIPE SIZE (mm)  | AIR RELEASE VALVE (mm) |
|-----------------|------------------------|
| 200 AND SMALLER | 25                     |
| 250 TO 350      | 50                     |
| 400 TO 500      | 75                     |

| CITY OF<br><b>SALMON ARM</b> |                                       |          | Air Release Valve – Forcemain |                                                                                      |                              |
|------------------------------|---------------------------------------|----------|-------------------------------|--------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                          | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                    |  | SAN-7                        |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                               |                                                                                      |                              |
|                              |                                       |          |                               | City Engineer                                                                        |                              |





| CITY OF SALMON ARM |                     |          | Sanitary Dump Station |                    |                              |
|--------------------|---------------------|----------|-----------------------|--------------------|------------------------------|
| No.                | Revision            | Date     | Date                  | Approved           | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016            | <i>[Signature]</i> | SAN-8                        |
| B                  |                     |          |                       |                    |                              |
| C                  |                     |          |                       | City Engineer      |                              |

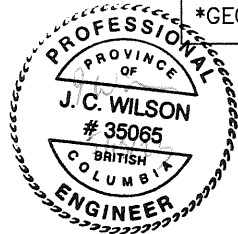
PROJECT

(Total peak flow as the sum of peak population flow and peak extraneous flow)

Adopted by Council February XX, 2023

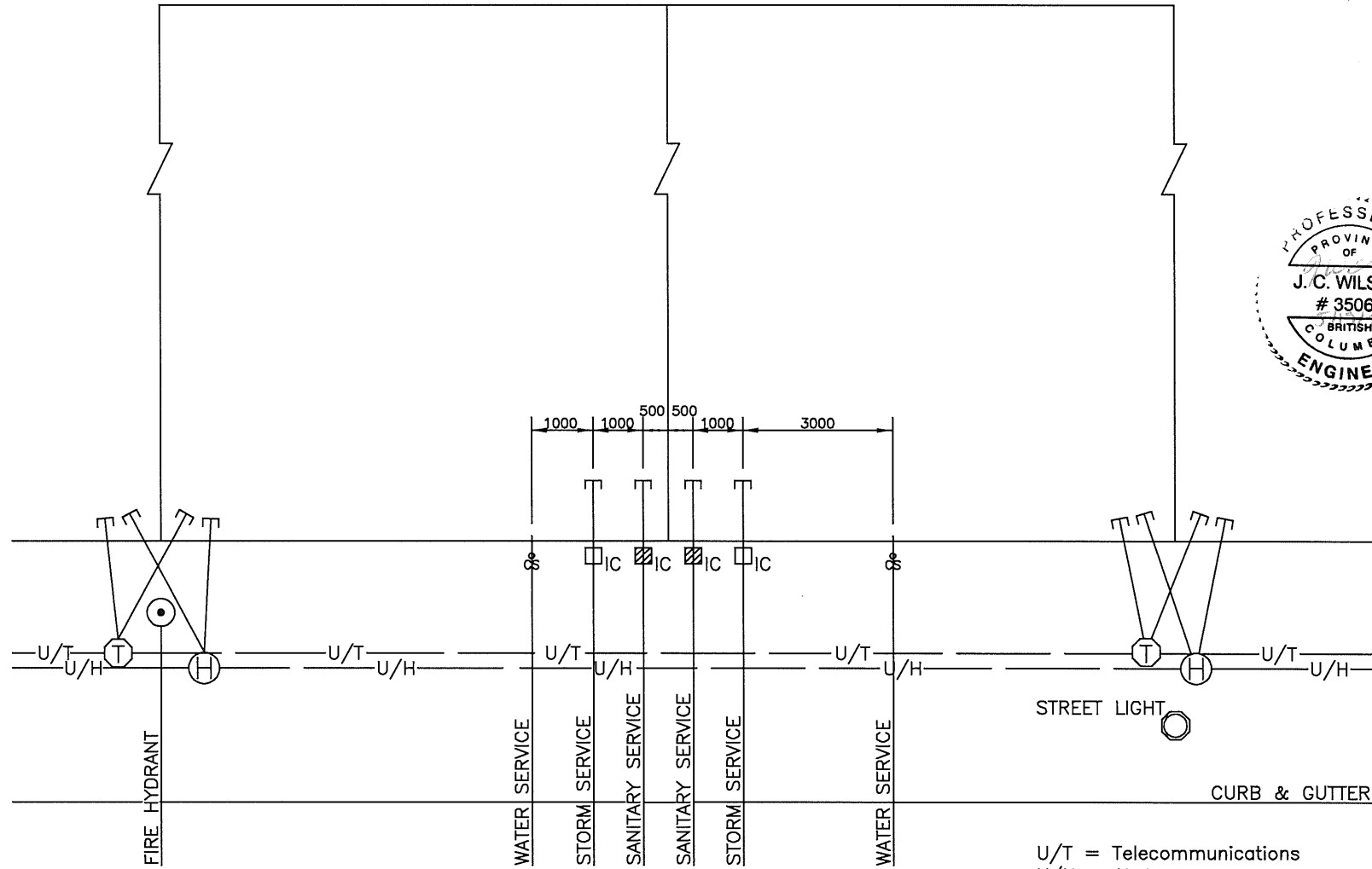
# UTILITY RECORD

| SUBDIVISION/ADDRESS              |  | LEGAL DESCRIPTION                                            | LOCATION PLAN |  |
|----------------------------------|--|--------------------------------------------------------------|---------------|--|
| SUBDIVISION:<br>ADDRESS:         |  | LOT:<br>PLAN:<br>SEC:                                        |               |  |
| WATER CONNECTION                 |  | STORM CONNECTION                                             |               |  |
| DATE INSTALLED:<br>INSTALLED BY: |  | DATE INSTALLED:<br>INSTALLED BY:                             |               |  |
| SIZE:<br>MATERIAL:               |  | SIZE:<br>MATERIAL:                                           |               |  |
| INV:<br>LOCATION:                |  | * INV. ELEV. AT P/L:<br>LOCATION:<br><br>*GEODETIC ELEVATION |               |  |
| SANITARY CONNECTION              |  | NOTES                                                        |               |  |
| DATE INSTALLED:                  |  |                                                              |               |  |
| INSTALLED BY:                    |  |                                                              |               |  |
| SIZE:                            |  |                                                              |               |  |
| MATERIAL:                        |  |                                                              |               |  |
| * INV. ELEV. AT P/L:             |  |                                                              |               |  |
| LOCATION:                        |  |                                                              |               |  |
| *GEODETIC ELEVATION              |  |                                                              |               |  |
|                                  |  |                                                              |               |  |
|                                  |  |                                                              |               |  |
|                                  |  |                                                              |               |  |
|                                  |  | CONSULTANT NAME                                              |               |  |



| CITY OF SALMON ARM |                     |          |
|--------------------|---------------------|----------|
| No.                | Revision            | Date     |
| A                  | ISSUED FOR APPROVAL | 07/14/16 |
|                    |                     |          |
|                    |                     |          |

| Utility Service Card |               |                           |
|----------------------|---------------|---------------------------|
| Date                 | Approved      | SPECIFICATION DRAWING No. |
| 10-11-2016           |               | SC-1                      |
|                      | City Engineer |                           |



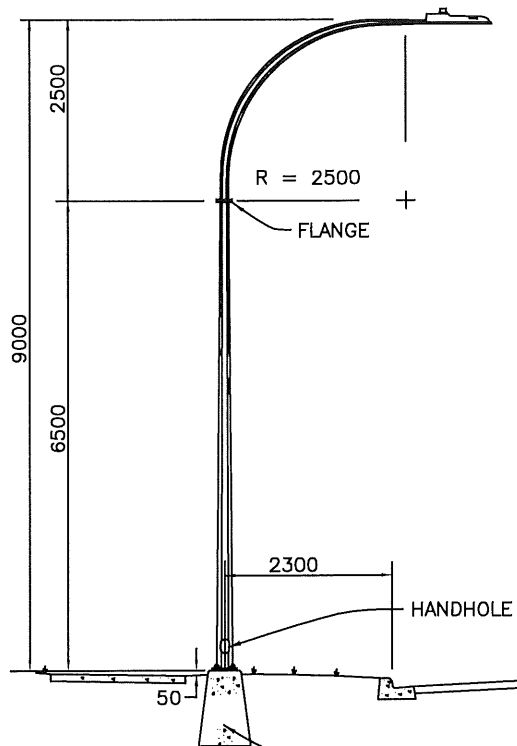
**NOTES:**

- 1) Fire Hydrants are to be located at property corners.
- 2) Hydro & Tel are to be located at property corners.
- 3) Street lighting is to be located at property corners where existing and proposed utilities will allow.
- 4) Services to be paired on PL where topography permits. Alternative service locations may be considered where site conditions warrant.

U/T = Telecommunications  
U/H = Hydro

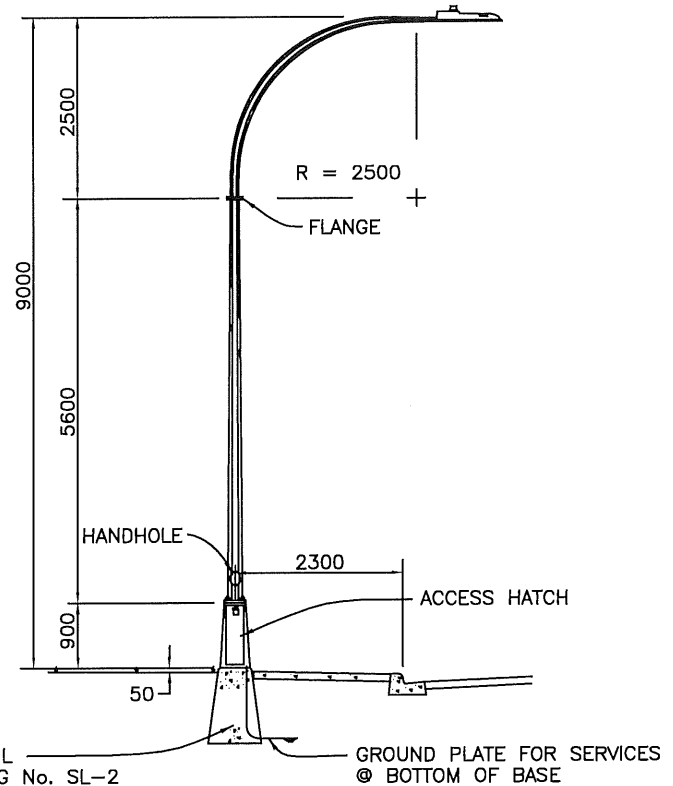
| CITY OF SALMON ARM |                     |          | TYPICAL LOT SERVICING                 |                    |
|--------------------|---------------------|----------|---------------------------------------|--------------------|
| No.                | Revision            | Date     | Date                                  | Approved           |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                            | <i>[Signature]</i> |
|                    |                     |          |                                       | City Engineer      |
|                    |                     |          | SPECIFICATION<br>DRAWING No.<br>SER-1 |                    |

Adopted by Council February XX, 2023

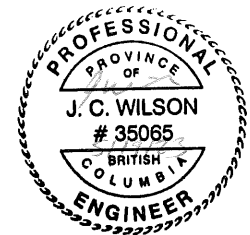


DAVIT STREET LIGHT

FOR CONCRETE BASE DETAIL  
SEE SPECIFICATION DRAWING No. SL-2


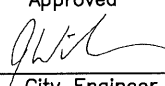


DAVIT STREET LIGHT  
c/w POWER BASE



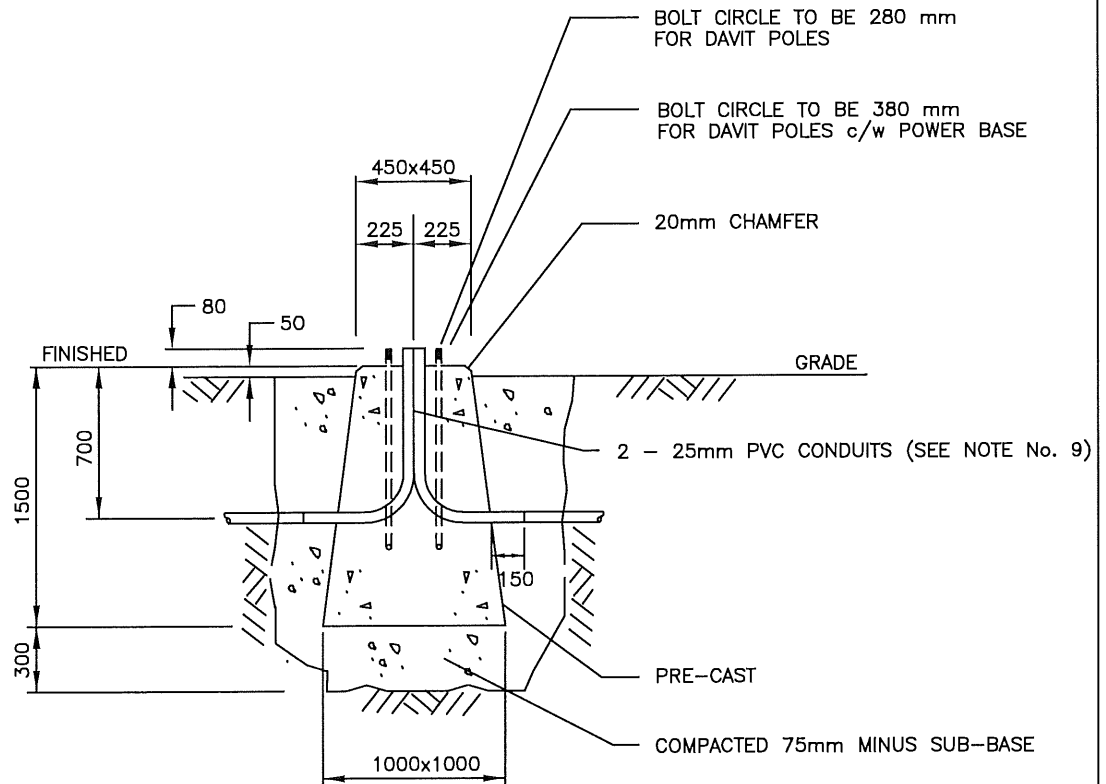
NOTES:

- 1) Confirm bolt circle patterns with supplier.
- 2) Provide grounding to Canadian Electrical Code.
- 3) Light specifications shall conform to City of Salmon Arm approved materials list.
- 4) Any changes to the specifications must be approved by the City Engineer.
- 5) Access hatch to be located opposite to adjacent traffic flow.

|                                                                                                               |                     |          |                                  |                                                                                                       |                              |
|---------------------------------------------------------------------------------------------------------------|---------------------|----------|----------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
|  <b>CITY OF SALMON ARM</b> |                     |          | <b>9.00m Davit Street Lights</b> |                                                                                                       |                              |
| No.                                                                                                           | Revision            | Date     | Date                             | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
|                                                                                                               | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                       | <br>City Engineer | SL-1                         |
|                                                                                                               |                     |          |                                  |                                                                                                       |                              |

Adopted by Council February XX, 2023

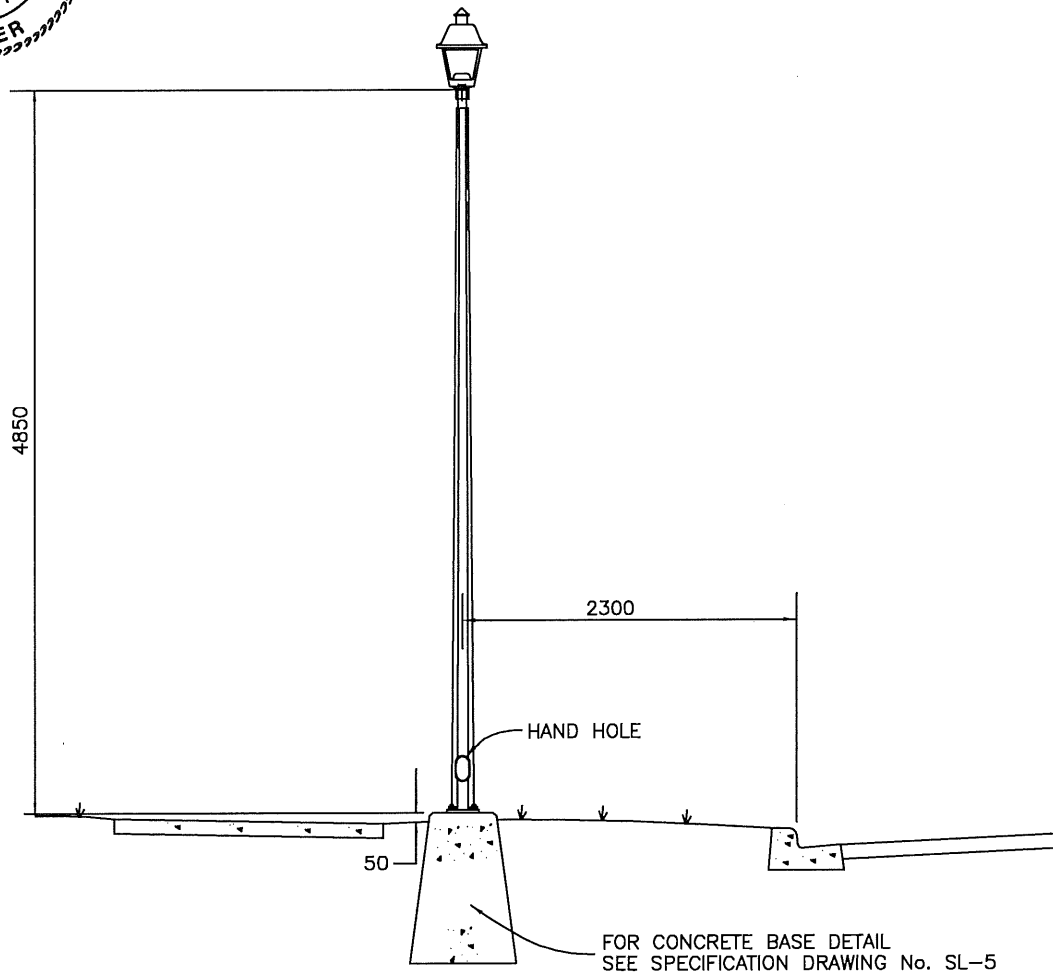
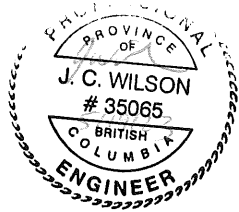




# NOTES:

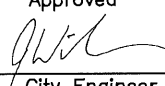
- 1) At last service base of duct run, install elbow and cap for future extension. (No exceptions.)
- 2) Provide additional 50mm duct to service base pole for BC Hydro service.
- 3) All hardware shall be hot dipped galvanized.
- 4) Apply Lubriplate or another suitable grease to exposed portion of anchor bolts and nuts.
- 5) Concrete shall have a compressive strength of 30 MPa prior to pole installation.
- 6) A 'V' groove drain trough to start at zero depth in centre of pedestal to a 10mm depth and width at the outside edge.
- 7) Confirm bolt circle pattern with supplier.
- 8) Anchor bolts to be: 4 – 25mm x 920mm hot dipped galvanized.
- 9) A 3rd – 25mm pvc conduit is needed for the ground wire on the power base.

| CITY OF SALMON ARM |                     |          | 9.00m Davit Concrete Pedestal |                                   |                              |
|--------------------|---------------------|----------|-------------------------------|-----------------------------------|------------------------------|
| No.                | Revision            | Date     | Date                          | Approved                          | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                    | <i>J. Wilson</i><br>City Engineer | SL-2                         |
|                    |                     |          |                               |                                   |                              |
|                    |                     |          |                               |                                   |                              |

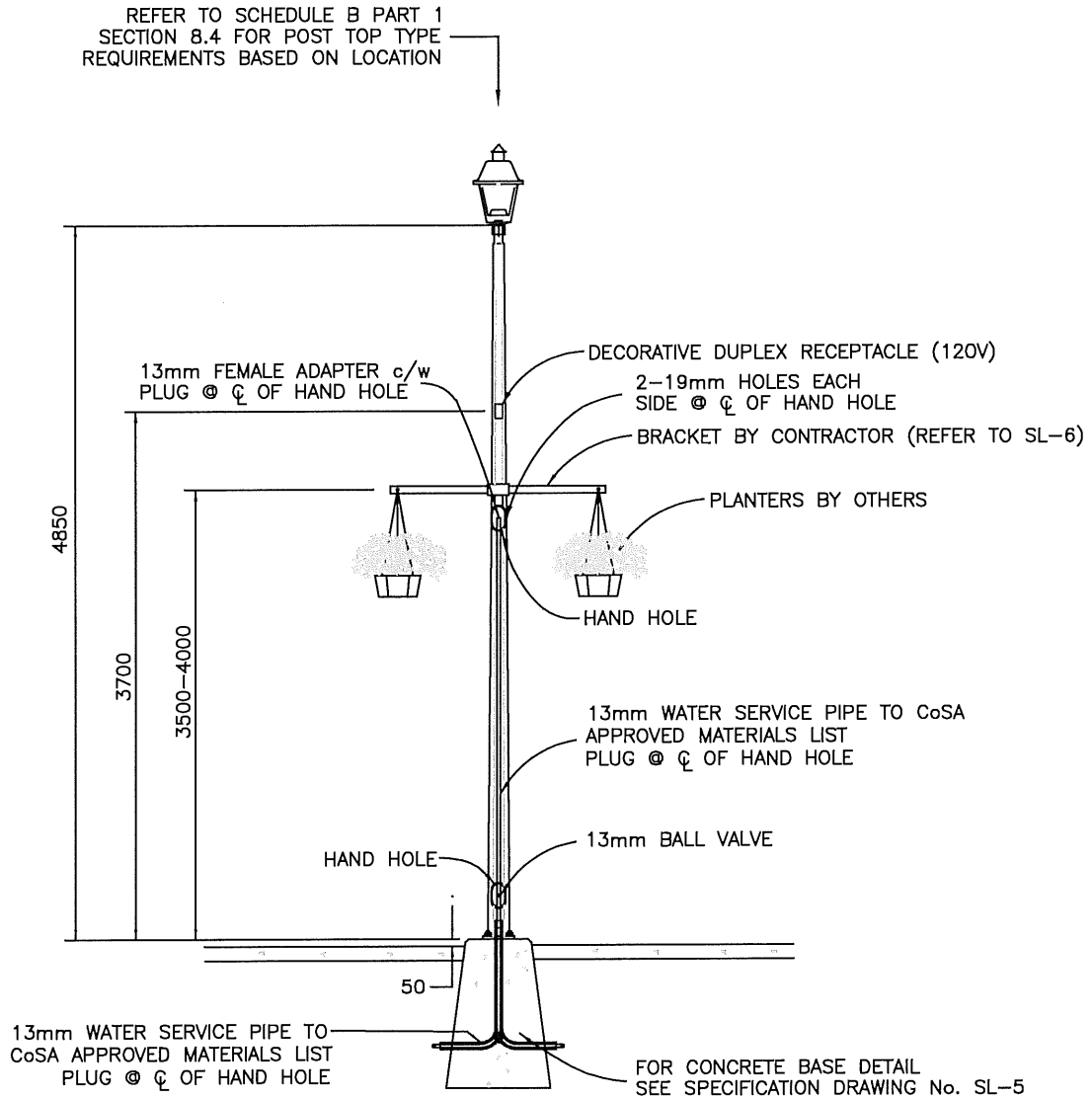


**NOTES:**

- 1) Confirm bolt circle pattern with supplier.
- 2) Provide grounding to Canadian Electrical Code.
- 3) Any changes to the specifications must be approved by the City Engineer.
- 4) No House Side Shield for Town Centre Development Area.
- 5) Minimum Conductor Size #10.
- 6) Light specifications shall conform to City of Salmon Arm approved materials list.

| CITY OF SALMON ARM |                     |          | Post Top Street Light |                                                                                                       |                           |
|--------------------|---------------------|----------|-----------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
| No.                | Revision            | Date     | Date                  | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016            | <br>City Engineer | SL-3                      |
|                    |                     |          |                       |                                                                                                       |                           |

Adopted by Council February XX, 2023

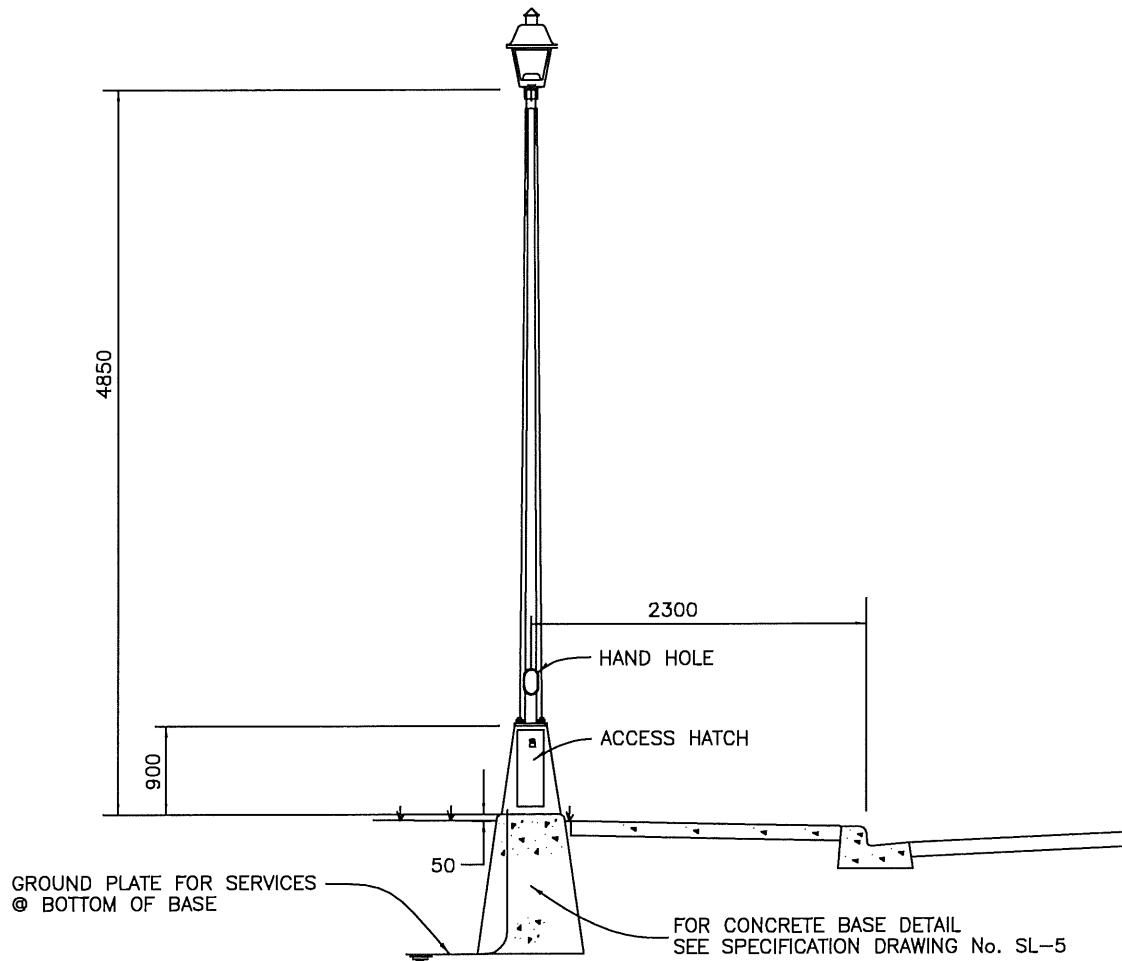
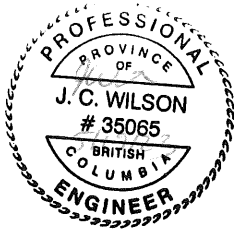


**NOTES:**

- 1) Confirm bolt circle pattern with supplier.
- 2) Provide grounding to Canadian Electrical Code.
- 3) Light specifications shall conform to City of Salmon Arm approved materials list.
- 4) Any changes to the specifications must be approved by the City Engineer.
- 5) Minimum Conductor Size #10.


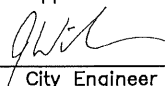
| CITY OF<br><b>SALMON ARM</b> |                                       |          | Post Top Street Light<br>with Irrigation & Electrical Outlet |                      |                              |
|------------------------------|---------------------------------------|----------|--------------------------------------------------------------|----------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                                         | Approved             | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 |                                                              | <i>Gabriel Be...</i> |                              |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023                                                   | City Engineer        | SL-3-1                       |

Adopted by Council June XX, 2023

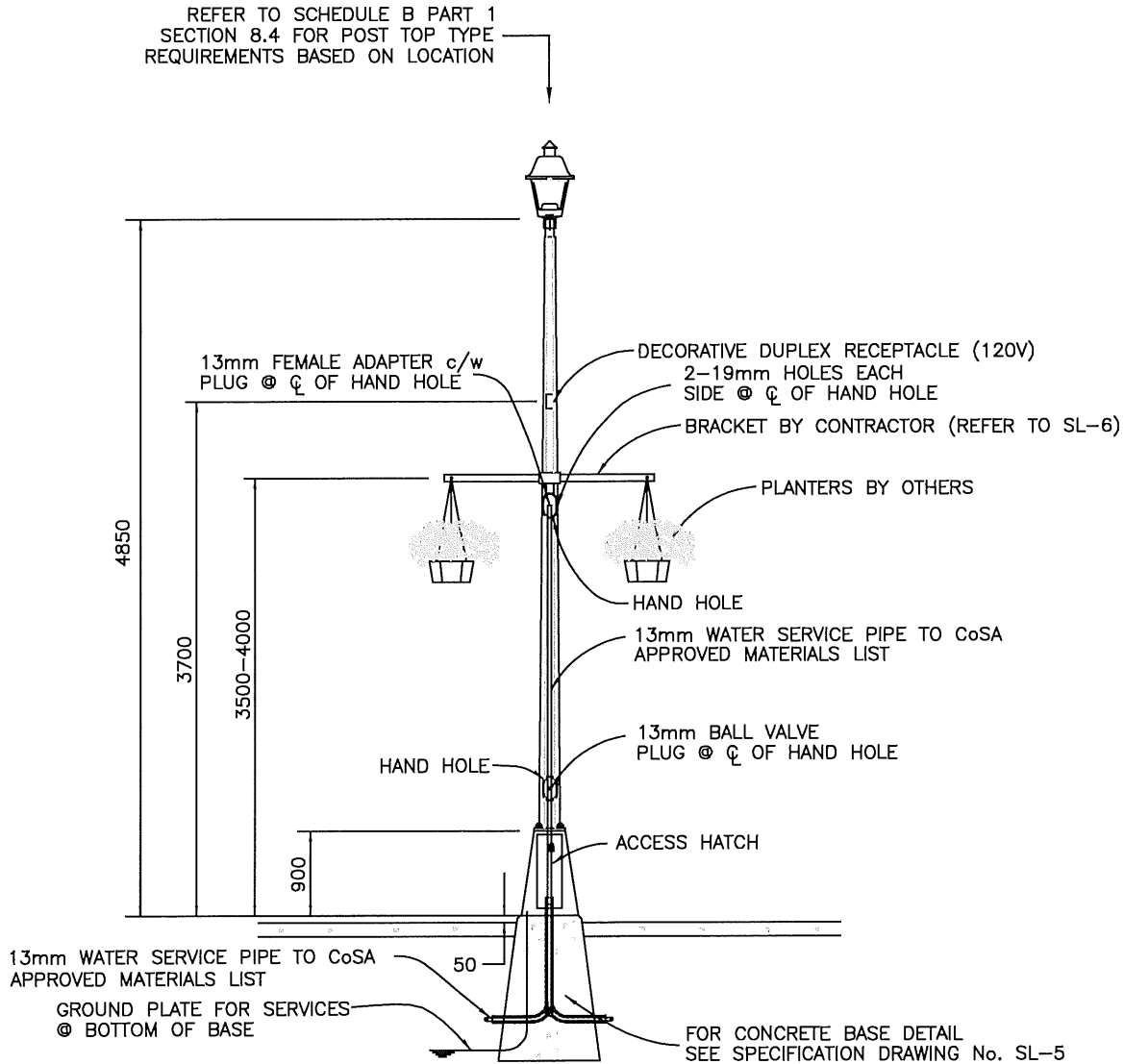


**NOTES:**

- 1) Confirm bolt circle pattern with supplier.
- 2) Provide grounding to Canadian Electrical Code.
- 3) Any changes to the specifications must be approved by the City Engineer.
- 4) Light specifications shall conform to City of Salmon Arm approved materials list.
- 5) Lighting and Tree Receptacles to be on separate circuits.
- 6) Minimum Conductor Size #10.
- 7) Access hatch to be located opposite to adjacent traffic flow.

|                                                                                                               |                     |          |                                         |                                                                                                       |                           |
|---------------------------------------------------------------------------------------------------------------|---------------------|----------|-----------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
|  <b>CITY OF SALMON ARM</b> |                     |          | <b>Post Top Street Light/Power Base</b> |                                                                                                       |                           |
| No.                                                                                                           | Revision            | Date     | Date                                    | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                                                                                                             | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                              | <br>City Engineer | SL-4                      |
|                                                                                                               |                     |          |                                         |                                                                                                       |                           |
|                                                                                                               |                     |          |                                         |                                                                                                       |                           |

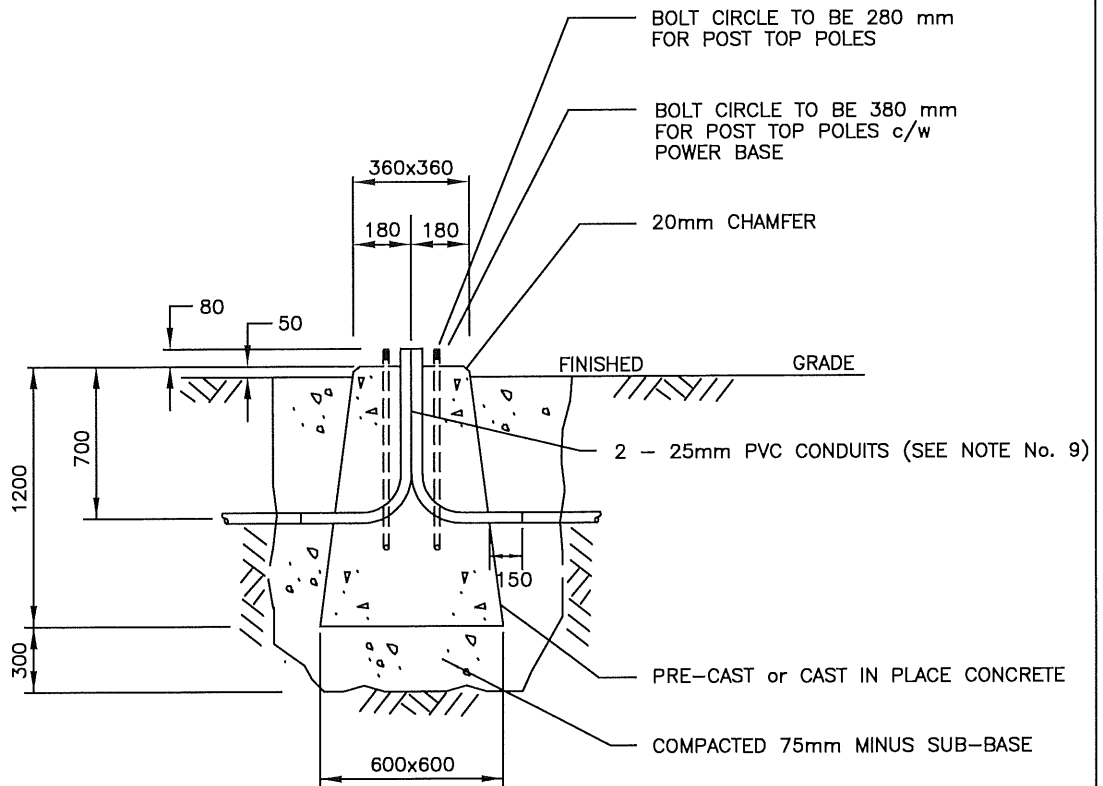
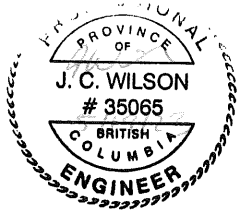
Adopted by Council February XX, 2023



**NOTES:**

- 1) Confirm bolt circle pattern with supplier.
- 2) Provide grounding to Canadian Electrical Code.
- 3) Any changes to the specifications must be approved by the City Engineer.
- 4) Lighting and Tree Receptacles to be on separate circuits.
- 5) Minimum Conductor Size #10.
- 6) Light specifications shall conform to City of Salmon Arm approved materials list.
- 7) Access hatch to be located opposite to adjacent traffic flow.

| CITY OF<br><b>SALMON ARM</b> |                                       |          | Post Top Street Light/Power Base<br>with Irrigation & Electrical Outlet |                      |                              |
|------------------------------|---------------------------------------|----------|-------------------------------------------------------------------------|----------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                                                                    | Approved             | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 |                                                                         | <i>Gabriel Be...</i> |                              |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023                                                              | City Engineer        | SL-4-1                       |

**NOTES:**

- 1) At last service base of duct run, install elbow and cap for future extension. (No exceptions.)
- 2) Provide additional 50mm duct to service base pole for BC Hydro service.
- 3) All hardware shall be hot dipped galvanized.
- 4) Apply Lubriplate or another suitable grease to exposed portion of anchor bolts and nuts.
- 5) Concrete shall have a comprehensive strength of 30 MPa prior to pole installation.
- 6) A 'V' groove drain trough to start at zero depth in centre of pedestal to a 10mm depth and width at the outside edge.
- 7) Confirm bolt circle pattern with supplier.
- 8) Anchor bolts to be: 4 – 25mm x 920mm hot dipped galvanized.
- 9) A 3rd – 25mm pvc conduit is needed for the ground wire on the power base.



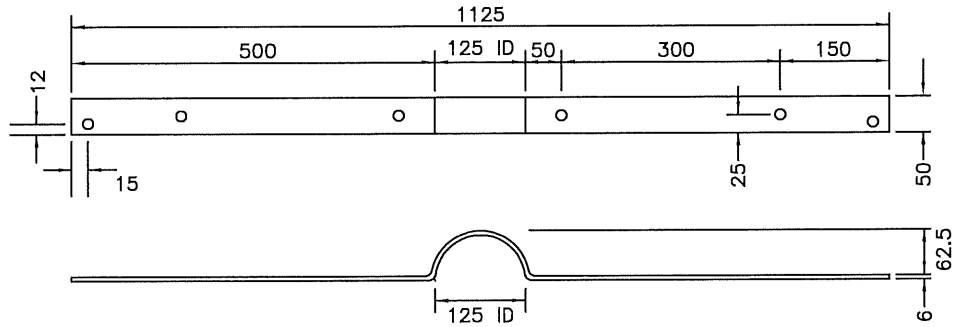
CITY OF SALMON ARM

## 5.00m Post Top Concrete Pedestal

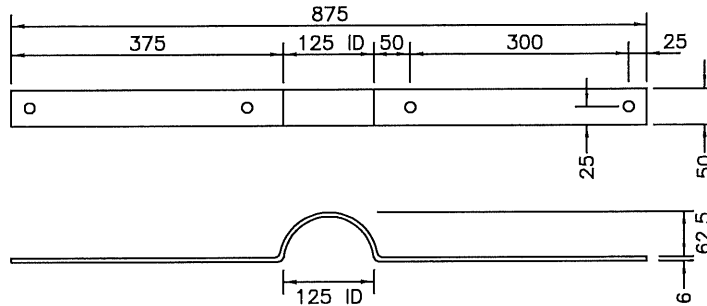
| No. | Revision            | Date     | Date       | Approved          | SPECIFICATION<br>DRAWING No. |
|-----|---------------------|----------|------------|-------------------|------------------------------|
| A   | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016 | <br>City Engineer | SL-5                         |
|     |                     |          |            |                   |                              |

Adopted by Council February XX, 2023





FRONT SIDE



BACK SIDE

NOTES:

REFER TO DRAWING SL-3-I AND SL-4-I FOR BRACKET LOCATION.

SPECIFICATIONS:

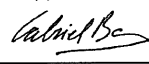
BRACKET FINISH:

FACTORY POWDER COATING AS FOLLOWS:

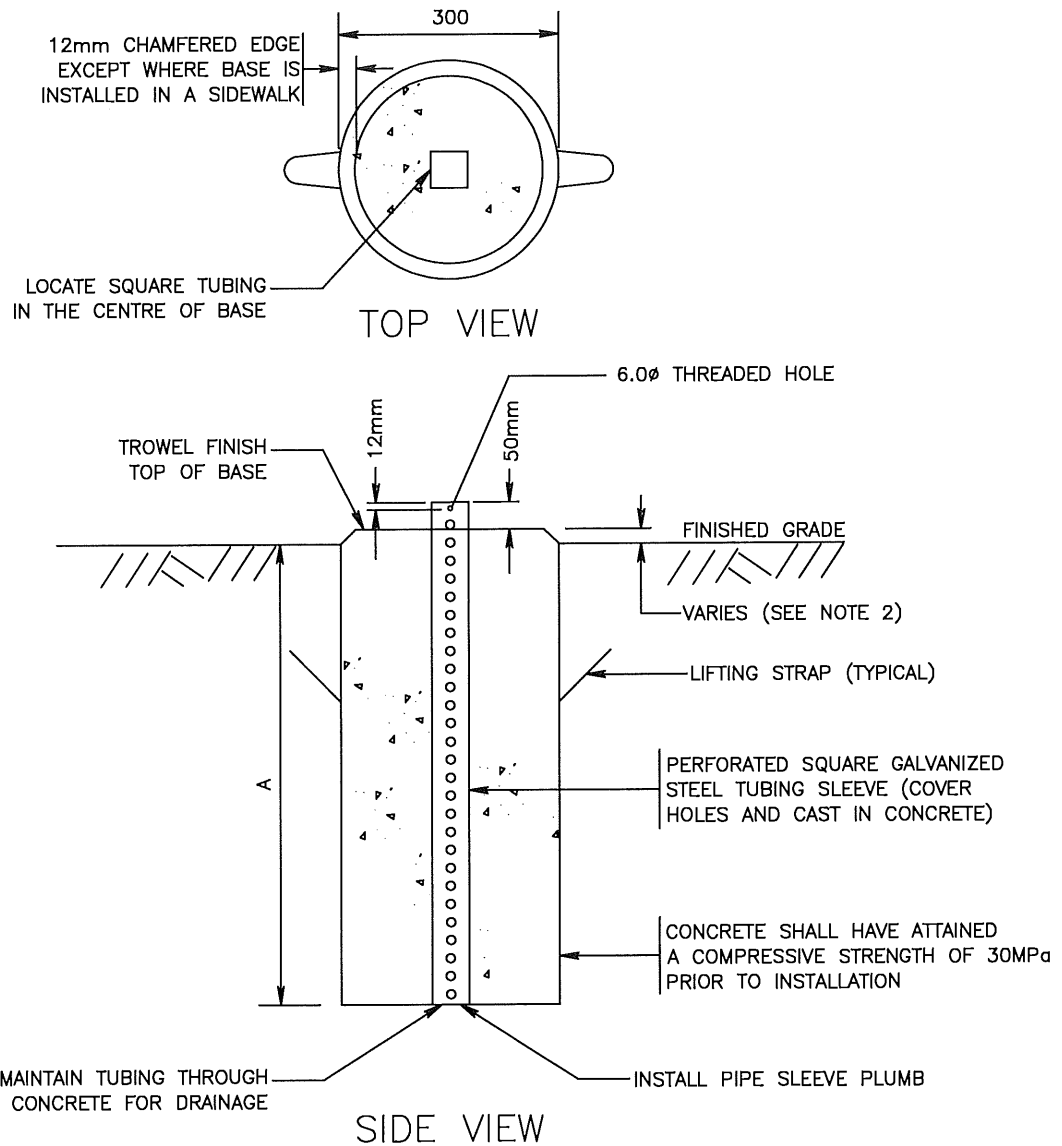
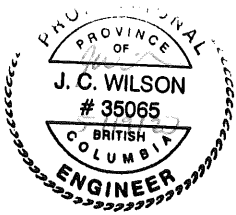
- MIN. 2.5-4 mil OF EPOXY THERMOSETTING POWDER BASECOAT
- MIN. 4-6 mil OF BLACK POLYESTER THERMOSETTING POWDER TOPCOAT

BOLTS:

13 mm x 25 mm HOT DIPPED GALVANIZED c/w LOCK WASHER AND NUT

| CITY OF<br><b>SALMON ARM</b> |                                       |          | Bracket for Hanging Baskets |                                                                                      |                              |
|------------------------------|---------------------------------------|----------|-----------------------------|--------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date                        | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVED                              | 10/11/16 | 01-06-2023                  |  | SL-6                         |
| B                            | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                             |                                                                                      |                              |
|                              |                                       |          |                             | City Engineer                                                                        |                              |

Adopted by Council February XX, 2023

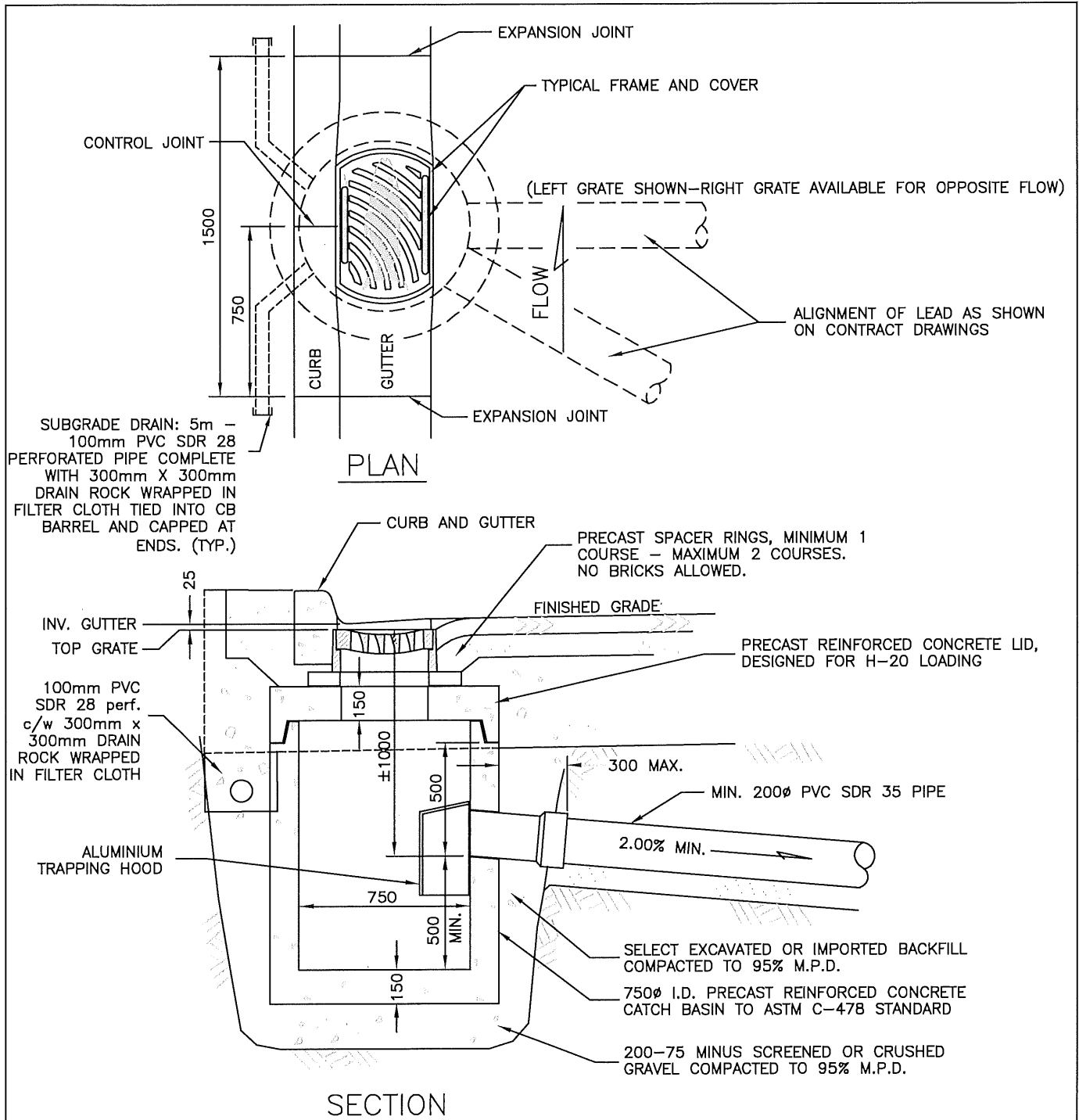


| BASE TYPE | APPLICATION                                                                             | APPROXIMATE MASS | VOLUME OF CONCRETE | A   |
|-----------|-----------------------------------------------------------------------------------------|------------------|--------------------|-----|
| 1         | SINGLE POST SIGNS IN PAVED ISLANDS OR CONCRETE SIDEWALKS (SIGNS $\leq 0.36\text{m}^2$ ) | 100kg            | $0.04\text{m}^3$   | 600 |
| 2         | SINGLE OR TWO POST SIGNS IN GRAVEL SHOULDER (SIGNS $> 0.36\text{m}^2$ )                 | 147kg            | $0.06\text{m}^3$   | 800 |

**NOTE:**

- 1) Parking signs to be placed at a 45° angle to the Curb & Gutter.
- 2) Base shall be installed 25mm above finished grade except where installed in sidewalk it shall be flush with the top of sidewalk with no chamfered edge.
- 3) Sign post to be 58mm 12 guage steel. Sleeve to be 65mm 10 guage steel.

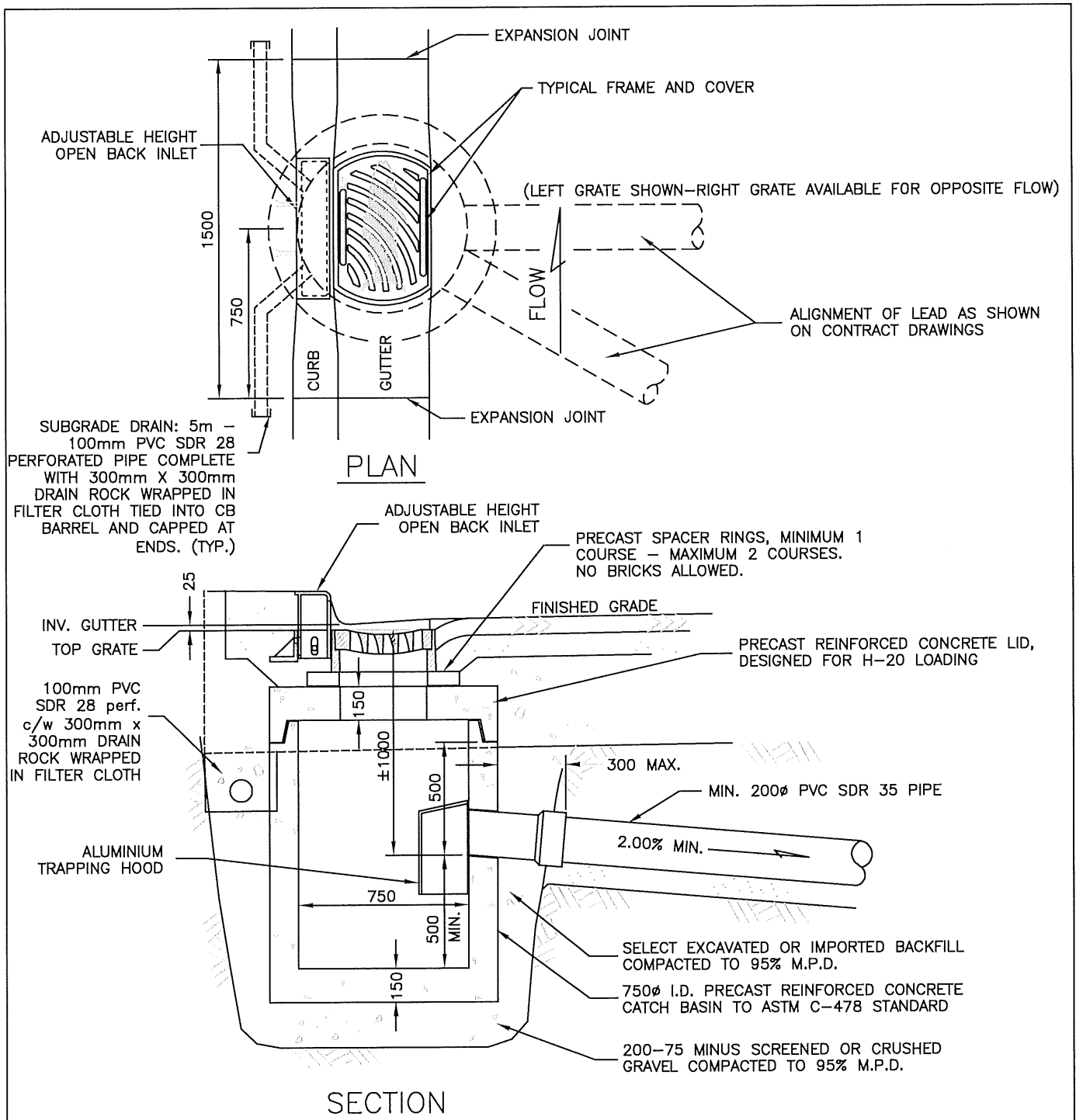
|                    |                     |          |                               |                   |                                          |
|--------------------|---------------------|----------|-------------------------------|-------------------|------------------------------------------|
| CITY OF SALMON ARM |                     |          | <b>Typical Sign Post Base</b> |                   |                                          |
| No.                | Revision            | Date     | Date                          | Approved          | SPECIFICATION<br>DRAWING No.<br><br>SP-1 |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                    | <br>City Engineer |                                          |
|                    |                     |          |                               |                   |                                          |



# NOTES:

- Catch basin lid, precast spacer rings & any breaks made into catch basin sections shall be made water tight with approved mortar, sealants or gaskets inside and out.
- All joints and spacer rings to have smooth mortar finish.
- Outlet entry to be precored by supplier.
- Frame & grate to be set at 25mm below finished gutter invert design grade.
- Where CB falls at low point, install Subgrade Drain as detailed.

| CITY OF<br><b>SALMON ARM</b> |                     |          | Catch Basin – Under 5% Grade |                  |                              |
|------------------------------|---------------------|----------|------------------------------|------------------|------------------------------|
| No.                          | Revision            | Date     | Date                         | Approved         | SPECIFICATION<br>DRAWING No. |
| A                            | ISSUED FOR APPROVAL | 01/06/23 | 01-06/23                     | <i>Calvin Be</i> | ST-1A                        |
|                              |                     |          |                              | City Engineer    |                              |

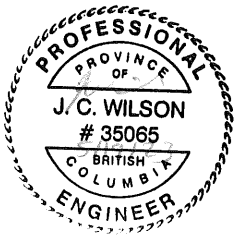
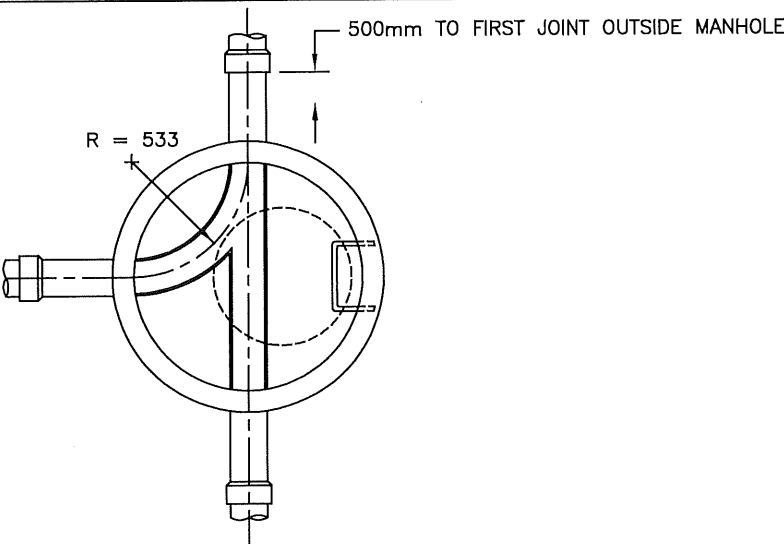


### NOTES:

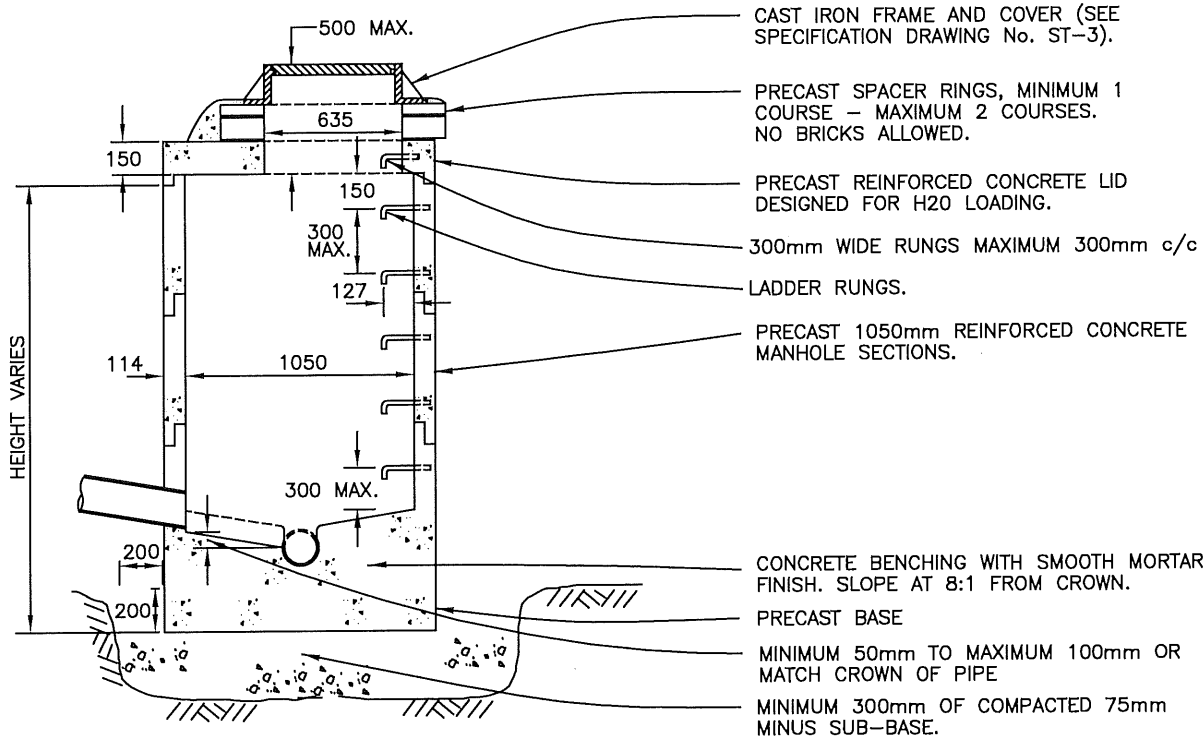
- 1) Catch basin lid, precast spacer rings & any breaks made into catch basin sections shall be made water tight with approved mortar, sealants or gaskets inside and out.
- 2) All joints and spacer rings to have smooth mortar finish.
- 3) Outlet entry to be precored by supplier.
- 4) Frame & grate to be set at 25mm below finished gutter invert design grade.
- 5) Where CB falls at low point, install Subgrade Drain as detailed.

| CITY OF<br><b>SALMON ARM</b> |                     |          | Catch Basin – Over 5% Grade |                  |                              |
|------------------------------|---------------------|----------|-----------------------------|------------------|------------------------------|
| No.                          | Revision            | Date     | Date                        | Approved         | SPECIFICATION<br>DRAWING No. |
| A                            | ISSUED FOR APPROVAL | 01/06/23 | 01-26-2023                  | <i>Calvin Be</i> | ST-1B                        |
|                              |                     |          |                             | City Engineer    |                              |

Adopted by Council June XX, 2023



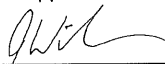
PLAN

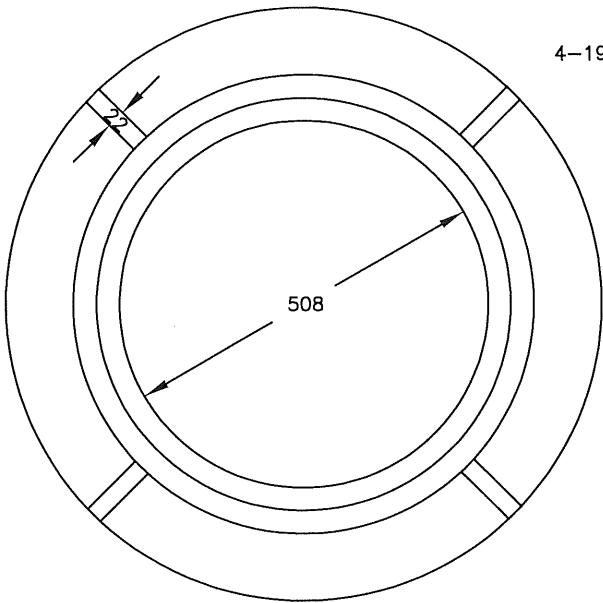


NOTES:

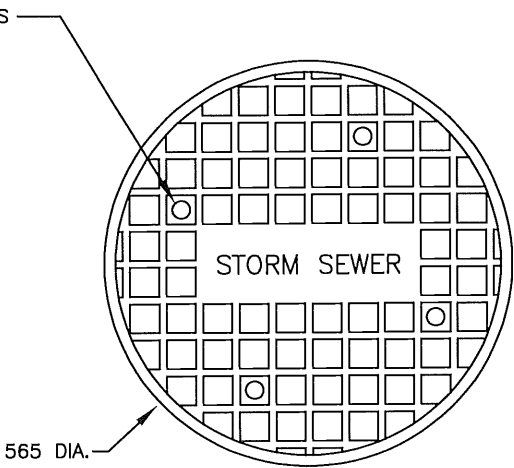
ELEVATION

- 1) Manhole sections, lid, spacer rings & any breaks made into manhole sections shall be made water tight with approved mortar, sealants or gaskets inside and out.
- 2) All joints to have smooth mortar finish.
- 3) Top of pipe running through manhole to be broken out.
- 4) Frame & cover to be set at 5mm below finished asphalt design grade and cross-fall.
- 5) 1200mm Manhole required for pipes larger than 600mm and/or number of pipes exceed allowable for 1050mm manhole.
- 6) Drop Manhole required where pipe enters a manhole at an elevation greater than the crown of the through pipe.
- 7) No low profile cast iron frame allowed, unless approved by the City Engineer.

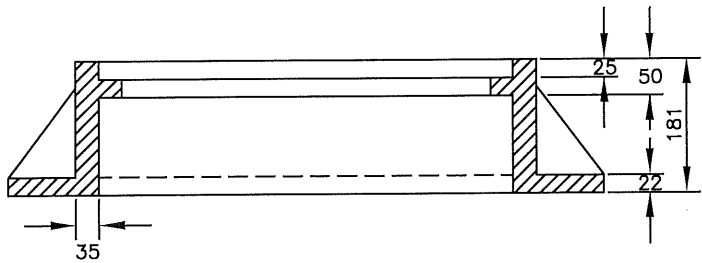
| CITY OF SALMON ARM |                     |          | Typical 1050mm Storm Manhole |                                                                                                       |                           |
|--------------------|---------------------|----------|------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
| No.                | Revision            | Date     | Date                         | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                   | <br>City Engineer | ST-2                      |
|                    |                     |          |                              |                                                                                                       |                           |
|                    |                     |          |                              |                                                                                                       |                           |



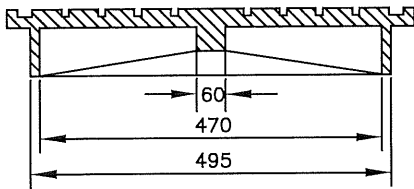
FRAME PLAN



COVER PLAN



FRAME ELEVATION





COVER ELEVATION

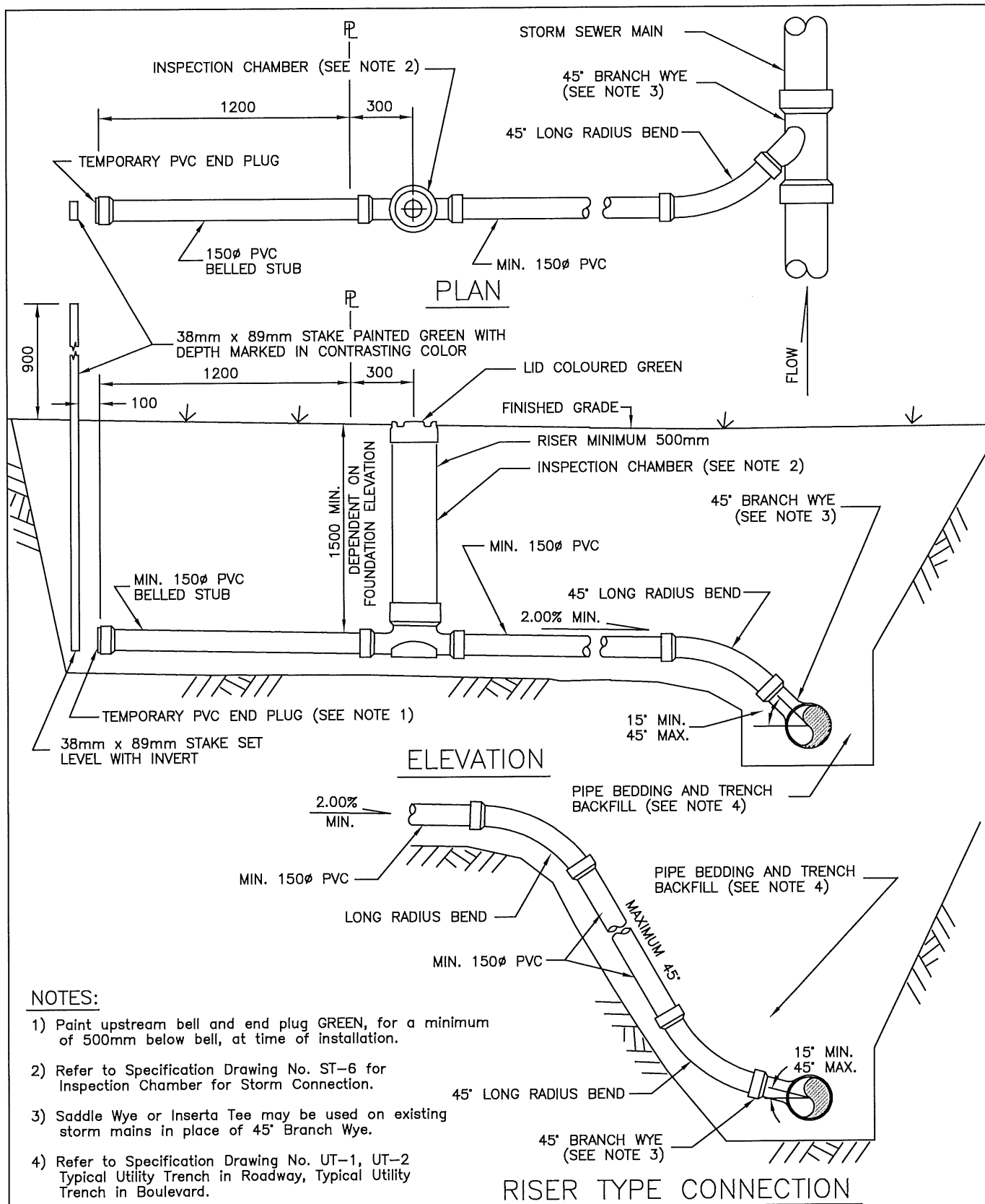
NOTES:

- 1) Frames and covers are to be designed to withstand H-20 loading.
- 2) Storm Sewer manhole covers shall be labelled: "STORM SEWER"
- 3) No low profile cast iron frame allowed, unless approved by the City Engineer.



|                                                                                                        |                     |          |                                    |                                                                                                       |                              |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
|  CITY OF SALMON ARM |                     |          | H-20 Manhole Frame & Cover (Storm) |                                                                                                       |                              |
| No.                                                                                                    | Revision            | Date     | Date                               | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                         | <br>City Engineer | ST-3                         |
|                                                                                                        |                     |          |                                    |                                                                                                       |                              |





**NOTES:**

- 1) Paint upstream bell and end plug GREEN, for a minimum of 500mm below bell, at time of installation.
- 2) Refer to Specification Drawing No. ST-6 for Inspection Chamber for Storm Connection.
- 3) Saddle Wye or Inserta Tee may be used on existing storm mains in place of 45° Branch Wye.
- 4) Refer to Specification Drawing No. UT-1, UT-2 Typical Utility Trench in Roadway, Typical Utility Trench in Boulevard.

| CITY OF<br><b>SALMONARM</b> |                                       |          | Typical 150mm Storm Service Connection |                                    |                              |
|-----------------------------|---------------------------------------|----------|----------------------------------------|------------------------------------|------------------------------|
| No.                         | Revision                              | Date     | Date                                   | Approved                           | SPECIFICATION<br>DRAWING No. |
| A                           | APPROVED                              | 10/11/16 | 01-06-2023                             | <i>Gabriel Be</i><br>City Engineer | ST-4                         |
| B                           | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                                        |                                    |                              |

Adopted by Council February XX, 2023

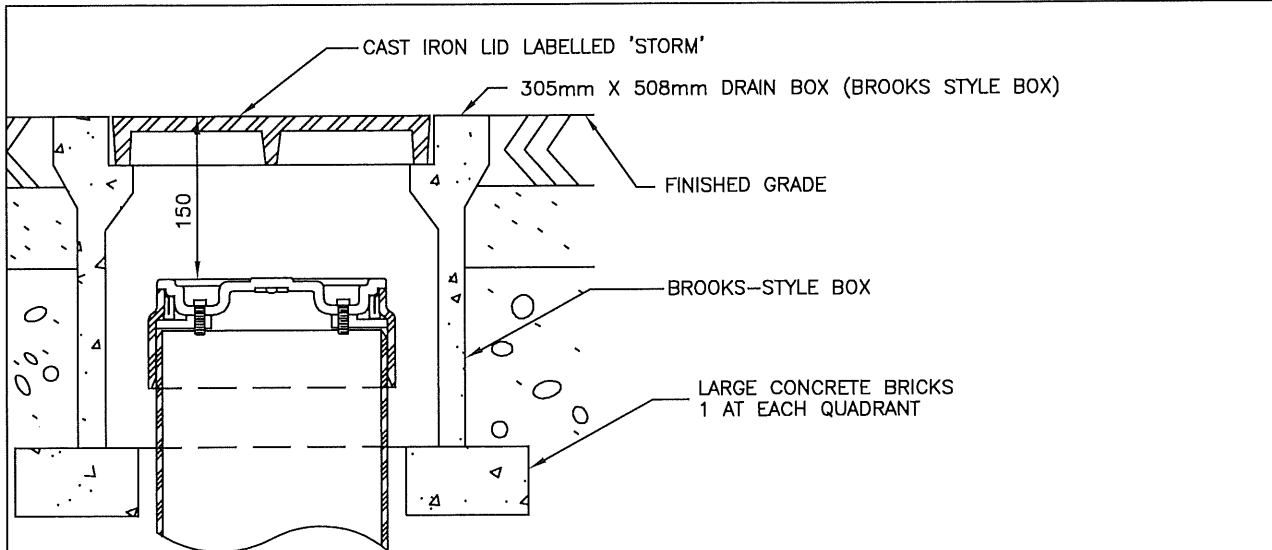
| SIZE OF SERVICE |               | 8"<br>200mm | 10"<br>250mm | 12"<br>300mm | 15"<br>375mm |
|-----------------|---------------|-------------|--------------|--------------|--------------|
| SIZE OF MAIN    | 8"<br>200mm   |             |              |              |              |
|                 | 10"<br>250mm  |             |              |              |              |
|                 | 12"<br>300mm  |             |              |              |              |
|                 | 15"<br>375mm  |             |              |              |              |
|                 | 18"<br>450mm  |             |              |              |              |
|                 | 21"<br>525mm  |             |              |              |              |
|                 | 24"<br>600mm  |             |              |              |              |
|                 | 27"<br>675mm  |             |              |              |              |
|                 | 30"<br>750mm  |             |              |              |              |
|                 | 33"<br>825mm  |             |              |              |              |
|                 | 36"<br>900mm  |             |              |              |              |
|                 | 42"<br>1050mm |             |              |              |              |
|                 | 48"<br>1200mm |             |              |              |              |
|                 | 54"<br>1350mm |             |              |              |              |

# NOTES:

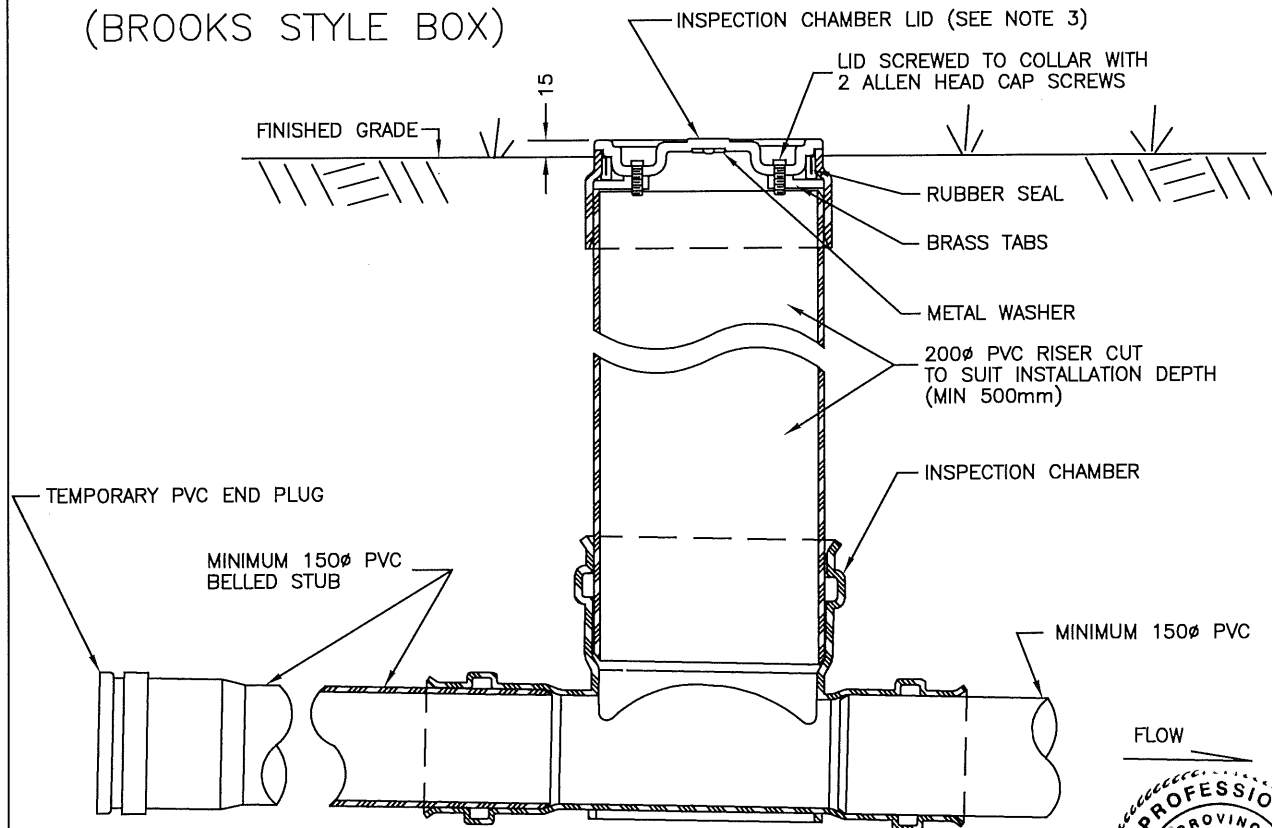
- Where Catch Basins are located within road right-of-way the Catch Basin leads do not require manholes at the storm main.
- Inspection Chamber required at property for 150mm(6") services.
- Services 450mm(18") and larger require approval by the City Engineer.
- Manhole Frame and Cover required for 250mm(10") & 300mm(12") services in Driveways.



| CITY OF SALMON ARM |                     |          | Manhole Requirements for Storm Sewer Services |               |                              |
|--------------------|---------------------|----------|-----------------------------------------------|---------------|------------------------------|
| No.                | Revision            | Date     | Date                                          | Approved      | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                                    |               | ST-5                         |
|                    |                     |          |                                               | City Engineer |                              |

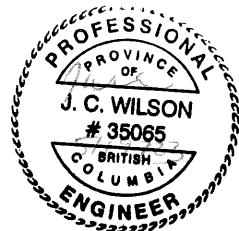




### INSTALLATION WITH DRAIN BOX (BROOKS STYLE BOX)



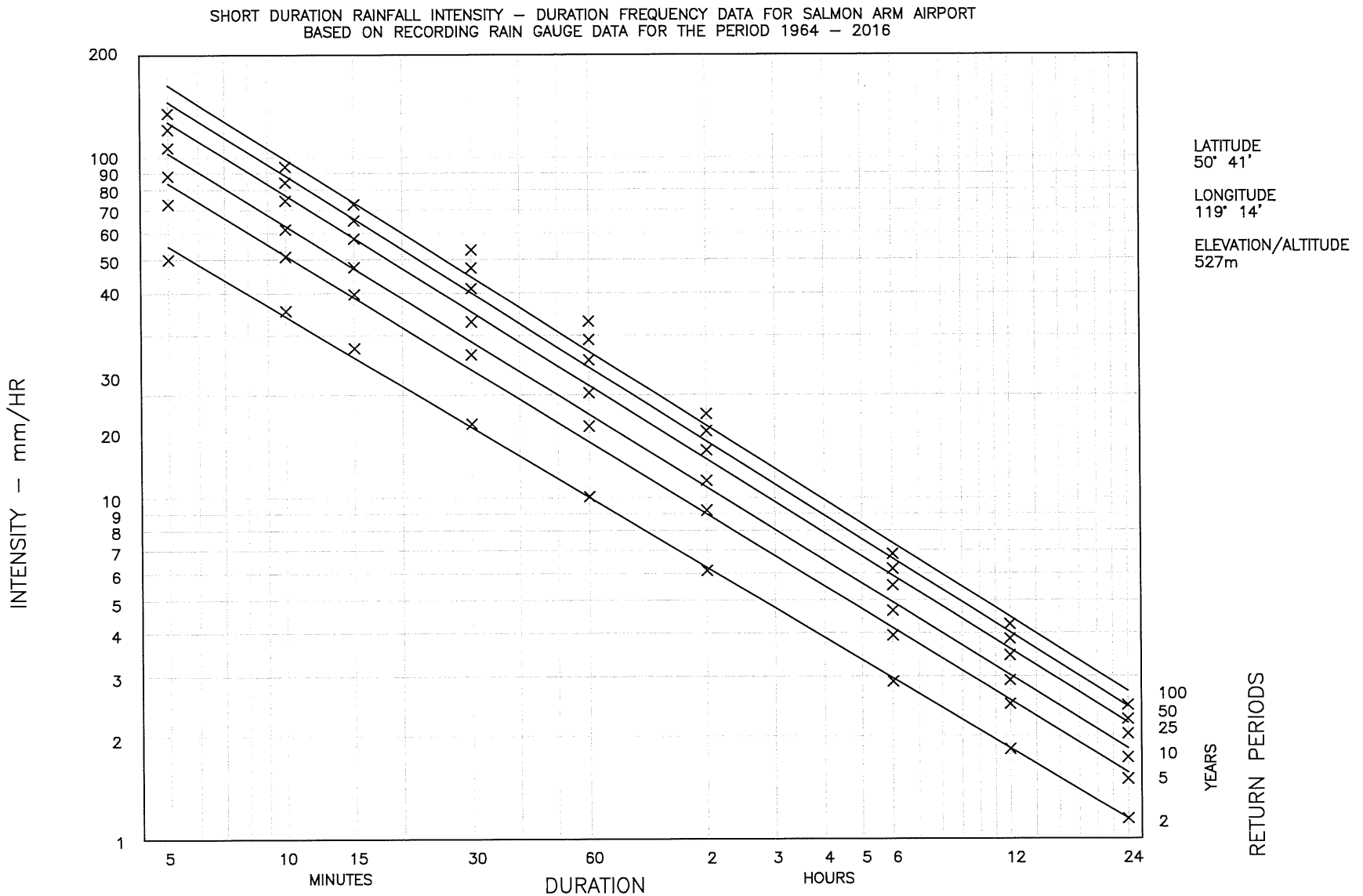
#### NOTES:

- 1) Paint upstream bell and end plug GREEN, for a minimum of 500mm below bell, at time of installation.
- 2) Refer to Specification Drawing No. ST-4 Typical 150mm Storm Connection.
- 3) Inspection chamber lid to be coloured red



|                                                                                                        |                     |          |                                         |                                                                                                       |                              |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|-----------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
|  CITY OF SALMON ARM |                     |          | Inspection Chamber for Storm Connection |                                                                                                       |                              |
| No.                                                                                                    | Revision            | Date     | Date                                    | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                              | <br>City Engineer | ST-6                         |
|                                                                                                        |                     |          |                                         |                                                                                                       |                              |

Adopted by Council February XX, 2023



#### NOTES:

1) Reproduction from Environment Canada Rainfall Intensity–Duration Frequency Values 2016

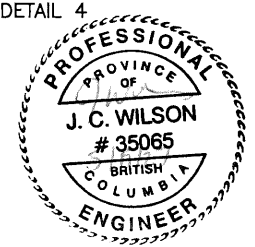
2) Calculated flows shall be adjusted for Climate Change as per EGBC best practices.

| CITY OF<br><b>SALMON ARM</b> |                                       |          |
|------------------------------|---------------------------------------|----------|
| No.                          | Revision                              | Date     |
| A                            | APPROVED                              | 10/11/16 |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |

#### Rainfall Intensity–Duration Data

|          |                      |                              |
|----------|----------------------|------------------------------|
| Date     | Approved             | SPECIFICATION<br>DRAWING No. |
| 01–06–23 | <i>Gabriel Be...</i> | ST–7                         |
|          | City Engineer        |                              |

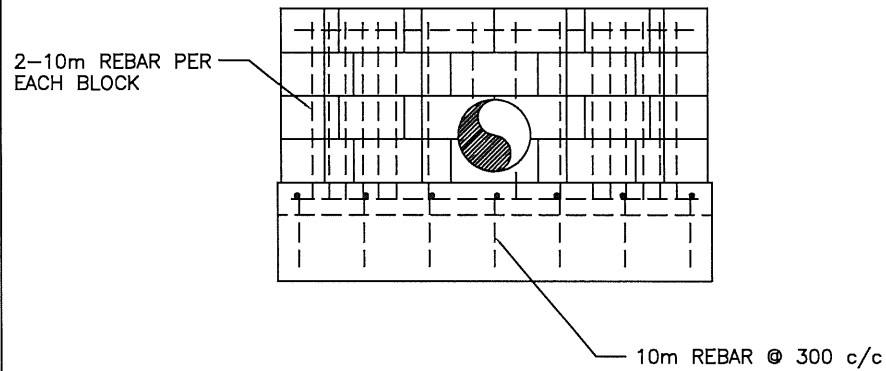
Adopted by Council February XX, 2023



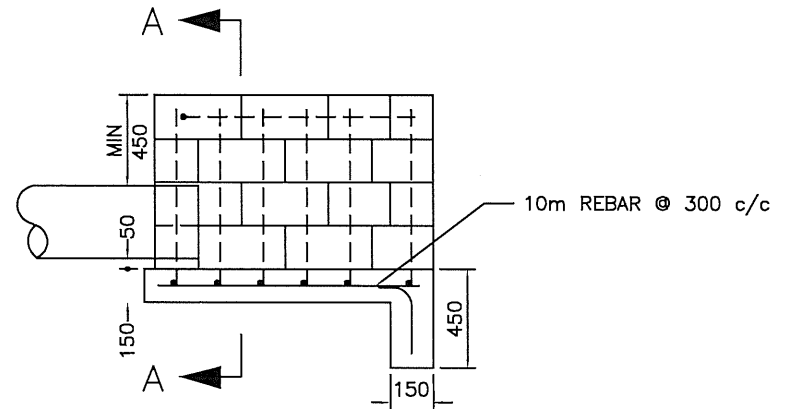
- 1) All external edges to be chamfered to 13mm.
- 2) Sandbags to be of good condition and containing approximately 25Kg. of 20 MPa Concrete Pre-mix.
- 3) Trash Rack to be coated with Two Coats of Galvacon or Hot Dipped Galvanized.
- 4) Where storm is larger than 600Ø, Consulting Engineer will provide detailed design.

| PIPE I.D. | (A) |
|-----------|-----|
| mm        | mm  |
| 250       | 325 |
| 300       | 275 |
| 375       | 200 |
| 450       | 175 |
| 525       | 175 |
| 600       | 175 |

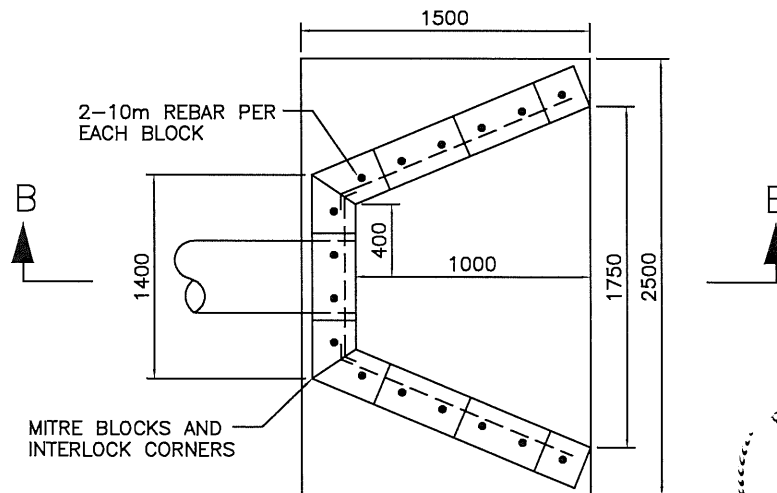
Adopted by Council February XX, 2023



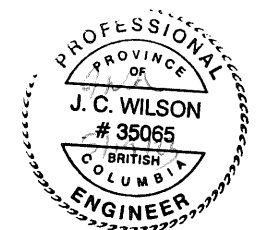
SECTION A-A



SECTION B-B





PLAN

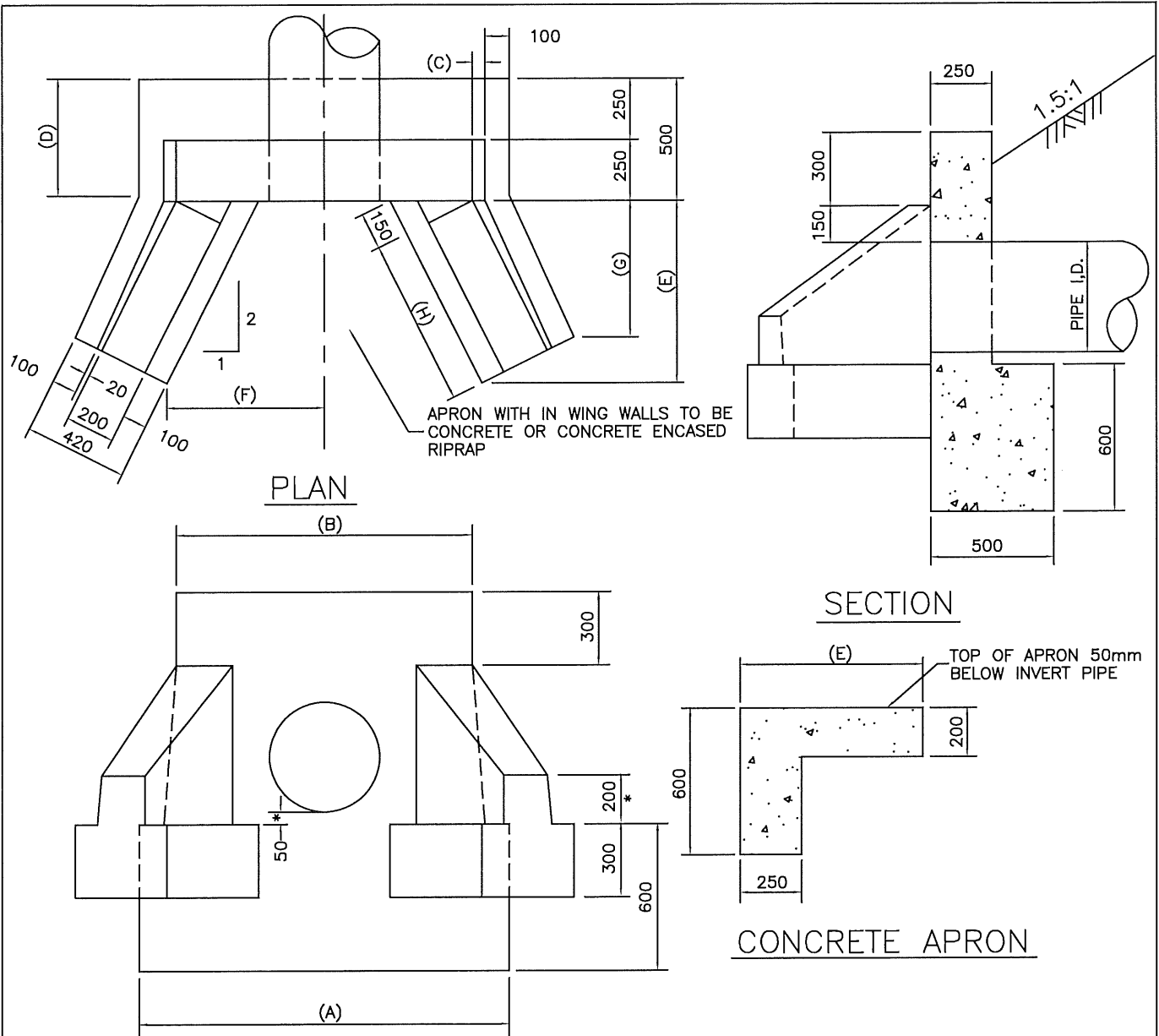


NOTES:

- 1) Monolithic energy dissipating baffles may be required in Outlet Structures.
- 2) Residential or commercial driveway crossings ONLY.

|                                                                                                               |                     |          |                                                                           |                                                                                       |                              |
|---------------------------------------------------------------------------------------------------------------|---------------------|----------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
|  <b>CITY OF SALMON ARM</b> |                     |          | <b>Concrete Block Inlet/Outlet Structure</b><br>(250Ø to 600Ø Storm Pipe) |                                                                                       |                              |
| No.                                                                                                           | Revision            | Date     | Date                                                                      | Approved                                                                              | SPECIFICATION<br>DRAWING No. |
| C                                                                                                             |                     |          | 10-11-2016                                                                |  | ST-9                         |
| B                                                                                                             |                     |          |                                                                           | City Engineer                                                                         |                              |
| A                                                                                                             | ISSUED FOR APPROVAL | 07/14/16 |                                                                           |                                                                                       |                              |





\* INCREASE DIMENSION IF NECESSARY FOR GOOD FOUNDATION

### ELEVATION



### NOTES:

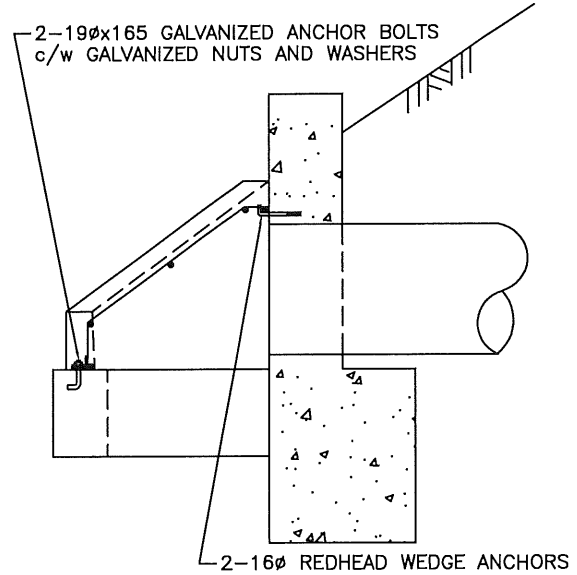
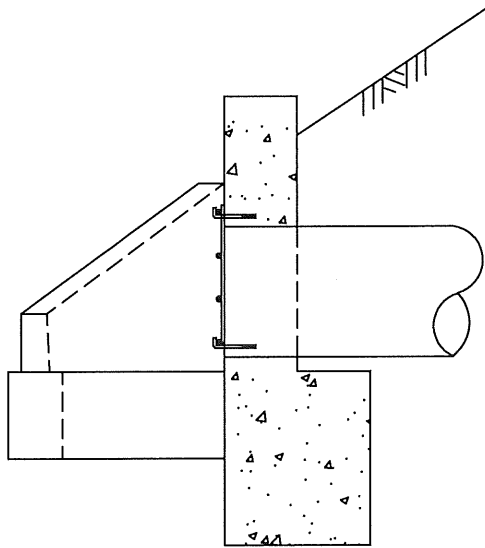
- 1) All external edges to be chamfered to 13mm.
- 2) Structure to be reinforced with 15M rebar at 300mm c/c each way. (Not Shown)

| PIPE DIA. | A    | B    | C   | D   | E    | F    | G    | H    |
|-----------|------|------|-----|-----|------|------|------|------|
| 250       | 1400 | 1120 | 40  | 470 | 750  | 540  | 560  | 690  |
| 300       | 1400 | 1120 | 40  | 470 | 750  | 565  | 560  | 690  |
| 375       | 1400 | 1120 | 40  | 470 | 750  | 600  | 560  | 690  |
| 450       | 1505 | 1205 | 50  | 470 | 750  | 645  | 560  | 690  |
| 600       | 1690 | 1360 | 65  | 470 | 980  | 835  | 790  | 945  |
| 750       | 1870 | 1520 | 75  | 460 | 1200 | 1025 | 1010 | 1190 |
| 900       | 2040 | 1660 | 90  | 460 | 1430 | 1210 | 1240 | 1450 |
| 1050      | 2215 | 1815 | 100 | 460 | 1660 | 1405 | 1470 | 1705 |

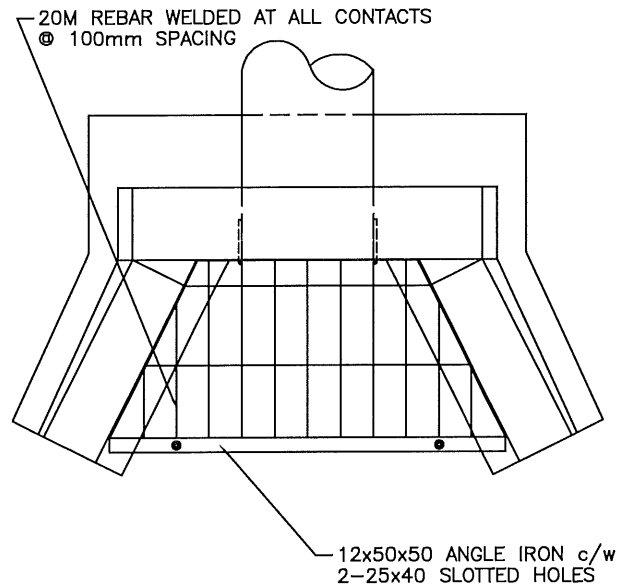
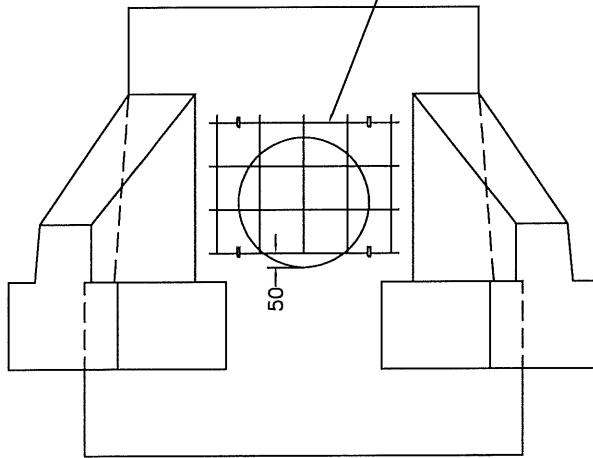
- 3) Refer to Dwg. ST-11 for Grillage.

- 4) Monolithic energy dissipating baffles may be required in Outlet Structures.

|                    |                     |          |                                                                 |               |                              |
|--------------------|---------------------|----------|-----------------------------------------------------------------|---------------|------------------------------|
| CITY OF SALMON ARM |                     |          | Typical Concrete Outlet Structure<br>(250ø to 1050ø Storm Pipe) |               |                              |
| No.                | Revision            | Date     | Date                                                            | Approved      | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                                                      |               | ST-10                        |
|                    |                     |          |                                                                 | City Engineer |                              |



TRASH SCREEN FROM 15M REBAR WELDED AT ALL CONTACTS ON 150mm c/c AND FASTENED TO STRUCTURE WITH 4-16Ø REDHEAD WEDGE ANCHORS




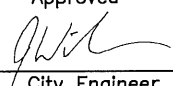
OUTLET GRILLAGE

INLET GRILLAGE

NOTES:

- 1) Grillage to be coated with Two Coats of Galvacon or Hot Dipped Galvanized.



|                                                                                                        |                     |          |                                            |                                                                                                       |                           |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|--------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
|  CITY OF SALMON ARM |                     |          | Safety Grillage for Inlet/Outlet Structure |                                                                                                       |                           |
| No.                                                                                                    | Revision            | Date     | Date                                       | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                                 | <br>City Engineer | ST-11                     |
|                                                                                                        |                     |          |                                            |                                                                                                       |                           |

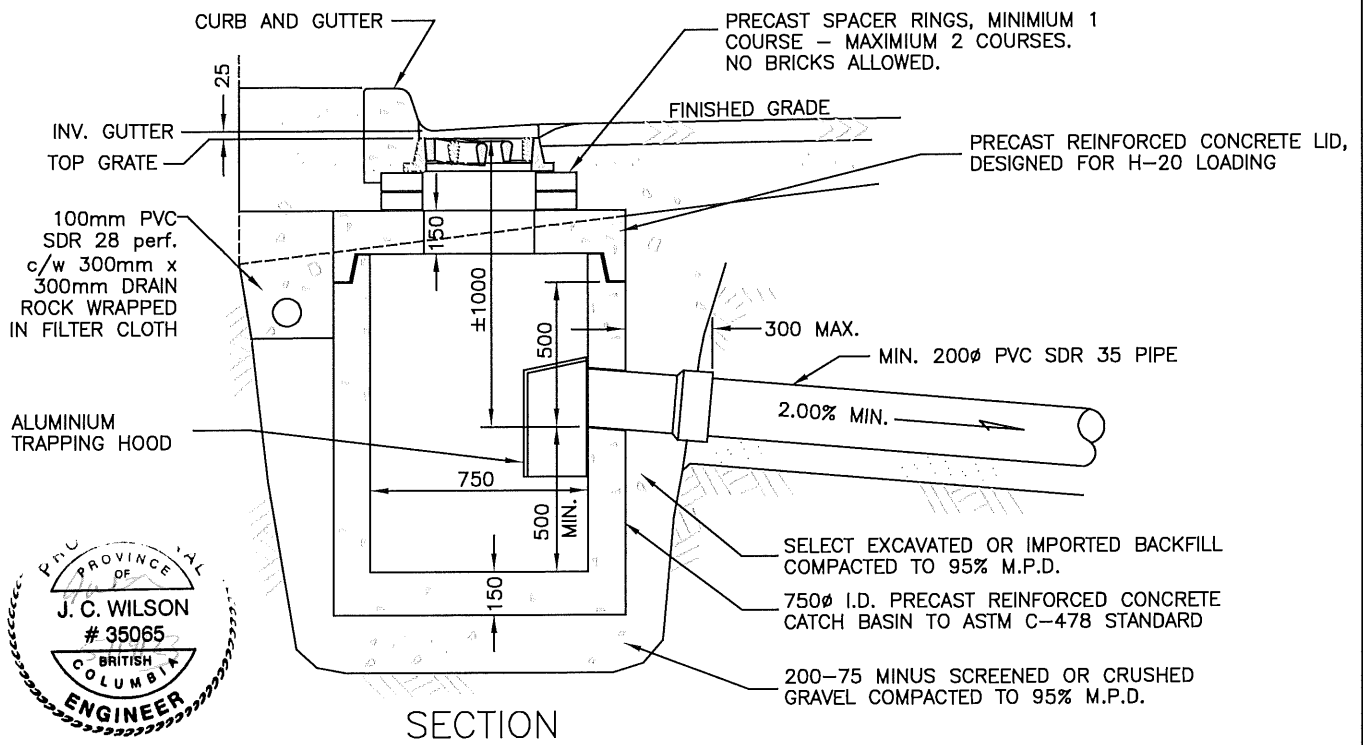
SUBGRADE DRAIN: 5m –  
100mm PVC SDR 28  
PERFORATED PIPE  
COMPLETE WITH 300mm  
X 300mm DRAIN ROCK  
WRAPPED IN FILTER  
CLOTH TIED INTO CB  
BARREL AND CAPPED AT  
ENDS. (TYP.)

FLOW

ALIGNMENT OF LEAD AS SHOWN  
ON CONTRACT DRAWING

(LEFT GRATE SHOWN—RIGHT GRATE  
AVAILABLE FOR OPPOSITE FLOW)

PLAN



SECTION

#### NOTES:

- 1) Catch basin lid, precast spacer rings & any breaks made into catch basin sections shall be made water tight with approved mortar, sealants or gaskets inside and out.
- 2) All joints and spacer rings to have smooth mortar finish.
- 3) Outlet entry to be precored by supplier.
- 4) Frame & grate to be set at 25mm below finished gutter invert design grade.
- 5) Catch basins to have side inlet where road grade exceeds 5%.

**CITY OF  
SALMON ARM**

Double Catch Basin

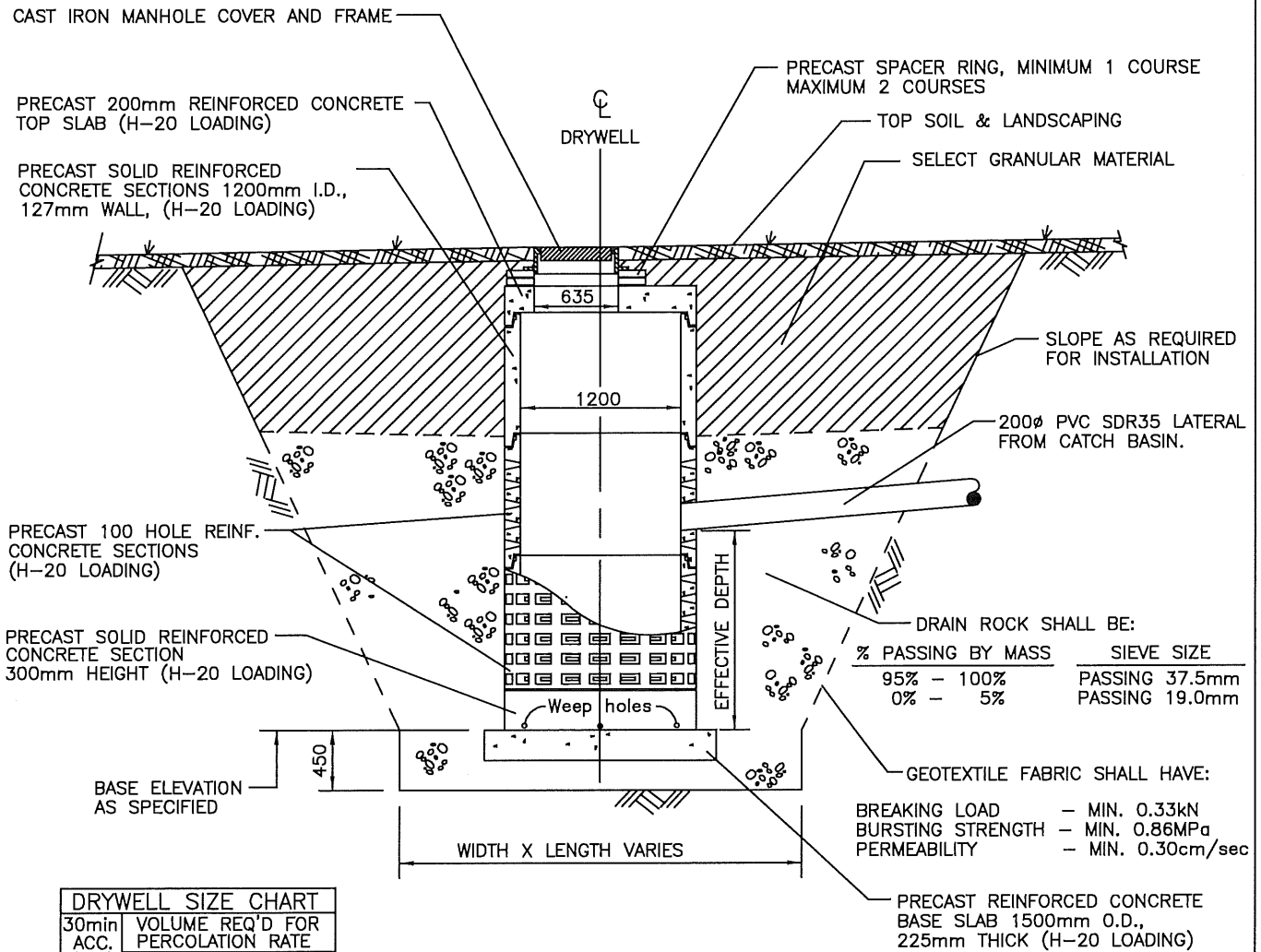
| No. | Revision                              | Date     |
|-----|---------------------------------------|----------|
| A   | APPROVED                              | 10/11/16 |
| B   | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |

Date  
01-06-2023

Approved  
*Calvin Be...*  
City Engineer

SPECIFICATION  
DRAWING No.  
ST-12

Adopted by Council February XX, 2023

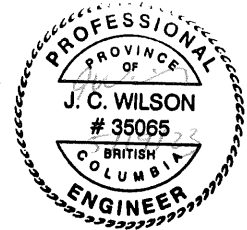


| DRYWELL SIZE CHART |                                   |      |       |
|--------------------|-----------------------------------|------|-------|
| 30min ACC. (m3)    | VOLUME REQ'D FOR PERCOLATION RATE |      |       |
|                    | 2min                              | 5min | 10min |
| 100                | 172                               | 213  | 230   |
| 200                | 373                               | 441  | 469   |
| 300                | 583                               | 673  | 708   |
| 400                | 794                               | 912  | 953   |
| 500                | 1018                              | 1141 | 1189  |

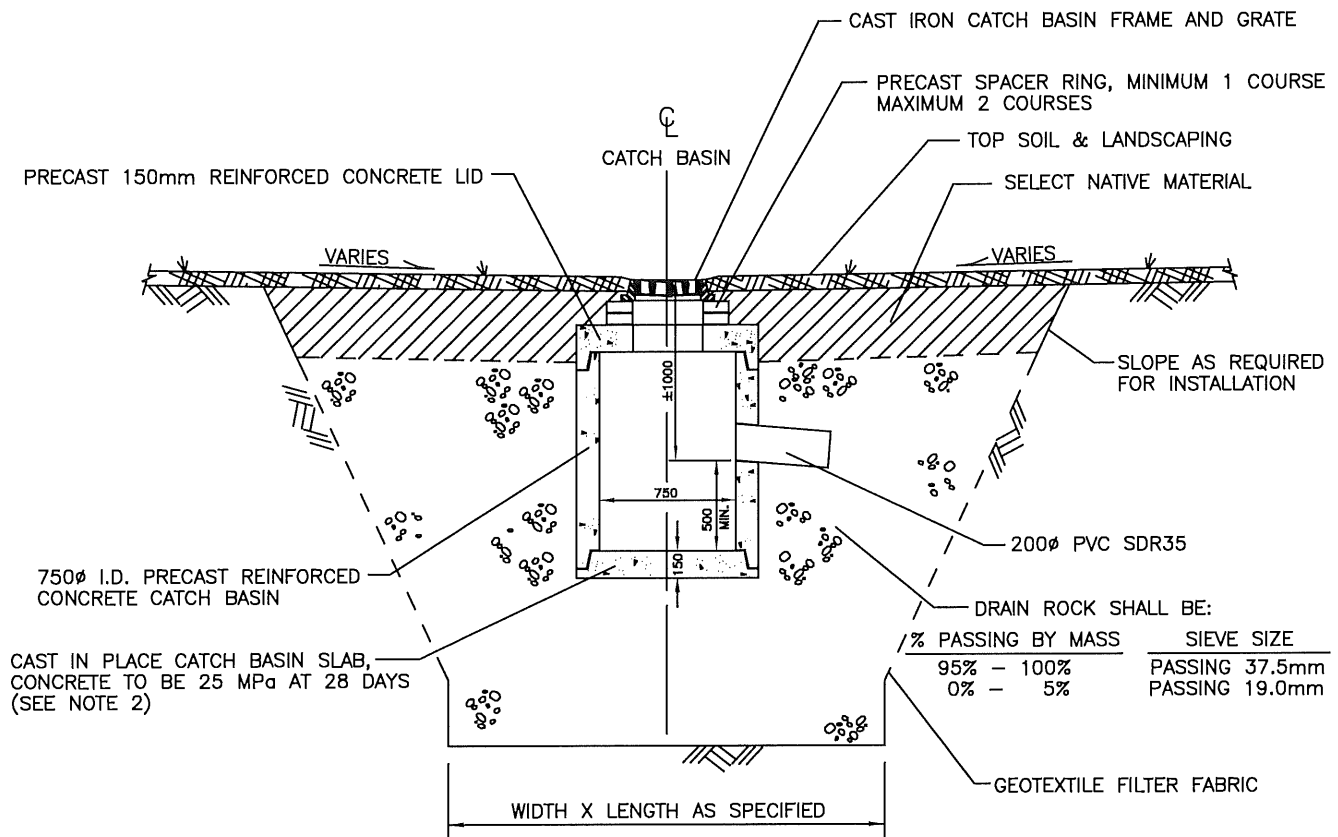
**NOTES:**

- 1) Precast manhole base may be used in place of cast-in-place slab.
- 2) Frame & cover to be set at 5mm below finished grade.
- 3) Size to be confirmed by a Consulting Engineer.

- 4) Design Engineer to calculate effective depth and dimensions of drain rock based on percolation data.





|                    |                     |          |                          |               |                           |
|--------------------|---------------------|----------|--------------------------|---------------|---------------------------|
| CITY OF SALMON ARM |                     |          | Typical Drainage Drywell |               |                           |
| No.                | Revision            | Date     | Date                     | Approved      | SPECIFICATION DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016               |               | ST-13                     |
|                    |                     |          |                          | City Engineer |                           |



NOTES:

- 1) Catch basin sections, lid & any breaks made into catch basin sections shall be made water tight with approved mortar, sealants or gaskets inside and out.
- 2) Precast catch basin base may be used in place of cast-in-place slab.
- 3) Requires approval from the City Engineer.



|                                                                                                               |                     |             |                                    |                                                                                                                |                                      |
|---------------------------------------------------------------------------------------------------------------|---------------------|-------------|------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------|
|  <b>CITY OF SALMON ARM</b> |                     |             | <b>Typical Catch Basin Drywell</b> |                                                                                                                |                                      |
| <b>No.</b>                                                                                                    | <b>Revision</b>     | <b>Date</b> | <b>Date</b>                        | <b>Approved</b>                                                                                                | <b>SPECIFICATION<br/>DRAWING No.</b> |
| A                                                                                                             | ISSUED FOR APPROVAL | 07/14/16    | 10-11-2016                         | <br>_____<br>City Engineer | ST-14                                |
|                                                                                                               |                     |             |                                    |                                                                                                                |                                      |

# STORM SEWER DESIGN SHEET

RATIONAL FORMULA

SHEET \_\_\_\_\_ OF \_\_\_\_\_

PROJECT\_\_\_\_\_

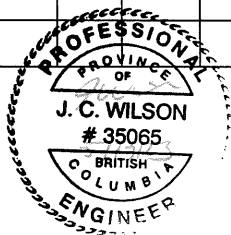
DESIGNED BY: \_\_\_\_\_

JOB NO.:

STORM RETURN PERIOD \_\_\_\_\_ YEARS

CHECKED BY: \_\_\_\_\_

DATE:

[illegible]

CITY OF SALMON ARM

# Storm Sewer Design Sheet

| No. | Revision            | Date     |
|-----|---------------------|----------|
| A   | ISSUED FOR APPROVAL | 07/14/16 |
|     |                     |          |
|     |                     |          |

Date \_\_\_\_\_

Approved

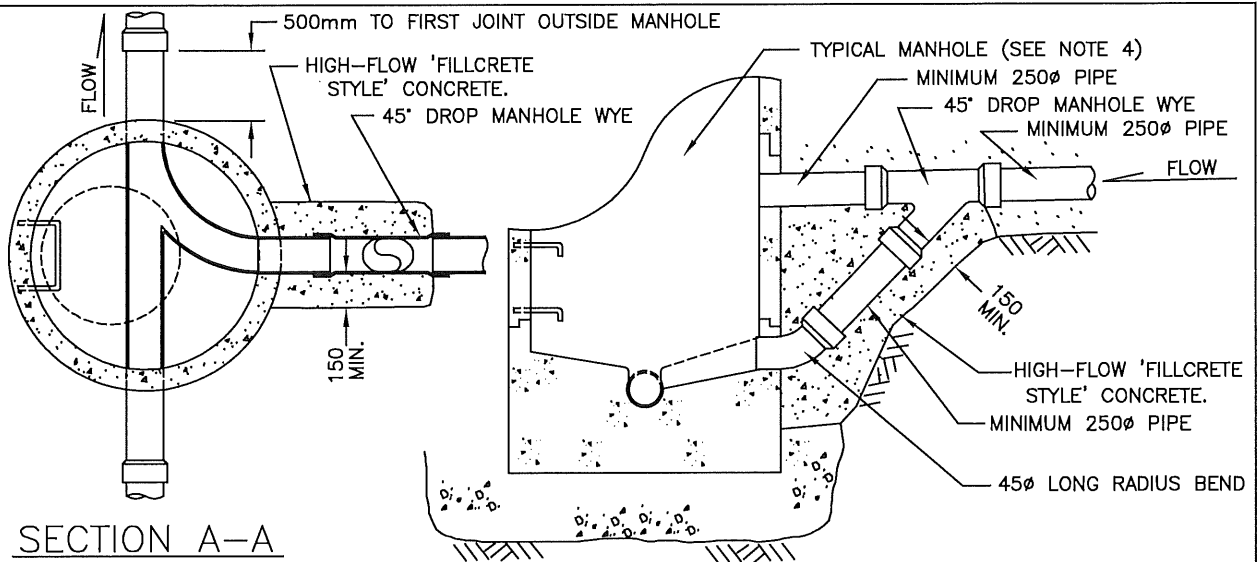
10-11-2016

City Engineer

SPECIFICATION  
DRAWING No.

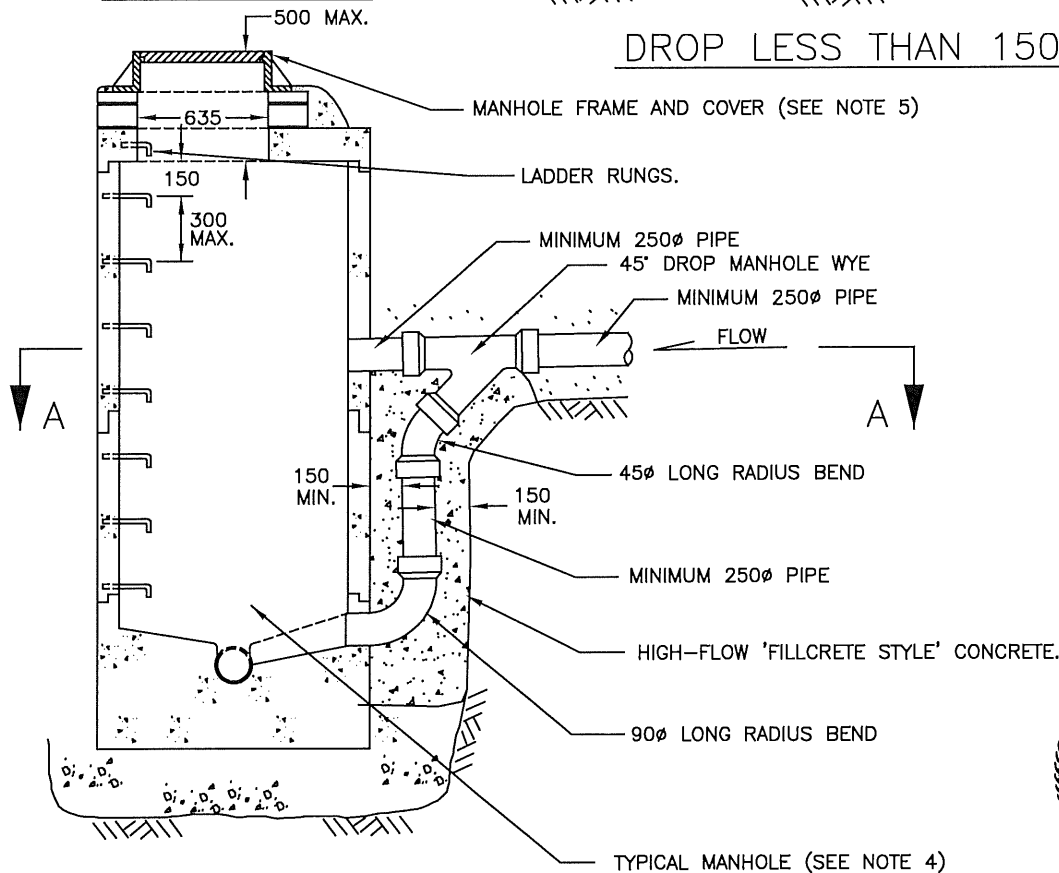
ST-15





SECTION A-A

DROP LESS THAN 1500mm

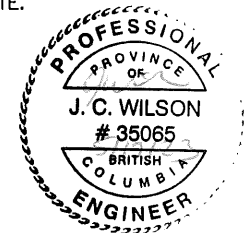



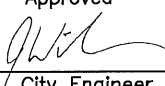
DROP GREATER THAN 1500mm

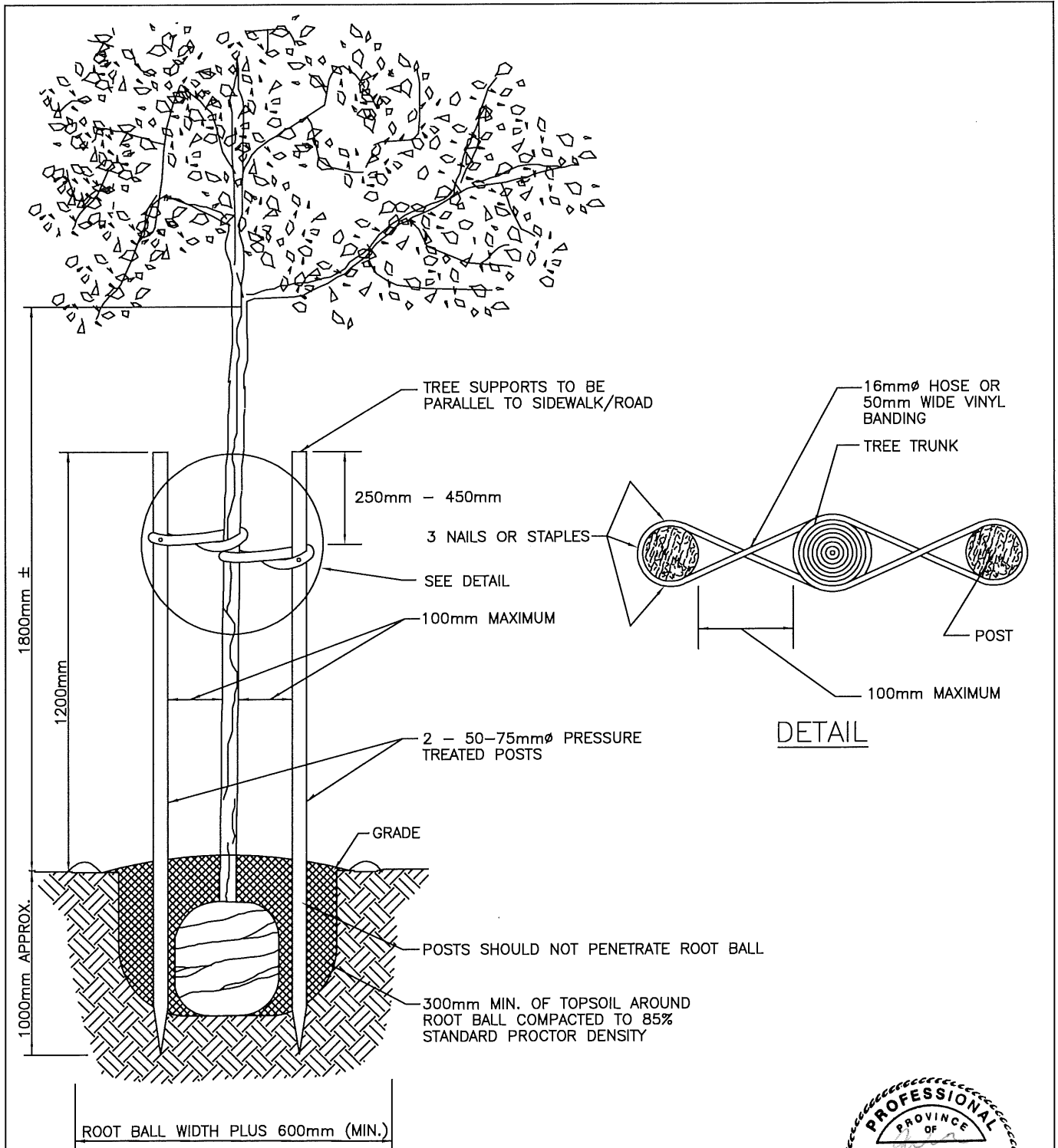
NOTES:

- 1) Inside ramps shall be utilized where the elevation of the invert is the same or below the crown of the through pipe (Refer to Specification Drawing ST-2).
- 2) All joints to have smooth mortar finish.

- 3) Encasement Concrete strength to be high-flow 'fillcrete style' concrete.
- 4) Refer to Specification Drawing No. ST-2, Typical 1050mm Storm Manhole.
- 5) Refer to Specification Drawing No. ST-3, H-20 Manhole Frame & Cover.
- 6) Inside drop to be approved by the City Engineer.

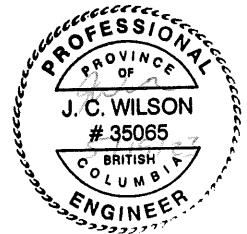


|                                                                                                        |                     |          |                                   |                                                                                                       |                           |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|-----------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
|  CITY OF SALMON ARM |                     |          | Typical 1050mm Storm Drop Manhole |                                                                                                       |                           |
| No.                                                                                                    | Revision            | Date     | Date                              | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                        | <br>City Engineer | ST-16                     |

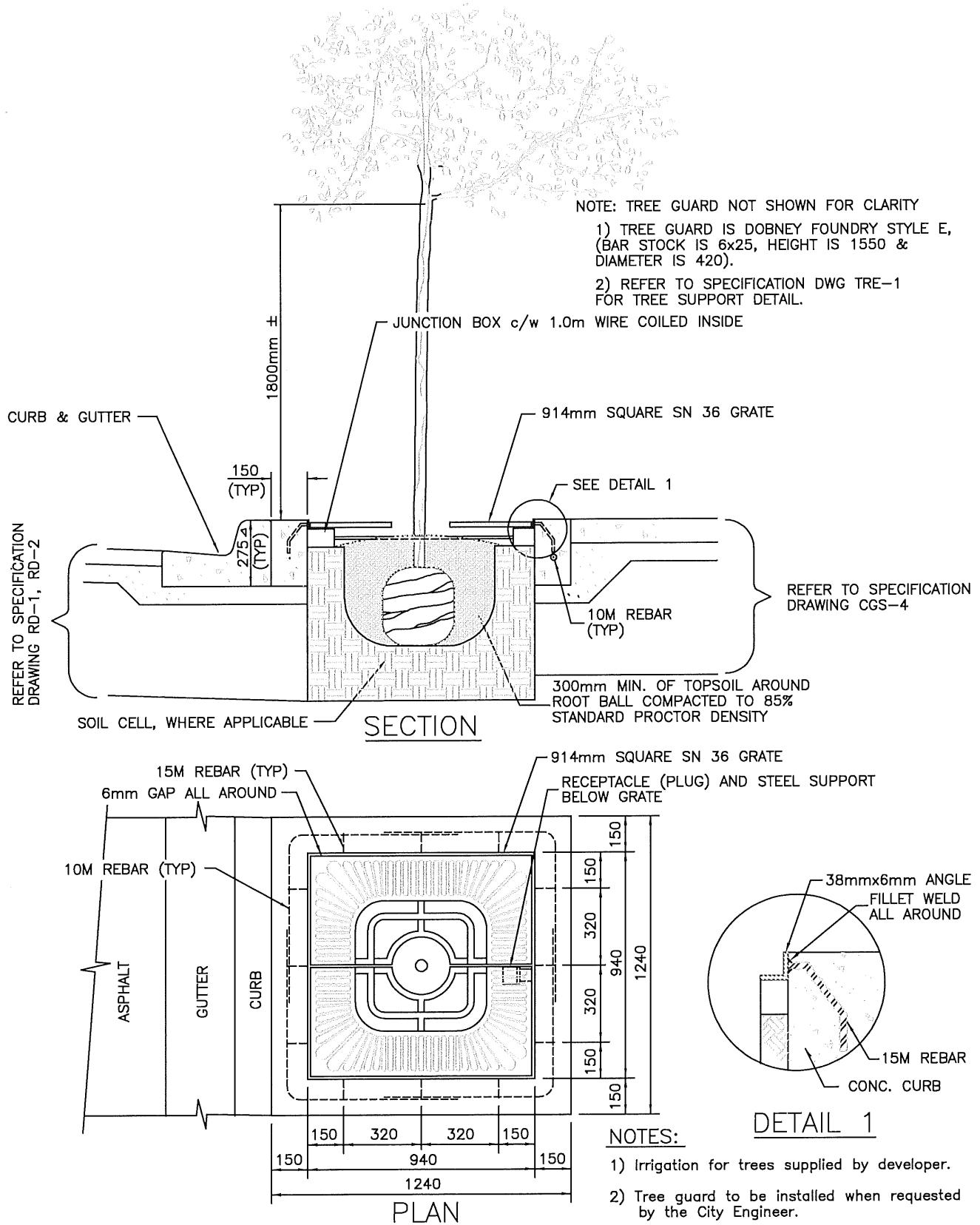



**NOTES:**

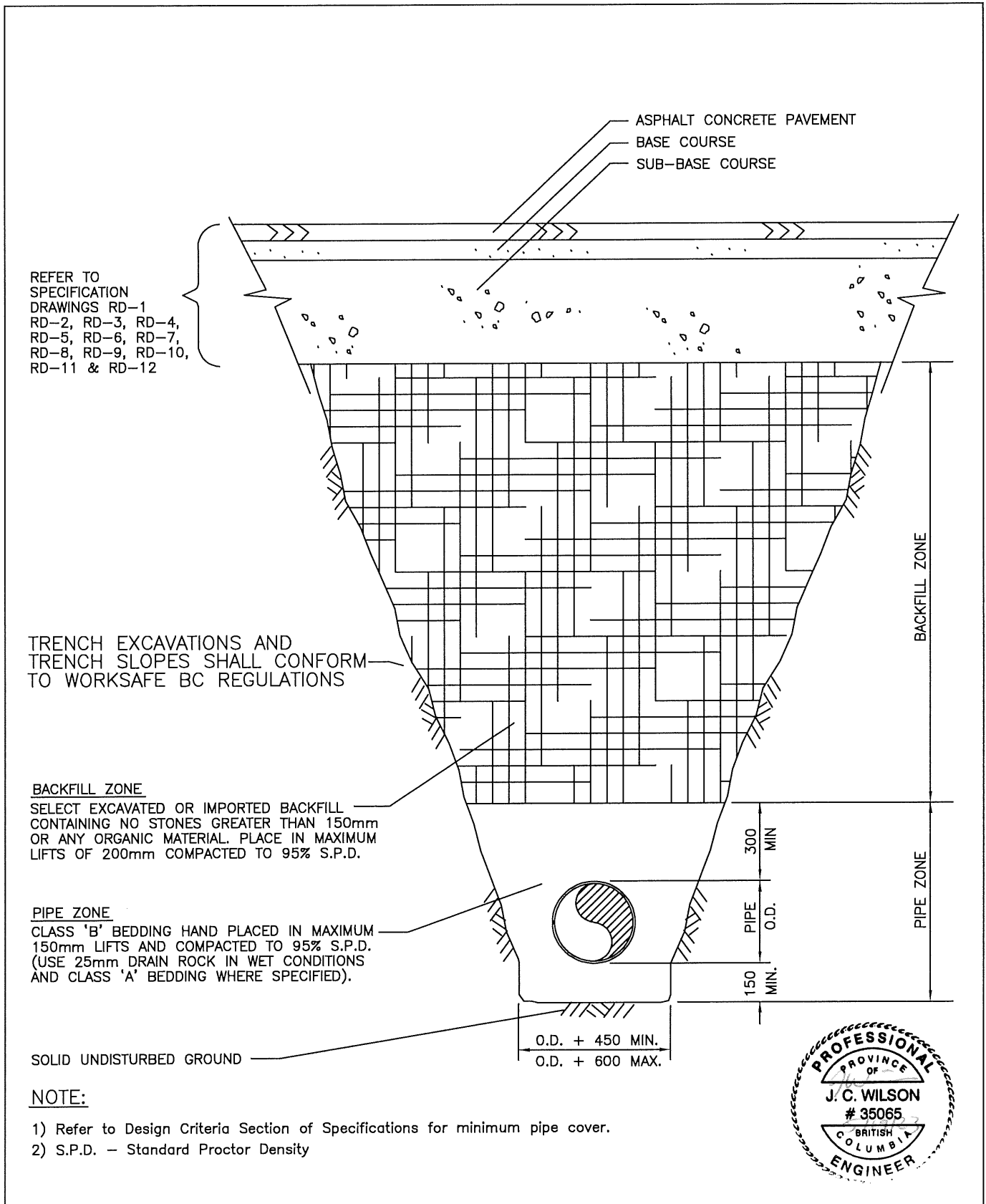
- 1) Irrigation for trees supplied by developer.



| CITY OF SALMON ARM |                     |          | Typical Double Tree Stakes<br>(for trees over 2m high) |                     |                              |
|--------------------|---------------------|----------|--------------------------------------------------------|---------------------|------------------------------|
| No.                | Revision            | Date     | Date                                                   | Approved            | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                                             | <i>J. C. Wilson</i> | TRE-1                        |
|                    |                     |          |                                                        | City Engineer       |                              |





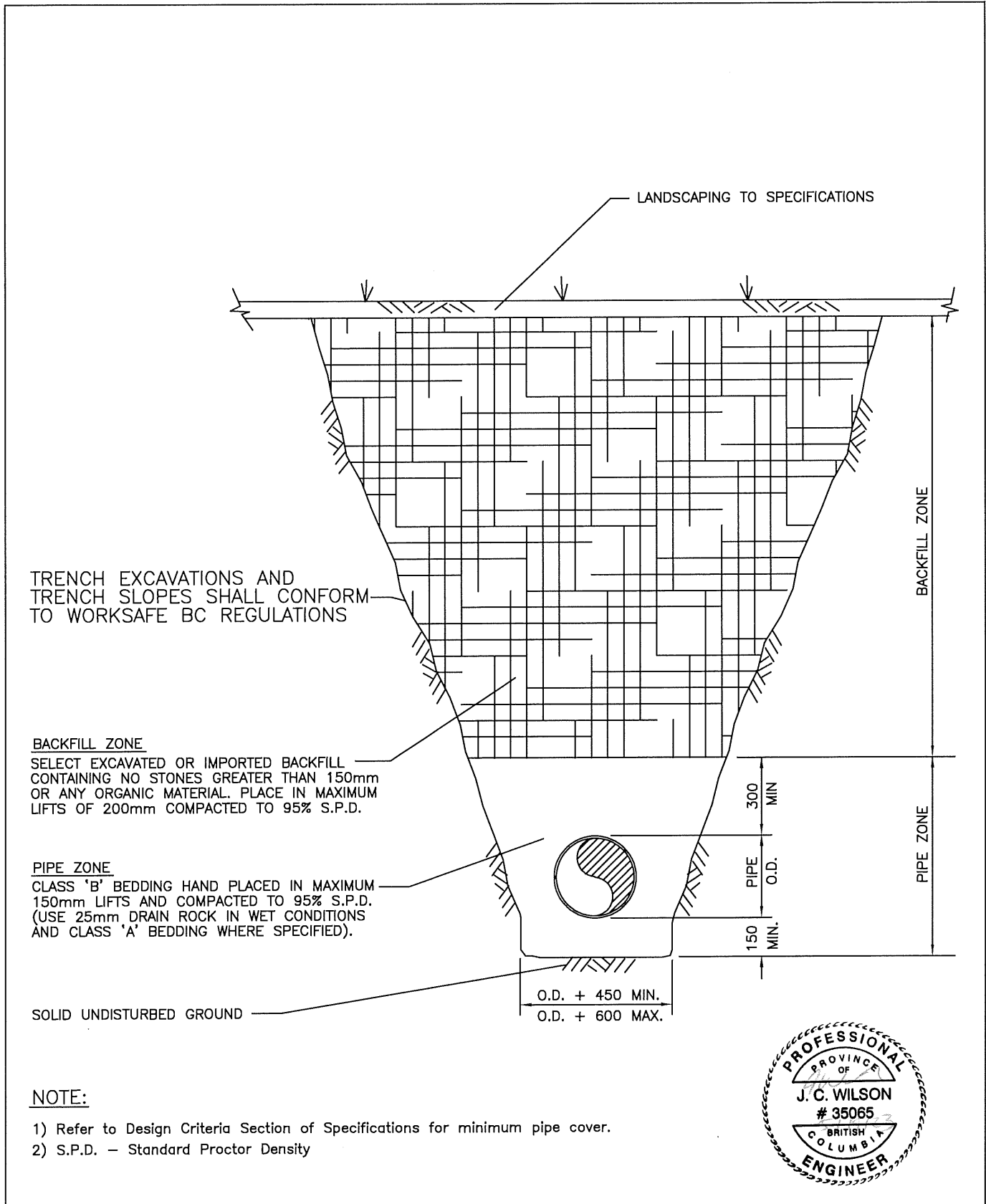
|                               |                                       |          |                                                    |                                                                                      |                              |
|-------------------------------|---------------------------------------|----------|----------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------|
| <b>CITY OF<br/>SALMON ARM</b> |                                       |          | Typical Tree<br>(with Grate, Guard and Receptacle) |                                                                                      |                              |
| No.                           | Revision                              | Date     | Date                                               | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                             | APPROVED                              | 10/11/16 |                                                    |  |                              |
| B                             | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023                                         | <u>City Engineer</u>                                                                 | TRE-2                        |
|                               |                                       |          |                                                    |                                                                                      |                              |


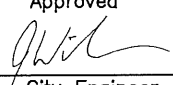


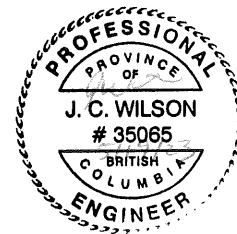
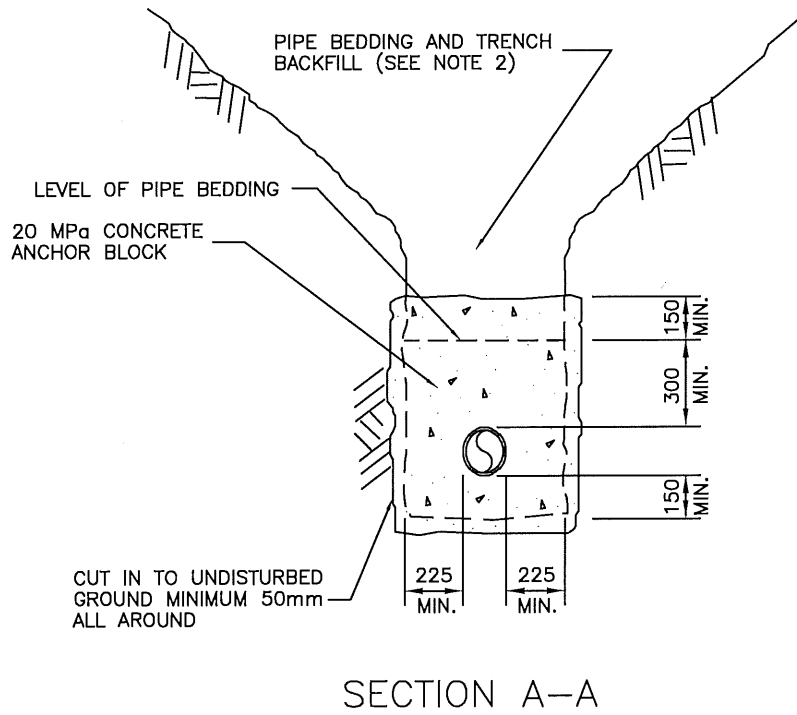
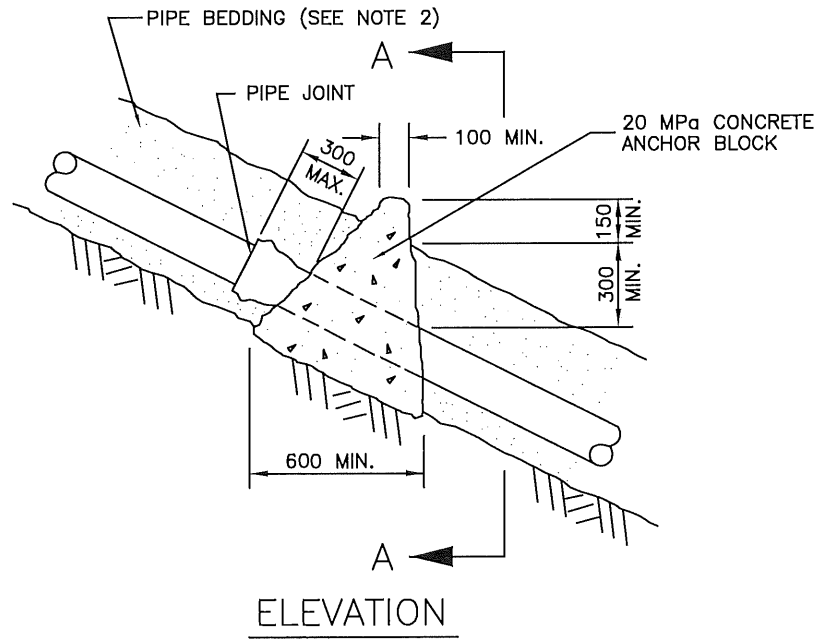
**NOTE:**

- 1) Refer to Design Criteria Section of Specifications for minimum pipe cover.
- 2) S.P.D. – Standard Proctor Density

|                                                                                                        |                     |          |                                   |                                                                                                       |                           |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|-----------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
|  CITY OF SALMON ARM |                     |          | Typical Utility Trench in Roadway |                                                                                                       |                           |
| No.                                                                                                    | Revision            | Date     | Date                              | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                        | <br>City Engineer | UT-1                      |
|                                                                                                        |                     |          |                                   |                                                                                                       |                           |


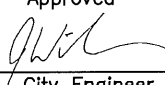


|                                                                                                        |                     |          |                                     |                                                                                                       |                           |
|--------------------------------------------------------------------------------------------------------|---------------------|----------|-------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
|  CITY OF SALMON ARM |                     |          | Typical Utility Trench in Boulevard |                                                                                                       |                           |
| No.                                                                                                    | Revision            | Date     | Date                                | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                                                                                                      | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                          | <br>City Engineer | UT-2                      |
|                                                                                                        |                     |          |                                     |                                                                                                       |                           |

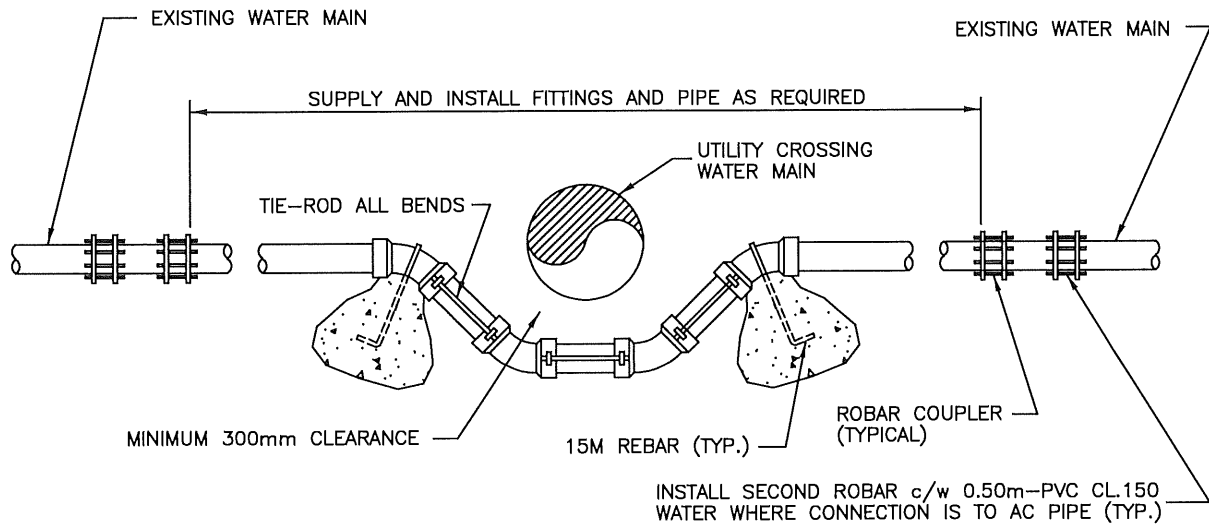


**NOTE:**

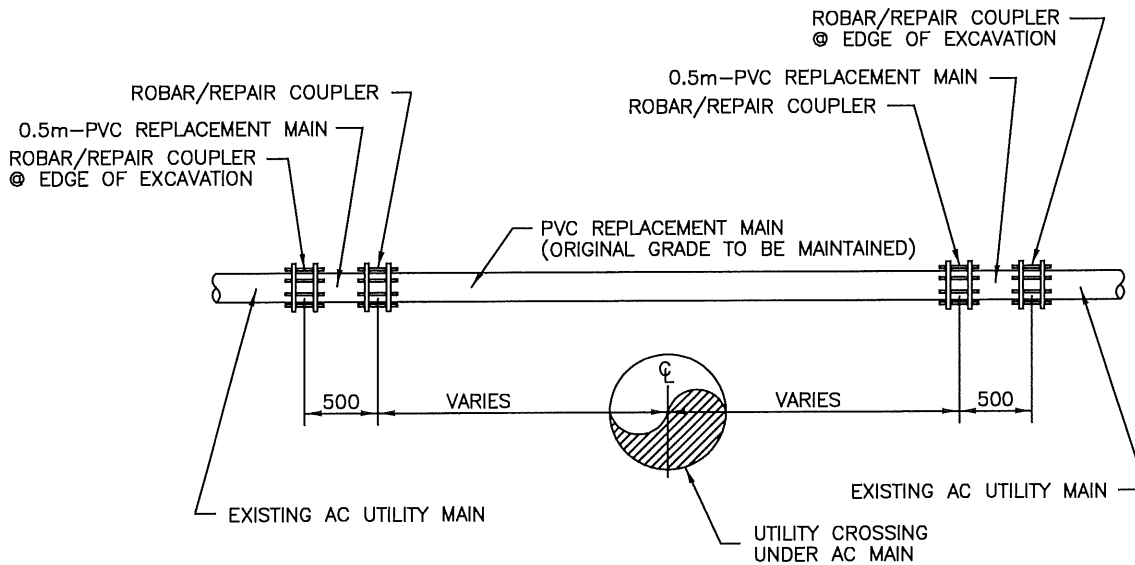
- 1) The requirement for, location of, and number of, Anchor Blocks and/or Mechanical Pipe Restraints shall be site specific.
- 2) Refer to Specification Drawing No. UT-1, UT-2 Typical Utility Trench in Roadway, Typical Utility Trench in Boulevard.
- 3) Concrete shall be kept clear of bells.
- 4) Concrete strength to be 20 MPa at 28 days.

|                                                                                                               |                     |          |                      |                                                                                                       |                              |
|---------------------------------------------------------------------------------------------------------------|---------------------|----------|----------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
|  <b>CITY OF SALMON ARM</b> |                     |          | <b>Anchor Blocks</b> |                                                                                                       |                              |
| No.                                                                                                           | Revision            | Date     | Date                 | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
| A                                                                                                             | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016           | <br>City Engineer | UT-3                         |
|                                                                                                               |                     |          |                      |                                                                                                       |                              |





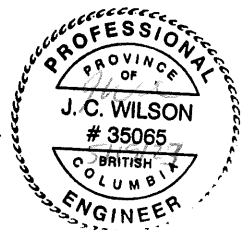
TYPICAL UTILITY CROSSING WATER MAIN  
SCALE N.T.S.



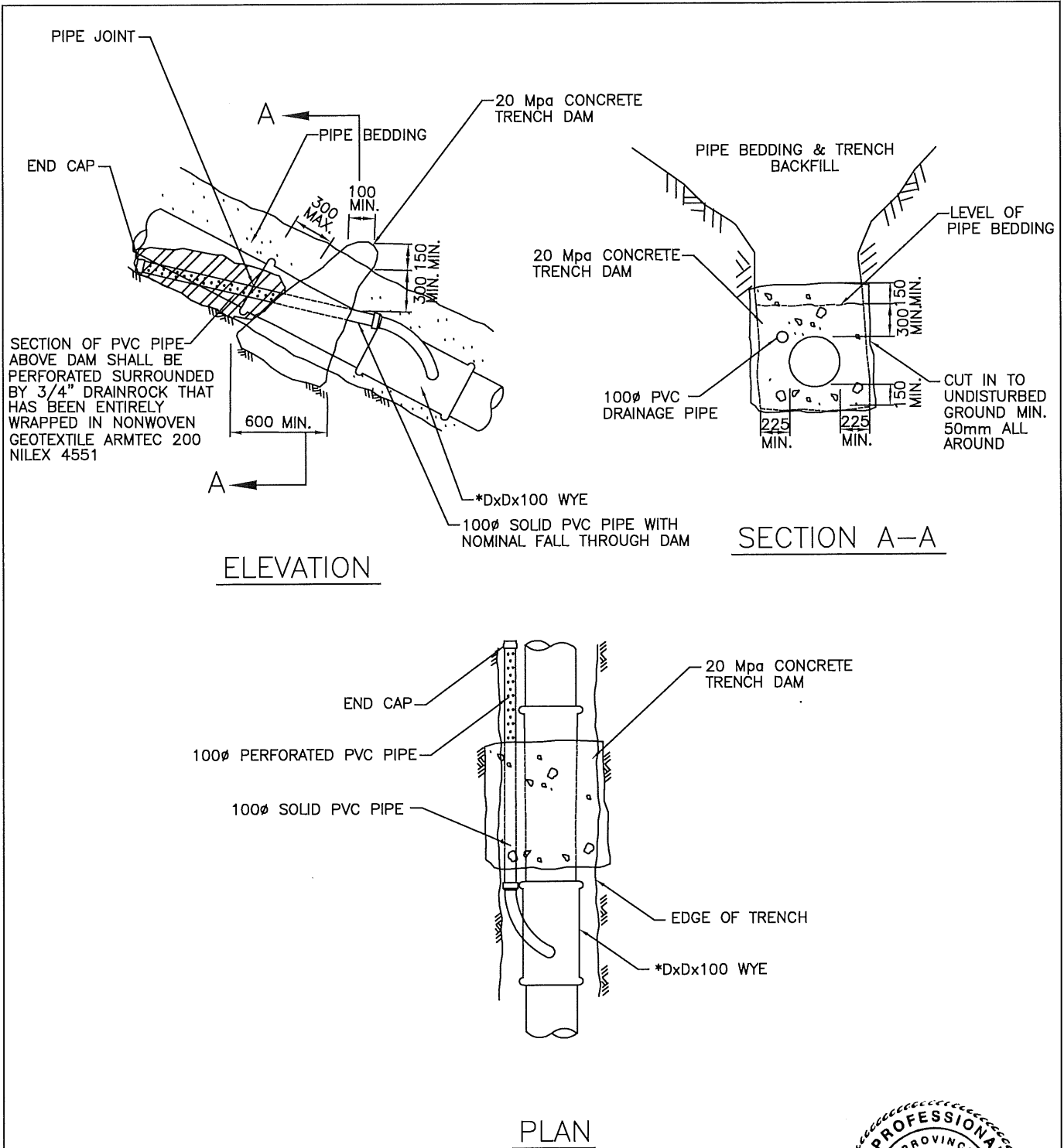
TYPICAL UTILITY CROSSING UNDER AC MAIN  
SCALE N.T.S.

**NOTE:**

- 1) 3 Robars may be used when approved by the City Engineer.

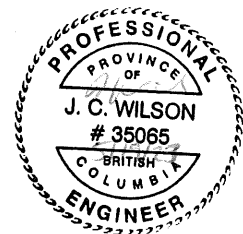


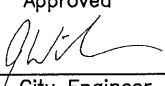
| CITY OF SALMON ARM |                     |          | Utility Main Relocation Details |               |                           |
|--------------------|---------------------|----------|---------------------------------|---------------|---------------------------|
| No.                | Revision            | Date     | Date                            | Approved      | SPECIFICATION DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                      |               | UT-4                      |
|                    |                     |          |                                 | City Engineer |                           |

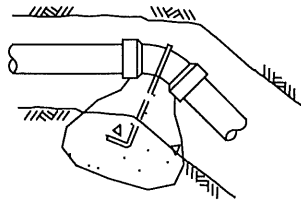


NOTE:

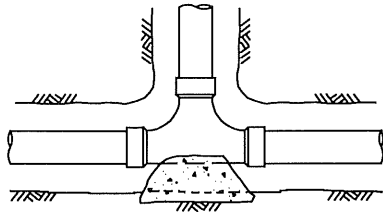
- 1) Concrete is to be kept clear of all bells.
- 2) Concrete strength to be 20 MPa at 28 days.



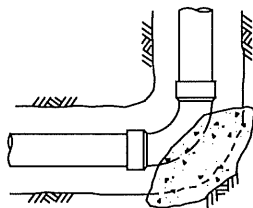
| CITY OF SALMON ARM |                     |          | Trench Dam Detail |                                                                                      |                              |
|--------------------|---------------------|----------|-------------------|--------------------------------------------------------------------------------------|------------------------------|
| No.                | Revision            | Date     | Date              | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016        |  | UT-5                         |
|                    |                     |          |                   | City Engineer                                                                        |                              |



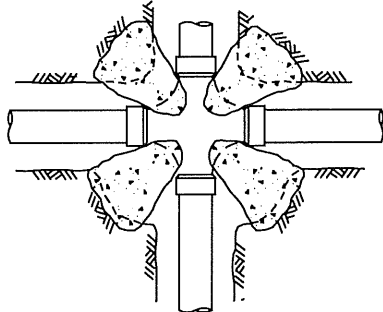
VERTICAL BEND



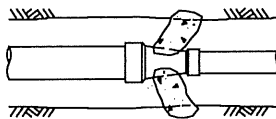
TEE



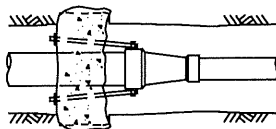
BEND



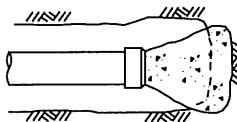
CROSS



REDUCER



REDUCER



END CAP

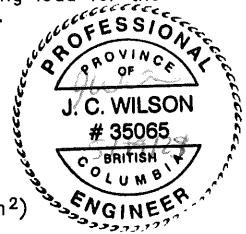
TABLE I – Approx. thrust in kN at 1725 kPa water pressure

| FITTING SIZE | TEES & DEAD ENDS | BENDS  |        |       |        |
|--------------|------------------|--------|--------|-------|--------|
|              |                  | 90°    | 45°    | 22.5° | 11.25° |
| 100mm Ø      | 20.58            | 28.93  | 15.80  | 7.90  | 3.95   |
| 150mm Ø      | 42.25            | 60.05  | 32.25  | 16.13 | 8.08   |
| 200mm Ø      | 72.28            | 103.43 | 55.60  | 27.80 | 13.90  |
| 250mm Ø      | 120.65           | 154.58 | 83.95  | 41.98 | 21.00  |
| 300mm Ø      | 154.58           | 219.08 | 120.10 | 60.05 | 30.03  |

TABLE II – Approximate bearing loads for typical soils\*

| SOIL TYPE                        | LOAD<br>kPa(kN/m <sup>2</sup> ) |
|----------------------------------|---------------------------------|
| MUCK, PEAT, ETC.                 | 0.00                            |
| SOFT CLAY                        | 47.88                           |
| SAND                             | 95.76                           |
| SAND & GRAVEL                    | 143.64                          |
| SAND & GRAVEL CEMENTED WITH CLAY | 191.52                          |
| HARD SHALE                       | 478.80                          |

\* Approximate bearing loads for typical soils are presented in Table II, however, the Owner's Consulting Engineer is responsible for determining the safe bearing load for the soil and the design for each thrust block.



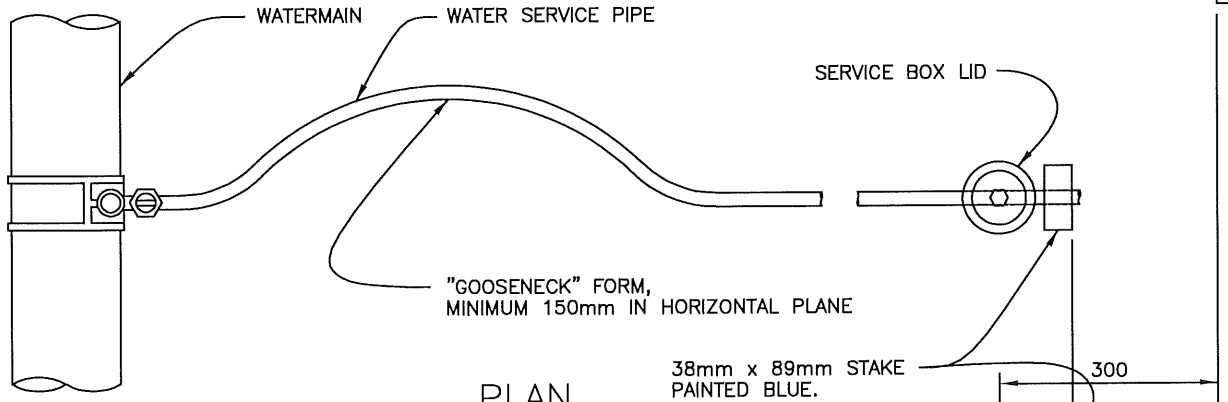
### THRUST BLOCK CALCULATION

$$\frac{\text{Thrust (Table I)}}{\text{Bearing Load (Table II)}} = \text{Thrust Area (m}^2\text{)}$$

### NOTES:

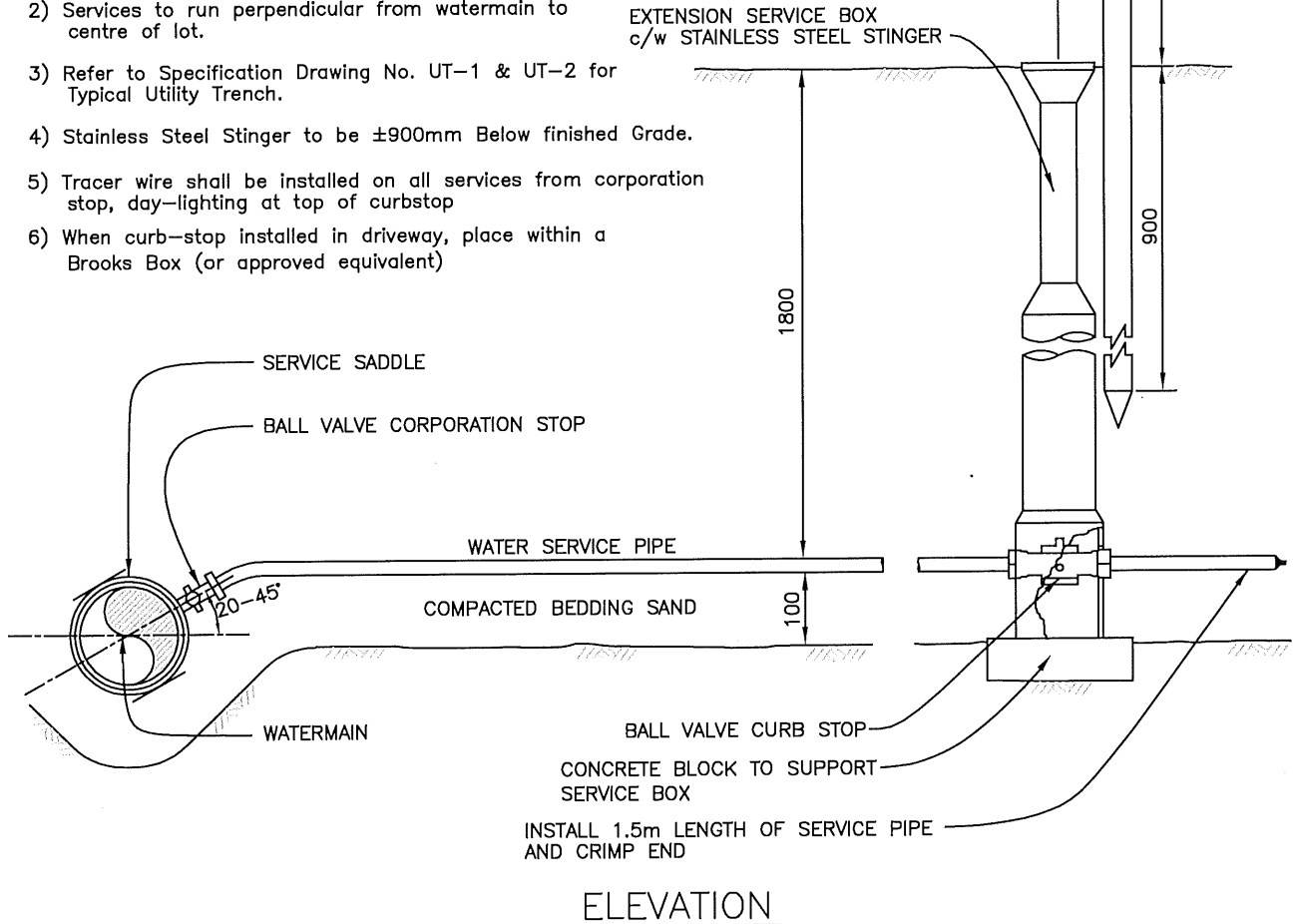
- 1) Thrust blocks shall be designed for minimum 1725 kPa water pressure.
- 2) Thrust Blocks to extend into undisturbed soil.
- 3) 6 mil Poly to be placed over fittings to prevent bonding with concrete.
- 4) Concrete shall be kept clear of bells.
- 5) Concrete strength to be 20 MPa at 28 days.
- 6) Engineered joint restraint system will be an acceptable alternative to thrust blocks.
- 7) Vertical bends require individual design.
- 8) Thrust Block on 5° Bends in accordance to the manufacturers specifications.
- 9) Precast thrust blocks acceptable with approvals from City Engineer

|                    |                     |          |                                     |               |
|--------------------|---------------------|----------|-------------------------------------|---------------|
| CITY OF SALMON ARM |                     |          | <h3>Thrust Block Details</h3>       |               |
| No.                | Revision            | Date     | Date                                | Approved      |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                          |               |
|                    |                     |          |                                     | City Engineer |
|                    |                     |          | SPECIFICATION<br>DRAWING No.<br>W-1 |               |



**NOTES:**

- 1) Service connections at watermain to be minimum 1.0m apart.
- 2) Services to run perpendicular from watermain to centre of lot.
- 3) Refer to Specification Drawing No. UT-1 & UT-2 for Typical Utility Trench.
- 4) Stainless Steel Stinger to be  $\pm 900\text{mm}$  Below finished Grade.
- 5) Tracer wire shall be installed on all services from corporation stop, day-lighting at top of curbstop
- 6) When curb-stop installed in driveway, place within a Brooks Box (or approved equivalent)



**CITY OF  
SALMONARM**

**Typical Water Service Connection**

| No. | Revision                              | Date     | Date       | Approved         | SPECIFICATION<br>DRAWING No. |
|-----|---------------------------------------|----------|------------|------------------|------------------------------|
| A   | APPROVED                              | 10/11/16 |            | <i>Calvin Be</i> |                              |
| B   | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 | 01-23-2023 | City Engineer    | W-2                          |

Adopted by Council February XX, 2023




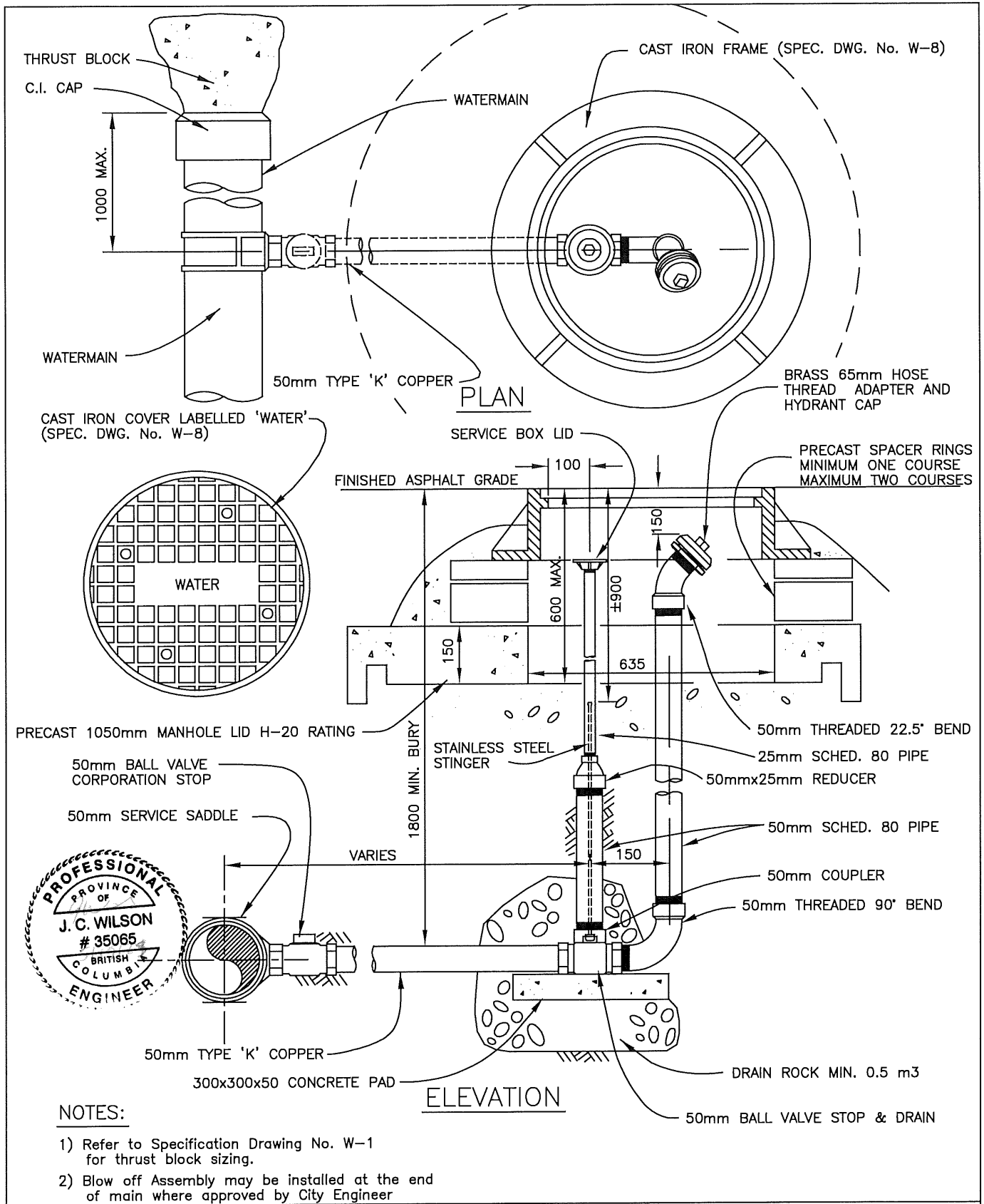
## ELEVATION


- 1) City of Salmon Arm Fire Hydrants to be 150mm and Tie-Rods and Nuts to be in accordance with CSA approved Materials List.
- 2) Hydrant Body & Bonnet to be Painted per CoSA Approved Materials List

Bonnet and Caps Painted as Follows:

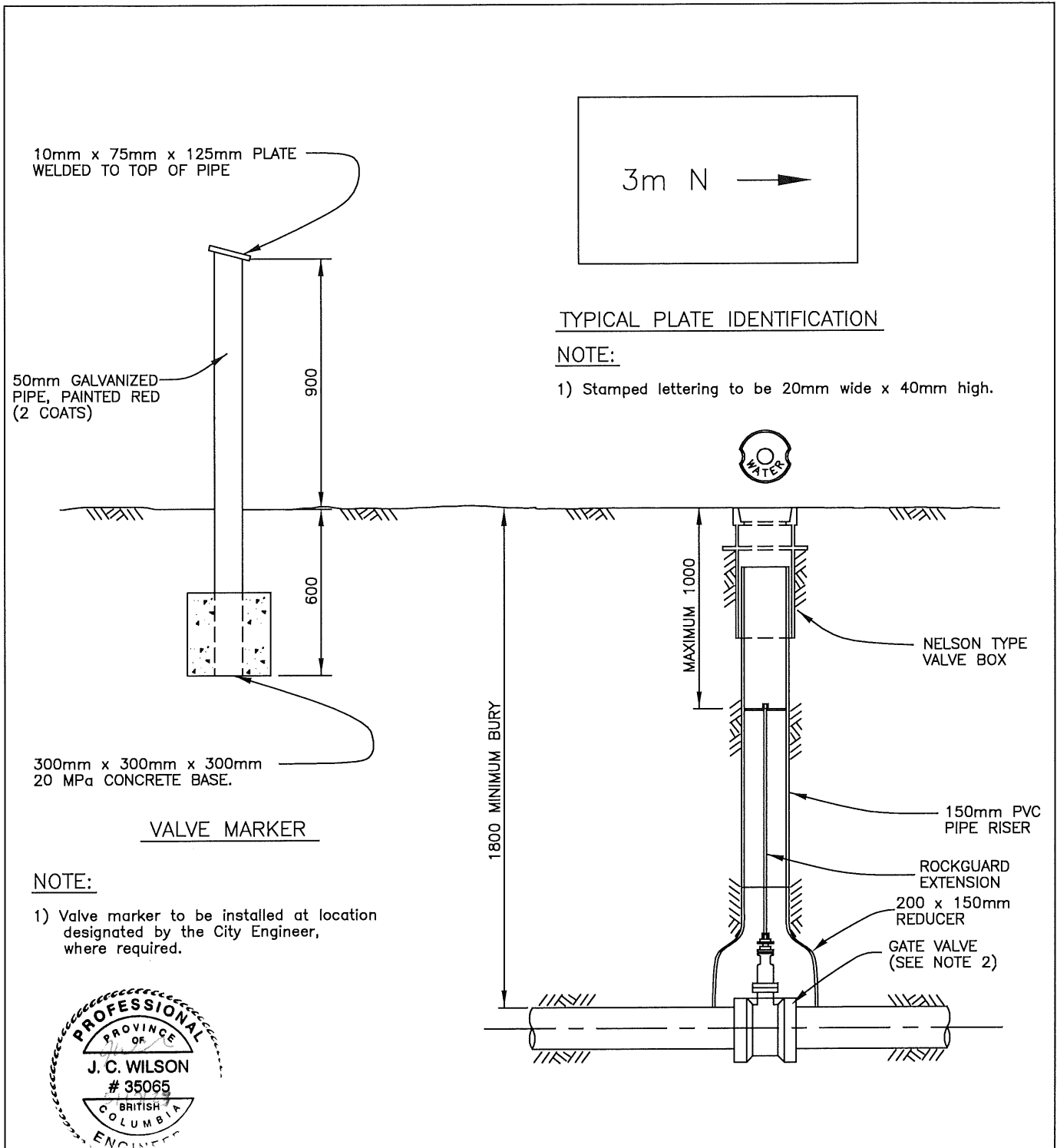
|               |     |          |
|---------------|-----|----------|
| 0 to 500      | GPM | — Yellow |
| 500 to 1000   | GPM | — Blue   |
| 1000 to 1000+ | GPM | — Green  |

|                               |                                       |          |                       |                                                                                      |                              |
|-------------------------------|---------------------------------------|----------|-----------------------|--------------------------------------------------------------------------------------|------------------------------|
| <b>CITY OF<br/>SALMON ARM</b> |                                       |          | Fire Hydrant Assembly |                                                                                      |                              |
| No.                           | Revision                              | Date     | Date                  | Approved                                                                             | SPECIFICATION<br>DRAWING No. |
| A                             | APPROVED                              | 10/11/16 | 01-06-2023            |  | W-3                          |
| B                             | SDSB 4293 REV'S - ISSUED FOR APPROVAL | 01/06/23 |                       |                                                                                      |                              |
|                               |                                       |          |                       | City Engineer                                                                        |                              |



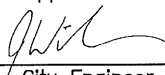
| CITY OF SALMON ARM |                     |          | Typical Blow-Off Assembly |                                                                                                       |                           |
|--------------------|---------------------|----------|---------------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
| No.                | Revision            | Date     | Date                      | Approved                                                                                              | SPECIFICATION DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                | <br>City Engineer | W-4                       |
|                    |                     |          |                           |                                                                                                       |                           |



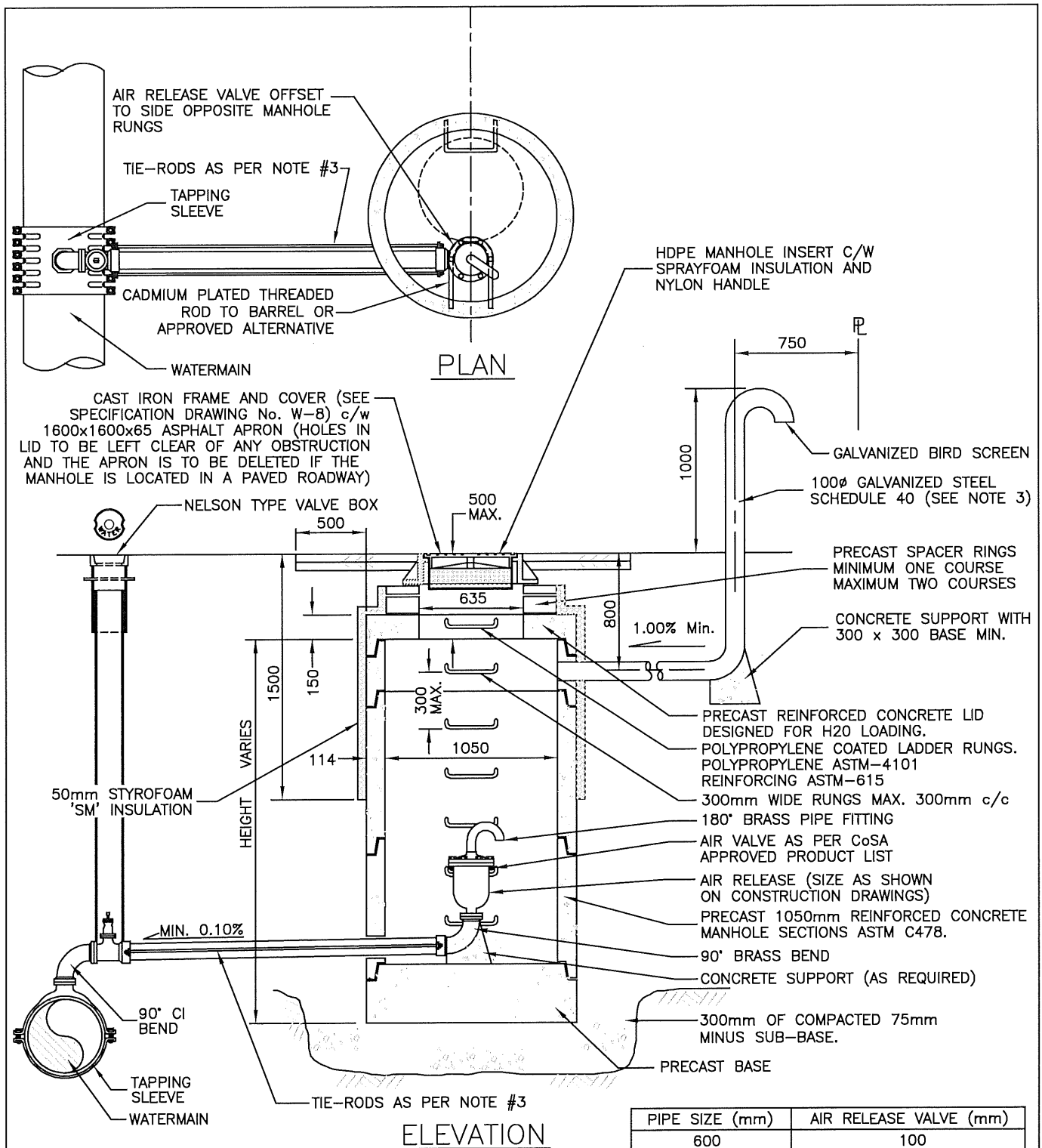


NOTES:

- 1) Valve box not to bear on pvc pipe riser.
- 2) Refer to Specification Drawing No. UT-1 & UT-2, Typical Utility Trench.

| CITY OF SALMON ARM |                     |          | Standard Valve Box |                                                                                                       |                              |
|--------------------|---------------------|----------|--------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
| No.                | Revision            | Date     | Date               | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016         | <br>City Engineer | W-5                          |
|                    |                     |          |                    |                                                                                                       |                              |
|                    |                     |          |                    |                                                                                                       |                              |





# NOTES:

- 1) Frame & cover to be set at 5mm below finished asphalt design grade and cross-fall.
- 2) 100Ø vent to be used in rural areas only.
- 3) Tie-Rods and Nuts to be as per Section 2B – Water Distribution Works, Clause 4.2.7 and 4.2.8.
- 4) Combination Air Release where required by City Engineer.
- 5) Chamber to have drain to storm sewer, ditch, or approved alternative c/w back-flow prevention.

**CITY OF**  
**SALMON ARM**

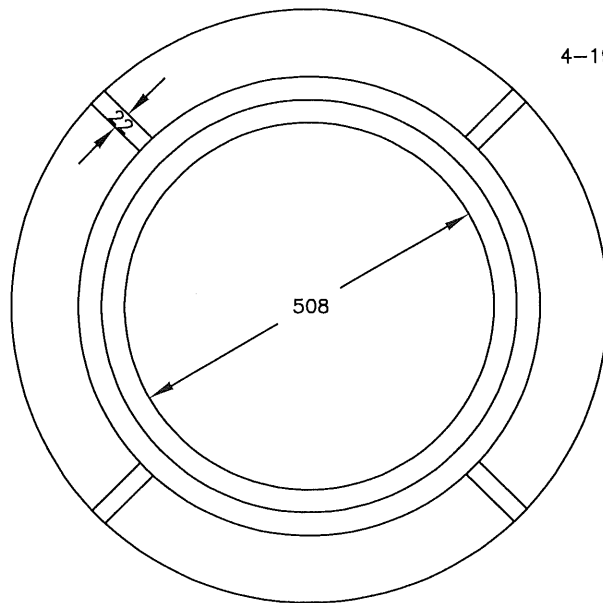
Air Release Valve (600 to 1200mm dia. watermain)

| No. | Revision                              | Date     |
|-----|---------------------------------------|----------|
| A   | APPROVED                              | 10/11/16 |
| B   | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |

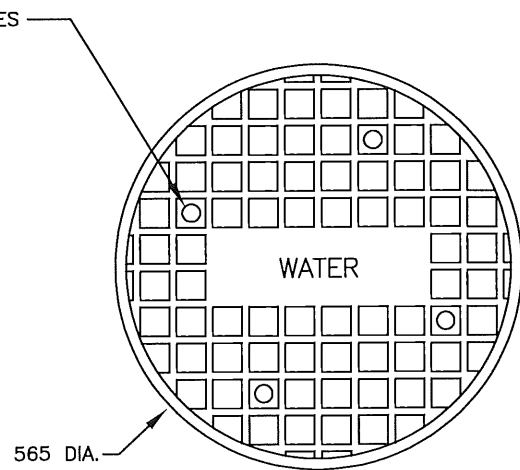
Date  
01-06-2023

Approved  
*Calvin Be*  
City Engineer

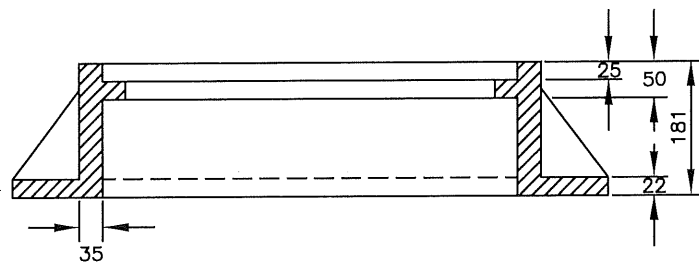
SPECIFICATION  
DRAWING No.  
W-7



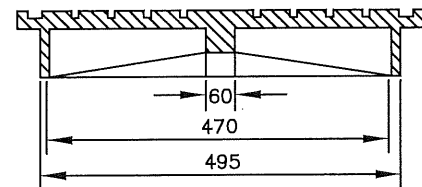
FRAME PLAN



COVER PLAN



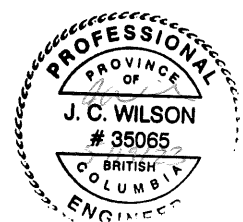
FRAME ELEVATION

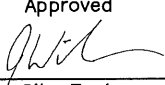


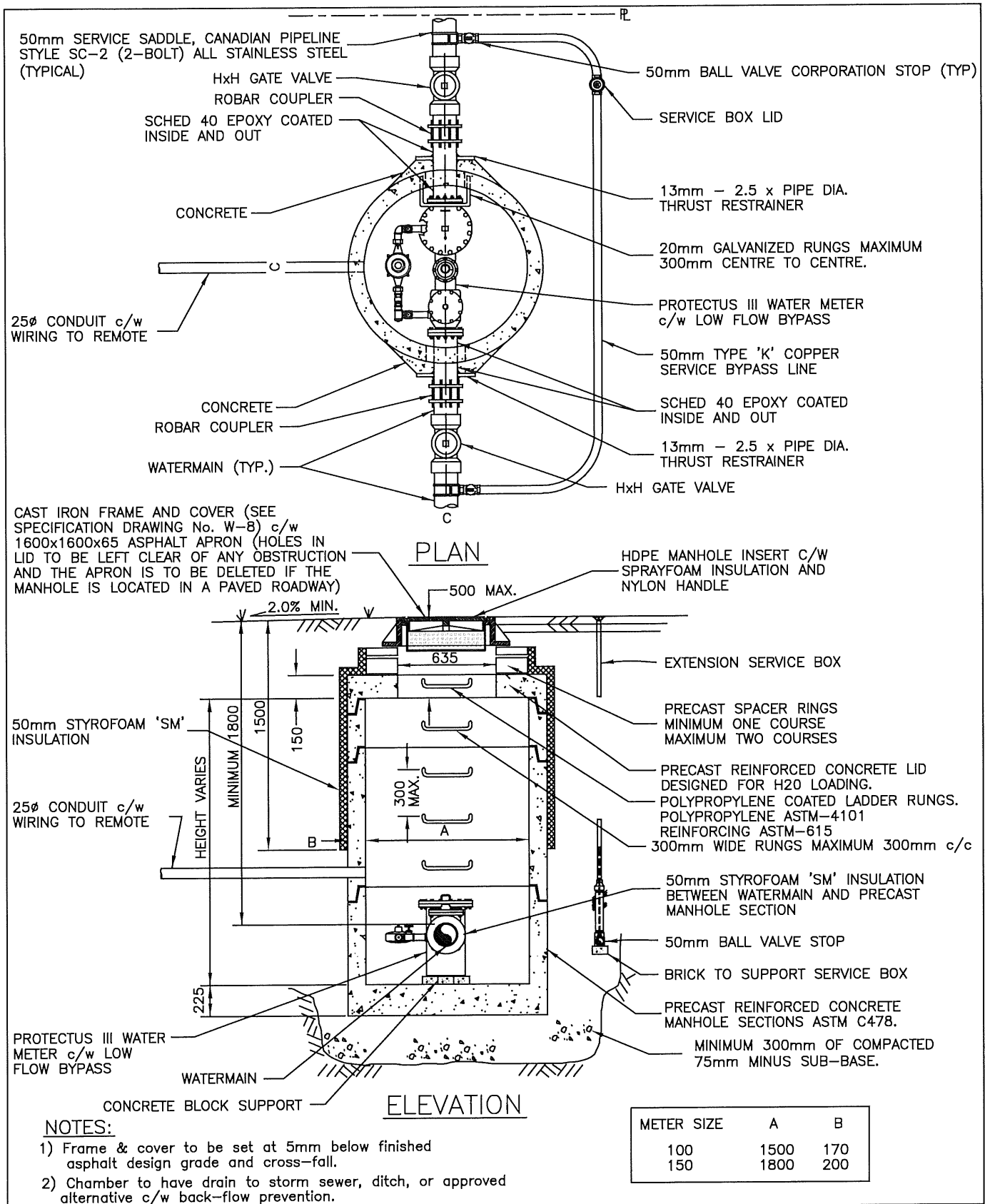
COVER ELEVATION

NOTES:

- 1) Frames and covers are to be designed to withstand H-20 loading.
- 2) Air Valve manhole covers shall be labelled: "WATER"
- 3) Blow-off Assembly manhole covers shall be labelled: "WATER"
- 4) Water meter manhole covers shall be labelled: "WATER"
- 5) No low profile cast iron frame allowed, unless approved by the City Engineer.



| CITY OF SALMON ARM |                     |          | H-20 Manhole Frame & Cover |                                                                                      |                           |
|--------------------|---------------------|----------|----------------------------|--------------------------------------------------------------------------------------|---------------------------|
| No.                | Revision            | Date     | Date                       | Approved                                                                             | SPECIFICATION DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016                 |  | W-8                       |
|                    |                     |          |                            | City Engineer                                                                        |                           |



CITY OF SALMON ARM

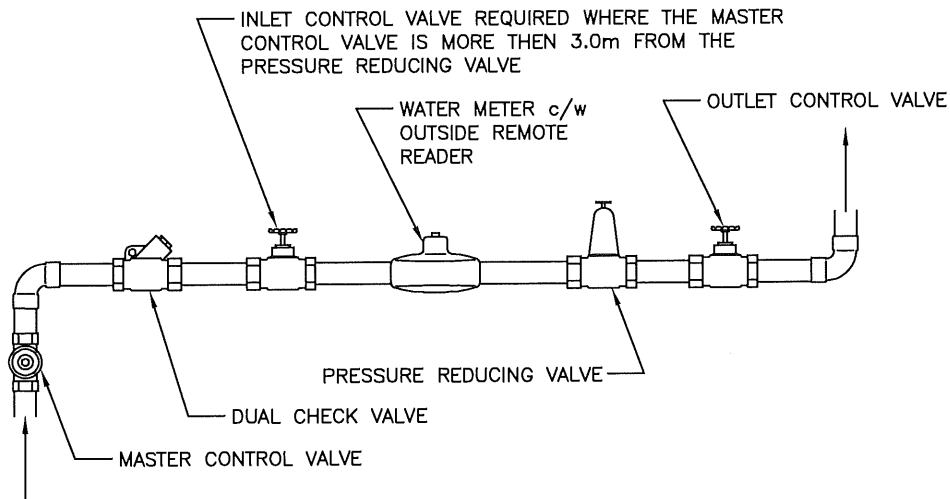
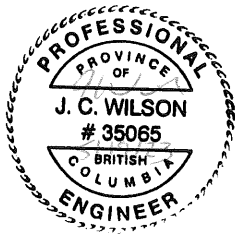
Fire Service Water Vault/Meter Detail

| No. | Revision                              | Date     |
|-----|---------------------------------------|----------|
| A   | APPROVED                              | 10/11/16 |
| B   | SDSB 4293 REV's - ISSUED FOR APPROVAL | 01/06/23 |

|            |                  |
|------------|------------------|
| Date       | Approved         |
| 01-06-2023 | <i>Calvin Be</i> |
|            | City Engineer    |

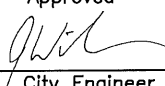
SPECIFICATION  
DRAWING No.  
W-9

Adopted by Council June XX, 2023



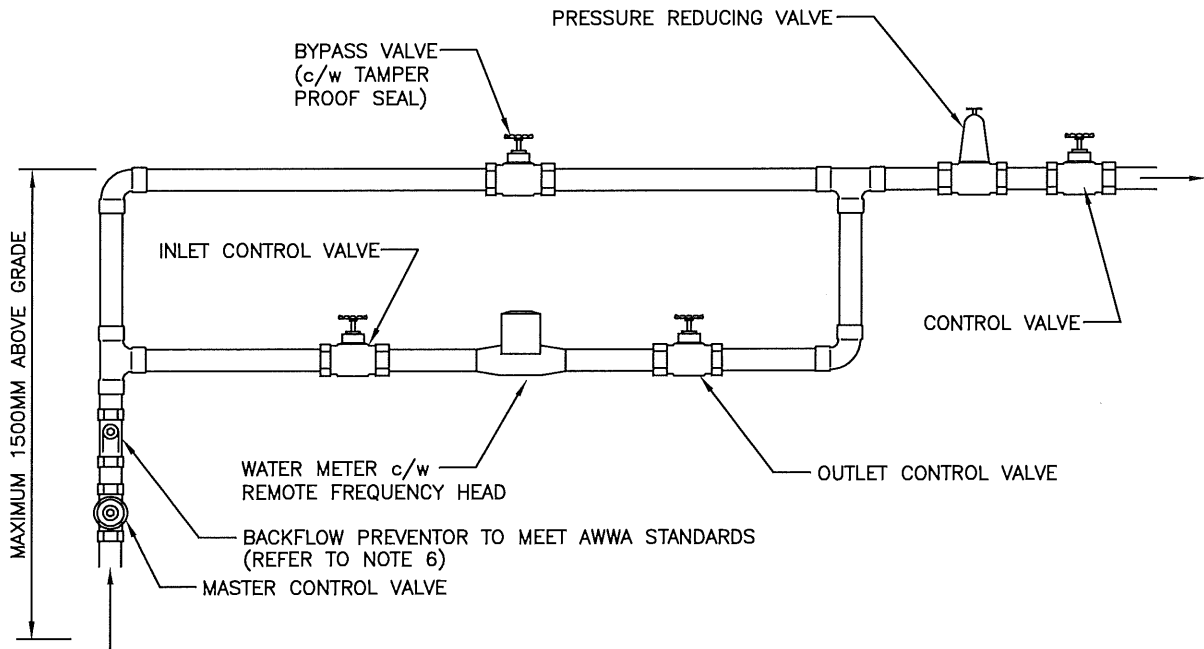
# NOTES:

- 1) Water meter c/w outside remote reader supplied by City of Salmon Arm.
- 2) Meter to be installed as the first fixture on the service connection. All other fixtures to be installed down stream of the outlet control valve, such that all water consumption is metered.
- 3) Remote reader to be mounted on outside wall near front of building, adjacent to the BC Hydro meter.
- 4) Wire to remote reader to be encased in 13mm schedule 40 PVC or approved equivalent, (optional).
- 5) Where the water meter is installed in the crawl space the water meter must be located within 1.20m of the access hatch.
- 6) City Engineer (or Building Inspector) may require higher level of backflow protection than a dual check valve depending on the proposed use.
- 7) Piping on each side of meter must be adequately supported to the satisfaction of the Building department.
- 8) Meter must be on horizontal plane and upright.
- 9) Where a standard water meter setter is not used then there should be a minimum distance of 225mm between any wall and a meter or meter tree. The meter assembly should be appropriately secured to the wall or floor.
- 10) Valves are required adjacent to meters (inlet & outlet side). Additional valve may be installed in individual units if required.
- 11) The area for 600mm in front of the meter shall be free of obstruction to allow for convenient reading and servicing of the meter, also 1.20m headroom must be provided in this area.
- 12) In no case shall a meter be installed in a bathroom or bedroom.
- 13) The master control valve must be easily accessible and located immediately after the water service enters the building and immediately ahead of the meter.
- 14) 19ø and 25ø services ONLY. Can be used for a 38ø and 50ø upon City Engineer's approval.

| CITY OF SALMON ARM |                     |          | Residential Water Meter |                                                                                                       |                              |
|--------------------|---------------------|----------|-------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|
| No.                | Revision            | Date     | Date                    | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
| A                  | ISSUED FOR APPROVAL | 07/14/16 | 10-11-2016              | <br>City Engineer | W-10                         |
|                    |                     |          |                         |                                                                                                       |                              |

Adopted by Council February XX, 2023



**NOTES:**

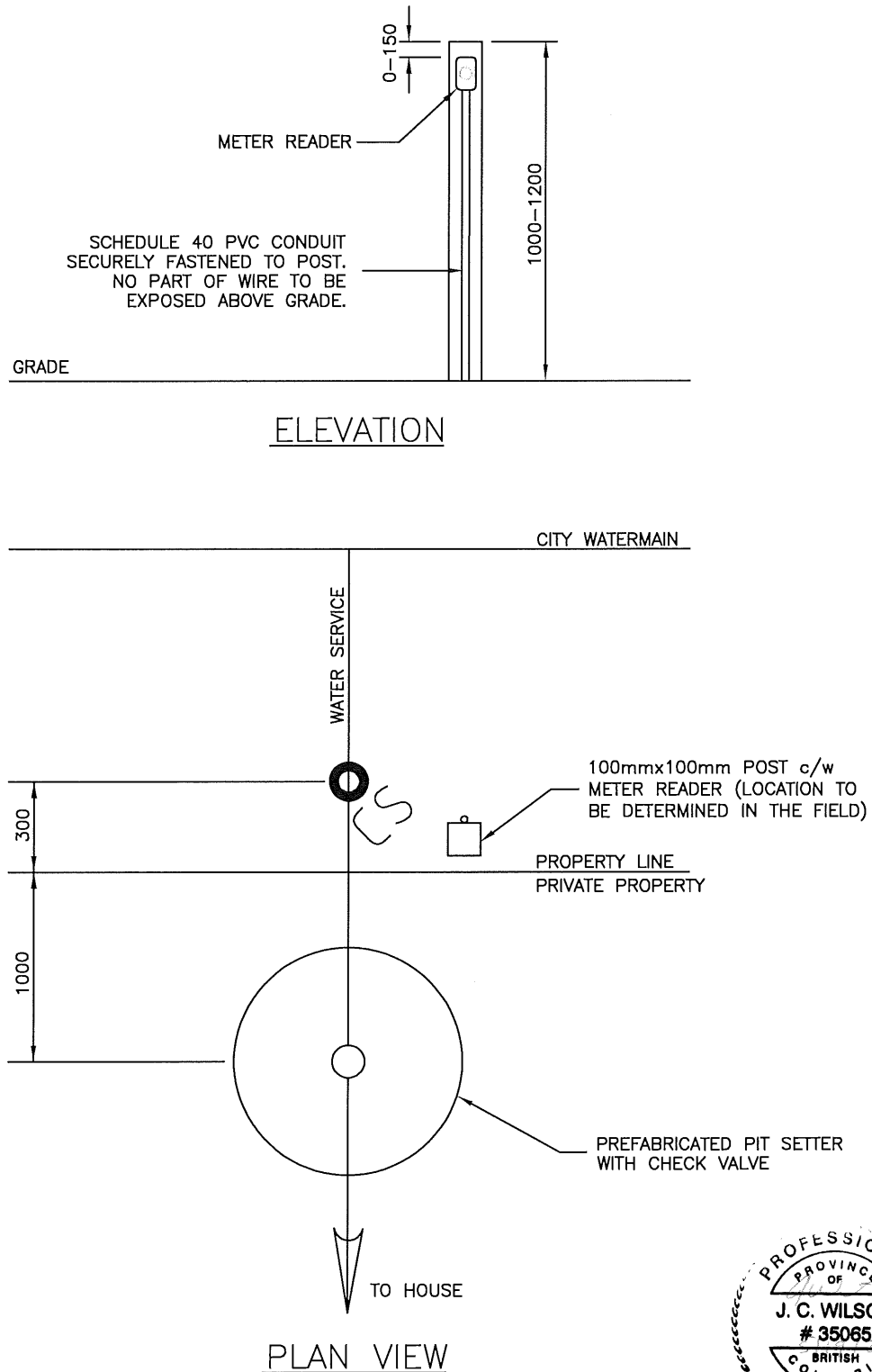
- 1) Water meter c/w remote frequency head reader supplied by City of Salmon Arm.
- 2) Meter and Bypass to be installed as the first fixture on the service connection. All other fixtures shall be installed downstream of the bypass assembly. Bypass is only mandatory on services exceeding 38mm (1.5")
- 3) The bypass valve to be wired closed and sealed.
- 4) Type of backflow preventor to commensurate to the degree of hazard as established by CAN/CSA B64.10 (most current) and approved by the City of Salmon Arm.
- 5) Piping on each side of meter must be adequately supported to the satisfaction of the Building department.
- 6) Meter must be on horizontal plane and upright.
- 7) Where a standard water meter setter is not used then there should be a minimum distance of 225mm between any wall and a meter or meter tree. The meter assembly should be appropriately secured to the wall or floor.
- 8) Valves are required adjacent to meters (inlet & outlet side). Additional valve may be installed in individual units if required.
- 9) Alternate arrangement of piping and valving must have the approval of the Building department or Project Engineer prior to installation.
- 10) The area for 600mm in front of the meter shall be free of obstruction to allow for convenient servicing of the meter. This area also requires a minimum of 2.0m headroom.
- 11) In no case shall a meter be installed in a bathroom or bedroom.
- 12) The master control valve must be easily accessible and located immediately after the water service enters the building and immediately ahead of the meter.


**CITY OF**  
**SALMON ARM**

## Commercial Water Meter

| No. | Revision                              | Date     | Date       | Approved            | SPECIFICATION<br>DRAWING No. |
|-----|---------------------------------------|----------|------------|---------------------|------------------------------|
| A   | APPROVED                              | 10/11/16 |            | <i>Calvin Be...</i> |                              |
| B   | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 | 01-06-2023 | City Engineer       | W-11                         |

Adopted by Council February XX, 2023



| CITY OF<br><b>SALMON ARM</b> |                                       |          | Pit Setter |                                                                                                       |                              |
|------------------------------|---------------------------------------|----------|------------|-------------------------------------------------------------------------------------------------------|------------------------------|
| No.                          | Revision                              | Date     | Date       | Approved                                                                                              | SPECIFICATION<br>DRAWING No. |
| A                            | APPROVAL                              | 10/11/16 | 01-06-2023 | <br>City Engineer | W-12                         |
| B                            | SDSB 4293 REV'S – ISSUED FOR APPROVAL | 01/06/23 |            |                                                                                                       |                              |

Adopted by Council February XX, 2023

# **Subdivision and Development Servicing Bylaw No. 4293**

## **Schedule “B” – Part 3**



# **CITY OF SALMON ARM**

## **CONSTRUCTION SPECIFICATIONS**

The City of Salmon Arm Construction Specifications shall be the Master Municipal Specifications and Standard Detail Drawings contained in the Master Municipal Construction Documents (MMCD) Platinum Edition Volume II (The Master Municipal Construction Documents Association 2009) as amended from time to time, and as modified by this document.

Where this document is in conflict with the Master Municipal Specifications, this document takes precedence.

### **1.1 Related Work**

Add: .8 Concrete Reinforcement Section 03 20 01

### **3.5 Concrete Placement**

Add: .12 When concrete forms are removed all debris shall be immediately removed to the contractor's disposal site. During the interval when the forms are stripped and the concrete works are backfilled any grade separations shall be marked to provide for pedestrian safety.

### **3.19 Sign Post Bases**

Add: .1 Sign post bases shall be installed in accordance with Specifications Drawings No. SP-1. Where a sign post base protrudes above a sidewalk it shall be marked to advise pedestrians until such time as the sign post is installed.

## **1.6 Permits and Tests**

Add: .2 A copy of all necessary permits shall be provided to the Contract Administrator and City of Salmon Arm.

## **2.14 Luminaires**

Add: .6 Luminaires installed in residential areas shall be completed with house side shield.

## **2.19 Power Base**

Add: .1 Davit power base shall be completed with padlock hasp access door, 280mm top bolt circle pattern for 4-25mm bolts and 380mm bottom bolt circle pattern for 4-25mm x 920mm anchor bolts.

Add: .2 Ornamental power base shall be completed with padlock hasp access door, 250mm top bolt circle pattern for 4-19mm bolts and 380mm bottom bolt circle pattern for 4-19mm x 600mm anchor bolts.

## **2.20 Service Panel**

Add: .1 Davit service panel shall be minimum 30 amp service panel complete with TEC bypass switch.

Add: .2 Ornamental service panel shall be minimum 20 amp service panel complete with TEC bypass switch.



**1.5 Inspection and Testing**

Add: .2 Sieve analysis of sub-base and base course aggregate required prior to placement.

**2.6 Drain Rock**

Replace: .1 Drain rock shall be clean round stone or crushed rock conforming to the following grading limits:

| Sieve Size | % Passing by Mass |
|------------|-------------------|
| 37.5 mm    | 95-100            |
| 19 mm      | 0-8               |
| 0.075 mm   | 0-3               |

**2.7 Granular Pipe Bedding and Surround Material**

Replace: .1 Granular pipe bedding and surrounding aggregate in the pipe zone shall conform to the following specifications:

- .1 Class 'A' Bedding is where the pipe is bedded in a continuous monolithic cradle of concrete as indicated in the CoSA approved drawings.
- .2 Class 'B' bedding shall be imported aggregate meeting the following gradation:

| Sieve Size | % Passing by Mass |
|------------|-------------------|
| 12.5 mm    | 100               |
| 4.75 mm    | 35-100            |
| 2.36 mm    | 20-70             |
| 1.18 mm    | 13-50             |
| 0.850 mm   | 8-35              |
| 0.300 mm   | 5-25              |
| 0.150 mm   | 2-15              |
| 0.075 mm   | 0-6               |

- .3 Class 'C' pipe bedding shall be native material in the trench which meets the gradation for Class "B" pipe bedding aggregate.

**2.8 Select Granular Sub-base**

Replace: .1 Sub base course aggregate shall be a 75 mm well graded sub-base course aggregate, composed of inert, clean, tough, durable particles uniform in quality and free from an excess of flat or elongated pieces, supplied conforming to the following grading limits:

| Sieve Size | % Passing by Mass |
|------------|-------------------|
| 75 mm      | 100               |
| 37.5 mm    | 60 – 100          |
| 19 mm      | 35-80             |
| 9.5 mm     | 25-60             |
| 4.75 mm    | 20-43             |
| 2.36 mm    | 15-35             |
| 1.18 mm    | 10-25             |
| 0.30 mm    | 3-13              |
| 0.075 mm   | 2-8               |

**2.9 Crushed Granular Sub-base**

Replace: .1 Sub base course aggregate shall be a 75 mm crushed well graded sub-base course aggregate, composed of inert, clean, tough, durable particles uniform in quality and free from an excess of flat or elongated pieces, supplied conforming to the following grading limits:

| Sieve Size | % Passing by Mass |
|------------|-------------------|
| 75 mm      | 100               |
| 37.5 mm    | 60 – 100          |
| 19 mm      | 35-80             |
| 9.5 mm     | 25-60             |
| 4.75 mm    | 20-43             |
| 2.36 mm    | 15-35             |
| 1.18 mm    | 10-25             |
| 0.30 mm    | 3-13              |
| 0.075 mm   | 2-8               |

**2.10 Granular Base**

Replace: .1 Base course aggregate and shouldering aggregate shall be a crushed 25 mm 'well graded base course aggregate', composed of inert, clean, tough, durable particles uniform in quality and free from an excess of flat or elongated pieces, supplied conforming to the following grading limits:

| Sieve Size | % Passing by Mass |
|------------|-------------------|
| 25 mm      | 100               |
| 19 mm      | 80–100            |
| 9.5 mm     | 50-100            |
| 4.75 mm    | 35-70             |
| 2.36 mm    | 25-50             |
| 1.18 mm    | 15-35             |
| 0.30 mm    | 5-20              |
| 0.075 mm   | 2-8               |

### 3.6 Surface Restoration

#### .7 Permanent pavement restoration

- Replace: .5 Restore pavement as per City Supplemental Standard Drawing UT-1B.
- Add: .1 All asphalt shall be saw cut 500 mm wider and longer than the surface dimensions of the actual trench excavation. This saw cut must extend cleanly through the existing asphalt to the base material prior to asphalt removal.
- Add: .2 If the thickness of the existing asphalt is greater than 75 mm, grind it to a depth of 40 mm and a width of 200mm along the saw cut edge. This can be done just prior to the final asphalt restoration.
- Add: .3 Where the edge of the saw cut or milled asphalt, whichever is wider, extends into the travel lane, it should be extended to the mid point of that lane. Where the edge extends past the mid point of the travel lane, it should be extended to the far edge of that travel lane.
- Add: .4 Where the edge of the saw cut or milled asphalt, whichever is wider, is less than 1.5m from the lip of gutter or edge of paved shoulder, it should be extended to the lip of gutter or edge of paved shoulder.
- Add: .5 When an area of existing asphalt between two transverse trenches is less than one third (1/3) of the total area of the proposed paving of the two trenches plus the area between them (based on the shortest trench), the existing asphalt shall be removed and the area paved in conjunction with the paving of the two trenches.
- Add: .6 Regardless of 7.5.5, if the longitudinal distance between two trenches is less than three (3) meters it shall be removed and the area paved in conjunction with the paving of the two trenches.
- Add: .7 Longitudinal trenches must be paved with a paving machine.
- Add: .8 Hot-mix paving shall meet the thickness of the existing pavement or that shown on the design drawings, whichever is greater.
- Add: .9 Vertical faces and the surface of the bottom lift of asphalt must be painted with bituminous material prior to hot mix paving.
- Add: .10 Where applicable, asphalt shall be keyed in as per the requirements of Section 32 12 16S 3.7.3 Longitudinal Joints.

### 3.4 Placing

Replace: .4 Place material to full width in uniform layers not exceeding 200mm in loose thickness except that the top 500mm shall be constructed in layers not exceeding 100mm in loose thickness and compact to specified densities.

**1.0 GENERAL**

Add: .2 Contract Administrator - As referenced to in this specification applies the designated project representative, approved by the City of Salmon Arm. The Contract Administrator must be designated prior to the onset of the project.

**1.5 Measurement and Payment**

Add: .9 Leveling coursing shall be included in the paving unit price.

Add: .10 Patching and tie-ins done in conjunction with projects over 100 tonnes shall be included in the paving unit price.

**2.0 PRODUCTS****2.1 Materials**

Replace: .1 Asphalt cement: to CGSB-16.3-M90, Grade 80-100, Class A; or with equivalent PG asphalt cement.

Add: .1.2 The asphalt cement shall be homogenous, free from water, and shall not foam when heated to 175 °C.

Replace: .3.2 Gradations to be with the limits specified when tested to ASTM 136 and ASTM C117.

**Table 2.1.3.2 - Hot Mix Asphalt Aggregate Gradation Specification**

| Sieve Designation | Percent Passing     |                     |
|-------------------|---------------------|---------------------|
|                   | Upper Course #1 (1) | Upper Course #2 (2) |
| 25 mm             | -                   | -                   |
| 19 mm             | 100                 | -                   |
| 12.5 mm           | 84-99               | 100                 |
| 9.5 mm            | 73-88               | -                   |
| 4.75 mm           | 50-75               | 55-75               |
| 2.36 mm           | 35-55               | 38-58               |
| 1.18 mm           | 27-46               | 28-47               |
| 0.600 mm          | 18-36               | 20-36               |
| 0.300 mm          | 10-26               | 10-26               |
| 0.150 mm          | 4-17                | 4-17                |
| 0.075 mm          | 3-8                 | 3-8                 |



- Note (1) Upper Course #1 to be used for Arterial, Industrial, Commercial, Residential and Lane Road Classifications.
- (2) Upper Course #2 to be used on multi-use pathways and sidewalks
- Replace: .3.6 Sand Equivalent: to ASTM D2419. Min:50 (New Arterial), Min:40 (All other street classifications).
- Replace: .3.10 Lightweight particles: to ASTM C123. Maximum % by mass less than 1.95 relative density:
- .1 Surface course: 1.0
- .2 Lower course: 1.5
- Replace: .3.11 Flat and elongated particles: (with length to thickness ratio greater than 5): Maximum % by mass:
- .1 Coarse aggregate, surface course: 10
- .2 Coarse aggregate, lower course: 10
- Replace: .3.12 Crushed Particles (fraction retained on 4.75 mm sieve), 2 faces, % minimum:
- .1 New arterial streets: 85
- .2 All other street classifications: 75

## 2.2 Mix Design

- Replace: .1 The contractor shall supply the Contract Administrator with a current 5 point mix design, under the signature of a Professional Materials Engineer. The mix design shall follow the Marshall method of mix design as outlined in the latest edition of the Asphalt Institute Manual Series No. 2 (MS-2), and shall include five separate trial values of asphalt content, using the compactive effort specified in this document.
- Replace: .2 Mixes for construction of asphalt base course should not include Recycled Asphalt Pavement (RAP).
- Replace: .3 Design of Mix: Include the following content with the trial mix design submission:
- .1 Summary statement (usually in the form of a letter to the testing agency's client) which contains, as a minimum, the following information:

- .1 Product for which the design applies and the specifying agency.
  - .2 Method of sample preparation (eg. laboratory batches, plant mix samples), date performed, and definitions of the procedure utilized (eg. ASTM D6926 or other).
  - .3 Reference to design aggregate gradation and details of aggregate stockpile (or bin numbers), blending rates utilized to achieve the design gradation.
  - .4 Grade and refinery source of asphalt cement used in the mix design procedure, including recommended plant mixing and mixture compaction temperature ranges to be applied during production and compaction operations.
  - .5 A statement identifying the recommended target asphalt content with an accompanying tabulation of anticipated Marshall properties at that target value. The tabulation should include an accompanying column showing the specified Marshall property requirements.
  - .6 A concluding statement that identifies, to the testing agency's client, that job mix formula details contained in the submission represent a starting point for actual plant mix production, and that Marshall properties of actual plant mix should be verified.
- .2 A tabulation and graphical representation of all Marshall properties at each trial asphalt content in the mix design. It should be noted that the mix design is meaningless unless the report clearly states the basis of asphalt content reporting (either % by weight of mix or % by weight of aggregate).

Data to be shown shall include (but not limited to):

- .1 Number of Marshall blow.
- .2 Marshall relative density of specimens.
- .3 Marshall stability (ASTM D6927).
- .4 Marshall flow (ASTM D6927).
- .5 Voids in Mineral Aggregate (V.M.A.).
- .6 Air Voids (ASTM D3203).

- .7 % Voids filled with asphalt.
- .8 Maximum relative density (ASTM D2041).
- .9 Asphalt absorption (ASTM D4469).
- .10 Index of retained stability (optional - depends on agency)
- .11 Film thickness (optional - depends on agency)

In addition, the following materials properties must be shown:

Relative density of coarse aggregate (ASTM C127).

Relative density of fine aggregate (ASTM C128).

Relative density of combined aggregate.

Relative density of asphalt cement.

- .3 Current temperature - viscosity curve from the asphalt supplier (testing agency to super-impose mixing and compaction temperature ranges based on viscosity requirements shown in ASTM D6926).
- .4 Tabulated graphical presentation of aggregate(s) used in trial mix designs. The specified gradation “envelope” should be shown on both forms of presentation, as should production tolerance limits if contained in the Specifications.
- .5 Mix Physical Requirements to meet Table 2.2.3.5 below.

**Table 2.2.3.5 – Specified Physical Requirements of Hot Mix Asphalt**

| Property                                                                           | Mix Type        |                 |
|------------------------------------------------------------------------------------|-----------------|-----------------|
|                                                                                    | Upper Course #1 | Upper Course #2 |
| Blows per face                                                                     | 75              | 50              |
| Stability @ 60°C, kN (min)                                                         | 8.0             | 5.5             |
| Flow Index, 0.25 mm units                                                          | 8 - 14          | 8 - 15          |
| Voids in Mineral Aggregate %                                                       | 14 - 17         | 14 - 17.5       |
| Air Voids in mixture                                                               |                 |                 |
| - at design A.C.                                                                   | 4.0% ± 0.2%     | 4.0% ± 0.2%     |
| - allowable production range                                                       | 3 - 5           | 3 - 5           |
| Index of Retained Stability<br>after immersion in water for<br>24 hrs @ 60°C (min) | 85              | 85              |

- .1 The asphalt content of hot mix asphalt which is produced in accordance with the approved Marshall design shall be maintained within plus or minus 0.3 % of the approved design asphalt content.
  - .6 If anti-strip additives are not included in the mix design submission then the following test results must be submitted:
    - .1 Index of Retained Stability - minimum 85%
    - .2 Tensile Strength Ratio - minimum 80%
  - .7 Upper course #2 mix design requirements for multi-use pathways and sidewalks is to be used as a guideline for asphalt suppliers. If a cost effective, alternative mix design is submitted, the Contract Administrator may consider it for use and is subject to the approval of the City of Salmon Arm.
- Add: .4 Job Mix Formula.
- .1 Subject to approval by the Contract Administrator, the aggregate proportioning, target gradation, asphalt content and air void content from the Mix Design will become the Job Mix Formula for the supply of hot mix asphalt.
  - .2 Once established, no alterations to the Job Mix Formula will be permitted unless the Contractor submits a new Job Mix Formula and approved by the Contract Administrator.
  - .3 If the sum of any alterations to the Job Mix Formula is in excess of any one of the following limits, a New Mix Design is required.
    - ± 5.0 % passing the 4.75 mm sieve size
    - ± 1.5 % passing the 0.075 mm sieve size
    - ± 0.30 % asphalt content

### 3.0 EXECUTION

#### 3.1 Plant and Mixing Requirements.

- .1 Batch and continuous mixing plants:
- Replace: .3 Before mixing, dry aggregates to a moisture content not greater than 1% by mass or to a lesser moisture content if required to meet mix design requirements.

- Replace: .9 RAP should not be incorporated into the mix.
- .11 Mixing time:
- Add: .3 Mixing period and temperature to produce a uniform mixture in which particulates are thoroughly coated.
- .2 Dryer drum mixing plant:
- Replace: .1 RAP should not be incorporated into the mix.
- .4 Mixing tolerances:
- Replace: .1 Permissible variation in aggregate gradation from job mix (percent of total mass):
- |    |                       |      |
|----|-----------------------|------|
| .1 | 4.75 mm and larger    | ±5.0 |
| .2 | 2.36 and 1.18 mm      | ±4.0 |
| .3 | 0.600 mm and 0.300 mm | ±3.0 |
| .4 | 0.150 mm              | ±2.0 |
| .5 | 0.075 mm              | ±1.5 |
- Replace: .3 Mixing temperature requirements should be within  $\pm 15^{\circ}\text{C}$  of the design mix temperature designated in the accepted mix design. Plant mix outside this range at the point of discharge may be rejected at the discretion of the contract administrator.

### 3.2 Equipment

- Add to .1 .1 Pavers must be capable of placing a standard mat width not less than 3.0 m and must be capable of paving wider widths in 150 mm and 300 mm increments by means of equipment supplied by the manufacturer of the equipment. The screed must include a tamping bar or strike-off device
- .2 Control of the screed must be by automatic sensing devices. Longitudinal control must be by a sensor that follows a string-line, ski or other reference. The grade sensor must be moveable and mounts provided so that grade control can be established on either side of the paver. A slope control sensor must be provided to maintain the proper transverse slope of the screed.

**3.3 Preparation**

- Add to .1 .1 All preparation work, including final compaction with vibratory roller immediately prior to paving shall be the responsibility of the paving contractor.
- .2 Upon completion of the sub-grade preparation, the subgrade may be proof rolled in the presence of the Contractor with a loaded single axle truck with a rear axle load of 8165 kg where requested.

Any areas found to be soft or wet shall be excavated and backfilled with select granular subbase and compacted to 100% Standard Proctor density (ASTM D-698) by the contractor prior to paving.

- Add to .5 .1 Prime coat application to granular base course surfaces will not be required.
- .2 Tack coat shall be applied using an asphalt distribution truck at a distribution rate agreed upon with the City of Salmon Arm.

**3.5 Placing**

- Add to .1 .1 Late season public paving operations and all private development paving operations must be completed by October 15<sup>th</sup>. The City of Salmon Arm can waive the placement conditions in public traffic zones after this time. If a waiver is issued, it does not relieve the asphalt supplier and/or paving contractor of providing materials and workmanship that meets the standards set out in this specification to the best of their ability. The waiver is only valid if the placing conditions in Section 3.5.3 are not satisfied during paving. The waiver should be included in the contract documents once the project completion date is determined. The following asphalt properties and paving conditions should be considered individually in the waiver agreement:
- .1 Asphalt compaction
  - .2 Asphalt thickness
  - .3 Asphalt mixing temperature
  - .4 Marshall mix properties
  - .5 Workmanship (includes smoothness and segregation)
  - .6 Base course temperature and surface condition
  - .7 Ambient air temperature and weather conditions



- .2 Minimum 48 hours notice shall be given to the City of Salmon Arm by the Contractor prior to the commencement of paving works. All costs incurred by the City by contractor initiated scheduling changes with less than 48 hours notice shall be borne by the contractor.
- .3 The Contractor should schedule works such that disruption of normal traffic, and inconvenience to residents, in the working area is kept to a minimum. The Contractor shall provide all certified flagpersons, cones, barricades, lights, signs, etc., required to maintain safe and adequate traffic flow at each construction site. Every effort shall be made to maintain the movement of traffic at all times, with minimum delays, and provision shall at all times be made for emergency vehicles. All traffic control signs and barricades must be at least to the standard set out in the Traffic Control Manual for Work on Roadways published by the B.C. Ministry of Transportation. Where specified on the drawings, construction advisory signs, to the City of Salmon Arm requirements, shall be posted at each end of the construction site.
- .4 Traffic shall not be permitted on the finished pavement surface until the asphalt surface has cooled to atmospheric temperature. It shall be the responsibility of the Contractor, to supply all traffic control for direction and safe movement, until such time as the asphalt has cooled.
- .3 Placing Conditions:
- Add to .2 .1 Surfaces onto which bituminous concrete pavement is placed shall be above 5°C.
- .4 Place asphalt concrete in compacted lifts of thickness as shown on Contract Drawings:
- Replace: .3 Maximum lift thickness not to exceed 75 mm.
- Add: .4 Minimum lift thickness should be at least 3 times the nominal maximum aggregate size to ensure aggregate can align themselves during compaction to achieve required density and also to ensure mix is impermeable. For example if the nominal maximum aggregate size as shown on the mix design is 16.0 mm the minimum lift thickness would be 48 mm.

Add: .8 The thickness of the asphalt concrete pavement shall be substantially uniform and the minimum compacted thickness shall not be less than specified in the Contract Documents and this specification. The completed asphalt surface shall conform to the required line, grade and cross-section, to an accuracy of  $\pm 6$  mm. The finished asphalt grade shall be 6 mm higher than the elevation of the top of water valves, manhole frames and covers, catch basins, and lip of the gutter.”

Add: .9 Paving must commence within five (5) business days of milling or pulverizing. Exemptions may be granted by the City of Salmon Arm due to inclement weather.

### 3.6 Compaction

Replace: .1 Roll asphalt continuously to average density not less than 97% of the laboratory compacted Marshall relative density in accordance with ASTM D6926 with no individual test less than 95%.

### 3.7 Joints

#### .1 General

Add: .4 Tie-ins to existing pavement shall be made by cutting back the existing pavement to sound material as necessary to produce a neat, vertical face with a straight edge. Prior to placing asphaltic concrete, exposed faces and other abutting structures shall be painted with liquid asphalt and heated to 66°C by the Contractor.

Add: .5 When placing final pavement layer against concrete curbing, compacted pavement must meet the gutter at a minimum of 3mm above to a maximum of 10mm above and along the entire lip of the gutter.

#### .3 Longitudinal joints

Add: .8 Longitudinal joints shall be constructed hot whenever feasible. Cold longitudinal joints shall be constructed only under unavoidable conditions and with the consent of the City of Salmon Arm. Cold joints that have cooled to ambient temperature shall be saw cut or milled a width of at least 75 mm.

.9 Longitudinal joints shall be keyed in where depth of asphalt is 100mm or more. Key in depth of existing asphalt and new asphalt lift to both be a minimum 50mm and width to be minimum 100mm.

Add: .7 Where base remediation work has occurred, joints shall be offset a minimum of 300mm from edge of undisturbed base.

### **3.9 Sidewalks, Driveways and Curbs**

Add: .6 Driveway and roadway tie ins to be completed daily. Saw cuts for tie ins to be prepared at start of paving day.

### **3.11 Defective Work**

Replace: .2 Flaws in the pavement shall be corrected by removal of the complete area and the full lift involved. Pavement which is unsatisfactory in the opinion of the City Engineer by reason of faulty materials or methods of placement shall be repaired, removed, replaced or otherwise corrected.

### **3.12 Clean-Up**

Add: .2 The Contractor shall remove to a City of Salmon Arm approved dumping site all surplus materials, waste asphalt, waste concrete, surplus aggregate, and any other debris, from the site, immediately upon completion of each phase of the works which generated the surplus materials or debris.

Add: .3 Driveways, retaining walls, vegetation and other private or municipal improvements on private or municipal property or highways damaged by the Contractor shall be restored at minimum to the condition existing prior to construction and to the satisfaction of the City Engineer.

### **Add the following subsections:**

## **4.0 SAMPLING AND TESTING**

### **4.1 General**

- .1 The Contract Administrator shall have access to all production processes and materials used for the work to monitor material quality as often as deemed necessary. Such inspection and testing shall not in any way relieve the Contractor of the responsibility for meeting the requirements of this specification.
- .2 At least three weeks prior to commencing work, inform the Contract Administrator of the proposed source of aggregates and provide access for sampling, and provide samples of asphalt cement in accordance with Section 2.1.1.

- .3 A lot shall be defined as - A portion of the work being considered for acceptance as follows:
- 1500 m<sup>2</sup> of continuous paving production. When less than 1500 m<sup>2</sup> is produced in a construction period the actual production for that period may, at the discretion of the Contract Administrator, be added to the previously completed pavement construction; or,
  - At the Contract Administrators discretion, any portion of the work may be deemed a lot.

## 4.2 Quality Control

- .1 Quality Control is the responsibility of the Contractor throughout every stage for the Work from aggregate processing to the final accepted product. Tests performed by the Contract Administrator will not be considered as quality control tests.
- .2 The Contractor shall be totally responsible for production of materials and construction that meet all specified requirements.
- .3 All quality control shall be conducted by qualified personnel. The Contractor shall bear the cost of all quality control testing and consulting services.
- .4 Pre-Production testing and sampling and minimum frequencies are described in Table 4.2.4, Pre-Production Quality Control Requirements.
- .5 Post-Production testing and sampling and minimum frequencies are described in Table 4.2.5, Recommended Post-Production Quality Control Requirements.
- .6 Pre-Production Quality Control test data as specified in Table 4.2.4 shall be reported to the Contract Administrator one week prior to commencing the project, or as requested.
- .7 Post-Production Quality Control test data as specified in Table 4.2.5 shall be reported to the Contract Administrator daily as the Work proceeds.

## 4.3 Quality Control Compliance with Specified Tolerances

- .1 Asphalt Content, Aggregate Gradation and Mixture Properties.
- .1 The test data derived by Post-Production Quality Control mix testing, described in Section 4.2 shall be compared to the tolerances set forth in Section 2.0 of this specification. The Contractor shall document, and make

available to the Contract Administrator, any adjustments made to correct noncompliance with the specified tolerances.

- .2 The Contractor shall suspend mix production when the 2 test running average for any property is outside of the specified tolerance limits for two consecutive tests. In the event that the Contract Administrator can provide a Quality Assurance test result that confirms a Quality Control test that is outside the specified production limits the contractor shall suspend mix production. Supply shall not commence again until it is demonstrated that corrective action has been taken.

#### 4.4 Quality Assurance Sampling and Testing

- .1 Within this specification, certain requirements, limits and tolerances are specified regarding supplied materials and workmanship. Compliance with these requirements shall be determined from Quality Assurance testing as described in this section.
- .2 Quality Assurance is the responsibility of the Contract Administrator.
- .3 Initial Quality Assurance testing will be undertaken free of cost to the Contractor.
- .4 Quality Assurance sampling and testing is described in Table 4.4.4, Quality Assurance Minimum Testing Requirements.
- .5 Quality Assurance Sampling Procedures:
  - .1 Loose mix samples shall be acquired from the work site in accordance with ASTM D979, specifically Section 5.2.3 - Sampling from the Roadway Prior to Compaction.
  - .2 The timing of mix sampling shall be stratified, with each sample representing a similar production quantity.
  - .3 Core locations will be selected using representative random sampling procedures. The lot will be divided into segments meeting or exceeding the minimum frequency in Table 4.4.4 and of approximately equal area. The longitudinal coordinates will have similar spacing on roadway and transverse coordinates will be located using random numbers. Locations will determined in the office prior to sampling, approved by the contract administrator. Core sampling requires written approval by the City of Salmon Arm.
  - .4 Areas within 5.0 m of transverse joints or 0.5 m of a mat edge are excluded from compaction acceptance sampling and testing.

.6 Reporting Protocols

.1 Test reporting accuracy shall be as stipulated in the referenced test procedures, including:

- Gradation to the nearest 0.1%.
- Binder content to the nearest 0.01%.
- Air voids and compaction to the nearest 0.1%
- Thickness to the nearest 1 millimeter (mm)

.2 Lot averages shall be reported to the same accuracy as test results.

.7 The Contract Administrator must be able to provide the opportunity for the City of Salmon Arm or their representative to sample paving materials when the City of Salmon Arm deems it necessary.

**4.5 Appeal of Quality Assurance Testing Results**

.1 General

.1 The Contractor may appeal the results of acceptance testing for Compaction Standard, Asphalt Content or Air Voids for any lot subject to rejection or unit price reduction. The notice of appeal shall be in writing and submitted to the Contract Administrator within 7 days of receipt of the acceptance testing results.

.2 Appeals will only be considered if cause can be shown and requirements of Table 4.2.5 have been satisfied.

.3 Quality Control tests initiated after the Contractor's receipt of the Quality Assurance test results will not be considered when evaluating cause for appeal. Heating and remolding pavement cores for the purpose of determining asphalt content, gradation or Marshall volumetric properties is not acceptable.

.4 Only Quality Control testing during production for the subject project will be considered when evaluating cause for appeal provided test results are submitted to the Contract Administrator prior to the receipt of the acceptance testing results.

.5 Laboratories conducting acceptance testing for appeals must be CCIL certified for the subject test procedures.



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.2 Asphalt Content, Compaction Standard or Air Void Appeals

- .1 The testing laboratory conducting the project acceptance sampling and testing will routinely retain companion samples sufficient for the determination of asphalt content, maximum relative density and/or Marshall relative density. Minimum companion sample size should be 10 kg for this purpose.
- .2 For asphalt content, compaction standard or air void (Marshall relative density) appeal testing, the Contractor will have the option for the testing to be done by the testing laboratory undertaking the Quality Assurance testing, or an independent testing laboratory selected by the Contract Administrator. In the event that the independent testing laboratory does not have a valid asphalt correction factor as per ASTM D6307 - Asphalt Content of Hot Mix Asphalt by Ignition Oven the lab should have the capability to perform ASTM D2172 - Quantitative Extraction of Bitumen From Bituminous Paving Mixtures.
- .3 The appeal test results will be used for acceptance and unit price adjustment, and shall be binding on both the Owner and the Contractor.
- .4 If the new asphalt content verifies that any unit price reduction or rejection applies for that Lot, the costs of the appeal sampling and testing will be borne by the Contractor. If the results show that a penalty or rejection no longer applies, the sampling and appeal costs will be the responsibility of the Owner.
- .5 If the new compaction standard verifies that any unit price reduction or rejection applies for that Lot, the costs of the appeal sampling and testing will be borne by the Contractor. If the results show that a penalty or rejection no longer applies, the sampling and appeal costs will be the responsibility of the Owner.
- .6 If the new average air void content result verifies that any unit price reduction applies for that Lot, the costs of the appeal testing will be borne by the Contractor. If the results show that a penalty or rejection no longer applies, the sampling and appeal costs will be the responsibility of the Owner.

.3 Core Density and Thickness Appeals

- .1 Core density and thickness appeals will only be considered if a case can be made that the stratified random sampling plan was biased or testing was in error.

## **5.0 END PRODUCT ACCEPTANCE OR REJECTION**

### **5.1 General**

- .1 The Contractor shall provide an end product conforming to the quality and tolerance requirements of this specification. Where no tolerances are specified, the standard of workmanship shall be in accordance with the accepted industry standards and this bylaw.
- .2 It is the paving contractor's responsibility to supply the appropriate materials and workmanship that will furnish a pavement that will last for the intended life span of the roadway. Satisfying the standards in this specification does not absolve the paving contractor's responsibility for a pavement that is prematurely aging or deteriorating as a result of substandard materials or poor workmanship
- .3 Acceptance of any Lot at full payment will occur if there are no obvious defects and the Lot mean results for asphalt content, pavement density, air voids and thickness meet or exceed the specified tolerances.
- .4 Unit price reductions will only be applied on the basis on full Quality Assurance testing in accordance with Table 4.4.4. Consecutive lot averages during a production period may be used to determine payment adjustments at the discretion of the Contract Administrator.
- .5 Any developer or representative who provides a letter of professional assurance for asphalt paving must satisfy the requirements in this specification. Quality control and quality assurance documentation must be available upon request. Companion samples taken as part of quality assurance testing must be available upon request by the City Representative. Any material or workmanship deficiencies are subject to either a payment adjustment to be paid to the City of Salmon Arm or removal and replacement. Payment adjustments will be determined by the guidelines in this specification. Removal and replacement will be at the discretion of the City of Salmon Arm. Assurances by the developer's engineer of record will be considered but not definitive in the acceptance of the final asphalt product.

## 5.2 Asphalt Content

- .1 For full payment, the Lot Mean Asphalt Content Must be within  $\pm 0.3\%$  of the approved Job Mix Formula value, as specified in Section 2.2.
- .2 Payment adjustment for asphalt content is as follows:

| Asphalt Content Variation from JMF<br>Value (%) | Payment Adjustment Factor |
|-------------------------------------------------|---------------------------|
| $\pm 0.30$ or less                              | 1.00                      |
| $\pm 0.31$ to $\pm 0.50$                        | As per <b>Chart A</b>     |
| Greater than $\pm 0.50$                         | Reject (Note 1)           |

Note 1: Subject to removal and replacement at the discretion of the Contract Administrator.

## 5.3 Pavement Compaction

- .1 For full payment, the Lot Mean Pavement Compaction must be equal to or greater than 97 % of the Lot Mean Marshall relative density.
- .2 Where an individual core has a core density less than 95 percent of the Marshall relative density then additional cores can be taken in the proximity of the defective core to determine the extent of the affected area. Additional coring shall be at the discretion of the Contract Administrator and the costs shall be borne by the Contractor. Possible scenarios where an individual core density is less than 95% of Marshall relative density are as follows:
  - .1 No additional coring is done and the core is included in the calculation of average core density for that lot.
  - .2 Additional coring in the proximity of the subject core that shows that the core is an anomaly. The core can then be removed from the payment adjustment calculation for that lot.
  - .3 Additional coring shows the extent of the affected paved area and is subsequently rejected.

- .3 Payment adjustment for pavement compaction is as follows:

| <b>Pavement Compaction % of<br/>Marshall Relative Density</b> | <b>Payment Adjustment Factor</b> |
|---------------------------------------------------------------|----------------------------------|
| 97.0 or more                                                  | 1.00                             |
| 95.0 to 97.0                                                  | As per <b>Chart B</b>            |
| Less than 95.0                                                | Reject (Note 1)                  |

Note 1: Subject to removal and replacement at the discretion of the Contract Administrator.

#### 5.4 Air Void Content

- .1 For full payment, the Lot Mean Air Voids must be within  $\pm 1.0$  % of the Job Mix Formula value as specified in Section 2.2.

- .2 Payment adjustment for air void content is as follows:

| <b>Air Void Content % Variation from<br/>JMF Value</b> | <b>Payment Adjustment Factor</b> |
|--------------------------------------------------------|----------------------------------|
| Less than 1.0                                          | 1.00                             |
| 1.0 to 2.0                                             | As per <b>Chart C</b>            |
| Greater than 2.0 (Lower Lifts)                         | 0.8 (Note 1)                     |
| Greater than 2.0 (Upper Lifts)                         | 0.6 (Note 1)                     |

Note 1: Subject to removal and replacement at the discretion of the Contract Administrator.

#### 5.5 Thickness (New Construction and Top Lift Only)

- .1 Pavement of any type found to be deficient in thickness by more than 13.0 mm shall be removed and replaced by pavement of specified thickness, at the Contractor's expense.
- .2 The Lot Mean Thickness for any Lot will be determined on the basis of the acceptance cores described in Table 4.4.4. Core thickness shall be determined in accordance with ASTM D3549.
- .3 If the deficiency of any individual core exceeds 13 mm, additional cores may be extracted in the proximity to the location of the core of excessive deficiency, to identify the extremities of the pavement area subject to be removed and replaced. The Contractor shall pay for such additional coring.

- .4 For full payment, the Lot Mean Thickness must be equal to, or greater than, the specified thickness.
- .5 Payment adjustment for thickness is as follows:

| Average Thickness Compared to Specified Thickness | Payment Adjustment Factor (Note 1)            |                                        |
|---------------------------------------------------|-----------------------------------------------|----------------------------------------|
|                                                   | Total Thickness<br>(Single or Multiple Lifts) | Top Lift Thickness<br>(Multiple Lifts) |
| Compliant or Greater                              | 1.00                                          | 1.00                                   |
| 1mm to 13mm Deficient                             | As per <b>Chart D</b>                         | As per <b>Chart D</b>                  |
| More than 13mm Deficient                          | Reject (Note 2)                               | Reject (Note 2)                        |

Note 1: A single Thickness Payment Adjustment Factor shall be applied, Total Thickness or Top Lift Thickness, whichever results in the greatest adjustment.

Note 2: Subject to removal and replacement at the discretion of the Contract Administrator.

## 5.6 Smoothness

- .1 The completed asphalt concrete surface shall be true to the dimensional and tolerance requirements of the specifications and drawings. Unless detailed otherwise in the contract documents, the tolerances in both profile and crown are:
- .1 Base Course - 10 mm in 3.0 m
- .2 Surface Course - 5 mm in 3.0 m
- .2 When deviations in excess of the above tolerances are found, the pavement surface shall be corrected by methods satisfactory to the Contract Administrator. Correction of defects shall be carried out until there are no deviations anywhere greater than the allowable tolerances.

## 5.7 Segregation

- .1 The finished surface shall have a uniform texture and be free of segregated areas. A segregated area is defined as an area of the pavement where the texture differs visually from the texture of the surrounding pavement.
- .2 All segregation will be evaluated by the Contract Administrator to determine repair requirements.

- .3 The severity of segregation will be rated as follows:
  - .1 Slight - The matrix of asphalt cement and fine aggregate is in place between the coarse aggregate particles, however there is more stone in comparison to the surrounding acceptable mix.
  - .2 Moderate - Significantly more stone than the surrounding mix, and exhibit a lack of surrounding matrix.
  - .3 Severe - Appears as an area of very stony mix, stone against stone, with very little or no matrix.
- .4 Segregated areas shall be repaired by the Contractor as directed by the Contract Administrator. The following methods of repair are identified.
  - .1 Slight - Squeegee asphalt to completely fill the surface voids.
  - .2 Moderate - slurry seal for full mat width.
  - .3 Severe - removal and replacement or overlay.
- .5 All repairs shall be regular in shape and finished using good workmanship practices to provide an appearance suitable to the Contract Administrator.
- .6 Any other methods of repair proposed by the Contractor will be subject to the approval of the Contract Administrator.
- .7 Repairs will be carried out by the Contractor at their expense.

## **6.0 MEASUREMENT AND PAYMENT**

### **6.1 Measurement**

- .1 Asphalt Concrete supplied will be measured in square metres or tonnes of material placed, as detailed in the Tender Form.
- .2 The Unit Price for Asphalt Concrete shall be full compensation for all materials, labour, tools, equipment and incidentals necessary to complete the work in accordance with these specifications.
- .3 The material shall be scaled and recorded by the Contractor on duplicate weight slips. Weight slips must be supplied at the time of delivery and a copy supplied to the Contract Administrator.
- .4 The weight scale shall be inspected and certified by Weights and Measures Inspection Services of the Federal Department of Consumer and Corporate Affairs, at the Contractors' expense and as often as the Contract Administrator may direct.



**6.2 Payment Adjustment**

- .1 The Unit Price applicable to each Lot quantity of asphalt concrete will be calculated as follows:

$$\text{LOT UNIT PRICE} = \text{CONTRACT UNIT PRICE} \times \text{PA}_{\text{AC}} \times \text{PA}_{\text{COM}} \times \text{PA}_{\text{AV}} \times \text{PA}_{\text{T}}$$

Where:

$\text{PA}_{\text{AC}}$  = Asphalt Content Payment Adjustment

$\text{PA}_{\text{COM}}$  = Compaction Payment Adjustment

$\text{PA}_{\text{AV}}$  = Air Void Payment Adjustment

$\text{PA}_{\text{T}}$  = Thickness Payment Adjustment

**Table 4.2.4 – Pre-production Quality Control Minimum Requirements**

|                                                                                          |                                      |                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Asphalt Cement Certification                                                             | -                                    | Once per year or for change in supplier.                                                                                                                                          |
| Aggregate Physical Properties                                                            | -                                    | Once per year, or for change in source.                                                                                                                                           |
| Crushed Coarse Aggregate<br>Gradation Analysis and Fracture<br>Content                   | ASTM C136<br>ASTM D5821              | One for every 1000 tonne of each class of material processed into stockpile, or one analysis for each material every production day when production rate is less than 1000 tonne. |
| Manufactured Sand Aggregate<br>Gradation                                                 | ASTM C136<br>ASTM C117               |                                                                                                                                                                                   |
| Natural Fine Aggregate<br>Gradation                                                      | ASTM C136<br>ASTM C117               |                                                                                                                                                                                   |
| Blend Sand Aggregate Gradation                                                           | ASTM C136<br>ASTM C117               |                                                                                                                                                                                   |
| Reclaimed Asphalt Pavement<br>(RAP) Asphalt Content and<br>Extracted Aggregate Gradation | ASTM D2172<br>ASTM C136<br>ASTM C117 | One for each 1000 tonne delivered to stockpile or one for each location when delivery rate is less than 1000 tonne.                                                               |
| Trial Mix Design by Marshall<br>Method                                                   | Asphalt<br>Institute MS-2            | One per mix type every production year, or as required for a change in asphalt cement supply, aggregate gradation or aggregate source. See Note 1.                                |
| Plant Calibration                                                                        | -                                    | As required                                                                                                                                                                       |

**Table 4.2.5 – Post Production Quality Control Minimum Requirements**

|                                                                                                                                                        |                                                    |                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hot Mix Asphalt Analysis (including Asphalt Content, Aggregate Gradation, Marshall Bulk Relative Density and Void Properties)                          | ASTM D6307<br>ASTM C117<br>ASTM C136<br>ASTM D3203 | One for every 500 tonne of each mix type supplied under this specification. See Note 1.                                                                        |
| Quality Control Charts (including 2 test running average for Binder Content, Aggregate Gradation, Marshall Bulk Relative Density and Void Properties). | -                                                  | For each hot mix analysis. Test results and updated 2 test running average to be submitted to the Contract Administrator as they become available. See Note 2. |
| Hot Mix Asphalt Temperature                                                                                                                            | -                                                  | Minimum frequency not specified.                                                                                                                               |
| Cold Feed Aggregate Analysis                                                                                                                           | ASTM C136<br>ASTM C117                             | Minimum frequency not specified.                                                                                                                               |
| Maximum Relative Density of Hot Mix Asphalt                                                                                                            | ASTM D2041                                         | Minimum frequency not specified.                                                                                                                               |
| Compaction Monitoring (Core or Nuclear Density)                                                                                                        | ASTM D2726<br>ASTM D2950                           | Minimum frequency not specified. See Note 3.                                                                                                                   |

Note 1: Where an individual test indicates non-compliance, another test shall be initiated immediately.

Note 2: In instances where the contractor is paving on consecutive days, asphalt content and air voids shall be submitted to the Contract Administrator within 24hrs of sampling.

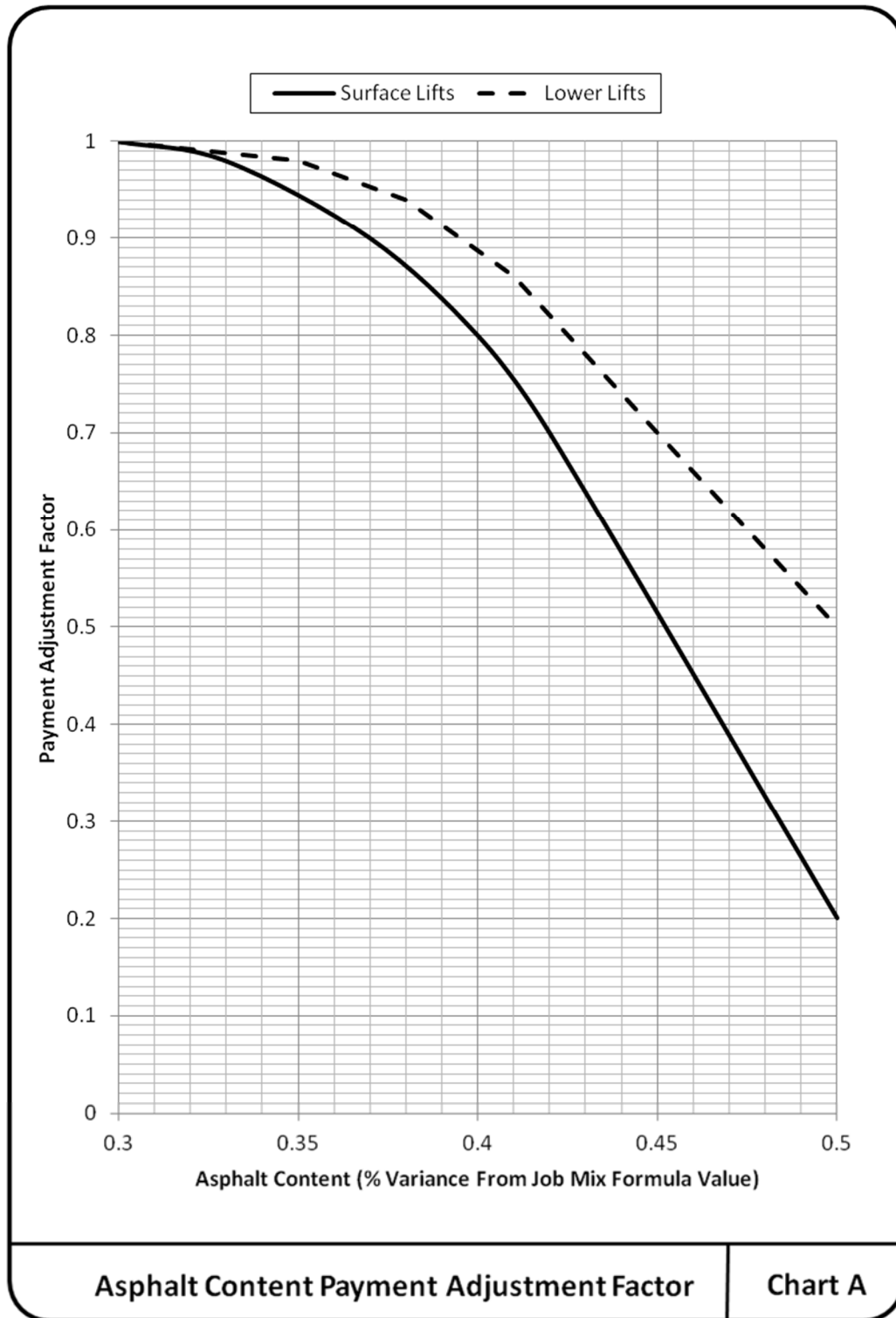
Note 3: Coring is subject to approval by the Contract Administrator.

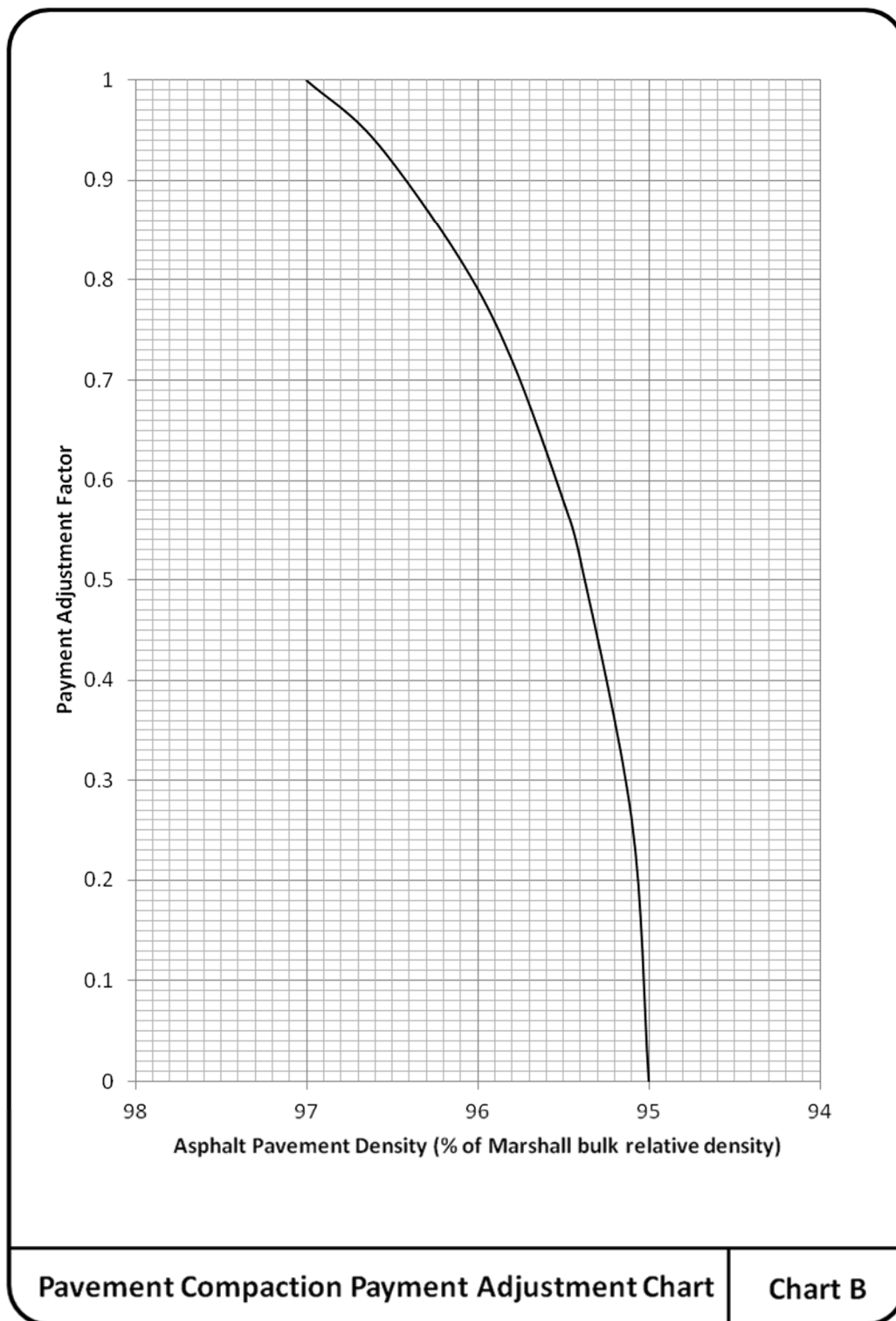
**Table 4.4.4 – Quality Assurance Minimum Requirements**

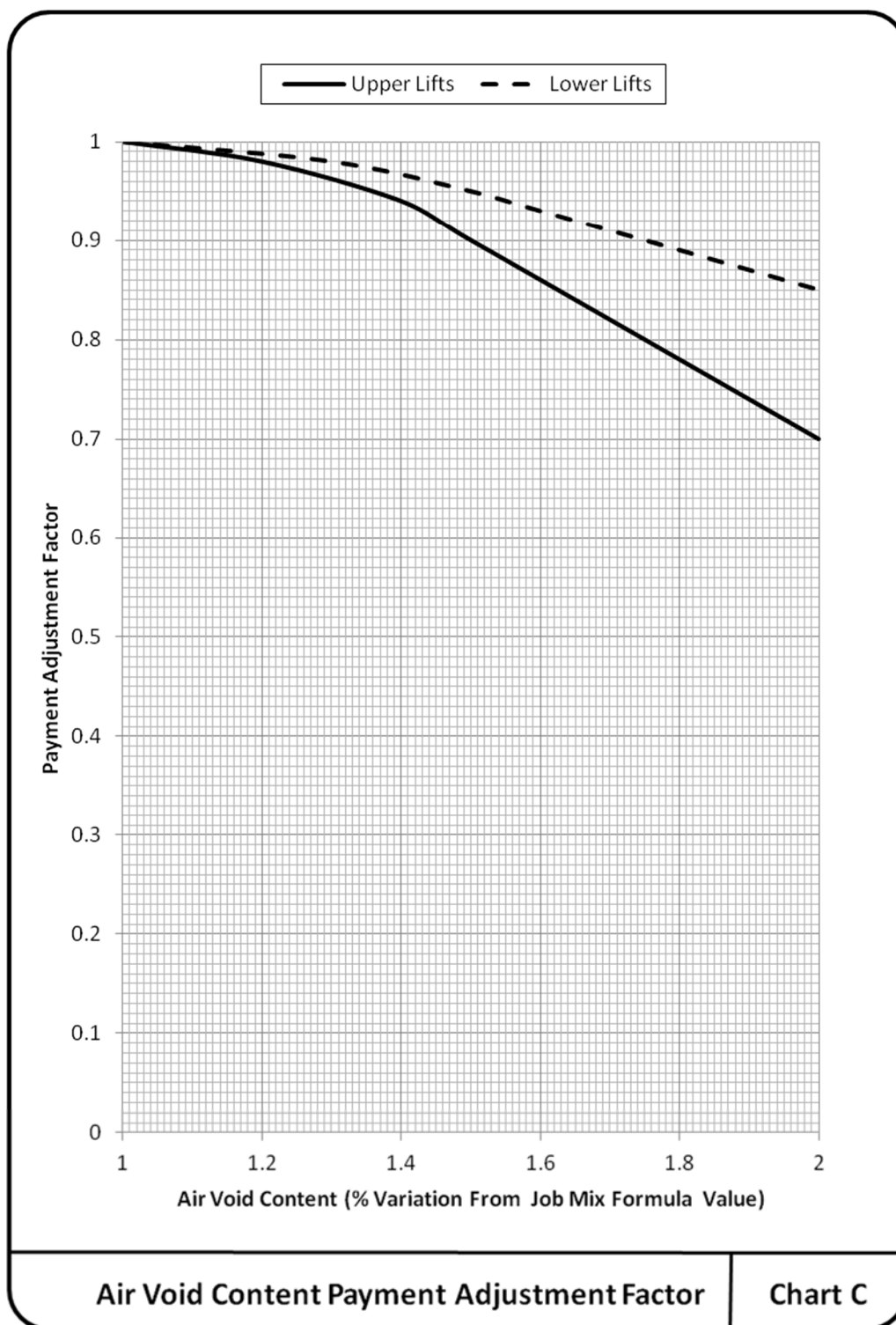
|                                                                                                                                                                                     |                                                                                  |                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Hot Mix Asphalt Analysis (including Binder Content, Aggregate Gradation, Marshall Bulk Relative Density, Maximum Relative Density, Marshall Stability and Flow and Void Properties) | ASTM D6307<br>ASTM C117<br>ASTM C136<br>ASTM D3203,<br>ASTM D6927,<br>ASTM D2041 | For each mix type one test per lot or one test per 4.0 hrs of continuous paving, whichever is greater. See Note 1. |
| Compaction Testing (Core Density) and Thickness Determination                                                                                                                       | ASTM D2726<br>ASTM D3549                                                         | For each mix type three tests per complete lot. See Note 2.                                                        |
| Hot Mix Asphalt Temperature                                                                                                                                                         | -                                                                                | No minimum frequency.                                                                                              |

Note 1: The Contract Administrator may, at their discretion, acquire the minimum number of mix samples, but reduce the number of tests to a minimum of one per lot. Should non-compliance be indicated by the sample(s) tested, the Contract Administrator reserves the option to test the remaining samples. The lot boundaries should be adjusted so the consecutive test can be a part of the same lot.

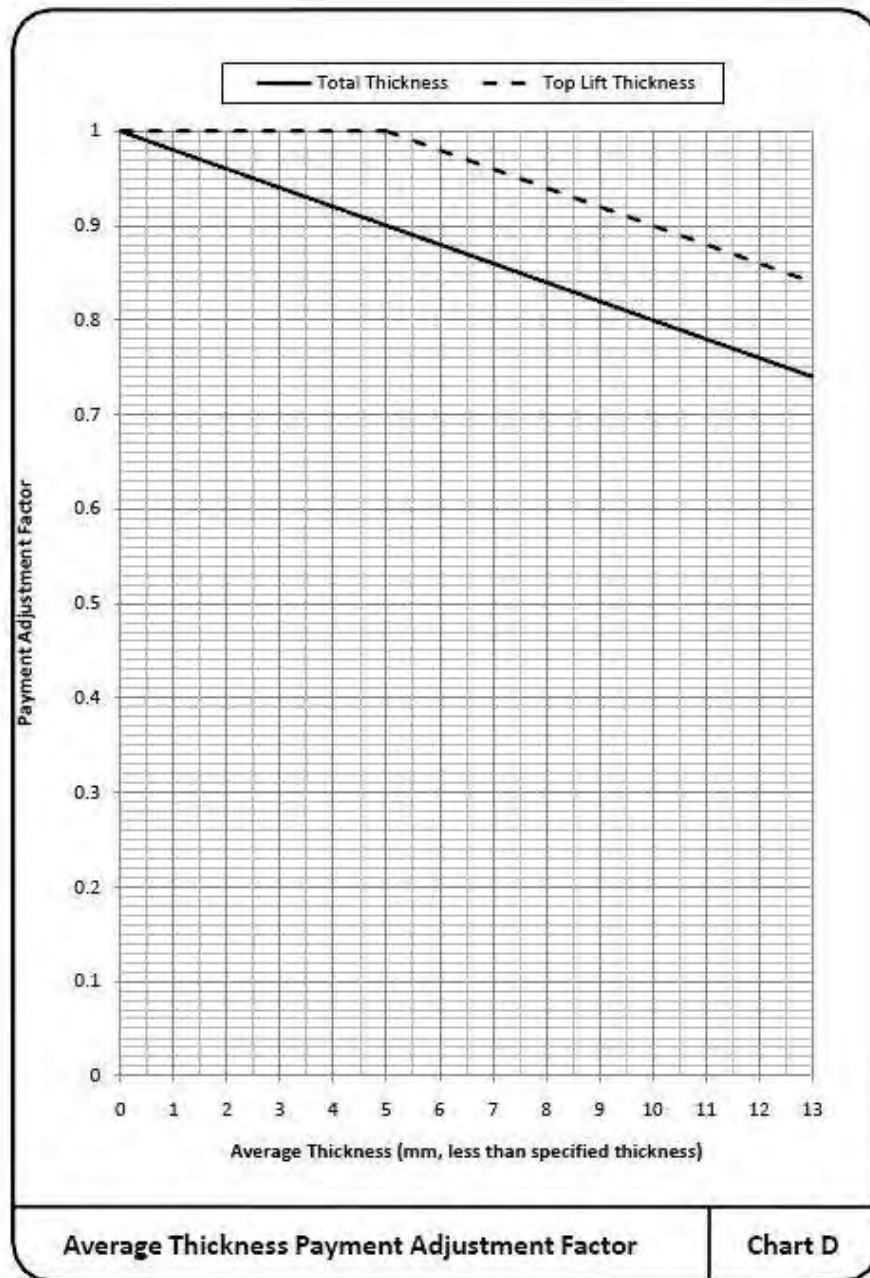
Note 2: For partial lots where total paving is greater than 1500 m<sup>2</sup> one test per 500 m<sup>2</sup> should be completed. When total paving area is less than 1500 m<sup>2</sup> a minimum of 3 tests should be completed. The number of tests required for small paving areas less than 500 m<sup>2</sup> will be at the discretion of the contract administrator, it is anticipated that at least 2 cores would be taken for payment adjustment purposes.











## 1.7 Inspection and Testing

Add: .2 Visual Inspection: Prior to installation, all pavers shall be sound and free from defects that can interfere with proper placing of the pavers or impair the serviceability of the pavement. Minor cracks incidental to the usual methods of manufacture or minor chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.

## 2.1 Materials

Replace: .4 Granular laying course:

- .1 Bedding Sand shall consist of hard, durable crushed stone particles, free from clay lumps, cementation, organic material, frozen material and other deleterious materials and shall comply with ASTM C33 or CSA CAN/CSA A23.1.1-M90 with the following grading limits:

| CAN/CSA-A23.1-M90 |           | ASTM C33   |           |
|-------------------|-----------|------------|-----------|
| Sieve Size        | % Passing | Sieve Size | % Passing |
| 100 mm            | 100       | 3/8 in.    | 100       |
| 5 mm              | 95 – 100  | 4          | 95 – 100  |
| 2.5 mm            | 80 – 100  | 8          | 80 – 100  |
| 1.25 mm           | 50 – 90   | 16         | 50 – 85   |
| 630 µm            | 25 – 65   | 30         | 25 – 60   |
| 315 µm            | 10 – 35   | 50         | 10 – 30   |
| 160 µm            | 2 – 10    | 100        | 2 – 10    |

- .2 Jointing sand shall be free of soluble salts or contaminants that can contribute to efflorescence and shall comply with ASTM C144, CSA A82.56M-1976 – Aggregate for Masonry Mortar with the following grading limits.

| CAN/CSA-A23.1-M90 |           | ASTM C144  |           |
|-------------------|-----------|------------|-----------|
| Sieve Size        | % Passing | Sieve Size | % Passing |
| 5 mm              | 100       | 4          | 100       |
| 2.5 mm            | 95 – 100  | 8          | 95 – 100  |
| 1.25 mm           | 60 – 100  | 16         | 70 – 100  |
| 600 µm            | 35 – 80   | 30         | 40 – 75   |
| 315 µm            | 15 – 50   | 50         | 10 – 35   |
| 160 µm            | 2 – 15    | 100        | 2 – 15    |

Replace: .5 Unit Pavers:

- .1 Concrete Pavers shall be 225 mm x 112.5 (8-7/8"x 4-7/16") face dimension x 60 mm (2-3/8") thickness, complete with spacer ribs. Minimum cement content of 325 kg./m<sup>3</sup>. Coloured pavers with min. 10 kg./m<sup>3</sup> of pigment. Allow 3 colours, 40% red; 30% salmon; 30% grey. Final selection by architect from manufacturer's full range of colours.
- .2 Physical Requirements
- .1 Comprehensive Strength: At the time of delivery to the work site, the average compressive strength of the test samples of pavers shall not be less than 60 Mpa (8500 psi) with no individual unit less than 55 Mpa (8,000 psi) and the average compressive strength of Normal pavers shall not be less than 55 Mpa (8,000 psi) with no individual unit less than 50 Mpa (7,200). Sample and test units in accordance with ATM Method C140.

- .2 Absorption: The average water absorption with ATM Method C140, of the test samples shall not be greater than 4.5% with no individual pave greater than 6% for DURA-FINISH pavers and not greater than 5% with no individual paver greater than 7% for Normal pavers.
- .3 Resistance to Freezing and Thawing: Pavers shall have a dry mass loss not more than 0.5% and Normal pavers not more than 1% dry mass loss for any individual paver when subjected to 50 cycles of freezing and thawing in accordance with Section 8 of ASTM Method C67.
- .4 Abrasion Resistance: Pavers shall have a volume loss of less than 6 cm<sup>3</sup> per 50m<sup>2</sup> (4 cu.in. per 8 sq. in.) and the average thickness loss shall not be more than 2 mm (5/64"), when tested in accordance with ASTM Method C418. Normal pavers shall have a volume loss of less than 15 cm<sup>3</sup> per 50 m<sup>2</sup> (1 cu. In per 8 sq. in.) and the thickness loss shall not be more than 3 mm (1/8") when tested in accordance with ASTM Method C418.
- .5 Tolerance in Dimensions: Length or widths of units shall not differ by more than  $\pm 1,5$  nn ( $\pm 1/16$ ") from Westcon's stated manufacturing dimension. Thickness of pavers shall not vary by more than  $\pm 3$ mm ( $\pm 1/8$ ") from Westcon's stated dimension.

### 3.4 Granular Laying Course

- Add:
- .2 The bedding sand shall be spread in a uniform layer. Under no circumstances shall the bedding sand layer exceed 40 mm (1-1/2") following compaction.
  - .3 The sand shall be maintained at a uniform density. Screeded sand left overnight subjected to rain shall be rechecked for level and raked and re-screeded where necessary.
  - .4 Do not allow any traffic on the bedding sand prior to paver installation.
  - .5 Bedding sand shall not be used for correcting out of tolerance base.

### 3.5 Unit Paving

- Replace: .2 Install unit paving true to grade, in location, layout and pattern as shown on Contract Drawings. Surface levels of the completed pavement at drainage outlets and curbs shall be left 10mm (3/8") high to ensure positive drainage.
- Replace: .3 Where required, cut units accurately without damaging edges. No pieces shall be smaller than ¼ of a full paver.

- 1 GENERAL** Section 32 91 22S refers to those portions of the work that are unique to the use of soil cells for the planting of trees and landscaping in pedestrian and vehicular areas. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.
- 1.1 Related Work**
- .1 Concrete Walks, Curbs and Gutters Section 03 30 20
  - .2 Cast-in-Place Concrete Section 03 30 53
  - .3 Aggregates and Granular Materials Section 31 05 17
  - .4 Excavation, Trenching and Backfilling Section 31 23 01
  - .5 Roadway Excavation, Embankment and Compaction Section 31 24 13
  - .6 Geosynthetics Section 31 32 19
  - .7 Granular Base Section 32 11 23
  - .8 Irrigation System Section 32 94 01S
  - .9 Topsoil and Finish Grading Section 32 91 21
  - .10 Planting of Trees, Shrubs and Ground Covers Section 32 93 01
- 1.2 Site Conditions**
- .1 Inspect all areas to receive soil cells prior to placement.
  - .2 Before proceeding with work check and verify dimensions, quantities, grade elevations, drainage, compaction and contamination.
  - .3 Report defects in dimensions, quantities, grade elevations, drainage, compaction and contamination to Contract Administrator immediately and make good to satisfaction of Contract Administrator prior to construction of soil cell system.
- 1.3 Delivery, Storage and Handling**
- .1 Deliver packaged materials in original, unopened containers showing weight, certified analysis and name and address of manufacturer.
  - .2 Do not handle, deliver or place bulk materials in frozen, wet or muddy conditions.
  - .3 Deliver materials to site at or near optimum compaction moisture content.
  - .4 Protect excavation from freezing conditions, accumulation of water and contamination until placement of soil cells, growing medium, geotextile and root barrier. Maintain protection of excavation and placed material until installation of hard surfaced roadway or pedestrian surface above.
  - .5 Growing medium, granular base and backfill that is excessively wet, segregated or contaminated will be rejected. Remove rejected material from site and replace with approved material at Contractor's expense.
- 1.4 Layout and Elevation Control**
- .1 Provide layout and elevation control during installation of soil cells. Utilize grade stakes, benchmarks, surveying equipment and other



means and methods to ensure that layout and elevations conform to layout and elevations shown on Contract Drawings

- |                                    |    |                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.5 Scheduling</b>              | .1 | Schedule installation of soil cells after all affecting walls, curbs, footings and utility work in the area have been installed.                                                                                                                                                                                                                         |
|                                    | .2 | Coordinate schedule with scheduling of other trades on site.                                                                                                                                                                                                                                                                                             |
| <b>1.6 Measurement and Payment</b> | .1 | Payment for soil cells will be made separately for each vertical column of soil cell assembly, and includes all soil cell components, growing medium, site preparation, placement, geogrid and geotextile, protection of work and incidentals. Payment will be made separately for assemblies comprised of one, two or three layers of soil cell frames. |
|                                    | .2 | Payment for excavation, backfilling and embankment of soil cells will be made under Section 31 23 01 - Excavating, Trenching and Backfilling or Section 31 24 13 - Roadway Excavation, Embankment and Compaction, as provided in the Schedule of Quantities and Unit Prices.                                                                             |
|                                    | .3 | Payment for placement and compaction of granular base will be made under Section 32 11 23 - Granular Base, as provided in the Schedule of Quantities and Unit Prices.                                                                                                                                                                                    |
|                                    | .4 | Payment for pedestrian or vehicle surfaces above soil cells will be made under separate sections as appropriate.                                                                                                                                                                                                                                         |
|                                    | .5 | Payment for tree planting, associated non-soil cell growing medium, root barrier, tree grates and concrete surrounds will be made under separate sections as appropriate.                                                                                                                                                                                |
| <b>1.7 Inspection and Testing</b>  | .1 | Refer to General Conditions, Clause 4.12, Inspections and Testing.                                                                                                                                                                                                                                                                                       |
|                                    | .2 | Refer to Section 32 91 21 - Topsoil and Finish Grading - 1.3 and 1.5.                                                                                                                                                                                                                                                                                    |
| <b>2.0 PRODUCTS</b>                |    |                                                                                                                                                                                                                                                                                                                                                          |
| <b>2.1 Soil Cell</b>               | .1 | Soil cell to be fiberglass-reinforced polypropylene structure, or other materials, designed to support sidewalk loads, designed to be filled with growing medium for the purpose of growing tree roots, and for rainwater filtration, detention and retention.                                                                                           |
|                                    | .2 | Acceptable soil cell systems are listed in the approved materials list.                                                                                                                                                                                                                                                                                  |
| <b>2.2 Anchor Spike</b>            | .1 | Galvanized steel spike with spiral twist, 8mm diameter and 250mm length.                                                                                                                                                                                                                                                                                 |
| <b>2.3 Drainage Pipe</b>           | .1 | Drainage pipe to be perforated drain pipe per Section 33 40 01 - Storm Sewers - 2.7, as specified on Drawings.                                                                                                                                                                                                                                           |
|                                    | .2 | Fittings to be compatible with specified pipe and by same manufacturer.                                                                                                                                                                                                                                                                                  |
|                                    | .3 | PVC pipe solvent and primer combinations shall be as recommended by manufacturer and suitable for use with specified materials and application.                                                                                                                                                                                                          |

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| <b>2.4 Geogrid</b>         | .1 | Geogrid to be high molecular weight high tenacity polyester multifilament yarns woven in tension and polymer-coated, with the following ASTM D 6637 mechanical properties:<br>.1 Tensile strength: 29.2 kN/m<br>.2 Creep reduced strength: 18.5 kN/m<br>.3 Long term allowable design load: 18.5 kN/m<br>.4 Grid aperture size (machine direction): 22.2mm<br>.5 Grid aperture size: 25.4mm<br>.6 Mass /unit area (ASTM D 5261): 254.3 g/m2 |
| <b>2.5 Geotextile</b>      | .1 | Geotextile to be non woven polypropylene fabric, with the following properties:<br>.1 Grab tensile strength: 167.8 kg<br>.2 Grab tensile elongation: 50%<br>.3 Mullen burst strength: 2,620 kPa<br>.4 Puncture strength: 58.97 kg<br>.5 Apparent opening size: US sieve 80 (0.180mm)<br>.6 Water flow rate: 3,870.8 l/min/m2<br>.7 Minimum roll width: 3600 mm                                                                              |
| <b>2.6 Granular Base</b>   | .1 | Granular base and subbase to be as shown on Contract Drawings and to conform to Section 32 11 23 - Granular Base.                                                                                                                                                                                                                                                                                                                           |
| <b>2.7 Backfill</b>        | .1 | Backfill material adjacent to soil cells to be as shown on Contract Drawings.                                                                                                                                                                                                                                                                                                                                                               |
| <b>2.8 Growing Medium</b>  | .1 | Growing medium to be as shown on Contract Drawings and to conform to Section 32 91 21– Topsoil and Finish Grading.                                                                                                                                                                                                                                                                                                                          |
| <b>3.0 EXECUTION</b>       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>3.1 Soil Cell Frame</b> | .1 | Confirm that granular base meets compaction requirements of 95% of maximum dry density in accordance with ASTM D698 Standard Proctor method prior to placement of soil cell frame units. Grade sub-base surface on a plane parallel to the proposed finish grade above.                                                                                                                                                                     |
|                            | .2 | Identify tree openings, utility routes and edges of hard surfaces above soil cells on granular base using spiked string and/or spray paint.                                                                                                                                                                                                                                                                                                 |
|                            | .3 | Confirm that width and length of excavation are a minimum of 150mm beyond the edges of the Soil Cells. Layout location of all drain lines. Do not locate drain lines within 150mm of any Soil Cell post. Provide field engineering when drain lines are being installed to assure that the slope on all drains is 1% minimum towards intended outfalls. Place frame units by hand.                                                          |
|                            | .4 | Place first layer of frame units on prepared and approved granular base and geotextile. Work away from tree and utility openings. Place frame units no less than 25mm apart and no more than 75mm apart.                                                                                                                                                                                                                                    |

- .5 Verify that horizontal and vertical position of frame units are consistent with required locations and dimensions of tree and utility openings, paving edges, surfaces and other structures to be constructed above soil cells. Report conflicts to Contract Administrator and make adjustments as necessary.
  - .6 Ensure that each frame unit sits firmly on granular base. Ensure frames do not rock or bend over any stone or other obstruction and do not bend into dips in base.
  - .7 Check each frame unit for damage prior to placing in excavation. Do not use frame units that are cracked or chipped
  - .8 Secure soil cell to granular base with four anchor spikes driven through moulded holes in base of frame unit
  - .9 For applications where soil cells are installed over waterproofed structures, develop a spacing system consistent with requirements of waterproofing system and do not use anchor spikes that will come within 150mm of any waterproofing material. Submit shop drawing of spacing and anchoring system for approval by Contract Administrator.
  - .10 Do not walk on frame units.
  - .11 Install next layer of frame units on top of previous layer. Build layers as stacks of frame units set one directly over the other. Do not set frame unit half on one unit below and half on another unit.
  - .12 Register each upper frame unit on top of lower frame unit post. Ensure contact points are free of dirt, mud and debris prior to placement. Ensure each upper unit is solidly seated on unit below. Rotate each frame registration arrow in the opposite direction from frame unit below to ensure connector tabs firmly connect.
  - .13 Install no more than two layers of frame units before installation of growing medium and backfill.
- 3.2 Modified Soil Cell Frame**
- .1 Install modified frame unit on top of frame unit prior to installation of growing medium and backfill.
  - .2 Modified frame unit is required only during installation and compaction of growing medium and backfill.
  - .3 Do not walk on modified frame units.
  - .4 Remove modified frame unit prior to installation of deck unit and as installation of growing medium and backfill progresses across soil cell framework.
  - .5 Remove modified frame unit prior to installation of deck unit and as installation of growing medium and backfill progresses across soil cell framework.
  - .6 Place and remove modified frame units by hand.

- |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <b>3.3 Geogrid</b>                     | <p>.1 Install geogrid curtain prior to installation of growing medium and backfill.</p> <p>.2 Geogrid curtain is required between edge of soil cell and any backfill or granular base beyond extent of soil cell framework that will support pedestrian or vehicular paving.</p> <p>.3 Install geogrid curtain where required. Do not install geogrid curtain between edge of soil cell and any planting area or tree opening adjacent to soil cell.</p> <p>.4 Pre-cut geogrid to allow for 150mm minimum underlap below backfill, and 300mm minimum overlap above soil cell deck.</p> <p>.5 Where soil cell layout causes a change of direction in plane of geogrid, slice top and bottom flaps of geogrid and fold so it lies flat on top of soil cell deck and granular base course along both planes.</p> <p>.6 Provide 300mm minimum overlap between different sheets of geogrid.</p> <p>.7 Secure geogrid to frame units and deck units with 4.5mm x 300mm plastic zip ties in locations recommended by manufacturer.</p> <p>.8 After deck unit is secured in place fold 300mm overlap of geogrid over top of unit.</p>                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>3.4 Growing Medium and Backfill</b> | <p>.1 Install root barrier as shown on Contract Drawings. Protect root barrier from damage and displacement during installation of growing medium and backfill.</p> <p>.2 Install growing medium and backfill as indicated on Contract Drawings. The process of installation requires that these two materials be installed and compacted together in alternating lifts to achieve correct compaction relationships between the materials.</p> <p>.3 Place growing medium in soil cell framework and spread by hand or hand tool through each soil cell in a maximum 200mm lift. Work soil under horizontal beams of soil cell frame and utility conduit to eliminate air pockets there. Ensure equipment bucket does not contact soil cell framework. Hold plywood sheet against geogrid during placement and compaction of growing medium to protect geogrid and maintain consistent separation of materials.</p> <p>.4 Finalize installation of utility conduit, drainage pipes and irrigation where shown on Contract Drawings.</p> <p>.5 Compact growing medium lift by stepping on entire exposed surface of growing medium. Do not step on frame units. Ensure there is a minimum of 250mm of growing medium over horizontal beams of frame units before beginning compaction. Leave top 50mm of frame unit exposed above growing medium to allow placement of next layer of frame units.</p> <p>.6 Compact growing medium to 85% of standard proctor density. Remove growing medium that is over compacted and reinstall.</p> |

- .7 Place backfill to 95% of maximum dry density in space between geogrid and sides of excavation and spread by hand adjacent to soil cell framework to provide maximum 200mm lift. Ensure geogrid under lap lays flat under backfill. Ensure equipment bucket does not contact soil cell framework. Hold plywood sheet against geogrid during placement and compaction of backfill to protect geogrid and maintain consistent separation of materials. Do not place backfill material in tree or planting bed opening.
- .8 Compact backfill per Contract Documents. Ensure compaction equipment does not contact soil cell frame or deck.
- .9 Repeat placement and compaction of growing medium and backfill in lifts to top of topmost frame unit. Finish grade of growing medium to be 25mm below bottom of deck unit, except as indicated otherwise on Contract Drawings.
- .10 Do not place final lift of backfill until adjacent deck unit is secured in place. Then install and compact backfill flush with soil cell deck. Ensure compaction equipment does not contact deck unit.
- .11 Maintain modified frame unit in place until installation of deck unit.

### 3.5 Geotextile

- .1 Supply and install geotextile under soil cell system as shown on Contract Drawings and per Section 31 32 19 - Geosynthetics.
- .2 Supply and install geotextile on soil cell deck as shown on Contract Drawings and per Section 31 32 19 - Geosynthetics
- .3 Place geotextile over top of soil cell deck and where indicated on Drawings.
- .4 Extend geotextile minimum 450mm beyond outside edge of excavation. Overlap geotextile joints minimum 450mm. Cut geotextile to provide minimum 200mm overlap of tree, planting and utility openings.
- .5 Repair cut or damaged geotextile with a second piece of geotextile prior to placement of granular base. Overlap edges of cut or damaged area with second piece by a minimum of 300mm.

### 3.6 Granular Base

- .1 Supply and install granular sub-base course under soil cell system as shown on Contract Drawings and as specified in Section 32 11 23 - Granular Base.
- .2 Supply and install aggregate base course above soil cell system as shown on Contract Drawings and as specified in Section 32 11 23 - Granular Base.
- .3 Maximum tolerance for deviations in finished surface of granular base for soil cell system is 6mm over a 1200mm distance. Adjust granular base under each frame unit to provide a continuous solid base of support to required grade elevation.
- .4 Install granular base course on geotextile immediately after installation of geotextile.

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|                               | .5  | Place granular base on soil cell system from one side of soil cell deck to other, to ensure geotextile and granular base conforms to cell deck contours.                                                                                                                                                                            |
|                               | .6  | Do not place or spread granular base in several positions at same time.                                                                                                                                                                                                                                                             |
|                               | .7  | Load granular base onto soil cell system from equipment located outside limits of soil cell excavated area. Do not drive vehicles or operate equipment directly on top of soil cell deck, geotextile or granular base. Do not drive vehicles or operate equipment greater than 450kg directly on granular base over soil cell deck. |
|                               | .8  | Spread granular base on soil cell system using hand tools or by light use of equipment bucket.                                                                                                                                                                                                                                      |
|                               | .9  | Compact granular base in lifts not to exceed 150mm, to 95% of maximum dry density. Compact granular base on top of soil cell system using walk behind type vibratory plate tamper, vibratory roller or jumping compacter having a maximum weight of 450kg.                                                                          |
|                               | .10 | For alternate method of placing and compacting granular base on top of soil cell system (e.g. for large area, small area, area of difficult access) submit shop drawing of proposed equipment and procedure to Contract Administration for approval.                                                                                |
| <b>3.7 Protection of Work</b> | .1  | Protect soil cell system, geotextile and granular base from vehicles, equipment, other materials and excessive moisture.                                                                                                                                                                                                            |
|                               | .2  | Use temporary fencing or hoarding to keep vehicles and equipment away off soil cell area until final surface materials are placed.                                                                                                                                                                                                  |
| <b>3.8 Clean Up</b>           | .1  | Dispose of surplus materials and all construction debris off site.                                                                                                                                                                                                                                                                  |

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| <b>1.0 GENERAL</b>           | .1 | Section 32 94 01S refers to those portions of the work that are unique to the complete installation of a fully automatic underground irrigation system, including all necessary preparatory work and all electrical, wiring and plumbing connections, and maintenance work during the guarantee period. This section must be referenced and interpreted simultaneously with all other sections pertinent to the works described herein. |                  |
| <b>1.1 Related Work</b>      | .1 | Project Record Documents<br>01                                                                                                                                                                                                                                                                                                                                                                                                          | Section 01 33    |
|                              | .2 | Cast-in-Place Concrete                                                                                                                                                                                                                                                                                                                                                                                                                  | Section 03 30 53 |
|                              | .3 | Precast Concrete<br>01                                                                                                                                                                                                                                                                                                                                                                                                                  | Section 03 40    |
|                              | .4 | Aggregates and Granular Materials<br>17                                                                                                                                                                                                                                                                                                                                                                                                 | Section 31 05    |
|                              | .5 | Topsoil and Finish Grading<br>21                                                                                                                                                                                                                                                                                                                                                                                                        | Section 32 91    |
|                              | .6 | Hydraulic Seeding                                                                                                                                                                                                                                                                                                                                                                                                                       | Section 32 92 19 |
|                              | .7 | Seeding                                                                                                                                                                                                                                                                                                                                                                                                                                 | Section 32 92 20 |
|                              | .8 | Sodding                                                                                                                                                                                                                                                                                                                                                                                                                                 | Section 32 92 23 |
|                              | .9 | Planting of Trees, Shrubs<br>and Ground Covers                                                                                                                                                                                                                                                                                                                                                                                          | Section 32 93 01 |
| <b>1.2 References</b>        | .1 | The abbreviated standard specifications for testing, materials, fabrication and supply, referred herein, are fully described in References – Section 01 42 00.                                                                                                                                                                                                                                                                          |                  |
| <b>1.3 Codes and Permits</b> | .1 | Perform all work of this section in strict accordance with all municipal, provincial, or federal guidelines, regulations, and codes. Requirements of these specifications not conflicting therewith, exceeding code requirements govern.                                                                                                                                                                                                |                  |
|                              | .2 | Be responsible for obtaining all necessary permits and approvals required to undertake and complete the work. Include costs for required permits and approvals in tendered prices.                                                                                                                                                                                                                                                      |                  |
| <b>1.4 Quality Assurance</b> | .1 | Be a member in good standing of one of the following organizations:<br>.1 Irrigation Industry Association of British Columbia (IIABC)<br>.2 The Irrigation Association (IA)<br>Provide documented proof of 5 years of industry experience, good standing membership in one of the above associations within 5 days of receipt of Notice to Proceed.                                                                                     |                  |



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|                                         | .2 | Be certified, or hire subcontractor who is certified, as a Field Safety Representative – Class LO, Low Energy Systems and registered with the British Columbia Safety Authority as an Electrical Contractor. Provide documented proof of same within 5 days of receipt of Notice to Proceed.                         |
|                                         | .3 | If the design involves HPDE, be certified in Plastic Pipe Fusion by the British Columbia Institute of Technology or an approved equivalent to fuse and install High Density Polyethylene Pipe. Provide documented proof of same within 5 days of receipt of Notice to Proceed.                                       |
|                                         | .4 | All electrical components or products specified or used in construction of the proposed irrigation system must be CSA approved and installed in accordance with all local, provincial, and national electrical codes.                                                                                                |
|                                         | .5 | Install all irrigation components per manufacturer's recommendations, instructions and specifications. If unsure on how to install or use a specific product consult manufacturer to ensure proper installation and operation.                                                                                       |
|                                         | .6 | All materials to be new and without flaws.                                                                                                                                                                                                                                                                           |
|                                         | .7 | All equipment specified and installed from various manufacturers to be compatible with existing equipment and other products specified for the irrigation system.                                                                                                                                                    |
|                                         | .8 | The completed system to efficiently and uniformly irrigate all areas and perform as required by these specifications.                                                                                                                                                                                                |
| <b>1.5 Scheduling and Shop Drawings</b> | .1 | Ensure that sequencing of irrigation work is carried out in coordination with work of other trades and that sleeves, wire, pipes, valves and other equipment are installed when appropriate.                                                                                                                         |
|                                         | .2 | Plan, schedule and execute work to ensure a supply of water is available for landscape establishment and maintenance purposes at the appropriate time, in adequate amounts, and operating at design pressures to ensure satisfactory irrigation of all landscaped areas.                                             |
| <b>1.6 Substitutions</b>                | .1 | Where materials are specified by brand name and model number, such specifications will be deemed to facilitate a description of the materials and material quality and establish a standard for performance and quality.                                                                                             |
|                                         | .2 | Purchase or installation of materials that are not specified will not be paid for unless: <ul style="list-style-type: none"> <li>.1 The materials have been reviewed and approved by Contract Administrator and City of Salmon Arm as an Approved Equal as per Section 7.0, Instructions to Tenderers, or</li> </ul> |

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**1.8 Operating Manual**

- .1 Prepare a complete Operating Manual for installed irrigation system. Content of Operating Manual to include:
- .1 Irrigation Design Report
  - .2 Equipment operating instructions
  - .3 Maintenance instructions including winterization and spring start up procedures
  - .4 Product literature
  - .5 Parts lists
  - .6 Irrigation watering schedule
  - .7 Two (2) sets of all keys and specialized tools or equipment required for commissioning, operation or maintenance of irrigation system
  - .8 Signed copies of irrigation inspection reports and test results
  - .9 Copies of plumbing permit, electrical permit and low voltage certification
  - .10 Product warranty documentation for all controllers, meters, backflow prevention devices, valves, filters, sensors, electronic components and related irrigation components. Date the warranties with the date of Substantial Performance
  - .11 Written guarantee

**1.9 Submittals**

- .1 Submit complete set of Record Drawings to Contract Administrator prior to issuance of Certificate of Substantial Performance. Submit digital and hard copy Record Drawings in full size (22x34") and reduced (11x17") sizes, including one (1) laminated, 11"x17" copy of Record Drawings in controller cabinet.
- .2 Submit complete Operating Manual to Contract Administrator prior to issuance of Certificate of Substantial Performance.

**1.10 Measurement for Payment**

- .1 Supply and installation of water service will be measured as a lump sum. The work includes:
- .1 Permits and fees
  - .2 Supply, installation, testing and adjustment of the connection to water source and booster pump if required
  - .3 Master valve
  - .4 Water meter
  - .5 Flow sensor
  - .6 Backflow prevention device
  - .7 Blowout assembly
  - .8 Pressure reducing valve
  - .9 Filters
  - .10 Vaults, valve boxes & lids
  - .11 Fittings
  - .12 Excavation, trenching, sleeves, backfill and restoration
  - .13 All incidentals necessary for the proper installation and operation of a complete water service to the irrigation system
- .2 Supply and installation of irrigation control system will be measured as a lump sum. The work includes
- .1 Permits & fees
  - .2 Supply, installation, testing, programming, and adjustment of irrigation system controller
  - .3 Electrical conduits
  - .4 Controller cabinets
  - .5 Vaults, valve boxes & lids
  - .6 Fittings
  - .7 Excavation, trenching, backfill, and restoration
  - .8 All incidentals necessary for the proper installation and operation of a complete irrigation control system

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| <p><b>1.11 Tests and Inspections</b></p> | <ul style="list-style-type: none"> <li>.3 Supply and installation of pipes, valves, sprinklers and dripline will be measured as a lump sum. The work includes but is not limited to:               <ul style="list-style-type: none"> <li>.1 Supply, installation, testing and adjustment of irrigation pipe</li> <li>.2 Sleeves and conduit,</li> <li>.3 Zone control valves</li> <li>.4 Micro-irrigation control zone kits</li> <li>.5 Electric control wire, common wire, flow sensor wire, and spare wires</li> <li>.6 Drain valves</li> <li>.7 Isolation valves</li> <li>.8 Pressure regulators</li> <li>.9 Swing joint assemblies</li> <li>.10 Sprinklers</li> <li>.11 Emitters, bubblers, dripline, and root watering systems</li> <li>.12 Air / vacuum relief valves</li> <li>.13 Fittings</li> <li>.14 Vaults, valve boxes &amp; lids</li> <li>.15 Excavation, trenching, backfill and restoration</li> <li>.16 All incidentals necessary for the proper installation and operation of a complete irrigation system</li> </ul> </li> <li>.4 Payment for Record Drawings and Operating Manual will be measured as a lump sum.</li> <li>.5 Payment for irrigation system tests, inspections, maintenance, winterization and spring start-up during the warranty period will be incidental to the work under this section.</li> </ul> |
|                                          | <ul style="list-style-type: none"> <li>.1 Refer to General Conditions, Clause 4.12, Tests and Inspections.</li> <li>.2 At various milestones during construction inspection and testing of components will be required to ensure performance of irrigation system meets expected standards.</li> <li>.3 Provide equipment and personnel necessary for performance of inspections and tests.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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|                                      | .4 | As a condition of issuance of Certificate of Substantial Performance confirm in writing to the City of Salmon Arm, at least one week prior to application for Substantial Performance, the following inspections and successful tests:                                                                                        |
|                                      | .1 | Certified backflow prevention device test per BCWWA.                                                                                                                                                                                                                                                                          |
|                                      | .2 | Mainline pressure test                                                                                                                                                                                                                                                                                                        |
|                                      | .3 | System coverage and operation test                                                                                                                                                                                                                                                                                            |
|                                      | .4 | Dripline/emitter inspection and test, if applicable                                                                                                                                                                                                                                                                           |
|                                      | .5 | Conduct all inspections and tests in presence of Contract Administrator and request Contract Administrator issue signed report to Contractor within three days regarding each test result. Request attendance of Contract Administrator for proposed inspection or test at least 3 days prior to proposed inspection or test. |
|                                      | .6 | Keep work uncovered and accessible until successful completion of inspection or test.                                                                                                                                                                                                                                         |
| <b>1.12 Backflow Prevention Test</b> | .1 | Conduct backflow prevention device test per American Water Works Association standard using qualified personnel.                                                                                                                                                                                                              |
| <b>1.13 Mainline Pressure Test</b>   | .1 | Perform mainline pressure test to identify potential leaks and ensure mainline is able to operate at design pressure and maintain system pressure. These tests to include longest run of pipe $\frac{3}{4}$ " or larger within a distribution branch.                                                                         |
|                                      | .2 | Conduct mainline pressure test prior to backfilling of mainline.                                                                                                                                                                                                                                                              |
|                                      | .3 | Fill mainline with water and expel all air from pipe. Maintain water in pipe as follows:                                                                                                                                                                                                                                      |
|                                      | .1 | 24 hours for PVC mainline                                                                                                                                                                                                                                                                                                     |
|                                      | .2 | 3 hours for HDPE mainline                                                                                                                                                                                                                                                                                                     |
|                                      | .4 | Subject mainline to hydrostatic pressure of 150psi or twice the optimum design operating pressure of the mainline and not to exceed 200psi.                                                                                                                                                                                   |
|                                      | .5 | Stop supply of make-up water to mainline and record hydrostatic pressure in mainline.                                                                                                                                                                                                                                         |
|                                      | .6 | Visually inspect mainline and fittings for leaks.                                                                                                                                                                                                                                                                             |
|                                      | .7 | Record hydrostatic pressure in mainline 3 hours after supply of make-up water stopped.                                                                                                                                                                                                                                        |
|                                      | .8 | Determine test result based on difference in recorded pressures at beginning and end of test as follows:                                                                                                                                                                                                                      |
|                                      | .1 | Passed test: Less than 5% difference                                                                                                                                                                                                                                                                                          |
|                                      | .2 | Failed test: Difference of 5% or greater                                                                                                                                                                                                                                                                                      |

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|                                                | .9  | Identify source of leak and replace any and all defective materials and workmanship as necessary to eliminate leak.                                                                                                                                                                                                                                                                                                                                                    |
|                                                | .10 | Repeat mainline pressure test and make replacements as necessary until a passed result is achieved.                                                                                                                                                                                                                                                                                                                                                                    |
| <b>1.15 System Coverage and Operation Test</b> | .1  | Conduct system coverage and operation test after installation and operation of complete irrigation system and prior to issuance of Certificate of Substantial Performance.                                                                                                                                                                                                                                                                                             |
|                                                | .2  | Conduct visual inspection to confirm that: <ul style="list-style-type: none"> <li>.1 Head spacing does not exceed that shown on Contract Drawings</li> <li>.2 Where applicable, irrigation piping should be designed to follow the contours of the land in an effort to minimize low head drainage situations.</li> <li>.3 Heads, boxes, vaults and trenches are at specified elevation relevant to finished grade and not subject to settlement or lifting</li> </ul> |
|                                                | .3  | Conduct operational tests to verify that: <ul style="list-style-type: none"> <li>.1 Controller can be programmed manually on site and remotely via Owner's central irrigation control system</li> <li>.2 Controller can send and receive communication with Owner's central irrigation control system 10 consecutive times without a missed communication</li> <li>.3 Controller responds to flow sensor</li> </ul>                                                    |
|                                                | .4  | Operating pressure is within design parameters                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                | .5  | Each zone can be operated automatically and in succession via programmed controller                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | .6  | Performance provides head to head coverage                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>1.16 Dripline/Emitter Inspection</b>        | .1  | Perform inspection and testing of dripline/emitter manifold and lines to identify potential leaks and confirm manifold, driplines and emitters are able to operate at design pressure. Conduct inspection and testing prior to backfilling of manifold, driplines or emitters.                                                                                                                                                                                         |
|                                                | .2  | Fill manifold and lines with water at operating pressure and maintain pressure for 1 hour. Visually inspect manifold, driplines and fittings for leaks. Confirm that emitters are functioning correctly. Identify sources of leaks and replace any                                                                                                                                                                                                                     |



and all defective materials and workmanship as necessary to eliminate leak.

- .3 Repeat inspection and testing and make replacements as necessary until no further leaks are identified.

## 2.0 PRODUCTS

### 2.1 Water Service and Meter

- .1 Unless already installed or otherwise required by the water utility having jurisdiction over the site provide a metered water service, including but not limited to:
- .1 Plumbing permit
  - .2 Backflow prevention device; with permit as required
  - .3 Establishment and verification of water account with appropriate utility provider
- .2 Supply and install water meter in accordance with requirements of water utility.
- .3 Conform size of water meter to mainline diameter and allow for minimal pressure losses.

### 2.2 Isolation Valve

- .1 Acceptable isolation valves include the following:
- .1 Up to 2" see Approved Products List
  - .2 Greater than 2" per Contract Drawings

### 2.3 Flow Sensor

- .1 Flow sensors impellers to be brass or stainless steel for up to 1" size, and glass filled nylon over 1" size, sized to match system low and high flows.
- .2 Acceptable wire for flow sensor to be shielded, direct burial instrument cable and includes the following:
- .1 Beldan
  - .2 Approved Equal

### 2.4 Master Valve

- .1 Acceptable master valves are specified on the Approved Products List.
- .2 Ensure master valve is sized to maximum and minimum flow parameters shown on Contract Drawings.

### 2.5 Pressure Reducing Valve

- .1 Acceptable water pressure reducing valves are specified on the Approved Products List.

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| <b>2.6 Backflow Prevention</b>   | .1 | Acceptable double check valve assemblies (DCVA) are specified on the Approved Products List.                                                                                                                          |
|                                  | .2 | Acceptable Reduced Pressure Backflow Assemblies (RPBA) are specified on the Approved Products List.                                                                                                                   |
|                                  | .3 | Refer to section 1.12.1 for backflow prevention test requirements.                                                                                                                                                    |
| <b>2.7 Blowout Assembly</b>      | .1 | Blowout assembly to be 50mm brass gate valve with brass hydrant adapter and threaded cap on swing joint assembly.                                                                                                     |
| <b>2.8 Vault and Lid</b>         | .1 | Acceptable vaults and matching lids for point of connection equipment and components are dependent on service size, and are specified on the Approved Products List.                                                  |
|                                  | .2 | Lids to have recessed hinges and locking hardware.                                                                                                                                                                    |
| <b>2.9 Irrigation Controller</b> | .1 | Irrigation controller and associated components per Drawings.                                                                                                                                                         |
| <b>2.10 Controller Cabinet</b>   | .1 | Acceptable controller cabinets include the following:                                                                                                                                                                 |
|                                  | .1 | Double post # KSH-21                                                                                                                                                                                                  |
|                                  | .2 | Irrigation cabinet to be finished using:                                                                                                                                                                              |
|                                  | .1 | One coat of Zinc Chromate Primer (General Paint or Tremclad)                                                                                                                                                          |
|                                  | .2 | Two coats of General Paint Exterior Alkyd #CW033W                                                                                                                                                                     |
|                                  | .3 | Cabinet hinges to allow for grease application.                                                                                                                                                                       |
| <b>2.11 Control Wire</b>         | .1 | Control wire from irrigation controller to electric control valve to be CSA approved, minimum #14 gauge, direct burial, type TWU-40 wire. Control wire to be any colour other than white, blue, purple, red or green. |
|                                  | .2 | Common wire from irrigation controller to electric control valve to be minimum #12 gauge direct burial, type TWU-40 wire. Common wire to be white in colour.                                                          |
|                                  | .3 | Master valve wire from the controller to valve to be minimum #14 gauge direct burial, type TWU-40 wire. Wire to be red in colour.                                                                                     |
|                                  | .4 | Spare control wire to be blue in colour.                                                                                                                                                                              |
|                                  | .5 | Spare common wire to be white in colour.                                                                                                                                                                              |
|                                  | .6 | All connectors to be new, two-step, CSA approved for water tight applications and assembled according to the manufacturer's recommendations.                                                                          |

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| <b>2.12 Irrigation Sleeve</b>                     | .1 | Schedule 40 PVC for irrigation sleeve in bored hole or under hard surface.                                                                                                                                                                                                                                                           |
|                                                   | .2 | Irrigation sleeve diameter to be minimum 4" or twice the diameter of main or lateral line running through it, whichever is greater.                                                                                                                                                                                                  |
|                                                   | .3 | Control wire conduit to be a minimum 2" diameter electrical conduit, per code.                                                                                                                                                                                                                                                       |
| <b>2.13 Polyvinyl Chloride (PVC) Pipe</b>         | .1 | Conform to CSA B137.3-93.                                                                                                                                                                                                                                                                                                            |
|                                                   | .2 | New condition, extruded from virgin, high impact materials, solvent weldable with belled ends, continually and permanently marked showing manufacturer's name, material, size, pressure rating, and CSA approval.                                                                                                                    |
|                                                   | .3 | PVC pipe to be as follows: <ul style="list-style-type: none"> <li>.1 Class 200 PVC pipe for pipe sizes ¾" to 2¼" in diameter</li> <li>.2 Bell &amp; Spigot gasket joint pipe c/w concrete thrust blocking for pipe sizes 2½" in diameter and greater</li> </ul>                                                                      |
| <b>2.14 Polyethylene (PE) Pipe</b>                | .1 | New condition CSA Series 100, MDPE in new condition, extruded from virgin materials, continually and permanently marked showing manufacturers name, material, size, and pressure rating.                                                                                                                                             |
| <b>2.15 High Density Polyethylene (HDPE) Pipe</b> | .1 | New condition CSA Approved, extruded from virgin materials, continually and permanently marked showing manufacturers name, material, size, and pressure rating.                                                                                                                                                                      |
|                                                   | .2 | Material to be listed by the Canadian Standards Association (CSA) and Plastic Pipe Institute (PPI) as a PE-3408 resin with a hydrostatic design basis (HDB) of 1600psi for water at 23°C. Material to comply with ASTM D-1248 as a Type III Class C, Category 5, Grade P34 material and with ASTM D-3350 as a 345434C cell material. |
|                                                   | .3 | Acceptable HDPE pipe is dependent on operating pressure and to have Standard Density Ratios (SDR) as follows: <ul style="list-style-type: none"> <li>.1 Max. pressure up to 100psi: SDR-17.0</li> <li>.2 Max. pressure exceeding 100psi: SDR-11.0</li> </ul>                                                                         |

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| <b>2.16 Fittings</b>             | <p>.1 New condition Schedule 40 PVC conforming to ASTM D-2466-97 (and F438-97 for CPVC) standards and of the same material as pipe. Fittings to be designed for solvent welding to PVC pipe except where valves and risers require threaded joints.</p> <p>.2 Nipples to be threaded Schedule 80 PVC and manufactured from same material as the pipe.</p> <p>.3 At the point where the supply source changes from metal to PVC pipe, the metal end of the pipe must be an FIPT (female) adapter and the PVC fitting a MIPT (male) adapter.</p> <p>.4 Flange couplers may be used upon approval of Contract Administrator.</p> <p>.5 Fittings for HDPE pipe to be Schedule 80 PVC insert fittings complete with stainless steel gear clamps.</p> <p>.6 Fittings for HDPE pipe to be butt fusion type for end-to-end joints.</p> <p>.7 SDR rating of HDPE fittings must match the SDR rating of the HDPE pipe specified.</p> <p>.8 HDPE pipe fittings to be molded or fabricated by the pipe manufacturer. HDPE pipe fittings and flange adapters made by contractors or distributors are prohibited.</p> <p>.9 Fittings for dripline and drip emitters to be compatible with specified dripline or emitter and as recommended by manufacturer.</p> |
| <b>2.17 Sprinklers - general</b> | <p>.1 Make, model, nozzle size, and features of sprinklers as specified on Contract Drawings.</p> <p>.2 All sprinklers installed in sport field turf areas to be equipped with the manufacturer-supplied rubber covers.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>2.18 Sprayhead Sprinkler</b>  | <p>.1 Acceptable sprayhead sprinklers are specified on the Approved Products List.</p> <p>.2 Required pop-up height for sprayhead sprinklers to be as shown on Contract Drawings.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>2.19 Rotor Sprinkler</b>      | <p>.1 Acceptable rotor sprinklers are specified on the Approved Products List.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>2.20 Dripline</b>             | <p>.1 Dripline shall incorporate root intrusion technology and be as shown on Contract Drawings.</p> <p>.2 Pressure compensating driplines are specified on the Approved Products List.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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| <b>2.21 Drip Emitter/Bubbler</b> | .1 | Drip emitters/bubblers shall be as shown on Contract Drawings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                  | .2 | Drip emitters/bubblers are specified on the Approved Products List.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>2.22 Sand</b>                 | .1 | Sand to be pit run sand, per Section 31 05 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>2.23 Drain Rock</b>           | .1 | Drain rock to be drain rock, per Section 31 05 17.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>3.0 EXECUTION</b>             |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>3.1 Existing Conditions</b>   | .1 | Report existing conditions at variance with Contract Drawings to Contract Administrator.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                  | .2 | Verify locations of underground utilities prior to commencing excavation and conduct work so to prevent interruption and damage to services and utilities. Make good all damages to same at Contractor's cost.                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                  | .3 | Verify location of all services in building walls before boring or drilling holes. Make good all damages to same at Contractor's cost.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                  | .4 | Protect existing conditions and completed work from disturbance during Work. Make good all damages to same at Contractor's cost.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                  | .5 | Adjustments to installation of irrigation system to avoid existing conditions, completed work and utilities will be permitted subject to prior approval by Contract Administrator.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>3.2 Layout</b>                | .1 | Locations of irrigation components shown on plans is schematic in nature. Coordinate actual location of irrigation components with landscaping, building and physical features of site. Confirm proposed changes to location of irrigation components in writing with Contract Administrator prior to installation. Changes that markedly alter the irrigation design in the opinion of the City Engineers require submission of Shop Drawings and updated Irrigation Design Report to City of Salmon Arm for their permission to proceed. Record all approved revisions on a marked-up set of Contract Drawings |

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|                            | .2 | Layout and stake irrigation system per Contract Drawings to confirm:                                                                                                                                                               |
|                            | .1 | Layout is within project boundary and property lines                                                                                                                                                                               |
|                            | .2 | Site grades are consistent with Contract Drawings                                                                                                                                                                                  |
|                            | .3 | Damage to root system of existing trees is minimized                                                                                                                                                                               |
|                            | .4 | Installation of irrigation components to be a minimum of 1 meter outside the dripline of existing trees                                                                                                                            |
|                            | .5 | Minimum horizontal and vertical clearances from electrical and other utilities are met                                                                                                                                             |
|                            | .6 | Location of all sleeving, main lines, cabinets, vaults, valve boxes, splice boxes and ground grid assembly                                                                                                                         |
|                            | .3 | Have layout inspected and approved by the Contract Administrator before commencement of work. Adjust layout as instructed by Contract Administrator.                                                                               |
|                            | .4 | During construction it may be necessary to adjust the layout of the irrigation system. Request layout changes to Contract Administrator prior to execution of work.                                                                |
|                            | .5 | Do not modify irrigation layout without written approval of Contract Administrator.                                                                                                                                                |
| <b>3.3 Excavation</b>      | .1 | Excavate to ensure depth and bedding requirements are met.                                                                                                                                                                         |
|                            | .2 | All excavation is unclassified. Report any material or site condition that cannot be excavated by normal mechanical or manual means or that may affect excavation to required depth to Contract Administrator prior to excavation. |
|                            | .3 | Identify and recycle all suitable materials recovered during construction.                                                                                                                                                         |
|                            | .4 | Remove and dispose of buried debris exposed during excavation, including decommissioned irrigation materials and underground utilities, which may impede the proper installation and operation of irrigation system.               |
| <b>3.4 Water Meter</b>     | .1 | Install water meter per Drawings and requirements of water utility.                                                                                                                                                                |
| <b>3.5 Isolation Valve</b> | .1 | Install isolation valve per Drawings.                                                                                                                                                                                              |
| <b>3.6 Flow Sensor</b>     | .1 | Install flow sensor in location specified on Drawings.                                                                                                                                                                             |
|                            | .2 | Flow sensor wire to run continuously, with no splices, between flow sensor and irrigation controller.                                                                                                                              |
|                            | .3 | Follow manufacturer's recommendations for installation and wiring of flow sensor.                                                                                                                                                  |
| <b>3.7 Master Valve</b>    | .1 | Install master valve per Drawings.                                                                                                                                                                                                 |

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| <b>3.8 Pressure Reducing Valve</b>    | .1 | Install pressure reducing valve (PRV) per manufacturer's recommendations in location shown on Contract Drawings and as required to maintain operating pressure within manufacturer's recommended range.                                                                                                               |
|                                       | .2 | Adjust PRV to provide water at design pressure for the sprinkler furthest from control valve.                                                                                                                                                                                                                         |
| <b>3.9 Backflow Prevention Device</b> | .1 | Install Double Check Valve Assembly (DCVA) in lockable concrete vault or a locked mechanical room, per Drawings.                                                                                                                                                                                                      |
|                                       | .2 | Install Reduced Pressure Backflow Assembly (RPBA) a minimum of 300mm above finished grade per manufacturer's recommendations and Drawings. Install RPBA on reinforced concrete pad with pipe restraints bolted to floor to restrain and support assembly.                                                             |
|                                       | .3 | Construct reinforced concrete pad for RPBA 150mm larger than the proposed enclosure in all directions. Construct reinforced concrete pad on a 150mm thickness of granular base compacted to 95% S.P.D. Provide vault drain directly below discharge valve and connect to drain pit, dry well, manhole or catch basin. |
|                                       | .4 | Install acceptable lockable enclosure over the RPBA large enough to secure the assembly and any associated components attached to this point.                                                                                                                                                                         |
|                                       | .5 | Install backflow prevention device in accordance with all applicable codes and bylaws and in accordance with the current Cross Connection Control Manual Accepted Procedure and Practice (American Water Works Association).                                                                                          |
|                                       | .6 | Install backflow prevention devices with positive drainage and room for maintenance and servicing.                                                                                                                                                                                                                    |
|                                       | .7 | Support backflow prevention device with specified supports per manufacturer's recommendations for locations of the support points.                                                                                                                                                                                    |
| <b>3.10 Blowout Assembly</b>          | .1 | Install blowout assembly per Drawings.                                                                                                                                                                                                                                                                                |



**3.11 Vault and Lid**

- .1 Install vault in location shown on Contract Drawings or in alternate location approved or directed by Contract Administrator.
- .2 Support and brace point of connection components, piping and valves within vault using adjustable aluminum pipe stands complete with riser, pipe clamps, base plate and galvanized or stainless steel fittings in the quantity per service size indicated as follows:
  - .1 ¾" 2 supports
  - .2 1" to 2" 3 supports
  - .3 2 ½" to 3" 3 supports per vault
  - .4 Larger than 3" per Contract Drawings
- .3 Lids to have recessed hinges and locking hardware.
- .4 Use brass pipe for all piping inside vault and extend brass piping outside the vault a minimum of 300mm beyond vault. Make union of brass pipe with other pipe in valve box or vault using specified fitting.
- .5 Make connections of PVC pipe and metal pipe using male threads on PVC pipe and female threads on metal pipe.
- .6 Install vault drain and connect to drain pit, dry well, manhole or catch basin.

**3.12 Irrigation Controller**

- .1 Install irrigation controller in controller cabinet.
- .2 Coordinate controller installation with that of other electrical components.
- .3 Install controller and wiring in accordance with local, provincial and national electrical codes.
- .4 Install and test the ground assembly using a "Megger" to ensure earth resistance to ground does not exceed controller manufacturer's recommendations.
- .5 Install communication components per manufacturer's recommendations and establish communication between controller and Owner's central irrigation control system, including relays or boosters as necessary.
- .6 Prior to issuance of Certificate of Substantial Performance request irrigation program from Contract Administrator and set controller program accordingly.

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| <b>3.13 Controller Cabinet</b>     | <ul style="list-style-type: none"> <li>.1 Install controller cabinet in location shown on Contract Drawings or in alternate location approved or directed by Contract Administrator.</li> <li>.2 Orient alignment of controller cabinet as approved by Contract Administrator to provide optimal observation of irrigation system in operation.</li> <li>.3 Install controller cabinet using a poured in place concrete pad mount.</li> <li>.4 Provide electrical service to controller cabinet as shown on Contract Drawings.</li> <li>.5 Install electric meter in the irrigation cabinet per electrical utility's requirement.</li> <li>.6 Install only GFI breakers in controller cabinet electrical panel.</li> <li>.7 Install 1 duplex 120v AC GFI receptacle, on dedicated breaker, in controller cabinet.</li> </ul>                                                                                                                         |
| <b>3.14 Electric Control Valve</b> | <ul style="list-style-type: none"> <li>.1 Install in valve box per manufacturer's recommendations and Drawings.</li> <li>.2 Identify electric control valve with permanent label or tag indicating zone number of valve.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>3.15 Manual Control Valve</b>   | <ul style="list-style-type: none"> <li>.1 Install in valve box per manufacturer's recommendations and Drawings.</li> <li>.2 Identify manual control valve with permanent label or tag indicating zone number of valve</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>3.16 Valve Box</b>              | <ul style="list-style-type: none"> <li>.1 Install all manual and electric control valves, control zone kits and quick coupler valves in valve boxes or concrete vault as shown on Drawings.</li> <li>.2 Except as shown otherwise on Contract Drawings or approved otherwise by Contract Administrator, locate valve boxes in planting beds and locate for ease of access, maintenance, and testing.</li> <li>.3 Install valve box flush with finish grade and arrange in a neat and orderly manner.</li> <li>.4 Provide minimum 150mm clearance between valve box and all components within.</li> <li>.5 Valve box must not contact irrigation pipe. Use 150mm height matching valve box extensions as required.</li> <li>.6 Up to three 1" control valves or two 1½" control valves may be contained within a single valve box provided there is 100mm of clearance between valves. Install valve 2" and larger in their own valve box.</li> </ul> |

**3.17 Control Wire**

- .1 Install control wire per code and by qualified personnel employed by the company holding the electrical permit.
- .2 Bury control wire per applicable code and in no case above the bottom side of parallel pipe.
- .3 Bed control wire in sand with minimum 50mm sand around control wire. Where control wire is in same trench as pipe, place wire beside pipe with horizontal clearance of a minimum of 50mm and in accordance with BC Electrical Code depth.
- .4 Bundle multiple lengths of wire in same trench or conduit with ties at maximum 3.0m intervals.
- .5 Install wire with minimum 600mm length of coiled slack at all changes of direction, in wire splice boxes and at connections to controlled components.
- .6 Identify all control wires entering controller cabinet with permanent label or tag indicating zone number of valve operated by each control wire.
- .7 Maintain consistent wire colour through wire splice box.
- .8 Minimize wire splices. Where wire splices are unavoidable make splice only in wire splice box using specified connector.
- .9 Identify spliced wire with permanent label or tag indicating zone number of spliced control wire.
- .10 Where specified on Contract Drawings, install extra control wire to wire splice box. Provide 600mm length of coiled slack of each wire end in wire splice box. Identify extra control wire as 'extra' wire with permanent label or tag.

**3.18 Wire Splice Box**

- .1 Locate wire splice box in planting bed where possible and locate for ease of access, maintenance, and testing.
- .2 Install wire splice box per Drawings and arrange in a neat and orderly manner.
- .3 Do not install valves in wire splice box.

**3.19 Irrigation Sleeve**

- .1 Install irrigation sleeves in locations shown on Contract Drawings.
- .2 Install irrigation sleeve to depth as follows:
  - .1 Mainline Piping
    - .1 600mm below walkways
    - .2 750mm below driveways, roads and plazas
  - .2 Lateral Piping
    - .1 300mm below walkways
    - .2 600mm below driveways, roads and plazas
- .3 Install sleeve to extend 1.0m past edge of hard surface into soft landscape surface.
- .4 Cap sleeve with removable plug or cover. Maintain plug in sleeve until such time as pipe or wire is ready to be installed.
- .5 Bed sleeve as follows:
  - .1 Under walkways, 100mm of sand placed all around
  - .2 Under driveways, roads and plazas, compacted base aggregate all around per materials shown on Drawings.
- .6 Bury a piece of detectable metal on top of each end of sleeve to enable location of sleeve end by metal detector after burial.
- .7 Stake location of each end of sleeve prior to backfilling such that top of stake is 300mm above finished grade and maintain. Label exposed end of stake with the word "sleeve".
- .8 Record location of sleeve ends and label size of sleeve on Record Drawings.
- .9 Remove sleeve stake after submission of Record Drawings.

**3.20 Pipe and Fittings**

- .1 Verify that all pipe, fittings, primer and cements are compatible for proper installation.
- .2 Minimum burial depth and clearances for pipe and wire to be per Drawings.
- .3 Do not locate open side of trench any closer than 300mm from hard surface or feature.
- .4 Keep inside of pipe and outside of pipe ends clean at all times. Cap or plug open pipe ends to keep out dirt and debris.
- .5 Cut PVC pipe ends at right angle to pipe length. Clean burrs prior to joining pipe and fittings.
- .6 Do not apply cement or solvent weld pipe or fittings under wet or muddy conditions.
- .7 Follow manufacturer's recommendations for use of pipe primer and cement.

- .8 Immediately prior to joining pipe and fittings wipe contact surfaces clean with primer on clean rag.
- .9 Apply light coat pipe of cement on inside of fitting and heavier coat on outside of pipe. Insert pipe into fitting and give a quarter turn to seat cement. Wipe excess cement from outside of pipe.
- .10 Make plastic to metal joints with plastic male adapters.
- .11 Wrap male threads of threaded fittings with minimum 3 wraps of Teflon tape immediately prior to making connection.
- .12 Flush all irrigation pipe fully to remove accumulation of dirt and debris prior to installation of heads, dripline, emitters and filters. Flush all laterals in a manner approved by the manufacturer to prevent clogging of screens, nozzles and emitters.
- .13 Follow manufacturer's recommendations to install pipe in a manner that provides for expansion and contraction of pipe in trench.
- .14 Conduct water service flow test and obtain approval of Contract Administrator prior to backfilling main line.
- .15 Conduct mainline pressure test and HDPE pipe strap test and obtain approval of Contract Administrator prior to backfilling lines.
- .16 For HDPE pipe conduct HDPE pipe strap test and obtain approval of Contract Administrator prior to backfilling HDPE pipe.
- .17 Set mainlines and laterals on sand and backfill with sand to clearance limit shown on Drawings.
- .18 For pipe in growing medium of landscaped areas backfill trench with growing medium and tamp in lifts to achieve compaction equal to the adjacent growing medium.
- .19 For pipe in native soil, sub-surface fill, rocky soils and aggregate base or subbase material backfill remainder of trench with suitable non-sand material under 25mm in diameter and free of materials that could result in settling or damage to pipe or surface improvements.
- .20 Install 14 gauge insulated trace wire (purple) on top of all mainline and lateral piping. Extend and fasten tracer wire into valve boxes, vaults and sleeves.
- .21 Install thrust blocks where required in Contract Drawings.

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| <b>3.21 Sprinkler</b>                | .1 | Install per manufacturer's recommendations and in location shown on Contract Drawings.                                                                                                                    |
| <b>3.22 Dripline</b>                 | .1 | Install per manufacturer's recommendations in location shown on Contract Drawings.                                                                                                                        |
| <b>3.23 Emitter/Bubbler</b>          | .1 | Install per manufacturer's recommendations and as shown on Drawings.                                                                                                                                      |
| <b>3.24 Hose Bib</b>                 | .1 | Install as shown on Drawings                                                                                                                                                                              |
| <b>3.25 Clean-up and Restoration</b> | .1 | Remove all waste and debris resulting from irrigation installation from site.                                                                                                                             |
|                                      | .2 | Restore all disturbed surfaces to original condition and repair all trench settlement.                                                                                                                    |
| <b>3.26 Instructions to Owner</b>    | .1 | Instruct Owner in complete operating and maintenance procedures for irrigation system, including start-up, winterization, and programming.                                                                |
|                                      | .2 | Review Record Drawings and Operating Manual with Owner on site.                                                                                                                                           |
| <b>3.27 Maintenance General</b>      |    | Inspect, operate, maintain and adjust irrigation system through the Landscape Maintenance Period until issuance of Certificate of Acceptance to ensure it operates as intended, including but limited to: |
|                                      | .1 | Adjust irrigation program to ensure survival, health and growth of the plant material and respond to soil conditions, climate and seasons of site                                                         |
|                                      | .2 | Clean sprinkler heads and adjust coverage to eliminate over watering, under watering and overspray onto adjacent surfaces                                                                                 |
|                                      | .3 | Monitor and clean filtration equipment                                                                                                                                                                    |
|                                      | .4 | Restore grass areas, planting beds, hard surfaces and improvements affected by trench settlement and erosion                                                                                              |
|                                      | .5 | Respond to requests from Contract Administrator for program adjustments, servicing, adjustments and repairs                                                                                               |

**3.28 Maintenance  
Winterization**

- .1 During Landscape Maintenance Period be responsible for winterization of irrigation system at end of growing season and prior to onset of air temperatures below 0° Celsius. Be liable for any damage resulting from late or improper winterization.
- .2 Request presence of Owner at winterization at least 5 days prior to proposed winterization.
- .3 Winterization includes but is not limited to:
  - .1 Saturation of soil with water to a depth of 300mm to provide deep watering of all lawn areas, planting beds and tree pits
  - .2 Deactivation of controller
  - .3 Drainage and blow-out of entire irrigation system
- .4 Contact water utility provider to determine if water meter is to be removed for winter. Remove and store water meter, or assist the water utility with removal of water meter, as directed by water utility.



## 1.7 Scheduling of Work

- Replace: .2 Submit schedule of interruptions to Contract Administrator for approval at least 48 hours prior to any planned interruption and adhere to approved schedule.
- Add: .6 In the event water service has not been returned within one hour of the anticipated time, the contractor shall re-notify all customers of the unscheduled delay in resumption of water service.

## 2.2 Mainline Pipe, Joints and Fittings

- Add: .1.3 Minimum pressure class for ductile iron pipe shall be 350 for 100 mm to 300 mm, 250 for 350 mm to 500 mm, 200 for 600 mm and 150 for 900 mm.
- Add: .2.1.5 Colour: Blue

## 2.3 Valves and Valve Boxes

- Add: .2.8 Gate Valves shall be epoxy coated.
- Remove: .6.1.1 (Rectangular not permitted)
- Add: 7.6. Colour: Curb stop valve boxes to be painted blue.
- Add: 7.7. Protective pre-cast concrete valve boxes with cast iron lids as specified on contract drawings.

## 2.4 Valves and Large Meter Chambers

- Replace: .8 Refer to Section 33 44 01, 2.1.8 for Ladder Rung Specifications.
- Add: .11 Refer to Section 33 44 01, 2.1.24 for Manhole Liner Specifications.
- Add: .12 Refer to Section 33 44 01, 2.1.16 for Adjustment Ring Specifications.

## 2.5 Service Connections

- Add: .1.2 Service pipe shall be manufactured with a co-extruded UV shield made from UV resistance high-density polyethylene, color Sky Blue (International Thermoplastic Color Code, RAL 1501).
- Add: .6 14 Gauge Solid White Tracer wire required on all services.

## 2.6 Hydrants

Add: .1.12 Hydrants to be flow tested by the City or an approved consultant. A completed form F-11 shall be submitted to the City.

Replace: .2 Colour: All hydrants are to be painted in accordance with the City Supplement Standard Drawing W-3.

## 2.10 Water Meters

Add: .1 Water Meters: Water meters shall be supplied by the City of Salmon Arm at the expense of the contractor to the specifications shown on the contract drawings.

Add: .2 Meter Vaults: As shown on the contract drawings.

## 3.3 Trenching

Replace: .3 Trench depth to provide cover over pipe of not less than 1.8 m from finished grade unless shown otherwise on Contract drawings.

## 3.6 Pipe Installation

Replace: .6 Pipe to be laid on a horizontal curve shall not be permitted unless otherwise specified by the Contract Drawings. If specified in the Contract Drawings, horizontal deflections shall not exceed one half the maximum deflection recommended by the manufacturer. For PVC pipe deflections exceeding those stated above, use:

.1 PVC High Deflection coupling rated at 1380kPa (100mm – 300mm)

.2 PVC long radius 5 degree bend rated at 1620kPa (100mm – 750mm)

## 3.10 Service Connection Installation

Add: .13 Where services are located in driveways, inspection chambers and curb stops shall be located within protective concrete vaults.

Add: .14 Install tracer wire from mainline corporation stop along service to finished grade on curb stop.

## 3.12 Hydrants

Replace: .6 Hydrants shall be covered with a black plastic bag and secured at the bottom until such time as they have been accepted by the Contract Administrator and City Engineer and the Salmon Arm Fire Department has been notified that they are fully operational.

## 3.24 Bacteriological Tests

- Add: .1 Bacteriological tests shall be as per the current ANSI/AWWA C651 Standard for Disinfecting Water Mains.
- Add: .2 Bacteriological water samples shall be collected from new watermain installations following the satisfactory completion of main chlorination and flushing. The owners' consulting engineer shall collect water samples. Such bacteriological testing shall be done using full aseptic precautions. The sample shall be taken from a copper gooseneck assembly provided by the contractor. The contractor shall be responsible to ensure the gooseneck assembly is contaminant free. Water shall be run from the sample tap for a minimum of 2 minutes prior to sampling. The water shall run at a constant rate prior to and during the sampling procedure. A sterile water sampling bottle must be obtained from the local Health Unit, and shall be used to collect the water sample. The cap of the bottle shall be removed after the water has run for 2 minutes, taking special precautions to not touch or contaminate the underside of the lid or the bottle rim. The bottle shall be filled to the fill line and then recapped immediately. Hose pipe shall never be used as a sample source. The sample shall be labelled completely indicating time, location, project, contract number and sampler. Sample bottles shall then be immediately placed in a cooler with an ice pack. Samples shall be transported to a testing facility acceptable to the City within 8 hours of sampling. The owners' consulting engineer is responsible for delivery and obtaining and reporting the test results. In no case shall samples take more than 24 hours to reach the testing facility approved by City Engineer. At least one sample shall be collected from each new main. In the case of long mains a sample shall be collected at 250 meter intervals as well as at its ends. At least one sample shall be taken from the source of water supply to determine the status of the distribution system at the time of sampling. If, in the opinion of the City Engineer, the pipeline has been contaminated with trench water, excessive quantities of dirt or debris, bacteriological water samples shall be collected at 60 meters intervals after water has stood in the main for at least sixteen (16) hours after final flushing or recommended by the City Engineer. Re-disinfection and re-sampling shall be required for all watermains that do not satisfactorily meet Interior Health Authority bacteriological requirements as amended from time to time.

**PART 1 GENERAL****1.1 General**

- .1 The work specified in this section consists of furnishing and installing underground utilities using the horizontal directional drilling (HDD) method of installation, also commonly referred to as directional boring or guided horizontal boring. This work shall include all services, equipment, materials, and labor for the complete and utilities and environmental protection and restoration.
- .2 This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.

**1.2 Related work**

- .1 Excavating, Trenching, and Backfilling Section 31 23 01
- .2 Traffic Control, Vehicle Access, and Parking Section 01 55 00
- .3 Manholes & Catchbasins Section 33 44 01
- .4 Water Works Section 33 11 01

**1.3 Definitions**

- .1 Annular Space—The void created between the outside diameter of pipe being installed and extreme outer limits created by HDD bore process.
- .2 Lubricant—A substance applied between the pipe and soil to minimize friction and to fill the annular space.
- .3 Horizontal Directional Drilling (HDD)

Directional drilling is a means of installing or replacing underground utilities. Directional boring is a two-stage process. In stage one; a steerable drill head bores a pilot hole to a pre-designated point. In Stage two, the drill head is removed and, depending on the size of the product being installed, is replaced with a reamer to help open the path. A swivel is inserted between the reamer and the product to be installed to allow the reamer to rotate without twisting the product. At this point the entire assembly is pulled back through the pilot hole to the entry pit.

- 1.4 Quality Assurance** .1 The requirements set forth in this document specify a wide range of procedural precautions necessary to insure that the very basic, essential aspects of a proper directional bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this specification. Adherence to the specifications contained herein, or the Engineer's approval of any aspect of any directional bore operation covered by this specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.
- 1.5 Environmental Protection** .2 All horizontal directional drilling works crossing a watercourse to be done in accordance with Fisheries and Oceans Canada Pacific Region Operational Statement Directional Drilling Notification Package (Version 3 document DFO /2007 – 1283)
- 1.6 Codes and Standards** .1 In addition to all codes and standards referenced elsewhere in the Contract Documents, all materials and equipment supplied, and work performed herein shall conform to the latest edition of the applicable industry codes, standards, references and recommended practices.
- 1.7 HDD Process** .1 The Contractor shall furnish all material, supervision and labour, including consumables and materials of a temporary nature, which are not specifically provided by the owner as per Contract Documents. The Contractor shall also furnish all other services and work documents as required for the Work and in accordance with the requirements set forth in the Contract Documents.
- .2 The Contractor shall supply Horizontal Directional Drilling equipment, tools, supplies and components in first class working order sufficient and all-encompassing to enable the project to be carried out in a continuous and uninterrupted manner. The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback of the pipe; a drilling fluid mixing, delivery and recovery system of sufficient capacity to successfully complete the borehole; a drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be re-used; a guidance system to accurately guide boring operations; a vacuum truck of sufficient capacity to handle the drilling fluid volume; and trained and competent personnel to operate the system.
- .3 All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of the project.

- .4 The Contractor shall furnish all material, supervision and labour, including readout instrumentation, steering tools, etc. The instruments should provide data on pilot hole location at all times.
- .5 The Contractor shall also provide a capable and experienced mud engineer to monitor and maintain mud properties as necessary for this procedure, sufficient drilling crews experienced and competent in the operation of the above rigs, and surveyors experienced and capable of operating the above equipment.

### 1.8 Incidental items

The Contractor shall supply and maintain:

- .1 Temporary fences, fence repair materials, temporary gates, permanent gates, if required.
- .2 Sand bags (sack breakers) including bags, sand, earth and cement, as required.
- .3 All fusion bond, joint, patch and repair materials, and a data logger to permit continuous recording during pipe jointing, McElroy DL2001, or approved equivalent for PVS pipe fusion
- .4 All welding supplies and materials, and a data logger to permit continuous recording during pipe jointing for steel pipe welding.
- .5 All pigs, launchers, receivers, test heads and compressors necessary for cleaning, gauging, hydrostatic testing of the pipe.
- .6 All dead weight testers, hoses, fittings, pressure and temperature recorders and chart paper required for hydrostatic testing as outlined in the specifications.
- .7 All materials and equipment for hydrostatic testing.
- .8 All materials and equipment to heat, hoard and cover work area, as required, during inclement weather conditions.
- .9 All dunnage, straps, chains, padding, spreader bars etc., required for loading, hauling, stockpiling and stringing of pipe.
- .10 All welding, pipe jointing consumables.
- .11 Pipe pulling swivel and pipe pulling heads complete with connections with a design rated strength equal to that of the rig capacity plus 25%
- .12 All fuels, Oils, and greases.

- .13 All culverts, as required.
- .14 All cement, cement additives, mixing water, cement mixing and pumping equipment and grouting tools required to complete the Works. The Contractor shall provide, if required by conditions of lost circulation, suitable cement and grouting tools such as lightweight slurry, open hole packers, and stage tools. All above tools shall be drillable to full open inside diameter after serving their intended function.
- .15 All necessary mud pits and slurry mixing and cuttings separation equipment. The Contractor Shall immediately clean up any drilling mud, which spills or overflows from these pits or equipment. Disposal of spilt or excess drilling fluid shall be the responsibility of the Contractor.
- .16 Sufficient spares or replacement items of above equipment to maintain directional drilling capacity at all times.

#### **1.9 Materials Supplied by the Owner**

- .1 The Owner will provide the Right of Way for the work and the Work and Storage Areas.
- .2 The Owner will provide water at a source near the site. The Contractor shall provide an approved valve through which they can draw water. The hydrant valve and/or hydrant shall not be used to control water. The hydrant shall be securely closed when no work is actively being carried out. Water shall not be wasted; if it is, the Engineer may terminate the supply and Contractor shall then be responsible for obtaining water elsewhere.

#### **1.10 Mobilization**

- .1 Mobilization for the works covered by this Specification shall include the assembly and transportation to the works Site of all equipment, materials and personnel necessary to perform the Work. This shall include, but not be limited to the following items:
  - Initial site survey (several survey reference points will be provided by the Owner);
  - Drilling and downhole survey equipment;
  - Drilling materials;
  - Grouting equipment;
  - Grouting materials;
  - Procurement of all permits and licenses for the execution of the



Works, except for those obtained by the Owner; and Approval by the Engineer of all preconstruction submittals required by this Specification;

- .2 Mobilization and site preparation shall not be considered complete until the above equipment has been completely rigged up and in position at the site and ready to commence work.

### **1.11 Right of Way and Work and Storage Area**

- .1 The right-of-way configuration is shown on the Drawings forming part of the Contract Documents. The Contractor is advised that all operations must be strictly confined to the areas identified unless they obtain specific permission.
- .2 The Contractor shall familiarize themselves with the layout areas and make such allowances as may be necessary for any stops and intermediate welds. Any additional working space required by the Contractor for such uses as pipe(s) layout, Storage of spoil material, equipment turnarounds, vehicle servicing and fueling yards, access to the right-of-way and other requirements shall be obtained by the Contractor at the Contractor's expense and such agreements shall meet the Owner's requirements. The Contractor shall provide a copy of all such agreements made with the occupants to the Owner prior to the use of the additional work areas covered by those agreements.
- .3 The pipe shall be installed to the alignment and elevation shown on the drawings unless approved otherwise. The Owner shall have the right to make any changes necessary in the location of the proposed sanitary sewer or appurtenances, and if the change results in increasing or decreasing the cost of the Contractor in comparison with what its cost would have been had no change been made, the Contract Price will be equitably adjusted.

### **1.12 Access**

- .1 Access to the site shall be through the existing Municipal Roadways and Right of ways in accordance with the Contract Documents. The Contractor shall provide cleared work areas at the entry and exit sites and shall ensure suitably dry working conditions.
- .2 Except as specifically noted herein, uninterrupted vehicle traffic movement shall be maintained at all times on all public roads and private access points. The Contractor shall identify within their work plan the proposed site preparation work, equipment, and procedures to satisfy this requirement. The Contractor shall be responsible for all

traffic control, and obtaining traffic control permits and carrying out their requirements if necessary.

- .3 When its operations are conflicting with normal traffic, the Contractor shall provide suitable detours, at the discretion of the Owner. All detours shall be clearly marked to the satisfaction of the Engineer. The Contractor shall furnish and maintain all necessary day and night warning signs, flares lanterns, barricades and flagmen when working on near roads, highways, or traffic ways, to protect all persons from injury and property from damage, and to warn the drivers of vehicles of the obstruction.

### 1.13 Fences

- .1 Temporary fences shall be erected, and maintained, where necessary, for the protection of public safety.

### 1.14 Demobilization and Restoration

- .1 Demobilization shall include the following:
- Dismantling and removal of all equipment and material mobilized by the Contractor.
  - Disbanding of the Contractor's personnel.
  - All site restoration and clean up.
  - Submission of all drilling, inspection, and test records and as-built drawings to the Engineer.
- .2 Restoration shall include cleaning, backfilling, paving and landscaping with compatible turf (where appropriate) of the entry and exit pits, mud and cutting separation pits with compacted general fill to pre-construction conditions, in a manner acceptable to the Engineer.
- .3 It is the Contractor's responsibility to remove all construction materials from work site after completion, and to ensure that the clean-up and site restoration are in accordance with the environmental requirements defined herein, and to the satisfaction of the Owner, landowner and/or occupant and the authority having jurisdiction.
- .4 Upon completion of the remaining work, the Contractor shall be responsible for removal from the site, and satisfactory disposal off site, of all deleterious materials, including materials from sediment ponds, excess excavation spoil, organic material, excess construction materials, brush, broken or cast off machinery, and any other construction debris. The Contractor shall remove from the work site all equipment, tools unused materials and accessories used in the construction.

- .5 No rubbish or garbage may be buried or burnt on any construction site. It is the responsibility of the Contractor to make their own arrangements for the disposal of all garbage.
- .6 The Contractor shall pump and totally remove all drilling fluids and cuttings and shall transport and dispose such material at an approved disposal site in accordance with the environmental requirements defined herein.
- .7 The Contractor shall be responsible for the protection of existing road pavements during construction and shall be responsible for any damage to these pavements caused by their operations. The contractor shall repair and make good the damage at their own expense to the satisfaction of the Owner, landowner and/or occupant, or other authorities having jurisdiction over said roads or properties.
- .8 In the event that the Contractor is either unwilling or unable to obtain damage releases for damages incurred by the Contractor off the right-of-way and working space, the Owner shall have the right to settle such damages on behalf of the Contractor. The costs of such settlements shall be subtracted from monies owing to the Contractor.
- .9 The Contractor shall be responsible for the supply, placement and compaction of all materials required to carry out the site restoration activities described in the Project Documents. Subject to approval by the Engineer, it may be possible to re-use the existing site fills for the site restoration activities, providing that they have been suitably separated and stored.
- .10 Upon completion of the Work, the Contractor is responsible for providing an as-built survey of all the installations for the permanent records of the Owner.

**1.15 Directional  
Drilling  
Supervision and  
Personnel**

- .1 The Contractor shall ensure that all directional drilling and pull-back operations are performed with the operation of the equipment and drilling in subsurface materials similar to those expected to be encountered within the proposed installation.

**1.16 Directional  
Drilling  
Surveying**

- .1 The Contractor shall survey the site to accurately establish the entry points, exit points and azimuths of the pilot hole. The Contractor shall place and maintain their own benchmarks, survey monuments and

other positioning aids as required for the duration of the Works. The Contractor shall be responsible for providing the necessary construction surveys required for the entire construction work shown on the drawings.

- .2 The Contractor shall be responsible for survey monitoring of the existing facilities, buried services, and lands as identified in the Contract Documents.
- .3 Upon completion of the Work, the Contractor is responsible for providing an as-built survey of all the installations for the permanent records of the Owner.

### **1.17 Drilling System**

- .1 **DRILLING RIG:** The directional drilling machine shall consist of a hydraulically powered system to rotate push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pullback pressure during pullback operations.

The rig shall be grounded during drilling and pullback operations. There shall be a system to detect electrical current from the drill string and an audible alarm, which automatically sounds when an electrical current is detected.

- .2 **DRILL HEAD:** The drill head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and drilling fluid jets.
- .3 **MUD MOTORS (if required):** Mud motors shall be of adequate power to turn the required drilling tools.
- .4 **DRILL PIPE:** Shall be as specified on Contact Drawings

### **1.18 Drilling Fluid (Mud) System**

- .1 **MIXING SYSTEM:** A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid. The drilling fluid reservoir tank shall have sufficient capacity to supply volume of

drilling fluid. Mixing system shall continually agitate the drilling fluid during drilling operations.

- .2 DRILLING FLUIDS: Drilling fluid shall be composed of clean water and appropriate additives and clay. Water shall be from an authorized source with a pH of 8.5-10. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No potentially hazardous material may be used in drilling fluid.
- .3 The use of drilling muds or drilling mud additives that contain toxic constituents is prohibited. Upon award of the Contract, the Contractor shall supply copies of Material Safety Data Sheets (MSDS) for the drilling muds and drilling mud additives, which are proposed to be used during the project for review by the Engineer. By reviewing the MSDS information to be supplied and submitted by the Contractor, the Owner and Engineer shall in no way assume responsibility or liability for the constituents of the drilling mud or drilling mud additives.
- .4 Construction and excavation wastes, overburden, soil, drill cuttings or fluid, or other substances deleterious to aquatic life must be disposed of or placed in such a manner by the Contractor to prevent their entry into watercourses.
- .5 The Contractor shall recycle and reuse, as much as practically possible, all drilling muds used in the HDD operations including, but not limited to, drilling of the pilot hole, reaming of a larger size diameter hole to facilitate pipeline placement and pulling of the pipeline through
- .6 Drilling muds shall be directed or pumped into tank(s) and/or pond(s), which must be adequately sized to prevent spillage or release of spent drilling muds from entering watercourses. Upon completion of the directional drilling activities, the spent drilling muds from entering watercourses. Upon completion of the directional drilling activities, the spent drilling mud must be removed from the site and disposed of offsite to an approved landfill, or other approved facility.
- .7 During the drilling of the pilot hole and reaming for the hole opening operations, the Contractor shall continuously monitor for the potential loss of drilling fluid by detaining the amount of fluid returned to the drill pit in front of the drill rig and the quantity of make-up drilling fluid required in the mixing tanks.

- .8 Line inspection personnel shall be onsite at all times during drilling, reaming and pipe installation procedures to ensure all preventative and, if necessary, emergency response measures will be implemented effectively in the event of a mud release.
- .9 The Contractor shall immediately inform the Engineer of any losses in drilling fluid or losses in drilling fluid pressures and shall immediately implement emergency response actions as required.
- .10 Emergency response equipment necessary to contain drilling fluid losses shall be onsite and available for immediate use at all times to contain the movement of the drilling mud.
- .11 Once a drill fluid loss is detected, the Contractor shall immediately halt drilling operations and conduct a detailed examination of the drill path. If no fluid migration to the ground surface is identified, drilling operations may resume paying particular attention to drilling fluid consumption and pressures.
- .12 In the event of fluid migration to the surface occurring on land away from the wetted perimeter of watercourses, the Contractor shall halt drilling operations immediately, isolate the affected area using sandbags or other suitable materials, and recover the drilling fluids using vacuum trucks or mud/trash pumps. The drilling operations can proceed only after these remedial measures have been taken to the satisfaction of the Engineer.
- .13 In the event of drilling fluid release into watercourses and/or into the ditch or storm sewer which discharges into the Municipal storm sewer system, the Contractor shall halt drilling operations immediately and undertake the following remedial actions:
  - Contain the drilling muds to prevent further discharge into watercourses and/or into the ditch. In the case of an instream mud release, all reasonable efforts shall be made to prevent the downstream movement of the drilling mud. This may involve the installation of an instream containment structure.
  - Notify the Engineer of an inadvertent mud release and advise of the efforts being undertaken to seal the leaking area and of any mitigative measures implemented to address environmental concerns.
  - Obtain representative water quality samples and photographs of stations located upstream (control site), immediately downstream of the drilling mud release location and approximately 500 meters downstream (depending on creek conditions).
  - Evaluate the source of the drilling mud release and the location of

the fracture points(s), and develop a plan for preventing further release of drilling mud into watercourses and/or the ditch or storm sewer which discharges into the Municipal storm sewer system.

- Develop and implement a cleanup and remedial plan in consultation with the Ministry of Environment and the Department of Fisheries and Oceans (DFO).
- Water for Hydrostatic Testing and Buoyancy Control: Water to be used for the hydrostatic pressure testing and to control buoyancy during pull-through of the pipeline shall be withdrawn from a municipal fresh water source. The Owner will arrange for a source of water in the vicinity of the work site.
- The Contractor shall dispose of test water from the hydrostatic pressure testing in a manner satisfactory to the Engineer.

.14 DELIVERY SYSTEM: The mud pumping system shall have a sufficient capacity and be capable of delivering the drilling fluid at a constant minimum pressure. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be relatively leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and conveyed to the drilling fluid recycling system. A berm, minimum of 300 MM high, shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage and recycling facilities.

.15 DRILLING FLUID RECYCLING SYSTEM: The drilling fluid recycling system shall separate sand, dirt and other solids from the drilling fluid to render the drilling fluid re-usable. Spoils separated from the drilling fluid be stockpiled for later use or disposal.

## 1.20 Other Equipment:

- .1 PIPE ROLLERS: Pipe rollers shall be of sufficient size to fully support the weight of the pipe while being hydro-tested and during pullback operations. Sufficient number of rollers shall be used to prevent excess sagging of pipe.
- .2 PIPE RAMMERS: Hydraulic or pneumatic pipe rammers may only be used if necessary and with the authorization of Engineer.
- .3 RESTRICTIONS: Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer.



prior to commencement of the work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the project.

### 1.21 Submittals

- .1 The Contractor shall submit the following items for review and approval by the Engineer. Approval of the submittal by the Engineer shall be obtained prior to ordering pipe materials and/or the start of the HDD operations.
- .1 WORK PLAN: Prior to beginning work, the Contractor must submit to Engineer a work plan detailing the staging area and procedure and schedule to be used to execute the project. The work plan should include a description of all equipment to be used, down-hole tools, a list of personnel and their qualifications and experience personnel and their qualifications and experience (including back-up personnel in the event that an individual is unavailable), list of subcontractors, a schedule of work activity, a safety plan (including MSDS of any potentially hazardous substances to be used), traffic control plan (if applicable), an environmental protection plan and contingency plans for possible problems. Work plan should be comprehensive, realistic and based on actual working conditions for this particular project. Plan should document the thoughtful planning required to successfully complete the project.
- .2 EQUIPMENT: Contractor will submit specifications on directional drilling equipment. Equipment shall include but not be limited to: drilling rig, mud system, mud motors (if applicable), down-hole tools, guidance system, rig safety systems. Calibration records for guidance equipment shall be included. Specifications for any drilling fluid additives that Contractor intends to use or might use will be submitted.
- .3 MATERIAL: Specifications on material to be used shall be submitted to Engineer. Material shall include the pipe, fittings and any other item, which is to be an installed component of the project.
- .4 Descriptions of methods to control and dispose of ground water, spoil, temporary shoring, and other materials encountered in the maintenance and construction of pits and shafts.

- .5 Shaft dimensions, location, surface construction, profile, depth, method of excavation, shoring, bracing, and thrust block design.
- .6 Pipe design data and specifications.
- .7 A description of the grade and alignment control system.
- .8 Description of lubrication and/or grouting system.
- .9 Layout plans and description of operational sequence.
- .10 Contingency plans for approval for the following potential conditions: damage to pipeline structural integrity and repair; loss and return to line and grade; and loss of ground.
- .11 Procedures to meet all applicable WorkSafeBC requirements. These procedures shall be submitted for a record purpose only and will not be subject to approval by the Engineer. At a minimum, Contractor shall provide the following:
  - a) Protection Equipment.
  - b) Protection against soil instability and ground water inflow.
  - c) Safety for shaft access and exit, including ladders, stairs, walkways, and hoists.
  - d) Protection against mechanical and hydraulic equipment operations, and for lifting and hoisting equipment and material.
  - e) Ventilation and lighting.
  - f) Monitoring for hazardous gases.
  - g) Protection against flooding and means for emergency evacuation.
  - h) Protection of shaft, including traffic barriers, accidental or unauthorized entry, and falling objects.
  - i) Emergency.
  - j) Safety supervising responsibilities.

## 1.22 Subsurface Conditions

- .1 All subsurface investigations deemed necessary by the Contractor to complete the work shall be included at no additional cost to the Owner. Copies of all reports and information obtained by the Contractor shall be provided to the owner.
- .2 Unless otherwise specified, all existing surface improvements damaged or removed as a result of drilling operations shall be restored to their original conditions

## 1.23 Measurement for Payment

- .1 All units of measurements for payment will be as specified herein unless shown otherwise in Form of Tender. **If not shown in Form of Tender, works are deemed to be incidental to other items of work.**

- .2 Form of Tender describes separate payment items for various sections of pipeline consistent with pipe diameters.
- .3 The unit price per lineal meter for horizontal directional drilling shall include full compensation for grouting and lubricants; providing receiving or recovery shafts including excavation, disposal, dewatering, backfill and replacement of surface or other improvements; furnishing and installing pipe, excavating, and disposal of materials encountered by installation of the pipe; and all other work appurtenant to drilling within the limits described in the Contract Documents.
- .4 Horizontal measurements will be made along the centerline of the pipe. Payment will include supply of all materials, labor and equipment required to perform the installation, mobilization, cleanup, after construction video inspection tapes with logs to Owner's standards and all other work and materials necessary to complete the installation as shown on Contract Drawings and specified herein.
- .5 No separate payment will be made for excavation or pits.
- .6 No separate payment will be made for diverting and pumping around the pipe being installed.

## **PART 2 PRODUCTS**

### **2.1 Pipe**

- .1 All pipe used for horizontal directional drilling shall be:
  - 300mm IPEX FUSABLE BRUTE FUSED-JOINT DR18 PVC PIPE (CIOD). Fusible PVC pipe shall be certified to CSA B137.3 and NSF61 and conform to AWWA C900 or AWWA C905. Testing shall be in accordance with CSA B137.3 and AWWA standards for all pipe types.
- .2 All pipe shall be made of virgin material. No reworked material except that obtained from the manufacturer's own production of the same formulation shall be used
- .3 The pipe shall be homogenous throughout and shall be free of cracks, holes, foreign material, blisters or other deleterious faults.
- .4 Material color shall be blue.
- .5 Damaged pipe shall be removed. Other methods of repairing the damaged conduit may be used, as recommended by the manufacturer and approved by the Engineer.
- .6 The pipe manufacturer's design pipe loads shall not be exceeded during the installation process. The pipe shall be designed to take full account of all temporary installation loads. The pipe materials acceptable for drilling will be specified in the Contract Documents.
- .7 The maximum pulling capacity used shall not exceed the allowable pulling capacity of the pipe that has a minimum factor of safety of 2.0.

### **.1 Compliance**

- .1 Test for compliance with this specification shall be made in accordance with the applicable ASTM Specification. Upon request, a certificate shall be furnished by the manufacturer for all material furnished under this specification. The Contractor shall submit, for approval, the manufacturer's specific technical data with the complete information on resin, physical properties and pipe dimensions pertinent to this project. Polyethylene plastic pipe and fittings will be rejected if they fail to meet any requirements of this specification.

### **PART 3 EXECUTION**

#### **3.1 General:**

- .1 The Contractor shall implement the approved installation plan, and the approved plan submittals to monitor ground movement.
- .2 Codes and Standards. In addition to all codes and standards referenced elsewhere in the Contract Documents, all materials and equipment supplied, and work performed herein shall conform to the latest edition of the applicable industry codes, standards, references and recommended practices listed below. In case of conflict, the requirements of this specification shall prevail.
- .3 The Engineer must be notified 48 hours in advance of starting work. The Directional Bore shall not begin until the Engineer is present at the job site and agrees that proper preparations for the operation have been made.
- .4 The Engineer approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. It shall be the responsibility of Engineer to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the Contractor.
- .5 Existing Facilities and Constraints
  - The Contractor shall be responsible for identifying the specific requirements, features, and constraints that may affect the equipment and procedures used for working around equipment and facilities at this site. The Contractor shall receive no additional compensation for extra work, equipment and expenses incurred in overcoming site constraints and location of buried facilities, including temporary and/or permanent relocation of utilities which may be required to carry out work.
  - The Contractor is responsible for identifying, locating, and confining all utilities (i.e. water lines, overhead and/or below ground power, irrigation, fiber optic and telephone, etc.), as required, along and on either side of the work areas. Unless otherwise instructed, the Contractor shall notify Owners of all the utilities, and shall comply with their requirements. All excavations within 1.5 m of buried utilities shall be performed using manual methods.
- .6 The Contractor shall be responsible for any damage to overhead and underground utilities, roadways, and rail tracks caused by their operations and shall repair and make good the damage at their own expense and in a timely manner.

**3.2 Personnel  
Requirements:**

- .1 All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety. Each person must have at least 2 years directional drilling experience. A responsible representative who is thoroughly familiar with the equipment and type work to be performed, must be in direct charge and control of the operation at all times. In all cases the supervisor must be continually present at the job site during the actual directional Bore operation. The Contractor shall have a sufficient number of competent workers on job at all times to ensure the Directional Bore is made in a timely and satisfactory manner.

**3.3 Drilling  
Procedure**

- .1 The Contractor shall carry out clearing, grubbing and stripping, as necessary, and shall create a suitable working area of sufficient dimensions to accommodate the drill rig, mud pits and tanks, mud pumps, and other work site equipment.
- .2 The Contractor shall erect sandbag barriers, or alternative system approved by the Engineer, around the drill rig, mud pumps, mud pits and tanks, and the entry and exit pits. The sandbag barriers shall be a minimum of three (3) layers deep and shall adequately contain any anticipated fluid spillage.
- .3 DRILL PATH SURVEY: Entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations. If Contractor is using a magnetic guidance system, drill path will be surveyed for any surface magnetic variations or anomalies
- .4 ENVIRONMENTAL PROTECTION: Contractor shall place silt fence between all drilling operations and any drainage, wetland, waterway or other area designated for such protection by contract documents, provincial, federal and local regulations. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners turbidity curtains and other measures. Contractor shall adhere to all applicable environmental regulations. Fuel may not be stored in bulk containers within 60 meters of any water-body or wetland.
- .5 SAFETY: Contractor shall adhere to all applicable provincial, federal and local safety regulations and all operations shall be conducted in a

safe manner. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to Engineer.

- .6 PIPE: Pipe shall be welded/fused together in one length, if space permits. Engineer may request that welds be X-rayed prior to being placed in bore hole. Pipe will be placed on pipe rollers before pulling into bore hole with rollers spaced close enough to prevent excessive sagging of pipe.

### 3.4 Surface Casing

- .1 In order to facilitate the HDD installation, a steel surface casing may be required at the entry site, the exit site, or both. The requirement for casings shall be determined by the Contractor, and shall be included in the Contract Price. If required, the casings shall be of large enough diameter to permit the passage of the final hole opener and product pipe.

### 3.5 Directional Drill Hole Alignment and Profile

- .1 The plan and profile for the pilot hole shall be as shown on the Drawings. An alternate drill path may be designed by the Contractor. The Contractor's design shall meet the criteria for the entry and exit angles specified herein in order to match the tie-in connections at the entry and exit locations.
- .2 if an alternate drill path is proposed, it shall be submitted with supporting pulling loads and pipe stress calculations to the Engineer for approval. The Contractor's proposed drill path will be reviewed by the Engineer. The Engineer's decision on acceptability of any alternative shall be final. The Engineer's acceptance of the Contractor's proposal shall be with respect to general installation and operating considerations only, and shall not be construed in any way as relieving the Contractor of any of their obligations under the Contract.
- .3 The final plan and profile for the pilot hole shall be designed by the Contractor within the following constraints, unless prior written approval is obtained from the Engineer for variances.
- .4 The tightest compound radius of the directional drilling trajectory shall be not less 100 meters, or as otherwise shown on design drawings as governed by drill rod or pipe minimum bending radius. The drilled radius shall be calculated over any three-joint segment.



- .5 The planned pipe alignment shall be centered within the identified right-of-ways and/or land leases.
- .6 The excavation for the drill entry and exit pits, and selection and any regarding of the pipe lay-down area, shall be developed to avoid a sudden radius change of the pipe, and consequent excessive deformation at these locations.

**3.6 Joining PVC Pipe**

- .1 The PVC Fusion contractor must be identified in the tender documents and the Fusion Technician shall be fully qualified by IPEX to fuse fusible PVC Pipe of the type(s) and size(s) being used. Qualification shall be current as of the actual date of the tender and of fusion on the project.

**3.7 Directional Drill  
Hole Control**

- .1 The Contractor shall utilize an approved surface tracking system and a downhole steering system to monitor the position of the drill string and compute the position in the x,y, and z axes relative to ground surface a minimum of once per length of drill pipe drilled (every 10m). Deviations between the recorded position of the drill string and the specified position of the drill string shall be documented and immediately brought to the attention of the Engineer.
- .2 The Engineer shall have access to the Contractor's down hole survey and data at all times and shall be provided with an as-built copy upon completion of the pilot hole.

**3.8 Directional Drill  
Hole Vertical and  
Horizontal  
Tolerances**

- .1 The required directional tolerances are critical to facilitate the ultimate objective of installing the pipe as specified. The Contractor shall therefore maintain directional control at all times during pilot hole drilling within the following tolerances:
- .2 VERTICAL TOLERANCES: +/- 75 mm from the centerline of the planned drill path profile.
- .3 HORIZONTAL TOLERANCES: within right-of-ways, and maximum +0.5 meters or -0.5 meters from the centerline of the planned drill path plan alignment.
- .4 ENTRY POINT LOCATION: It is envisaged that the pilot hole will enter the ground from the entry point as shown on the Drawings. The Contractor may propose an alternate configuration, but this will be subject to review by the Engineer and other affected parties for changes and acceptability. And may not be accepted. The Engineer's

decision in regard to alternate entry point locations will be final. Should the Contractor's alternate proposal not be accepted, they shall locate the entry point as shown on the Drawings, and carry out the work for the agreed Contract Price and schedule, without any additional cost to the Owner

- .5 CURVE RADIUS: The Contractor shall ensure that the maximum degree of deviation, or "dog-leg", in the pilot hole is less than 4.0 degrees or less over any 3 joint segments measured by the minimum curvature method. In the event of any deviation exceeding 2.0 degrees, the Contractor shall pullback the re-drills to meet the specifications at the Contractor's cost. If necessary, the Contractor shall plug back with cement in order to re-drills to meet the specifications at the Contractor's cost. If necessary, the Contractor shall plug back with cement in order to re-drill any portion of the hole to meet these criteria at the Contractor's cost.
- .6 At the completion of pilot hole drilling, the Contractor shall provide to the Engineer an as-built drawing drawn in AutoCAD 2010 or higher format and tabulation that defines and locates the coordinates of the drilled hole throughout its length. This shall include a copy of survey data.
- .7 All welding by Contractor or surface casing shall be in accordance with CSA Z622-96 specifications and shall likewise be x-rayed by the Contractor if desired by the Engineer.
- .8 Pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 30 meters. In the event that pilot does deviate from bore path more than 5% of depth in 30 meters, contractor will notify Engineer and Engineer may require contractor to pull-back and re-drill from the location along bore path before the deviation. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, contractor shall cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a March funnel and then wait another 30 minutes.  
  
If mud fracture or returns loss continues, contractor will cease operations and notify Engineer, Engineer and contractor will discuss additional options and work will then proceed accordingly.
- .9 HOLE EXIT LOCATION. The Contractor shall obtain written confirmation from the Engineer that the actual exit location is within the specified tolerances prior to reaming. If necessary, the Contractor

shall plug back with cement grout and re-drill pilot hole to exit within the specified tolerances.

.10 REAMING: Upon successful completion of pilot hole, contractor will ream bore hole to 25% to 50% (depending on ground conditions) greater than outside diameter of pipe using the appropriate tools. Contractor will not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.

.11 DRILLING FLUID CONTROL. The Contractor shall carry out the work in such a manner as to minimize the possibility of drilling fluid loss to the environment, or break outs of drilling fluid to surface.

.12 PIPE STRINGING, FABRICATION AND PRE-TESTING OF WATER MAIN. The Contractor shall string the fabricate the pipe in sufficient length such that any elastic strain recover in the pipe after pull back can be accommodated for and that installation is completed as shown on the drawings. Depending on the scheduling and approach to the work, it may not be possible to assemble the pipes in one continuous length for pulling. Prior to pull back, each section of pipe shall be pressure tested as specified unless specified otherwise.

.13 PULL-BACK: Immediately upon completion of the cleaning pass(es) the Contractor shall, as soon as possible, rig up and commence the pull back operations. The pullback operation shall be continuous without interruption until completed, except for planned intermediate pipe joints. The Contractor shall have on hand sufficient labor and equipment to minimize the length of time taken for making the pipe joints.

Pipe pull back length shall be determined to ensure that tensile pull stresses of the pipe are not exceeded.

The pull section shall be supported with cranes, side booms and pipe rollers as it proceeds during pull back so that it moves freely without damaging the pipe or any coating.

Cranes or extended side booms shall be used where necessary to provide sufficient clearance over roadways, railway and access roads to allow safe uninterrupted traffic during the entire pull back operations.

The Contractor shall, at their expense, provide equipment to continuously monitor the pulling forces during the pull back operations.

A record indicating break out force and average pull force for each drill stem shall be kept along with the start and stop times.

The Contractor shall pull a sufficient length of pipe such that any elastic strain recovery in the pipe after pull-back can be accommodated for, and that the ends of the pipe are terminated at the specified elevations in preparation for the tie-in connections at the entry and exit points as per the drawings.

The Contractor is responsible for any damage to the pipe during the work. The Engineer will inspect the first 10 meters of pipe coming out of the hole on the rig side for any damage and if damage is observed, the Contractor will be required to submit a plan to the Engineer outlining proposed remedial measures and then implement the remedial measures, at the Contractors expense.

- .15 BUOYANCY CONTROL: The Contractor shall make provisions for buoyancy control during the pull back operations. The weight of the pipe and contents shall be controlled as it is pulled through the hole to minimize the pulling forces, and maintain them within the specified pipe tolerances and those established by the Contractor in their design.

After successfully reaming bore hole to the required diameter, contractor will pull the pipe through the bore hole. In front of the pipe will be swivel and reamer to compact bore hole walls. Once pullback operations have commenced, operations must continue without interruption until pipe is completely pulled into the borehole. During pullback operations contractor will not apply more than the maximum safe pipe pull pressures at any time. In the event that pipe becomes stuck, contractor will cease pulling operations to allow any potential hydro-lock to subside before re-commencing pulling operations. If subside before re-commencing pulling operations. If pipe remains stuck, contractor will notify Engineer. Engineer and contractor will discuss options and then work will proceed accordingly.

Once the hole has been reamed to full diameter, the Contractor shall pull back the water main and insert into the reamed hole. The Contractor shall ensure the ends of the sanitary sewer main are terminated at the specified elevations in preparation for the tie-in connections at the entry and exit points as per drawings.

The Contractor shall ensure that during the pull back of the pipe, that the pipe is hydrostatically sealed so as to prevent ingress of any material into the pipeline.

Upon completion of installation, the Contractor shall conduct final hydrostatic pressure tests on the fully water main.

The Contractor shall be responsible for the supply and disposal of test water from the designated source, subject to the specifications included herein, and any other applicable regulatory requirements

### **3.10 Site Restoration**

- .1 Following drilling operations, contractor will de-mobilize equipment and restore the work-site to original or better condition. All excavations will be backfilled and compacted to 95% of original density.

## **2.3 Service Connections**

Add: .11 Inspection Chambers to be installed as per City Supplement Standard Drawing SAN-6 and lids shall be coloured red.

## **2.4 Concrete**

Replace: .2 Concrete to be a minimum compressive strength of 25mPa at 28 days.

## **2.5 Granular Pipe Bedding and Surround Material**

Add: .3 Trench dams as specified on the contract drawings.

## **3.6 Pipe Installation**

Replace: .3 Horizontal tolerances: plus or minus 10 mm from specified alignment;  
Vertical tolerances: plus or minus 5 mm from specified grade. Reverse grade is not acceptable

Replace: .6 Joint and Pipe deflection not permitted unless otherwise approved by the City Engineer.

**PART 1 GENERAL****1.1 General**

- .1 The works specified in the section consists of furnishing and installing underground utilities using the manual relining method of installation. This work shall include all services, equipment, materials, and labor for the complete and utilities and environmental protection and restoration.
- .2 This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.

**1.2 Related Work**

- |    |                                              |                  |
|----|----------------------------------------------|------------------|
| .1 | Traffic Control, Vehicle Access, and Parking | Section 01 55 00 |
| .2 | Excavating, Trenching, and Backfilling       | Section 31 23 01 |
| .3 | Trenchless Sewer Pipe Bursting               | Section 33 05 23 |
| .4 | Cured in Place Pipe Liners                   | Section 33 05 24 |
| .5 | Sanitary Sewer                               | Section 33 30 01 |
| .6 | Manholes & Catchbasins                       | Section 33 44 01 |

**1.3 Definitions**

- .1 Outside Diameter— (OD) The average measured distance in a straight line from one point on the outer wall of the pipe, through its center, to an opposite point also on the outside of the pipe.
- .2 Inside Diameter— (ID) The average measured distance in a straight line from one point on the inner wall of the pipe, through its center, to an opposite point also on the inside of the pipe.

**1.4 Quality Assurance**

- .1 The Contractor shall, at their expense, provide equipment to continuously monitor the pulling forces during the pipe pull through pulling operations.
- .2 The Contractor shall pull a sufficient length of pipe such that any elastic strain recovery in the pipe after pull-back can be accommodated for, and that the ends of the pipe are terminated at the specified elevations in preparation for the tie-in connections at the entry and exit points as per the contract drawings.
- .3 The Contractor is responsible for any damage to the pipe during the work. All remedial works are to be at the Contractors expense.
- .4 In the event that pipe becomes stuck, the contractor will cease pulling operations to allow any potential hydro-lock to subside before re-commencing pulling operations. If pipe remains stuck, contractor will notify the Engineer. Engineer and contractor will discuss options and then work will proceed accordingly.
- .5 The Contractor shall submit for approval the following information to the Contract Administrator for each manhole-to-manhole section at least seven (7) days prior to the commencement of any work:
  - .1 Proposed sequence of construction.
  - .2 Location and dimensions of entry and exist pits including staging areas and pipe storage areas.



- .3 Method of dewatering including disposal (if required).
- .4 Bypass pumping arrangement (if required).
- .5 Method of pulling and description equipment.
- .6 Copy of certificate for fusion equipment operator listing fusion training and training organization.
- .7 HDPE pipe manufacturer's recommended fusion procedures including point interfacial pressures and heater temperature.
- .8 Maintenance records and pressure gauge calibration for fusion machine.
- .9 Maximum permissible tensile forces on HDPE.
- .10 Details of selected lubrication product.
- .11 Traffic management plan.
- .12 Safety procedures and certificate of satisfactory first aid training.
- .13 Sediment and lubrication control details.
- .14 Schedule of expected interruptions and reconnect time.
- .15 Method of construction and restoration of existing sewer to services and manhole connections.

## 1.5 Codes and Standards

- .1 In addition to all codes and standards referenced elsewhere in the Contract Documents, all materials and equipment supplied and work performed herein shall conform to the latest edition of the applicable industry codes, standards, references and recommended practices listed below. In case of conflict, the requirements of this specification shall prevail.
  - ASTM F-714: Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR). Based on outside diameter.
  - ASTM D-1248: Standard Specification for Polyethylene Plastics Molding and extrusion Materials.
  - ASTM D-3350: Standard Specification for Polyethylene Plastics Pipe and Fittings Materials. CSA B137.1: Polyethylene Pipe Tubing and Fittings for Cold Water Pressure Services.
  - ASTM D-3505: Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR). Based on Controlled Outside Diameter.
  - ISO 9002: Model for Quality Assurance in Production and Installation.
  - ASTM D-2657: Heat Joining Polyolefin Pipe and Fittings.

## 1.6 Materials Supplied by the Owner

- .1 The Owner will provide the Right of Way for the work and the Work and Storage Areas.
- .2 The Owner will provide water at a source near the site. The Contractor shall provide an approved valve through which they can draw water. The hydrant valve and/or hydrant shall not be used to control water. The hydrant shall be securely closed when no work is actively being carried out. Water shall not be wasted; if it is, the Engineer may terminate the supply and the Contractor shall then be responsible for obtaining water elsewhere.

## 1.7 Mobilization

- .1 Mobilization for the works covered by this Specification shall include the assembly and transportation to the works Site of all equipment, materials and personnel necessary to perform the Work. This shall include, but not be limited to the following items:
  - Relining materials
  - Relining Equipment
  - Grouting equipment
  - Procurement of all permits and licenses for the execution of the Works, except for those obtained by the Owner; and Approval by the Engineer of all preconstruction submittals required by this Specification.
- .2 Mobilization and site preparation shall not be considered complete until the above equipment has been completely rigged up and in position at the site and ready to commence work.

### 1.8 Right of Way and Work and Storage Area

- .1 The contractor is responsible for abiding to both City of Salmon Arm and Ministry of Transportation and Infrastructure bylaws, regulations or as otherwise outlined in subsequent permits. The Contractor is advised that all operations must be strictly confined to the areas identified unless they obtain specific permission.
- .2 The Contractor shall familiarize themselves with the layout areas and make such allowances as may be necessary for any stops and intermediate welds. Any additional working space required by the Contractor for such uses as pipe(s) layout, Storage of spoil material, equipment turnarounds, vehicle servicing and fueling yards, access to the right-of-way and other requirements shall be obtained by the Contractor at the Contractor's expense and such agreements shall meet the Owner's requirements. The Contractor shall provide a copy of all such agreements made with the occupants to the Owner prior to the use of the additional work areas covered by those agreements.
- .3 The pipe shall be installed to the alignment and elevation shown on the drawings unless approved otherwise. The Owner shall have the right to make any changes necessary in the location of the proposed sanitary sewer or appurtenances, and if the change results in increasing or decreasing the cost of the Contractor in comparison with what its cost would have been had no change been made, the Contract Price will be equitably adjusted.

### 1.9 Access

- .1 Access to the site shall be through the existing Municipal Road ways and Right of ways in accordance with the Contract Documents. The Contractor shall provide cleared work areas at the entry and exit sites, and shall ensure suitably dry working conditions.
- .2 Except as specifically noted herein, uninterrupted vehicle traffic movement shall be maintained at all times on all public roads and private access points. The Contractor shall identify within their work plan the proposed site preparation work, equipment, and procedures to satisfy this requirement. The Contractor shall be responsible for all traffic control and obtaining traffic control permits and carrying out their requirements if necessary.
- .3 When its operations are conflicting with normal traffic, the Contractor shall provide suitable detours, at the discretion of the Owner. All detours shall be clearly marked

to the satisfaction of the Engineer. The Contractor shall furnish and maintain all necessary day and night warning signs, flares lanterns, barricades and flagmen when working on near roads, highways, or traffic ways, to protect all persons from injury and property from damage, and to warn the drivers of vehicles of the obstruction.

### 1.10 Measurement and Payment

- .1 All units of measurement for payment will be as specified herein unless shown otherwise in Form of Tender. If not shown in Form of Tender, works are deemed to be incidental to other items of work.
- .2 Measurement for payment for sewer relining will be made in lineal meters for each payment item described in Form of Tender.
- .3 Measurement for payment for sewer relining will be made based on center to center distances between manholes as measured in the field by Engineer's Inspector and verified by the Contractor. An amount totaling 10% of agreed length will be withheld from payment until final post lining and post sealing CCTV inspection reports have been received and reviewed for acceptance by the Engineer. CCTV inspection reports must be received by the Engineer no later than two (2) weeks after completion of works.

### 2.1 Pipe

- .1 All pipe used for horizontal directional drilling shall be:
  - 175mm High Density Polyethylene (HDPE) DR 32.5.
- .2 All pipe shall be made of virgin material. No reworked material except that obtained from the manufacturer's own production of the same formulation shall be used.
- .3 The pipe shall be homogenous throughout and shall be free of cracks, holes, foreign material, blisters or other deleterious faults.
- .4 Material color shall be black.
- .5 Damaged pipe shall be removed. Other methods of repairing the damaged conduit may be used, as recommended by the manufacturer and approved by the Engineer.
- .6 The pipe manufacturer's design pipe loads shall not be exceeded during the installation process. The pipe shall be designed to take full account of all temporary installation loads. The pipe materials acceptable for relining will be specified in the Contract Documents.
- .7 The maximum pulling capacity used shall not exceed the allowable pulling capacity of the pipe that has a minimum factor of safety of 2.0.

### 3.1 Joining Polyethylene Pipe

- .1 Polyethylene pipe shall be joined by thermal butt fusion in accordance with ASTM D2657 and as recommended by the pipe manufacturer. The temperature of the heater plate shall not exceed 210°C +/-5°C, 410°F +/-10°F, and the joining pressure shall not exceed 172 kpa, 25psi of projected end area excluding an allowance for friction.
- .2 Polyethylene pipe shall be joined to other systems by means of an assembly consisting of polyethylene stub end, but fused to pipe, a backup flange of ductile iron in accordance with ANSE B16.11 B16.5 modified as recommended by pipe

supplier. 316 Stainless steel bolts, and neoprene or red rubber gasket cut to fit the joint. Care shall be taken to draw up the butts uniformly.

### 3.2 Pipe Installation

- .1 The Contractor shall be responsible for the installation of the pipe and all associated work unless specified otherwise. The method of installation will depend on the type of liner used. The handling and installation of the pipe shall be in accordance with the manufacturer's specifications.
- .2 Line obstructions:
  - .1 The Contractor shall be responsible for clearing any line obstructions such as solids, protruding connections, broken pipe or roots that will prevent the insertion of the liner. If inspection reveals an obstruction that cannot be removed by 'no dig' techniques, the Owner will make a point excavation to uncover, remove or repair the obstruction.
  - .2 The Contractor will not be reimbursed for damages or lost time while the Owner completes the point excavation and repair.
  - .3 Complete CCTV inspection before liner installation in accordance with Specification 33 01 30.1, submit pre-lining inspection recording / DVD and report to Contract Administrator with post-lining final inspection recording / DVD and reports.
- .3 The finished pipe shall be continuous over the entire length on an insertion run and shall be free from visual defects such as foreign inclusions, dry spots, pinholes and delamination.
- .4 The pipe ends in the manhole shall be tight fitting and shall require application of a watertight sealing product at the terminal points. The sealing product shall be compatible with the pipe. Any lip or obstruction created by the pipe shall be gently tapered. The liner ends shall not obstruct sewerage flow.

**END OF SECTION**

## 2.6 Service Connections

- Replace: .1 Storm sewer service connections to be 150 mm minimum diameter; maximum diameter as specified on the Contract Drawings.
- Replace: .2 Storm sewer service connections 150 mm diameter to be PVC type PSM DR 28 sewer pipe.
- Add: .11 Inspection Chambers to be installed as per City Supplement Standard Drawing ST-6 and lids shall be coloured green.

## 2.8 Concrete

- Replace: .2 Concrete to be a minimum compressive strength of 25mPa at 28 days.

## 2.9 Granular Pipe Bedding and Surround Material

- Add: .3 Trench dams as specified on the contract drawings.

## 3.6 Pipe Installation

- Replace: .3 Horizontal tolerances: plus or minus 20 mm from specified alignment;  
Vertical tolerances: plus or minus 10 mm from specified grade. Reverse grade is not acceptable
- Replace: .6 Joint and Pipe deflection not permitted unless otherwise approved by the City Engineer.

## 2.1 Materials

- Add: .7.4 Cover must be labelled with the appropriate utility: “SANITARY”, “STORM”, or “WATER”.
- Add: .24 Fiberglass Manhole Liners
- .1 Fibreglass manhole liners shall be one piece consisting of unlayered homogeneous fibreglass reinforced plastic with full flow channels with side walls to crown of pipe, watertight gasketed bells graded and aligned to comply with design to suit specified pipe, inner surface of liner benching to have anti skid surface, outer surface of liner to be sand coated and to have sufficient steel spirals bonded to the fibreglass reinforced plastic to assure a continuous physical connection to the concrete base.
  - .2 Pre benched manhole fibreglass reinforced plastic liners as specified on the contract drawings and in accordance with the Manufacturer’s specifications.
- Add: .25 Trapping Hoods: All catchbasin leads to be supplied with trapping hoods within the catchbasin which shall be 200mm diameter aluminum.
- Add: .26 Orifice Control Devices shall be installed as per approved engineering drawings.

**Subdivision and Development Servicing Bylaw No. 4293**  
**Schedule “C”**



**CITY OF SALMON ARM**  
**FORMS**



## **CONTENTS**

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| F-11 | Flushing / Testing / Disinfection Report                           |



## PERMISSION TO CONSTRUCT

Authorization to proceed with construction is hereby granted to:

NAME OF DEVELOPER:

ADDRESS:

For the works described generally as:

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Authorized Start Date:

Estimated Completion Date:

Check the following:

- ☐ Construction plans approved
- ☐ Certificates of insurance received
- ☐ Waterworks Construction Permit (provided by Interior Health Authority)
- ☐ Security deposit has been paid
- ☐ A Servicing Agreement has been completed – No. \_\_\_\_\_
- ☐ Latecomer Waiver/Agreement adopted

|                     |  |
|---------------------|--|
| Design Engineer     |  |
|                     |  |
| Contact:            |  |
|                     |  |
| Business Tel:       |  |
|                     |  |
| Special Conditions: |  |
|                     |  |
|                     |  |
|                     |  |
|                     |  |

\_\_\_\_\_  
CITY ENGINEER

c.c. Contractor

File No: \_\_\_\_\_



## CERTIFICATE OF INSPECTION

I hereby certify that all engineering and construction services, required under Subdivision and Development Servicing Bylaw No. 4163 of the City of Salmon Arm for the subdivision of:

LEGAL DESCRIPTION: \_\_\_\_\_

PROJECT NO: \_\_\_\_\_

Which services were designed by:

NAME OF FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

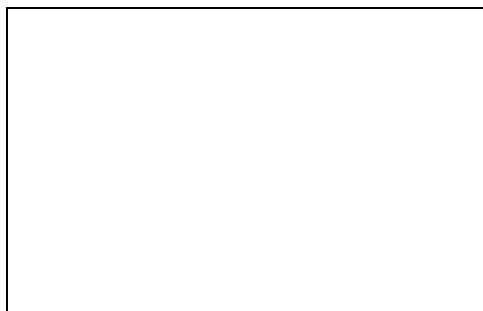
And approved for construction on drawing numbers:

| Drawing No. | Date  | Drawing No. | Date  |
|-------------|-------|-------------|-------|
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |

Have been inspected by or under the direction of:

\_\_\_\_\_  
\_\_\_\_\_

I further certify that the "Record Drawings" hereby submitted represent the works and services as installed for the aforementioned subdivision.



Engineer's Seal

\_\_\_\_\_  
\_\_\_\_\_  
Signature and name of the Professional  
Engineer responsible for Design



## CERTIFICATE OF INSPECTION STRATA SUBDIVISION

I hereby certify that all engineering and construction services, required under Subdivision and Development Servicing Bylaw No. 4163 of the City of Salmon Arm and/or good engineering practice for the strata subdivision of:

LEGAL DESCRIPTION: \_\_\_\_\_

PROJECT NO: \_\_\_\_\_

Which services were designed by:

NAME OF FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

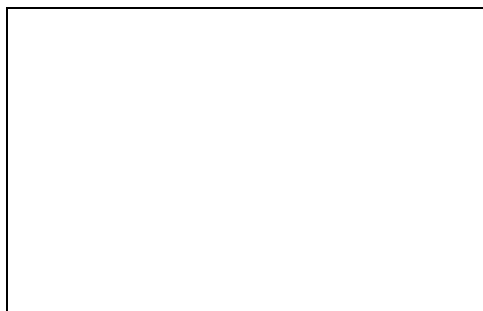
And approved for construction on drawing numbers:

| Drawing No. | Date  | Drawing No. | Date  |
|-------------|-------|-------------|-------|
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |
| _____       | _____ | _____       | _____ |

Have been inspected by or under the direction of:

\_\_\_\_\_  
\_\_\_\_\_

I further certify that the "Record Drawings" hereby submitted represent the works and services as installed for the aforementioned subdivision.



Engineer's Seal

\_\_\_\_\_  
\_\_\_\_\_  
Signature and name of the Professional  
Engineer responsible for Design



## CERTIFICATE OF SUBSTANTIAL COMPLETION

DEVELOPER: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

PROJECT NO: \_\_\_\_\_

FILE NO: \_\_\_\_\_

SERVICING AGREEMENT NO: \_\_\_\_\_

DATE: \_\_\_\_\_

This certificate is issued pursuant to Schedule "B", Part 1, of Subdivision and Development Servicing Bylaw No. 4163 and applies to the following Works and Services:

|                                 |                          |                       |                          |
|---------------------------------|--------------------------|-----------------------|--------------------------|
| Roads and Civil Works           | <input type="checkbox"/> | Sanitary Sewer System | <input type="checkbox"/> |
| Drainage and Storm Sewer System | <input type="checkbox"/> | Waterworks System     | <input type="checkbox"/> |

The **MAINTENANCE PERIOD** of \_\_\_ year(s) for the Works & Services will begin on \_\_\_\_\_.

Maintenance Bonding in the amount of \$\_\_\_\_\_ has been received and will be returned upon Final Acceptance.

The Certificate of Completion will be issued when all deficiencies have been corrected. The Certificate of Final Acceptance will be issued when the maintenance period expires and all deficiencies that have arisen over the year have been corrected, and the City Engineer has been satisfied all conditions of the Servicing Agreement have been fulfilled.

This Certificate has been made to the best of the City Engineer's knowledge, information and belief. It does not constitute acceptance of any work not in accordance with the requirements of Subdivision and Development Servicing Bylaw No. 4163, and not listed as a deficiency herein, whether or not such defect(s) could have been observed or discovered during construction.

The following is a **LIST OF DEFICIENCIES** related to the Work:

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

\_\_\_\_\_  
City Engineer

c.c. Contractor/Engineer/Owner/Developer



## CERTIFICATE OF COMPLETION

DEVELOPER: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

PROJECT: \_\_\_\_\_

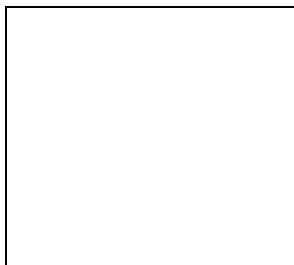
FILE NO: \_\_\_\_\_

LOCATION: \_\_\_\_\_

DATE: \_\_\_\_\_

The final construction inspection was held on \_\_\_\_\_ and all deficient items have been addressed to City satisfaction.

I \_\_\_\_\_, Consulting Engineer of \_\_\_\_\_ hereby certify that all works reflect City of Salmon Arm standards and specifications, and that all works have been completed in accordance with the approved construction plans.



SEAL

\_\_\_\_\_  
Consulting Engineer

The City of Salmon Arm's acknowledgement of this certificate does not represent acceptance of the work, nor shall this act by the City of Salmon Arm prejudice any requirements of the agreement with the contractor, nor operate to relieve the contractor of any of his/her responsibilities thereunder.

\_\_\_\_\_  
City of Salmon Arm



## CERTIFICATE OF FINAL ACCEPTANCE

DEVELOPER: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

PROJECT NO: \_\_\_\_\_

FILE NO: \_\_\_\_\_

SERVICING AGREEMENT NO: \_\_\_\_\_

DATE: \_\_\_\_\_

All deficiencies, defects or faults in the Work observed or discovered within the period preceding the date of this Certificate having been rectified, this Certificate is issued pursuant to the referenced Servicing Agreement.

This Certificate has been made to the best of the City Engineer's knowledge, information and belief. It does not constitute acceptance of any work not in accordance with the requirements of the Servicing Agreement, whether or not such defect(s) could have been observed or discovered during construction.

This certificate permits the release of the project maintenance security in the amount of \$\_\_\_\_\_.

\_\_\_\_\_  
City Engineer

c.c. Contractor  
Developer





## PRIVATE WELL CERTIFICATION

Pursuant the Subdivision and Development Servicing Bylaw No. 4163 which requires that each lot to be created and/or each existing lot forming part of the proposed development can be serviced with potable water in accordance with the requirements of the Bylaw for the development of:

LEGAL DESCRIPTION: \_\_\_\_\_

PROJECT NO: \_\_\_\_\_

I certify that a quantity of not less than 2,500 litres per day on a year round basis has been proven for each existing or proposed lot in the development.

I certify that each well within the subdivision has been tested and is capable of continuously providing water at a rate of 9 litres per minute for a four hour period.

I certify that water quality tests have been conducted and that the "Canadian Drinking Water Standards, 1996, as amended" can be met for each existing or proposed lot in the development.

Certified by:

\_\_\_\_\_

Signature and Name of Professional Engineer  
or Qualified Well Driller (where applicable)

\_\_\_\_\_

\_\_\_\_\_

Address

\_\_\_\_\_



Engineer's Seal  
(where applicable)

(on company letterhead)

## **“PROFESSIONAL ASSURANCE CERTIFICATE”**

The City of Salmon Arm  
PO Box 40  
Salmon Arm, BC  
V1E 4N2

Attention: City Engineer

Dear Sir:

**RE: NAME OF SUBDIVISION OR DEVELOPMENT AND ADDRESS**

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I, (*Owner's Name*) have retained (*Consultant's Name*) as my/our Professional Engineer (*“Consultant”*), to undertake and/or co-ordinate and review all associated design criteria and “field reviews” required for this project. It is understood that my “Consultant” will take all such steps as regulated under the Provincial Statute for his/her profession and by the definition of “field reviews” herein under set forth, to ascertain that the design will comply and construction of the project will substantially conform in all material respects with the provisions of the City of Salmon Arm’s Subdivision and Development Servicing Bylaw No. 4163, all other amendment thereof, and other applicable permits, Bylaws, Acts and regulations which apply to this project. My “Consultant” will also ensure that all work is completed in accordance with the construction drawings approved by the City of Salmon Arm. My consultant will ascertain that only qualified personnel are retained to carry out tests, inspect or carry out design work and detailing “field reviews”.

As used herein, “field review” shall mean such reviews of the work at the project site at the fabrication locations, where applicable, as the “Consultant”, in his/her professional discretion, considers necessary in order to ascertain that the work substantially conforms in all material respects to the plans and supporting documents “accepted” by the City of Salmon Arm. This will include keeping records of all site visits and any corrective actions taken as a result thereof.

The undersigned has given a contractual mandate to the “Consultant” to review reports of other testing and inspection agencies and disciplines where necessary, comment on their acceptability, determine the corrective action to take if unacceptable, and maintain a detailed record of every such report and comments thereof. The “Consultant” will automatically submit a monthly summary progress report to the City Engineer, including all field report and change orders.

Note:

The owner will notify the City Engineer in writing thirty (30) days prior to the intended termination of or by the "Consultant". It is understood that the work on the above-project will cease as of the effective date of termination, until such time as a new appointment is made.

\_\_\_\_\_  
Witness Name (Print)

\_\_\_\_\_  
Owner's Name (Print)

\_\_\_\_\_  
Witness Signature

\_\_\_\_\_  
(Owner or Owner's Appointed  
Agents Signature)

\_\_\_\_\_  
Address (Print)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Occupation

\_\_\_\_\_  
Title of Agent (if applicable)

\_\_\_\_\_  
Address (Print)

\_\_\_\_\_  
The Corporate Seal of

\_\_\_\_\_  
was hereunto affixed in the presence of:

\_\_\_\_\_

\_\_\_\_\_

The above must be signed by the Owner or his/her appointed Agent. The signature must be witnessed. If the Owner is a company, the corporate seal of the company must be affixed to the document in the presence of its duly authorized officers. The officers must also sign, setting forth their positions in the company.

This “Consultant” acknowledges that he/she has been retained to ascertain that the design will comply and construction of the project will substantially conform in all material respects with the Bylaws as set out above and will submit letter of Professional Design Assurances from others, as needed, for the approval of the subdivision or development. Furthermore, the “Consultant” hereby covenants that their firm presently carries liability insurance in the amount of \_\_\_\_\_.

My “Consultant” will upon completion of the work provide “CERTIFICATE OF INSPECTION” (Form F-2). My “Consultant” will further provide upon completion all supporting documentation required by the City of Salmon Arm to verify conformance of the work.

\_\_\_\_\_  
Name of Professional (Print)

\_\_\_\_\_  
Signature of Professional

\_\_\_\_\_  
Date

\_\_\_\_\_  
Mailing Address (Print)

\_\_\_\_\_  
Phone

FORM OF LETTER OF CREDIT  
(TO BE ON BANK LETTERHEAD)

Letter of Credit No.: \_\_\_\_\_

Amount \$ \_\_\_\_\_

Initial Expiry Date: \_\_\_\_\_

CITY OF SALMON ARM  
500 - 2 AVENUE NE  
BOX 40  
SALMON ARM BC V1E 4N2

WE HEREBY AUTHORIZE YOU TO DRAW ON THE (name and address of bank) for the account of (name of Developer/Contractor) UP TO AN AGGREGATE AMOUNT OF (dollars in writing and in numbers) available on demand.

PURSUANT TO THE REQUEST OF our customer, (name of Developer/Contractor), we the (name of bank) hereby establish and give you an Irrevocable Letter of Credit in your favour in the above amount which may be drawn on by you at any time and from time to time, upon written demand for payment made upon us by you, which demand we shall honour without enquiring whether you have the right as between yourself and the said customer to make such demand, and without recognizing any claim or our said customer, or objection by it to payment by us.

THE LETTER OF CREDIT we understand relates to those services and financial obligations set out in an agreement between the customer and the CITY OF SALMON ARM and referred to as (description of agreement and works covered).

THIS LETTER OF CREDIT will continue in force for a period of one year, but shall be subject to the condition hereinafter set forth.

IT IS A CONDITION of this Letter of Credit that it shall be deemed to be automatically extended without amendment from year to year from the present or any future expiration date hereof, unless at least 30 days prior to the present or any future expiration date, we notify you in writing by registered mail that we elect not to consider this Letter of Credit to be renewable for any additional period.

DATED at \_\_\_\_\_, British Columbia this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

COUNTERSIGNED BY:

\_\_\_\_\_  
(name of bank)

per:

\_\_\_\_\_  
\_\_\_\_\_



CITY OF SALMON ARM  
ENGINEERING DEPARTMENT

## HYDRANT FLOW TEST

TEST DATE: \_\_\_\_\_

COMPLETED BY: \_\_\_\_\_

TEST TIME: \_\_\_\_\_

**GAUGE HYDRANT:**

Flow Test # 1

Flow Test # 2

HYDRANT NUMBER: \_\_\_\_\_ MAKE & MODEL: \_\_\_\_\_ MAIN SIZE: \_\_\_\_\_  
HYDRANT LOCATION: \_\_\_\_\_ VALVE LOCATION: \_\_\_\_\_  
STATIC PRESSURE: \_\_\_\_\_ psi      0 psi  
RESIDUAL PRESSURE: \_\_\_\_\_ psi      \_\_\_\_\_ psi

**FLOW HYDRANT:**

Flow Test # 1

Flow Test # 2

HYDRANT NUMBER: \_\_\_\_\_ MAKE & MODEL: \_\_\_\_\_ MAIN SIZE: \_\_\_\_\_  
HYDRANT LOCATION: \_\_\_\_\_ VALVE LOCATION: \_\_\_\_\_  
STATIC PRESSURE: \_\_\_\_\_ psi      0 psi  
PITOT GAUGE READING (PRESSURE): \_\_\_\_\_ psi      \_\_\_\_\_ psi  
FLOW OPENING DIAMETER: 2.5 inches      2.5 inches  
NUMBER OF PORTS OPEN: 1 ports      2 ports  
NFPA Section 2.3 : DROP IN PRESSURE > 25% FOR VALID TEST      #DIV/0!      #DIV/0!

**FLOW CALCULATIONS**

$$G = 24.84 \cdot D^{2.45} \cdot C \cdot P^{0.5}$$

G = FLOW IN igpm

D = NOZZLE DIAMETER IN inches

P = PITOT GAUGE READING IN psi

C = COEFFICIENT (USUALLY 0.9 FOR FULL FLOW)

$$Q(r) = Q(f) \cdot (H(r)/H(f))^{0.54}$$

Q(r) = COMPUTED DISCHARGE AT THE SPECIFIED

RESIDUAL PRESSURE IN igpm.

Q(f) = TOTAL DISCHARGE DURING TEST IN igpm.

H(r) = DROP IN PRESSURE FROM ORIGINAL VALUE  
(STATIC PRESSURE AT GAUGE HYDRANT) TO  
SPECIFIED RESIDUAL IN psi.

H(f) = PRESSURE DROP DURING TEST IN psi.

Flow Test # 1

Flow Test # 2

CALCULATED FLOW AT FLOW HYDRANT 0 = 0 igpm 0 igpm

THEORETICAL FLOW AT HYDRANT 0  
AT A DESIRED RESIDUAL PRESSURE: 20 psi = #DIV/0! igpm. #DIV/0! igpm.

Based on this hydrant flow test, and background demand at time of the test, the theoretical  
flow at Hydrant 0 is \_\_\_\_\_ igpm at a residual pressure of 20 psi.



## FLUSHING/TESTING/ DISINFECTION REPORT

**PROJECT:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**LOCATION:** \_\_\_\_\_

**FILE #:** \_\_\_\_\_

**DESCRIPTION:** \_\_\_\_\_

**FLUSHING:**

Water source: \_\_\_\_\_ Minimum flushing volume (Pipe volume x 3): \_\_\_\_\_

Estimated flow rate: \_\_\_\_\_ Estimated flow time required: \_\_\_\_\_ Flushing completed: \_\_\_\_

**PRESSURE TEST:**

Allowable leakage =  $NDP^{1/2}/(65000)(2Hr)$

N = Number of pipe joints = \_\_\_\_\_ D = Nominal diameter of pipe (mm) = \_\_\_\_\_

Static Pressure: \_\_\_\_\_ P = Average test pressure during leakage test = \_\_\_\_\_  
(Minimum 1,380 kPa (200 psi))

Allowable leakage calculated: \_\_\_\_\_ Start time: \_\_\_\_\_ End time: \_\_\_\_\_

Test leakage recorded: \_\_\_\_\_ Pass: \_\_\_\_\_ Fail: \_\_\_\_\_

**DISINFECTION:**

Chlorine source: \_\_\_\_\_ Calculated dosage: \_\_\_\_\_ Background residual: \_\_\_\_\_

Start time \_\_\_\_\_ Starting residual: \_\_\_\_\_ End time : \_\_\_\_\_ End residual: \_\_\_\_\_

Chlorine flushed: \_\_\_\_\_ 24 Hour stand time Start: \_\_\_\_\_ End: \_\_\_\_\_

**BIOLOGICAL TEST:**

Sample: Date: \_\_\_\_\_ Time: \_\_\_\_\_ Testing Lab: \_\_\_\_\_

Number of samples required: \_\_\_\_\_ Sample(s) collected by: \_\_\_\_\_

Test results: Pass: \_\_\_\_\_ Fail: \_\_\_\_\_ (Copy of lab results attached)

Testing/flushing points removed: \_\_\_\_\_



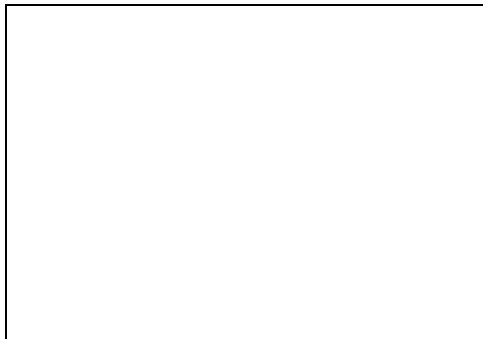


## FLUSHING/TESTING/ DISINFECTION REPORT

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### CONSULTING ENGINEERS CERTIFICATION:

I hereby certify that all flushing, disinfection and testing has been completed in accordance with the requirements of Subdivision and Development Servicing Bylaw No. 4293.



Engineer's Seal

\_\_\_\_\_  
\_\_\_\_\_  
Signature and name of the Consulting  
Engineer responsible for Design

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### CITY CONNECTION APPROVAL:

\_\_\_\_\_  
Date

\_\_\_\_\_  
City Engineer

**Subdivision and Development Servicing Bylaw No. 4293**  
**Schedule “D”**



**CITY OF SALMON ARM**  
**APPROVED MATERIAL LIST**