



MOUNTAINS OF OPPORTUNITY

**CRANBROOK**

**City of Cranbrook**

**Excavation Requirements for**

**Single lot Servicing/Repairs and Small Surface Works**

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**Introduction:**

This document must be signed, agreed upon and understood in addition to an authorized City of Cranbrook Road Occupancy Permit for any exaction that will take place within a City of Cranbrook right of way or property. This includes water and sewer service repairs or new installs, installation of new driveway letdowns or any work that removes or alters any infrastructure within a City of Cranbrook right of way. This document is a comprehensive document to clearly outline the requirements and procedures that must be followed when performing work within the City's right of way.

**Traffic Control:**

Traffic Control Plan must be submitted as per Road Occupancy Permit requirements. This shall include provisions for detouring pedestrian traffic along marked crosswalks and existing sidewalks.

**Insurance Requirement: (Mandatory)**

Must meet the requirements of the Road Occupancy Permit.

**General Requirements:**

- A complete service card must be submitted to the City of Cranbrook within 10 business days after completion of the servicing work.
- Backfill material shall be compacted to a minimum 98% standard proctor density reached by mechanical means as outlined in the Subdivision and Development servicing bylaw. All lifts outside the pipe zone will be placed in lifts no greater than 300mm in thickness, any lifts deemed to be larger than 300mm will be removed and compacted in the correct thickness. Each lift of material must be density tested.
- Backfill material shall be conditioned to within 3% of optimum moisture as outlined in the Subdivision and Development servicing bylaw. The City Engineer may require material to be conditioned to a moisture content between optimum moisture and 3% above optimum moisture. The City Engineer may impose other moisture requirements depending on the material.
- Compaction testing results must be submitted to the City within 10 business days.
- Planning must be done to open and close the excavation within 1 day, unless otherwise approved in writing. No Excavation shall be left open unattended.
- If, in course of construction or installation, City infrastructure or property is damaged or destroyed as a result of construction or installation, the owner/permit holder shall notify the city immediately and is responsible to restore such property to current City standards to the satisfaction of the City Engineer, at the owner's expense.

### **Security Deposit:**

Servicing that causes the removal of asphalt, curb or Sidewalk requires a \$10,000.00 deposit in the form of cash, irrevocable letter of credit or certified check to guarantee the work, performance and damage. The deposit will be held for a minimum of 12 months after the excavation repairs are completed. If scope of work is deemed to be of a value greater than the base rate, additional funds for security may be requested by the City Engineer.

Servicing that will take place in a gravel laneway where there is **no** asphalt, curb or sidewalk requires a \$1,000.00 00 deposit in the form of cash, irrevocable letter of credit or certified check to guarantee the work, performance and damage. The deposit will be held for a minimum of 12 months after the excavation repairs are completed. If scope of work is deemed to be of a value greater than the base rate, additional funds for security may be requested by the City Engineer.

A deposit of \$500.00 is required prior to permit approval for the service card. If a satisfactory service card is received within 10 business days, the deposit will be refunded. See Schedule A for Service Card template. After 10 days the City has the right to use the deposit to complete the serve card.

The security deposited will only be returned after final inspection has been completed and it is deemed that the works are performing as intended 12 months after construction completion. If during final inspection deficiencies are noted an official letter will be sent to the permit holder to complete the repairs, once the repairs have been addressed the deposit will be returned. If the permit holder refuses to complete the repairs outlined in the letter within the timelines given the security will be used to complete the repairs.

### **Roadway Surface Repairs:**

The City's Roadway must be returned to condition of pre installation and construction or better, including landscaping or grass. The finished Grade of the asphalt surface shall conform to that of the existing surface that no rises, depressions or ridges result from the paving process. Asphalt patch or patches must be graded to maintain existing drainage profile of the existing road surface.

- All asphalt patches are to be a minimum of 50mm thick, if existing asphalt thickness is greater than 50mm the patch shall match the thickness of the existing asphalt.
- Edges of existing asphalt must be saw cut and tacked prior to the placement of new asphalt.
- All patches are to consist of square straight lines and be approved by the city before placement of new asphalt.
- Asphalt replacement must extend a minimum of 1m on either side of trench.
- Asphalt must be replaced within 10 business days of removal of the existing asphalt surface.
- Minimum 150mm thick of 25mm crush gravel base course compacted to 98% standard proctor density must be placed prior to asphalt patch. If additional road structure materials are discovered during excavation the new road structure within the patch must match the existing.

### **Concrete Curbing & Sidewalk:**

All concrete curbing and sidewalk must conform to the specifications of the Subdivision and Development Servicing Bylaw No. 3633 as amended and the MMCD Platinum Edition as amended. All Concrete curb and sidewalk to conform to MMCD details C1, C2, C3, C4, C5, C6, C7, C8, C9, and C10. All base to be a minimum 100mm thick of 25mm crush gravel base compacted to 98% standard proctor density. For all areas of sidewalk that are thickened face, contractor must follow the detail in Schedule B. Rebar only required in Industrial/Commercial letdowns

Concrete Specifications

- 32mpa Concrete at 28 days
- Maximum aggregate size of 19mm
- Slump 80mm
- Air Entrainment – 5%-8%

Curb and gutter and sidewalk contraction joints shall be made at a maximum of 3.0m intervals. Contraction joints shall be cut by means of a marking to or other approved method. Joints shall not be less than 15mm in depth and 6mm in width. The edges of the joint shall be rounded off with an edger having a radius of 6mm.

Expansion joint material, 15mm thick and the full depth of the sidewalk, shall be placed at the start and finish of the new sidewalk. Expansion joint material shall also be placed around the base of all poles and hydrants, which encroach upon or are within the sidewalk in addition to any location where direction or grade of sidewalk changes (i.e. letdowns, curb returns, corners, change in alignment etc.).

### **Sewer Services:**

Sanitary Services are to be installed to the specification of the Subdivision and Development Servicing Bylaw No. 3633 as amended and the MMCD Platinum Edition as amended. All Services to be sized according to the requirements of the building/property being serviced. All 100mm service pipe to be PVC SDR 28 unless otherwise approved by the City in writing, all services greater than 100mm to be PVC SDR 35 unless otherwise approved by the City in writing. Minimum grade for 100mm services to be 2.00% from property to mainline.

#### Details:

Use standard wye fitting for connections to new mains. For connections to existing mains, use wye saddles or insertable tees. Services must enter mains at a point just above the spring line. Service connections may be permitted into manholes if the connection is not orientated against the flow in the main and manhole hydraulic requirements are met.

Inspection chambers are required on residential connections unless the service connects to a manhole.

All materials used for sanitary servicing must comply with the approved materials list as outlined in Schedule C of this document.

Pipes are to be bedded in MMCD Type 1 or 2 bedding material as per table 1. Pipes are to be bedded with a minimum 100mm of bedding material below the invert of the pipe and a minimum of 300mm of pipe bedding placed above the pipe, all bedding to be compacted to 98% standard proctor density.

Sieve Designation	Type 1*	Type 2*
50 mm	100	100
38 mm	100	100
25 mm	100	100
19 mm	90 – 100	90 – 100
12.5mm	65 – 85	70 – 100
9.5mm	50 – 75	
4.75 mm	25 – 50	40 – 70
2.36 mm	10 – 35	25 – 52
1.18 mm	6 – 26	15 – 38
0.600 mm	3 – 17	6 – 27
0.300 mm		3 – 20
0.075 mm	0 - 5	0 – 8
*Type 1: standard gradation		
*Type 2: to be used only in dry trench condition and with written approval of the City		

**Table 1: Granular Pipe Bedding and Surround Material**

## Water Services:

Water Services are to be installed to the specification of the Subdivision and Development Servicing Bylaw No. 3633 as amended and the MMCD Platinum Edition as amended. All Services to be sized according to the requirements of the building/property being serviced. All service materials are to conform to the approved materials list in Schedule C of this document.

Pipes are to be bedded in MMCD Type 1 or 2 bedding material as per table 1. Pipes are to be bedded with a minimum 100mm of bedding material below the invert of the pipe and a minimum of 300mm of pipe bedding placed above the pipe, all bedding to be compacted to 98% standard proctor density.

Sieve Designation	Type 1*	Type 2*
50 mm	100	100
38 mm	100	100
25 mm	100	100
19 mm	90 – 100	90 – 100
12.5mm	65 – 85	70 – 100
9.5mm	50 – 75	
4.75 mm	25 – 50	40 – 70
2.36 mm	10 – 35	25 – 52
1.18 mm	6 – 26	15 – 38
0.600 mm	3 – 17	6 – 27
0.300 mm		3 – 20
0.075 mm	0 - 5	0 – 8
*Type 1: standard gradation		
*Type 2: to be used only in dry trench condition and with written approval of the City		

**Table 1: Granular Pipe Bedding and Surround Material**

Water Services greater than 19mm are required to have a flow meter installed. Flow meter is to be a Neptune with Pro read system, remote reader with 6 wheel encoder in m<sup>3</sup>.

## Shallow Utility Install

Shallow Utilities are to be installed to the specifications of Shaw, TELUS, Hydro and Fortis, additional to their specifications all backfill must be compacted to 98% standard proctor density in lifts no greater than 300mm. Asphalt patches must extend a minimum 0.3m beyond the edge of the trench and be a minimum of 1.00m wide.

**Application/Agreement:** This application is not considered valid until the road occupancy permit has been approved by the City Engineer and all other requested documents are submitted and approved.

Location of Work (Address)

Description of work

**Servicing Type:** (check all that apply)

Water                  Sewer                  Storm                  Other \_\_\_\_\_.

**Surface Repair Type:** (check all that apply)

Asphalt                  Concrete                  Gravel                  Other \_\_\_\_\_.

Deposit Amount:    \$ \_\_\_\_\_ + \$500.00 = \$ \_\_\_\_\_ Total

Name of Person/Business Paying Deposit:

Address:

Email:

Phone No.

Signature:

By signing this document the person/business paying the deposit fully understands the requirement of this deposit and the terms in when it will be released back to you the signatory. The deposit will be held for the duration outlined in this document.

Contractor Completing the Work:

Address:

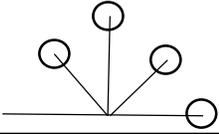
Phone No.

Signature:

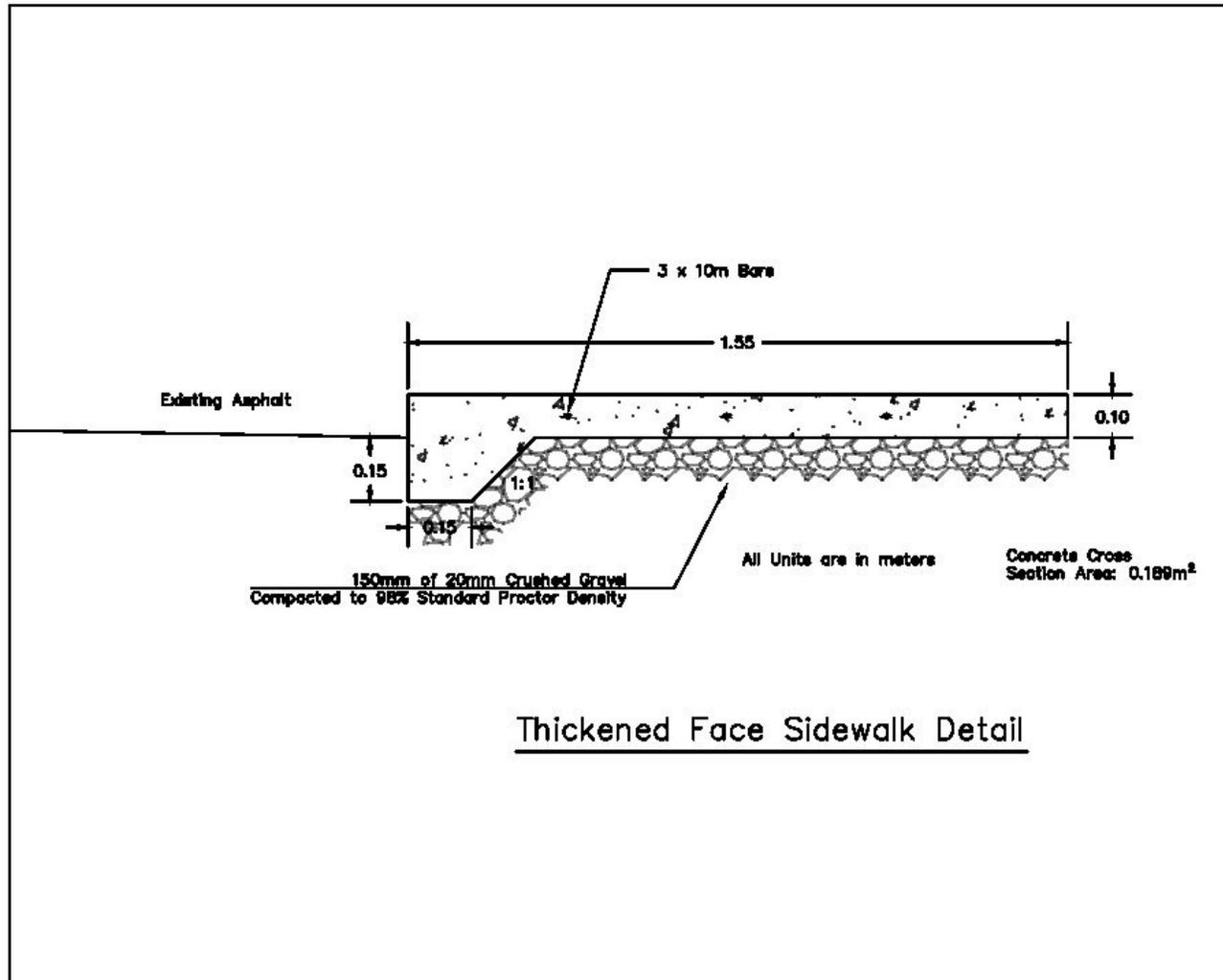
By signing this document the contractor agrees to follow the requirements and specifications outlined in this document and any additional requirements outlined in the Road Occupancy Permit.

Road Occupancy Permit #

## City of Cranbrook Property Service Connection Record

House No.	Street or Avenue	Lot No.	Block No.	Plan No.	Name of Development		
 <p style="text-align: center;">Designate North</p>		<b>Water</b>			<b>Sanitary Sewer</b>		
		<u>Installation Date</u>			<u>Installation Date</u>		
<b>Sketch</b>		Day	Month	Year	Day	Month	Year
<p style="text-align: center;"><b>Sketch</b></p> <p style="font-size: small;">Show Street Names and all Utilities Installed or Encountered</p>		Service Size			Service Size		
		Service Type			Service Type		
		Distance from PL to Main			Distance from PL to Main		
		Distance from _____ PL			Distance from _____ PL		
		Main Size			Main Size		
		Main Type			Main Type		
		Distance From PL to Curb Stop			Distance From Downstream MH		
		Type of Service Saddle			Fitting at Main		
		Type of Curb Box			Riser Height		
		Elevation of Valve at PL			Elevation of Invert at PL		
<b>Remarks:</b>		<b>Storm Sewer</b>					
		Service Size			Main Type & Size		
		Service Type			Distance from Downstream MH		
		Distance From PL to Main			Fitting at Main		
		Distance from _____ PL			Elevation of Invert at PL		

## Schedule B – Thickened Face Sidewalk Detail



## Schedule C – Approved Materials List

<i>Product</i>	<i>Manufacturer</i>	<i>Model / Series</i>	<i>Additional Details and Requirements</i>
Water System			
Hydrants	Terminal City  Clow	C71P  M-67 Brigadier	Must be supplied with 4" STORZ pumper outlet and two 2.5" side outlets.
Mainline Valves	Terminal City  Clow  Mueller	Series 3000  Model 2639  A-2362	Resilient Wedge Gate Valve  Flanged or slip-on ends only  AWWA C509
Mainline Pipe (up to 300mmø)	Ipex  Royal	PVC Pipe to AWWA C-900 and CAN/CSA B137.3  PVCO Pipe to AWWA C-909 and CSA B137.3	Joints must have elastomeric gasket seal conforming to ASTM F477  DR18, unless otherwise approved or required by the City Engineer  Colour Blue  Ductile iron or HDPE pipe may be approved by the City Engineer
Mainline Pipe (350mmø to 600mmø)	Ipex  Royal	PVC Pipe to AWWA C-905 and CAN/CSA B137.3  PVCO Pipe to AWWA C-909 and CSA B137.3	Joints must have elastomeric gasket seal conforming to ASTM F477  DR18, unless otherwise approved or required by the City Engineer  Colour Blue

<b>Product</b>	<b>Manufacturer</b>	<b>Model / Series</b>	<b>Additional Details and Requirements</b>
			Ductile iron or HDPE pipe may be approved by the City Engineer
Fittings, 100-300mm (i.e. bends, tees, wyes, reducers, etc.)	Ipex  Royal  Galaxy	PVC Injection molded to AWWA C900 and CSA B137.2	Colour blue  Joints must have elastomeric gasket seal conforming to ASTM F477
Fittings, greater than 300mm (i.e. bends, *crosses, tees, wyes, reducers, etc.)  *all crosses to be DI	Terminal City  Sigma  Star	Ductile Iron AWWA C153	Exterior and interior must be Fusion Bond Epoxy Coated to Comply with NSF61 compliant epoxy in accordance with AWWA C116
Restraint Couplings	Romac  Hymax	Alpha  Grip	Not to be used with Concrete Pipe
Standard Couplings	Romac  Hymax	501	Standard Couplings not to be used in conjunction with joint restraints. Where restraint is needed, approved restraint couplings must be used
Repair Clamps	Romac  Hymax	SS  Clamp	
Service Saddles	Cambridge Brass  Robar	Series 812  2706	Brass Saddle with Double Stainless Steel Straps

<b>Product</b>	<b>Manufacturer</b>	<b>Model / Series</b>	<b>Additional Details and Requirements</b>
	Canada Pipelines Accessories Corp.	SC-2 SS	Stainless Steel – Double Bolt
Mechanical Restraints	Uni-Flange	DI Series 1300 (up to 300mmØ)  DI Series 1390 (350mmØ to 600mmØ)	Restraining rods, clamping bolts and hardware must be minimum 304 stainless steel. Restrainer must be epoxy coated. The City Engineer may require more corrosion resistant material and coating.
Water Service Lines		Municipex  Copper	Type K
Service Box	Trojan	SSB1  SSB2	Stainless Steel Service Box Rod
Curb Stop, Corporation Stop, couplers, reducers, and miscellaneous fittings 50mm diameter or smaller	Cambridge Brass		No lead brass, shall be compression style, curb stops must be stop and drain. City Engineer may approve equivalent
Valve Box	Trojan	Nelson Style	Lids must be labeled "WATER"  Must include manufactured PVC Bottom Section with Guide Plate
Butterfly Valves	Clow		Shall be cast in North America.  Only when warranted and approved by City Engineer
Pressure Reducing Valves	Clayton		Shall be cast in North America  No substitutes
Manhole Frame and Lids	Trojan	C44A	Lids must be labeled "WATER"

<b>Product</b>	<b>Manufacturer</b>	<b>Model / Series</b>	<b>Additional Details and Requirements</b>
		Adjustable Manhole Frame and Cover	
Sanitary and Storm Sewer Systems			
Sanitary Mainlines	Royal  IPEX	SDR 35	Pipe and fittings must be jointed with a rubber gasket or other preformed, factory installed gasket or approved material.  Colour White or Green  The City Engineer may approve alternative pipe types when required.
Storm Sewer Mainlines	IPEX  Royal	SDR 35	Pipe and fittings must be jointed with a rubber gasket or other preformed, factory installed gasket or approved material  Colour Green  The City Engineer may approve alternatives pipe types when required  PVC Ribbed pipe (i.e. "Ultra-Rib") Is not approved.
Service Lines	Royal  IPEX	SDR 28	Pipe and fittings must be jointed with a rubber gasket or other preformed, factory installed gasket or approved material.
Service Connections	Royal  IPEX	SDR 28	Service connections on all new lines must be manufactured 45 degree Tee-Wyes complete with long radius bend

<b>Product</b>	<b>Manufacturer</b>	<b>Model / Series</b>	<b>Additional Details and Requirements</b>
Inspection Chambers	Royal  Galaxy Plastics	Le-Ron	H-20 Cast Iron Lid must be installed in driveways, paths or travelled and hard surfaces  Built in backflow preventer may be required by City Engineer
Manhole Frame and Lids	Trojan	C44A  Adjustable Manhole Frame and Cover SS-S1c	Lids must be labeled "STORM" or "SANITARY" according to the sewer system.
Catch Basin Frame and Grate	Trojan	T-K7  TF-70	Mountable Curb  Non-Mountable Curb  The City Engineer may approve equivalent
Valve Box (cleanouts)	Trojan	Nelson Syle	Lids must be labeled "Sanitary" or "Storm" respective to sewer type
Manholes	Armtec – AE Concrete Pre-Cast Products  Kon-Kast Pre-cast Products  Tri-Kon pre-Cast Products  Langley Concrete Group		Refer to MMCD Specs  Minimum 1050mm diameter  Manhole Lids must include built in standard ladder rung

<i><b>Product</b></i>	<i><b>Manufacturer</b></i>	<i><b>Model / Series</b></i>	<i><b>Additional Details and Requirements</b></i>
Catch Basins	Armtex – AE Concrete Pre-Cast Products  Kon-Kast Pre-cast Products  Tri-Kon pre-Cast Products  Langley Concrete Group		Refer to MMCD Specs  Shall be 900mm precast