

## **EXCAVATION PERMIT PROCEDURES AND POLICIES**

It is the policy of the City of Bismarck that all contactors excavating in the public right-of-way with intention to connect, install, or repair sanitary sewer or water services shall conform to any and all North Dakota State Plumbing Board Rules and Regulations. All contractors shall be licensed and bonded and shall employ licensed installers to perform all work in conformance with the City of Bismarck standard specifications. If you have any questions, please refer to or contact North Dakota State Plumbing Board Rules and Regulations at their website or 328-9979. For City specifications, please the City of Bismarck Engineering department at 355-1505.

The excavation permit branch of the Engineering Department has developed procedures and policies to minimize issuance and construction problems and delays prior to granting a permit. Please read the following procedures so contractors may better understand the policies which will affect all who apply for permits to excavate in the City of Bismarck.

All fees listed below may be subject to change without notice.

**The CONTRACTOR shall keep a copy of the Excavator Packet on the work site at all times.**

### **CITY CONTACTS FOR EXCAVATION PERMIT WORK**

The ENGINEER will keep records, review for conformance, and recommend action by the City Engineer for all site plans. **Heidi Belohlavek** will issue permits, keep track of billings, and assist the project manager in coordination between the contractor and the Engineering Department. The project manager will perform inspections as required. Ross Lagasse, P.E., Design & Construction Engineer, supervises all excavation permit work.

### **EXCAVATION PERMIT REQUIREMENTS**

Anyone who intends to make any excavation in or upon any public street, alley, or right-of-way in the City of Bismarck (to connect, disconnect, repair, or install any sanitary, storm, or ground water drainage sewer, water, gas, power, television, telephone, communication, street lighting, traffic signal or other underground conduit) must obtain a permit before boring or excavating.

Any excavation upon private property for the express purpose of construction or repair of any sewer or water service that is or will be connected to a City of Bismarck utility, including storm sewer, shall require a permit before excavating. For larger sites, such as manufactured home parks or housing developments with a metered water main, permits are required for any drainage or sanitary sewer facility installation or repair on private property. A permit is not required for water services located after the site's main water meter. All excavations must be inspected by the Engineering Department.

Work shall not begin in the spring until conditions are suitable and may be suspended in the fall/winter due to unsuitable conditions as determined by the City Engineer.

## **REQUIREMENTS FOR MULTIPLE EXCAVATIONS WITHIN A SINGLE PROJECT**

For City of Bismarck utilities: a separate permit will be required for each excavation.

For Private Utilities (including “potholing” utility locates”): a single permit may be acquired for multiple excavations on a project within the same general area. However, the Engineer reserves the right to require a compaction test for each individual excavation.

## **CONSEQUENCES FOR EXCAVATION WORK PERFORMED WITHOUT A PERMIT, FAILURE TO SCHEDULE AN INSPECTION, OR OTHER BLATANT VIOLATION OF CITY SPECIFICATIONS, STANDARDS OR CODE**

1<sup>st</sup> offense: Written warning.

2<sup>nd</sup> offense (within one calendar year of 1<sup>st</sup> offense): Suspension for 30 calendar days.

3<sup>rd</sup> offense (within one calendar year of 2<sup>nd</sup> offense): Suspension for six (6) months.

4<sup>th</sup> offense (within one calendar year of 3<sup>rd</sup> offense): Suspension for one (1) calendar year.

Note: all suspensions will begin from date of discovery of violation

## **QUALIFICATIONS TO EXCAVATE IN THE CITY OF BISMARCK**

A permit to excavate may be granted to a contractor who has a minimum of a North Dakota State “Class D” license, is bonded, and has demonstrated to the Engineering Department the ability to perform the work in a workmanlike manner in accordance with normal construction methods and codes. The duration of the excavation will also be an integral part of the permit approval.

To receive permission to excavate in the City of Bismarck, the contractor is required to submit a letter stating relevant experience as well as references to the Engineering Department. The City may verify references and experience to determine eligibility to perform excavating in the city.

The **CONTRACTOR** will receive a packet of information providing information detailing requirements for excavating in the City of Bismarck. **The CONTRACTOR is required to read this information carefully and return the enclosed Certification and Authorization Form.** The contractor and any authorized employees are required to be listed.

Please submit your letter and await approval before applying for your license/bond. Typical approval is approximately two weeks.

## **BONDING REQUIREMENTS TO EXCAVATE**

You must provide the original copy of your Performance Bond in the amount of \$25,000.00 (also called a License and Permit Bond). It must state "in accordance with City of Bismarck Ordinances." All work within the City Right of Way shall require a warranty period of two (2) years for each permit approved.

The bond shall indemnify the City against all costs, loss, and damage caused by the excavation. The bond is to be further conditioned on the guarantee of the excavating party to keep the site in repair for two years from the date of completion.

If the **CONTRACTOR** fails to restore or maintain the excavation as required, the City may do the necessary work and recover all costs and expenses from the bond or the defaulting party.

## **AQUISITION OF AN EXCAVATION PERMIT**

An excavation permit may be obtained from the City of Bismarck Engineering Department located at 221 North Fifth Street (second floor). You may also establish an E-TRAKiT account and submit your permit request online at: <http://etrakit.bismarcknd.gov/etrakit3/>

**The applicant must complete the Excavation Permit Data form before requesting a permit. To minimize your waiting time at the counter, it would be helpful if requests for multiple permits were submitted several days before the date they are needed.**

To receive an excavation permit for boring of electrical, gas or fiber lines, a detailed map must be submitted as part of the permit application. A printable form may be obtained at: [bismarcknd.gov/documentcenter/view/2017](http://bismarcknd.gov/documentcenter/view/2017). Completed forms may be faxed to 701-222-6593.

An accurate legal description (lot, block and subdivisions on which the excavation will occur) and address for the property are required for all permits.

## **SITE PLAN REQUIREMENTS**

Contractors applying for an excavation permit for any commercial buildings or multiple building developments must present a site plan for approval of these utilities if an approved site plan is not already on file at the office of the City Engineer. The site plan shall be submitted to the Community Development Department, Planning Division, and receive approval prior to the application for an excavation permit. There is a fee for the site plan review. For twin homes or duplexes, a site plan must be submitted to the Engineering Department.

**The excavator shall have a copy of the approved site plan on site for review by the project manager and shall not deviate from the site plan unless changes are approved in writing by the City Engineer or his authorized representative.**

The site plan for complex services shall contain the name of the engineering firm responsible for establishing the lines and grades of the service lines and the testing laboratory responsible for compaction testing. Additional information can be found on the City of Bismarck's web site at: [bismarcknd.gov/documentcenter/view/4337](http://bismarcknd.gov/documentcenter/view/4337).

## **EXCAVATION PERMIT COSTS**

Excavation permits for a particular service (water, sanitary sewer, storm sewer) or any other excavation will cost \$150 (For example, if you are requesting a permit for both water and sanitary sewer, your cost would be \$300.00.) Each main line and each branch requires one permit. The number of permits required is listed on the site plan approval letter.

Excavations requiring a surface cut will be charged \$100.00 for each sidewalk, driveway, or pavement cut.

Excavations requiring traffic control shall contact the City of Bismarck Engineering Traffic Department for costs and permissions one (1) week in advance.

Excavation permits not used become invalid after 90 days and will require issuance of a new permit at the costs stated above.

## **NOTIFICATIONS REQUIRED BEFORE AND DURING EXCAVATION**

The **CONTRACTOR** is responsible for the location of all areas of potential utilities and/or other hazardous conditions. The **CONTRACTOR** shall provide advance notification to operators of underground facilities (i.e., Montana Dakota Utilities Gas & Electric, Capital Electric, U.S. Sprint, CenturyLink, AT&T, Dakota Carrier Network, McLeod USA, Midcontinent Communications, Amoco Oil, South Central Regional Water District, and Bismarck Water, Sewer, Street Light, and Traffic Signal Departments) prior to excavation, auguring, boring, blasting, or other activities that may endanger underground facilities by using the ND One-Call system. The ND One-Call number is 1-800-795-0555. The **CONTRACTOR** must report any damage, potential damage, or believed damage to any utility immediately to the owner of the utility and to the City of Bismarck.

The **CONTRACTOR** shall not operate City or private water valves or hydrants without permission from the Water Department at 355-1700.

The **CONTRACTOR** must notify the Fire Department at 355-1400 when fire hydrants are removed from and **returned to service**.

The **CONTRACTOR** must notify the Forestry Department at 355-1700 prior to beginning any construction which is within the drip line or ten (10) feet or closer to any tree, shrub, or woody plant within the Right-of-Way.

The **CONTRACTOR** must notify the project manager between two (2) to twenty-four (24) hours before actual excavation begins. Forty-eight (48) hours' notice is required for large sites, and the contractor must complete the project in a continuous and orderly manner.

The **CONTRACTOR** must notify the **ENGINEER** to arrange for inspection, when the utility is installed, properly bedded, prior to backfilling, and before surface cut restoration is constructed. Because of the staffing limitations, the Engineering Department cannot guarantee that an inspection will be made on the same day notification is made for the inspection after 4:00 p.m. on that day. **The CONTRACTOR must be present for all inspections.** The **CONTRACTOR** shall call the Water Department between 8:30 a.m. and 4:00 p.m. a minimum of 24 hours in advance for the tap to the main. Large taps may require more notice. The contractor shall not make taps to the water main unless approved by the project manager.

#### **RESPONSIBILITY FOR REPLACEMENT OF DAMAGED LOT CORNERS**

The protection of lot corners or other monuments is the responsibility of the **CONTRACTOR**. If a lot corner must be moved to facilitate excavation, the lot corner should be offset prior to construction. Offsetting or replacement of disturbed or damaged monuments shall be accomplished by a registered land surveyor at the expense of the applicant.

#### **TRAFFIC CONTROL REQUIRED FOR WORK IN THE PUBLIC RIGHT OF WAY**

The **CONTRACTOR** shall submit a traffic control plan to the City Traffic Engineer for review and approval at least one (1) week prior to beginning work in the public right of way. Prior to setting up any traffic control devices for a detour and/or lane closure, the **CONTRACTOR** shall notify the City Engineering Department 48 hours prior to the beginning of work in the public right of way for issuing of public notifications to emergency services.

The **CONTRACTOR** is responsible for the placement and maintenance of all traffic control devices in a work zone in the public right of way. All traffic control devices shall be installed in a safe and orderly manner complying with the provisions of Chapter 6 of the most recent update of the Manual on Uniform Traffic Control Devices (MUTCD). All materials and equipment used for traffic control on all work in the public right of way in the City of Bismarck shall comply with Section 704 of the *Standard Specifications for Road and Bridge Construction* and the *Design Standard Drawings* of the North Dakota Department of Transportation. The documents referred to above are available at the City Engineering Department.

In addition, field guideline booklets are available at the City Engineering Department or the North Dakota Department of Transportation. These booklets show design, application, and installation of various traffic control devices used for road and street construction, maintenance operations, and utility work. For applications other than those shown, please contact the City Traffic Engineer to work out the details.

The **CONTRACTOR** is responsible for maintaining and protecting traffic, including vehicular and multi-modal traffic, during a temporary suspension of work. The **CONTRACTOR** shall maintain two-way traffic movements during periods when work activity is suspended for 24 hours or more.

The **CONTRACTOR** shall designate a superintendent and an alternate for the maintenance and emergency repair service to traffic control devices. Contact information including cell phone numbers for these personnel shall be provided to the **ENGINEER**. These personnel shall be available at all times to respond to an emergency repair.

When an emergency repair is required, and the superintendent and alternate are not available to take protective measures to protect the public, the City shall authorize others to conduct the necessary repair work to the traffic control devices to protect the public and charge the cost of those repair measures to the **CONTRACTOR**.

The **CONTRACTOR** may be requested to provide supplemental signs identifying an alternate route to businesses impacted by the work being performed at the discretion of the CITY TRAFFIC ENGINEER.

Private access points may not be closed for more than a one-day duration or over a weekend except as approved by the residence/business occupant and/or owner. All residences shall be notified of an access closures 24-hour in advance and all businesses shall be notified of an access closures 48-hour in advance.

When an excavation requires the closure of a sidewalk/trail, the **CONTRACTOR** shall provide signage for closing a sidewalk/trail as shown in Chapter 6 of the most recent updates of the Manual on Uniform Traffic Control Devices.

## **Materials and Methods**

All materials and installation details not specifically addressed in the plans, Special Provisions, and Construction Specifications for Municipal Public Works, Bismarck, North Dakota, shall be in conformance with Section 704 of the 2014 edition of the Standard Specifications for Road and Bridge Construction, North Dakota Department of Transportation, and the provisions of Chapter 6 of the most recent updates of the Manual on Uniform Traffic Control Devices.

## **Maintenance of Traffic Control Devices**

Traffic Control Devices used in the public right of way will be rated according to the American Traffic Safety Services Association (ATSSA) **Quality Standards for Work Zone Traffic Control Devices**. The definitions of “acceptable,” “marginal,” and “unacceptable” and the evaluation guidelines shall be as defined in ATSSA’s **Quality Standards for Work Zone Traffic Control Devices**.

## **SURFACE CUTS AND RESTORATION METHODS**

Surface cuts are allowable when subcontracting arrangements are made by the contractor for the cut and restoration to original condition. The **CONTRACTOR** shall discuss the location and size of the cut with the **ENGINEER** prior to the cut. No surface cut will be allowed without prior approval by the **ENGINEER**. When dissimilar subgrade soil is utilized, the trench width and backfill shall conform to NDDOT D-714-25, when more than 4 feet below base, and D-714-26, when less than 4 feet below base. After excavating, the area shall be backfilled with suitable material to a minimum of one and a half (1.5) feet below finished grade. There shall be a minimum one (1) foot layer of compacted blended base.

## **ASPHALT REPAIR PATCHES**

Asphalt patches shall consist of a minimum of 3½ inches of AC Stabilized Base and 2½ inches of AC Surface Course or to a thickness equal to that of the removed pavement. All surface cuts within existing pavement shall be a minimum of 3’x3’ foot in size to allow for proper compaction and testing.

## **CONCRETE PAVEMENT REPAIR PATCHES**

Concrete patches shall be a minimum 3.5 x 3.5 foot in size or greater as deemed adequate by the **ENGINEER**.

## **SIDEWALK AND CURB, GUTTER AND APRON REPAIR PATCHES**

All sidewalk patches shall be full panel replacement. All curb and gutter patches shall be a minimum of five (5) lineal feet or more as deemed adequate by the **ENGINEER**. All apron patches shall be an area deemed adequate by the **ENGINEER**. All repair expenses shall be the responsibility of the **CONTRACTOR**.

All concrete repairs shall be made by a licensed and bonded concrete contractor in accordance with the City of Bismarck’s standards.

## **SURFACE CUTS WITHIN RIGHT-OF-WAY**

All surface cuts due to excavation permits shall be inspected by the project manager prior to replacement.

An asphalt surface cut will be allowed if asphalt materials are available from a supplier with an approved job mix formula on file. The edge of the asphalt pavement shall be square cut prior to replacement of mix. Construction methods of replacement shall be in accordance with the City of Bismarck Construction Specifications for Municipal Public Works Improvements. All asphalt surface cuts shall be sealed with a bituminous seal coat and cover aggregate. Surface cuts shall be patched temporarily with concrete (2 inches for sidewalks, 4 inches for streets, or as directed by the **ENGINEER**) when asphalt materials are not available; however, the **CONTRACTOR** shall maintain the temporary patch and construct a permanent pavement repair as soon as materials are available.

**No cleated equipment, buckets, or outriggers may be used on pavement unless pavement can be protected from any damage to surface or subgrade.**

All roadway and surface cuts shall be replaced, less bituminous seal coat, within forty-eight (48) hours of the completion of the backfill. If the surface cut is not restored either temporarily or permanently within forty-eight (48) hours, the **ENGINEER** may order the patch replaced by others at the contractor's expense. The **CONTRACTOR** may be billed twice if a temporary patch is made first and the permanent patch is not made (within a reasonable amount of time) causing the **ENGINEER** to order the permanent patch to be made by others.

The cutoff date in the fall and the startup date in the spring for the issuance of permits with surface cuts shall be set by the **CITY ENGINEER**. These dates are contingent upon judgment as to the quality of workmanship probable, availability of materials or acceptance of temporary patching, or the necessity of the improvement or repair. The City Engineer may waive these dates for emergency sewer and water repairs or where the project may be unduly delayed. Temporary patches must be replaced as soon as allowed.

## **STORM WATER MANAGEMENT FOR TRENCHING AND BORING COMPANIES**

The **CONTRACTOR** is responsible for the actions, activities of himself, his subcontractors, and delivery personnel. Each contractor must ensure that his activities do not affect the erosion and sediment control Best Management Practices (BMPs) for any site. Should the **CONTRACTOR** damage or render ineffective any BMPs on site, the **CONTRACTOR** shall repair or replace the affected BMPs immediately and before any additional work continues.

The **CONTRACTOR** shall provide appropriate inlet protection and sediment control during the course of the work so as to ensure the storm sewer system is protected from sediment and pollution. The **CONTRACTOR** shall provide street sweeping as necessary to ensure that sediments resulting from his activities do not enter the storm water system. Temporary stockpiles in the street must be removed by the end of the work day, the street shall be cleaned of all remaining material upon removal of stockpile.



All discharge water shall be treated before entering the storm sewer system. Acceptable treatment measures include: sedimentation basins, sediment socks/bags, and sand filters.

All disturbed vegetation shall be replaced with seed and mulch, blanket or sod within ten (10) business days of completion. The **CONTRACTOR** shall be responsible for seed or sod and must provide maintenance, including any watering necessary to ensure the establishment of the sod or seed. The establishment period for sod or seed shall be 30 days, after which, if the area does not have 70% vegetation established, the **CONTRACTOR** must re-sod or re-seed until satisfactory establishment is achieved.

Any failure may result in administrative penalties and revocation of excavation or building permits.

## **GENERAL CONSTRUCTION POLICIES**

The convenience of the public and temporary approaches to and crossings of intersecting streets shall be provided for and kept in good condition where practicable. Sidewalks or portions of the street adjoining the work area shall not be littered or obstructed more than necessary. Drainage ditches, gutters, and inlets for the storm water collection system shall at all times be kept clean, unobstructed, and protected from erosive material, or diverted as approved by the project manager.

## **METHODS AND MATERIALS FOR CONSTRUCTING AND REPAIRING WATER SERVICE CONNECTION TO CITY OF BISMARCK WATERMAIN**

- a. General - Construction methods and materials shall be in accordance with City of Bismarck Construction Specifications for Public Works Improvements.

No valve or other control on the existing water system shall be operated for any purpose by the **CONTRACTOR** without approval by the **ENGINEER**. All consumers affected by such operation shall be notified by the **CONTRACTOR** at least 24 hours in advance for residential and forty-eight (48) hours in advance for businesses before the operation and advised of the probable time when the service will be restored. If possible, the existing water system shall not be turned off before 9:00 a.m.

It shall be the property owner's responsibility to provide at least the two front property corners (including future designated sidewalk grades where the sidewalk or curb and gutter are not constructed) to establish the location of the service line for construction and recording purposes.

Water service lines shall be pushed or bored under asphalt streets, curb and gutter, and the tree root systems unless permission to cut the same is received from the **ENGINEER**.

Water service stub outs shall be made to the street right-of-way line only.

The water pipe must be laid seven and one-half (7½) feet below finished sidewalk, gutter, and street grades from the water main to the curb stop and box. Prior to inspection, the curb box must be set approximately four (4) feet away from the property line in the street right-of-way.

All water service lines shall be thoroughly flushed prior to testing. Water services shall be tested and proved tight under City main pressure. If the main pressure is believed to be lower than normal, the test duration shall continue at the discretion of the **ENGINEER** until normal pressures are attained. Then the water service line shall be shut off at the valve outside the building until the meter is installed.

For each water service, a metal "T" post shall be placed within one (1) foot of the curb stop box and extended vertically from a minimum of one and one-half (1½) feet below the top of the curb box to a minimum of three (3) feet above the existing surrounding ground and painted blue.

- b. Connections to the Main - Tapping saddles with valves shall be hydrostatic pressure tested on the main prior to requesting a tap. The test shall be 125 pounds per square inch for a duration of thirty (30) minutes.

The Water Department will tap the main at no charge to the contractor for new installations sized 1 inch, 1½ inches, or 2 inches. Taps will be charged for any size when replacing or repairing an existing service or for any size larger than 2 inches. The current rates (rates may change at any time) are as follows:

<b>SIZE OF WATER SERVICE</b>	<b>CHARGE TO EXCAVATOR FOR TAP</b>
3" - 6"	\$500.00 plus labor and materials
8" - 12"	\$800.00 plus labor and materials

The **CONTRACTOR** must be present to help lower the tapping machine into the trench.

All corporation taps, made into all sizes and classes of asbestos cement, PVC, sandcast iron, cast iron, ductile iron, and pre-stressed concrete water mains, shall be reinforced with a tapping saddle. Tapping saddles used on PVC water main shall be a minimum 2-bolt stainless steel skirted or complete gasket type. An "O" ring single-bolt stainless steel saddle is not acceptable. Tapping saddles used on PVC water main shall provide full support around the circumference of the pipe and provide a bearing area of sufficient width along the axis of the pipe, 2 inches minimum, ensuring that the pipe will not be distorted when the saddle is tightened. Tapping saddles shall be one of the following: A double-strap bronze (not to be used with PVC), a stainless steel, or an epoxy-coated malleable iron. Acceptable

manufacturers for these saddles are Mueller, Rockwell, Superior, Ford, Romac, and Cascade or an approved equal. The maximum size saddle tap on a 6-inch diameter water main is 1½ inches, however, a stainless steel sleeve may be used for a 2-inch tap on a 6-inch main.

All bolted fittings and service saddles shall be installed according to the manufacturer's recommendations. All bolts shall be tightened with a torque wrench according to the manufacturer's recommendations. **All stainless steel bolts and gasketed fittings must be retightened to proper torque 10 minutes after initial tightening.** The **CONTRACTOR** shall have a copy of the installation guide on site.

- c. Curb Boxes - Curb boxes shall be McDonald No. 5614 or Mueller No. H-10302 (1½-inch diameter upper section). Curb boxes shall be Mueller No. H-10304 or McDonald No. 5615 (2-inch diameter upper section) for 1½-inch or larger curb stops, or an approved equal. The length of the curb box extended shall be 8 feet. Curb stops shall be installed on a ½ square foot by 4-inch thick concrete or brick pad. All curb boxes, fire hydrants, gate valves, and ductile iron fittings shall be encased with a 8-mil linear low-density (LLD) polyethylene film in accordance with ANSI/AWWA C105/A21.5. All encasements shall be considered incidental. The use of stationary rod shall not be used unless otherwise permitted by the **ENGINEER**.
- d. Curb Stops - Curb stops supplied for service lines shall be the Mueller No. B-25154, Mueller No. H-15154, McDonald No. 6104, or a Ford B22, without drain, having a Minneapolis Pattern, or an approved equal. Curb stops shall be installed using the proper tools as recommended by the manufacturer.
- e. Water Service Lines - Water service line material shall be Type K or Type L copper or ultra high molecular weight polyethylene (PE) or iron pipe size or Class 200 SDR21 Polyvinyl-chloride (PVC). The polyethylene pipe shall be designated as UHMPVE 3408, SDR7 conforming to ASTM D2239 and approved by the National Sanitation Foundation. All markings shall be permanently labeled on the side of the polyethylene pipe. Water service line material between corporation stops and curb stop shall be Type K copper.
- f. Connection Fittings - All new copper water service pipe shall be connected using a flared connection. New copper water pipe being connected to existing copper water pipe may be connected using a compression type connection if approved by the **ENGINEER**. Fittings for PE and PVC pipe shall be compression fittings (gasket type), stab fitting with an O-ring seal (Mueller Insta-Tite or an approved equal), or an insert fitting (Ford Pack Joint Coupling Series 66 or an approved equal for 1-inch to 2-inch polyethylene only).

The corporation stop and PVC pipe shall be connected with a fabricated gasket adapter equal to Flo-Seal series 657. The curb stop shall be connected to the PVC pipe or PE pipe using an 8-inch to 12-inch long brass nipple with female adapter.

- g. Corporation Stop - Corporation stops shall be Mueller No. H-15000 or McDonald No. 4701 or Ford F600 or FB600 for copper water pipe or approved equal.
- h. Bedding - Water lines greater than 2 inches shall be bedded with pit run gravel a depth of 4 inches below the pipe to 2 inches over the pipe, the full width of the trench, and shall be compacted. Pit run gravel bedding shall be material with a gradation of 100% passing a 1-inch sieve, 60% to 100% passing a ¾-inch sieve, and 40% to 80% passing a ¼-inch, or as approved by the project manager. Trench material may be approved upon request.

Any spongy trench shall be excavated to a sufficient depth below invert grade and backfilled with subcut gravel to support the pipe prior to the placement of the bedding. Subcut gravel shall be granular material with 100% passing a 2-inch sieve and 0% to 10% passing a No. 4 sieve.

- i. Disconnections - The water service line shall be disconnected at the main by turning off the corporation and disconnecting the pipe at the corporation. The curb stop box shall be removed unless in the opinion of the project manager it is impractical because of improvements in the area. In this case the top of the box and shaft shall be removed 2 to 3 feet below the surface and plugged.

**STANDARDS FOR FIRE LINE AND SPRINKLER LINE FLUSHES**

The Engineering Department provides, monitors and observes flushing of fire lines and sprinkler lines according to the following standards:

- a. Underground piping, from the water supply to the system riser, shall be completely flushed before connection is made to downstream fire protection system piping.
- b. The flushing operation shall continue for sufficient time to ensure thorough cleaning.
- c. Provision shall be made for proper disposal of water used for flushing. Overland flow of flushed water should be avoided. Any erosion damage and sedimentation shall be corrected.
- d. A minimum 2½” hose shall be used to conduct a fire line flush. Additional lines will be needed to achieve the required rate for larger pipes. It is the contractor’s responsibility to provide the necessary taps and hoses.

Pipe Size	GPM	Hose Size
4”	390	2½”
6”	880	(2) 2½”
8”	1560	(2) 3”
10”	2440	(2) 3”
12”	3520	(2) 4”

**METHODS AND MATERIALS FOR CONSTRUCTING OR REPAIRING SEWER SERVICES CONNECTED TO CITY OF BISMARCK SEWER MAIN**

- a. General - Construction methods and materials shall be in accordance with City of Bismarck Construction Specifications for Public Works Improvements.

Sewer services shall be extended to the street Right-of-Way line only. Sanitary sewer service lines shall be installed to an invert depth of 10 feet below the finished sidewalk grade or at a minimum positive grade of 2 percent (1/4 inch per foot) from the connection at the sewer main. It shall be the property owner’s responsibility to provide at least the two (2) front property corners (including future designed sidewalk grades where sidewalk or curb and gutter are not constructed) to establish the location of the service line for construction and recording purposes.

For each sewer stub out, a 2” x 4” wood marker shall be placed a within 1 foot of the end of the sewer service, shall extend vertically and plumb to not less than 2 feet above the existing surrounding ground, and shall be painted green.

- b. Connections to Main – When a wye is not available for connection to a sanitary sewer main, the connection shall be made using an Inserta Tee manufactured by Inserta Fittings Co., or approved equal. Taps into VCP sanitary sewer required for the Inserta Tee shall be done by the Public Works Department. The current rates (rates may change at any time) are as follows:

<b>SIZE</b>	<b>CHARGE TO EXCAVATOR</b>
4” PVC	\$150.00 plus labor and materials
4” non-PVC	\$250.00 plus labor and materials
6” PVC	\$175.00 plus labor and materials
6” non-PVC	\$275.00 plus labor and materials

A factory-assembled wye may be cut in using gasketed repair couplers. When connecting to or repairing a VCP sanitary sewer main, Shear Guards manufactured by Indiana Seal, or an approved equal, must be used.

- c. Pipe and Fittings - PVC sewer pipe and fittings shall meet the specifications of ASTM D3034 and shall have a DR of 35 or less, all of which shall be stamped on the pipe. Gasketed type joints on PVC pipe and fittings are preferred. Solvent cement joints must be made by using the two-step process (cleaner and solvent cement). Applications of solvent cement shall be made with a soft brush and in warm, dry conditions.
- d. Bedding - Pit Run Gravel Bedding shall be material with a gradation of 100% passing a 1-inch sieve, 60% to 100% passing a 3/4-inch sieve, and 40% to 80% passing a 1/4-inch sieve, or as approved by the Engineering Department. Trench material may

be approved upon request. Bedding shall be placed a depth of 4 inches below the pipe. Bedding shall be placed one-half the way up on the pipe, the full width of the trench, and shall be compacted.

Any spongy trench shall be excavated to a sufficient depth below invert grade and backfilled with subcut gravel to support the pipe prior to the placement of sand bedding. Sub cut gravel shall be a granular material with 100% passing a 2-inch sieve and 0% to 10% passing a No. 4 sieve.

- e. Disconnections - All sewer line disconnections shall be cut off and capped or plugged at the back of the sidewalk or at the property line.

**SEPARATION OF WATER AND SEWER SERVICES**

Building sewers or drainage piping of clay or materials which are not approved for use within a building shall not be run or laid in the same trench as the water pipes unless the bottom of the water pipe, at all points, is at least 12 inches above the top of sewer line. The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a minimum clear horizontal distance of at least 12 inches from the sewer line.

**BACKFILL AND COMPACTION METHODS**

Trenches and excavations shall be backfilled immediately after inspection or installation or repair of conduit. Backfilling shall be completed within 24 hours. Compaction tests shall be taken at one-half the depth and the top of the trench at minimum.

Compaction shall be obtained by an approved method or equipment which will produce a uniform density meeting the requirements to obtain not less than the specified percent maximum dry density at optimum moisture made in accordance with ASTM D1557.

<b>TRENCH TYPE</b>	<b>THICKNESS OF LAYERS</b>	<b>SPECIFIED DENSITY</b>
Narrow 4"-6" Trench (digging chain or earth saw trench)	6"	90% from 0'- 4' deep and 85% below 4' deep
Pipe bedding and initial backfill	-	80% to 2' over pipe
Normal Trench	12"	85% to 4' below surface finish grade
Normal Trench	12"	90% from 4' deep to finish grade

Trenches shall be backfilled and compacted to the foundation. A drop pile hammer, clam shell, backhoe bucket, or other similar equipment will not be allowed in the initial backfill. The contractor shall correct all deficiencies in material or moisture needed for backfilling.

When required compaction is unattainable due to weather conditions (during winter months), trench shall be temporarily backfilled. Trench shall be re-excavated and compacted to meet requirements as soon as conditions allow. If excavated soil is unsuitable to meet compaction requirements, contractor shall import suitable fill.

Backfilling gas piping, telephone, electrical, cable television, conduits, or other private utilities not connected to City utilities shall follow the procedure for sewer and water lines, except pit run gravel may be omitted from the bed of the trench unless required by the **ENGINEER**.

### **RESPONSIBILITY OF THE CONTRACTOR FOR CORRECTION OF FAULTY TRENCHES, MATERIALS, AND/OR WORKMANSHIP DEFICIENCIES**

Undue inconvenience or time delays affecting the public are considered deficiencies by the contractor. If inconveniences, time delays, construction methods, materials, or quality of workmanship are deficient at any time during construction, said deficiency shall be corrected within 4 hours of notification. When material availability will delay the correction, a temporary corrective measure such as barricades or a temporary patch shall be made until the pavement correction can be made. Failure by the contractor to correct a deficiency, either temporary or permanent, in a timely matter, shall give the City the right to correct or contract a third party to correct the deficiency at the **CONTRACTOR'S** expense. No additional permits will be issued until the correction or payment for the correction is made.

### **CONTRACTOR RESPONSIBILITY FOR PROTECTING TREES**

A contractor working in public right-of-way or properties shall be responsible for the prevention of damage to trees, shrubs, bushes, hedges, or other woody plants and their root systems located within, or infringing upon, the public rights-of-way and properties, including parks. The City Forestry Division of the Public Works Department, 355-1700, shall be notified at least 24 hours in advance of working on site, between 8:00 a.m. and 4:30 p.m., prior to beginning of any construction near said areas.

When excavating within 10 feet of a tree, the **CONTRACTOR** shall notify the **ENGINEER** so it may be inspected by the Forestry Division prior to excavating. The excavation shall be offset away from the nearest tree to make the excavation, rather than centered over the facility.

The **CONTRACTOR** shall exercise care in driving or working over the root zone of area trees to prevent excessive compaction of the soil. Gaseous, liquid, or solid substances

which are harmful to trees and plants shall not be allowed to come into contact with trees or plants. Nails, bolts, or other fastening materials shall not be imbedded into the trunk or limbs of a tree. Ropes, wire, or other hanging materials shall not be attached to a plant in such a manner that the bark may be damaged or cause undue stress to a plant structure.

Any overhanging branches or underlying roots which may be crushed, scarred, broken, or damaged in any way due to unavoidable construction activity shall be reported to the **CITY FORESTER** so that preventive action may be taken to minimize damage. Any trees damaged without prior notification of the **CITY FORESTER** shall be the responsibility of the **CONTRACTOR** to repair or replace as determined by the **CITY FORESTER**.

If it is determined by the **CITY FORESTER** that ditches, tunnels, trenches, or other earthmoving operations for underground utilities construction will cause damage to the health, vigor, and stability of plants, the **CITY FORESTER** may require that trenchless construction methods be used wherever possible. Where this is not possible, the **CITY FORESTER** must be notified to assist in determining alternate methods. If trees must be pruned, fertilized, or removed prior to construction, as determined by the **CITY FORESTER**, all costs, using prescribed methods, shall be the responsibility of the **CONTRACTOR**. The **CONTRACTOR** shall familiarize himself with and adhere to the Forestry Division's Standard Specifications on trenching and augering around trees.

Prior to backfilling any trench or ditch, the **CITY FORESTER** shall be notified to inspect any repairs made to damaged roots. All exposed roots shall be pruned or trimmed using a hand pruner or hand saw. **Axe cuts will not be allowed.**

Upon completion of construction, the **CONTRACTOR** shall notify the **CITY FORESTER** for a final inspection of the trees, whether or not any damage occurred. Any damage found to have been due to the construction activity of the contractor shall be the remedial responsibility of the **CONTRACTOR**.