

DIVISION 14 - SHALLOW BURIED UTILITIES

Section 14001	Roadway Restoration for Shallow Buried Utility Construction	14001_Jan05_2012.pdf
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14001-1 COST SCHEDULE FOR WORK PERFORMED BY CITY FORCES

1.1 Paved Streets and Paved Lanes

Please be advised that effective April 1, 2012 unit charges to your Corporation for patch paving streets after construction and maintenance will be as follows. Costs include all labour, equipment and material required during the preparation and repair of the cut, follow-up maintenance and repairs as required, and long term damage to the integrity of the infrastructure.

Trench Width (mm)	Local and Collector Streets	Arterial and Expressway Streets
0 – 250	\$58.35/m	\$74.73/m
250 – 500	\$96.27/m	\$100.59/m
500 – 750	\$101.57/m	\$117.82/m
750 - 1000	\$123.12/m	\$139.13/m
>1 m, hand patch	\$108.52/sq.m.	\$120.78/sq. m.
>1 m, paver patch	\$142.81/sq.m.	\$155.13/sq. m.

CHARGES FOR BARRICADING: \$210.00 PLUS TAXES IF REQUESTED BY THE UTILITY COMPANY.

In addition, a flat charge of **\$19.69** will be charged for each excavation to cover overhead and supervisory costs.

Paver patching will be specified if the road is in near-new condition.

The minimum charge for any size cut is **\$128.48** (including the **\$19.69** flat charge).

*Bold Text Denotes a Change in This Version (Jan 05, 2012)

Note: There will be a 20% surcharge to the above rates for any excavation done between October 15th and April 30th the following spring unless the City is able to ensure that patching will be completed during this period.

Goods and Services Tax (G.S.T.) and Provincial Sales Tax are not included in the above prices. These taxes will be added at time of billing.

1.2 Costs for Repair of Concrete Sidewalk and Curb

- Curb only - **\$160.29**/lineal metre
- Sidewalk only - **\$185.13**/square metre
- Combined sidewalk and curb - **\$210.72**/square metre
- Saw cutting - **\$24.09**/lineal metre

1.3 Costs for Repair of Gravel Lanes

- Trench Repair - **\$22.87**/lineal metre
- Blading Only - **\$3.36**/lineal metre
- For Excavations wider than one metre, a flat rate of **\$56.90**/square metre

1.4 Costs for Repair of Sod and Grass Areas

- Cuts with an area of 5 sq meters or less will be charged a flat rate for sod or seeding of **\$224.95**.
- Sod cuts with an area in excess of 5 sq meters will be charged the flat rate of: **\$224.95**, plus **\$16.87**/sq meter for every square meter over the initial 5 sq meters for sod.
- Sod cuts for chain trenching costs will be charged a flat rate of **\$224.95** for 20m or less. Any cuts longer than 20m will be charged **\$224.95** plus **\$7.57** per linear meter.
- Seeded grass cuts with an area in excess of 5 sq meters will be charged the flat rate of **\$224.95**, plus **\$2.42**/sq meter for grass seeding.
- Base rate sodding – the cost for sod installation is **\$16.87** per square meter.
- Base rate seeding – the cost for fine grading and seeding is **\$2.42** per square meter.

14001-2 **SPECIFICATIONS FOR WORK PERFORMED BY EXTERNAL
CORPORATION OR CONTRACTOR**

2.1 **Paved Streets and Paved Lanes**

2.1.1 **Shallow Buried Utilities less than 1200mm depth (cut width
less than 300mm)**

- All pavement edges are to be saw cut by contractor.
- On paved streets, lean concrete with a maximum strength of 10.0MPa must be used from bottom of trench to bottom of existing pavement.
- Asphalt should be 75mm thick or match existing, whichever is greater.
- If existing asphalt is greater than 75mm, asphalt must be placed in two lifts.
- Asphalt shall be Type 2 hot mix asphalt compacted to a minimum of 97% of Marshall design density.
- See Plan No. 102-0007-001r004.

2.1.2 **Shallow Buried Utilities less than 1200mm depth (cut width
greater than or equal to 300mm)**

Can use one of two methods:

Method One

- All pavement edges are to be saw cut by contractor.
- Non-shrink fill with a maximum strength of 0.6MPa must be used from bottom of trench to a point 200mm below the bottom of finished pavement surface.
- Place a polyethylene bond breaker between 0.6MPa and the 20MPa concrete.
- 200mm of 20MPa concrete must be used below existing asphalt.
- Asphalt should be 75mm thick or match existing whichever is greater.

- If existing asphalt is greater than 75mm, asphalt must be placed in two lifts.
- Asphalt shall be Type 2 hot mix asphalt compacted to a minimum of 97% of Marshall design density.
- All excavated material to be hauled away.
- See Plan No. 102-0007-002r004.

Method Two

- All pavement edges are to be saw cut by contractor.
- Utility company is to cover their utility line with concrete or compacted gravel to a depth of 400mm below top of asphalt.
- A plate tamper or vibratory roller must be used for compaction of gravel.
- Base gravel shall be placed in 150mm lifts (maximum) and compacted to 100 % of Standard Proctor Density.
- **Test results must be provided. Compaction test reports can be faxed to 975-2971 (Attention Romuald Lagace).**
- Base gravel is to be placed to the bottom of asphalt.
- Asphalt should be 75mm thick or match existing whichever is greater.
- If existing asphalt is greater than 75mm, asphalt must be placed in two lifts.
- Asphalt shall be Type 2 hot mix asphalt compacted to a minimum of 97% of Marshall design density.
- All excavated material to be hauled away.
- If test results are less than the specified density, the contractor must excavate, re-compact and re-test to confirm density. If densities are not met, paving costs will be increased by 20% plus barricading charge.
- If tests are not provided, paving costs will be increased by 30% plus barricading charge.
- Tests shall be taken at a minimum of 50m spacing along project.
- See Plan No. 102-0007-003r004.

2.1.3 Shallow Buried Utilities less than 1200mm depth (cut width greater than or equal to 300mm) Winter Construction (after November 15th) on Collector or Greater Roadways

Utility cuts will not be permitted after November 15th as hot mix asphalt is not available after this date. Under special circumstances road cuts may be permitted upon approval from the Infrastructure Services Department. Infrastructure Services Department will determine how repair will be made if winter construction is allowed.

2.1.4 Shallow Buried Utilities less than 1200mm depth (on all cuts) Winter Construction (after November 15th) On Local Street or Paved Lanes

Can use one of three methods:

Method One

- All existing snow and ice in the general area is to be removed and trucked off site.
- All excavated material is to be hauled to an approved disposal area off site.
- The fill, base gravel shall be placed in 150mm lifts (maximum) and a compactive effort is to be made.
- The cut is to be filled with gravel to the top of asphalt.

The Cut is left in this condition and maintained by the City of Saskatoon through the winter months. The following steps take place during the subsequent spring season:

- The utility is to arrange with the City to schedule the placement of hot mix asphalt.
- The temporary patch is to be removed by utility.
- If asphalt edge is not clean and straight, the utility or contractor must make a new cut leaving the trench or hole with a straight clean edge.

- If there is no temporary patch excavate gravel to bottom of asphalt or 75mm which ever is greater.
- Base gravel is to be placed to base of asphalt.
- The trench must be compacted to 100% of Standard Proctor Density.
- If test results are less than the specified density contractor must excavate, re-compact and re-test to confirm density. Paving costs will be increased by 20% plus barricading charge.
- If tests are not provided, paving costs will be increased by 30% plus barricading charge.
- Tests shall be taken at a minimum of 50m spacing along project.
- **Test results must be provided. Compaction test reports can be faxed to 975-2971 (Attention Romuald Lagace).**
- The City of Saskatoon will place hot mix asphalt, and the utility will be charged based on summer rates. (Refer to Page 2 for Cost Schedule).
- If existing asphalt is greater than 75mm, asphalt must be placed in two lifts.
- Asphalt shall be Type 2 hot mix asphalt compacted to a minimum of 97% of Marshall design density.

Method Two

- All existing snow and ice in the general area is to be removed and trucked off site.
- All excavated material is to be hauled to an approved disposal area off site.
- The fill, base gravel shall be placed in 150mm lifts (maximum) and an effort is made to compact materials.
- The cut is to be filled with gravel to the top of asphalt.

The Cut is left in this condition and maintained by the City of Saskatoon through the winter months. The following steps take place during the subsequent spring season:

- The utility is to arrange with the City to schedule the placement of hot mix asphalt.
- The temporary patch is to be removed by utility.
- If there is no temporary patch, excavate gravel to bottom of asphalt or 75mm which ever is greater.

- If asphalt edge is not clean and straight, the utility or contractor must make a new cut, leaving the trench or hole with a straight clean edge.
- If utility or contractor choose not to provide compaction testing then the utility or contractor must remove gravel fill.
- All excavated material is to be hauled away.
- Non-shrink fill with a maximum strength of 0.6MPa must be used from bottom of trench to a point 200mm below the bottom of finished pavement surface.
- See Plan No. 102-0007-002r004.
- Place a polyethylene bond breaker between 0.6MPa and the 20MPa concrete.
- Bond breaker is not required if 0.6MPa concrete has set already. If they are poured at the same time the utility or contractor must use bond breaker.
- 200mm of 20MPa concrete must be used below existing asphalt.
- The City of Saskatoon will place hot mix asphalt, and the utility will be charged based on summer rates. (Refer to Page 2 for Cost Schedule).
- If existing asphalt is greater than 75mm, asphalt must be placed in two lifts.
- Asphalt shall be Type 2 hot mix asphalt compacted to a minimum of 97% of Marshall design density.

Method Three

- All existing snow and ice in the general area is to be removed and trucked off site.
- All pavement edges are to be saw cut by contractor.
- All excavated material is to be hauled away.
- Non-shrink fill with a maximum strength of 0.6MPa must be used from bottom of trench to a point 200mm below the bottom of finished pavement surface.
- See Plan No. 102-0007-002r004.
- Place a polyethylene bond breaker between 0.6MPa and the 20MPa concrete.
- 200mm of 20MPa concrete must be used below existing asphalt.
- Concrete must be covered with an insulated tarp for 24 hours.
- Utility or contractor shall place gravel from 20Mpa concrete to top of asphalt.

The Cut is left in this condition and maintained by the City of Saskatoon through the winter months. The following steps take place during the subsequent spring season:

- The utility is to arrange with the City to schedule the placement of hot mix asphalt.
- The temporary patch of cold mix is to be removed by the utility
- If asphalt edge is not clean and straight, the utility or contractor must make a new cut leaving the trench with a straight clean edge.
- The City of Saskatoon will place hot mix asphalt, and the utility will be charged based on summer rates. (Refer to Page 2 for Cost Schedule).
- If existing asphalt is greater than 75mm, asphalt must be placed in two lifts.
- Asphalt shall be Type 2 hot mix asphalt compacted to a minimum of 97% of Marshall design density.

2.1.5 Shallow Buried Utilities less than 1200mm depth (cut width less than 300mm) Winter Construction (after November 15th) on Collector or Greater Roadways.

- All existing snow and ice in the general area is to be removed and trucked off site.
- All pavement edges are to be saw cut if trencher does not make a smooth cut.
- All excavated material is to be hauled to an approved disposal area off site.
- Lean concrete with a maximum strength of 10.0MPa must be used from bottom of trench to bottom of finished pavement surface.
- The City of Saskatoon will temporarily patch cuts with cold mix asphalt, the patch should be 75mm thick. The utility will be charged based on summer rates. (Refer to Page 2 for Cost Schedule). The City of Saskatoon will make the decision whether cold mix asphalt patching will be required, if not the cut will be patched with gravel.

The Cut is left in this condition and maintained by the City of Saskatoon through the winter months. The following steps take place during the subsequent spring season:

- The utility is to arrange with the City to schedule the placement of hot mix asphalt.
- The temporary patch is to be removed by utility.
- If there is no temporary cold mix asphalt patch, excavate the patch gravel to bottom of asphalt or 75mm whichever is greater.
- The City of Saskatoon will place hot mix asphalt, and the utility will be charged based on summer rates. (Refer to Page 2 for Cost Schedule).
- If existing asphalt is greater than 75mm, asphalt must be placed in two lifts.
- Asphalt shall be Type 2 hot mix asphalt compacted to a minimum of 97% of Marshall design density.
- See Plan No. 102-0007-001r004.

2.2 Non-Paved Lanes

2.2.1 Shallow Buried Utilities in Gravel lanes

- All excavated material is to be hauled to an approved disposal area off site.
- The fill base gravel shall be placed in 150mm lifts (maximum) and compacted to 95% of Standard Proctor Density at existing field moisture content.
- The surface will be graded and the construction area must be well gravelled.
- If construction areas fail the City will fix sites and bill the utility.
- See Plan no.102-0007-005r002.

2.2.2 Shallow Buried Utilities in Gravel Lanes Winter Construction (after November 15th)

- All existing snow and ice in the general area is to be removed and trucked off site.
- All excavated material is to be hauled to an approved disposal area off site.
- The fill base gravel shall be placed in 150mm lifts (maximum) and a compacted effort is to be made.
- The surface will be graded and the construction area must be well gravelled.
- **A restoration report is to be faxed to Romuald Lagace at 975-2971.**
- If construction areas fail the City will fix sites and bill utility.

2.3 Shallow Buried Utilities in Parks and Boulevards

- Utility cuts should be at least 600mm from curbs or back of walks. If utility wants to place a structure in less than the minimum requirements, the utility will have to back fill the trench or hole with 2MPa non-shrink fill, to 100mm from existing topsoil.
- Trench or hole shall be filled in 150mm lifts (maximum) and compacted to 95% of Standard Proctor Density to a depth 100mm below existing topsoil.
- 100mm of topsoil must be placed over trench or hole.
- All extra cut material must be trucked away.
- Grass seed or sod must be placed over the trench or hole. The City of Saskatoon will make the decision on whether seed or sod will be used. The City will stipulate the type of grass seed to be used.
- If trench or hole sinks (within two years) the City of Saskatoon will fill the trench or hole and invoice the utility.
- In parks, the Parks Branch may require that Parks Branch do all the repairs and invoice the utility at standard rates. (Refer to Page 2 for Cost Schedule).

2.4 Utility Cuts on Unfinished Paved Road at Base Gravel Stage

- Excavate and dispose of all trench material.
- Install utility as permitted by City of Saskatoon approved layout plan.
- Backfill required to be either:
 - 1) Fillcrete (unshrinkable fill) full and complete all remaining trench to the underside of the installed granular subbase;
 - 2) Or reinstallation of native backfill material is allowed as long as a minimum trench width of 1.2 m is excavated and native backfill is installed to 98% of Maximum Standard Proctor Dry Density, (complete with independent testing results paid for by the utility or contractor);
 - 3) Or minimum 10 Mpa Concrete for the full depth of installed granular subbase.
- Approved granular base properly installed to replace the region of base removed.
- The City of Saskatoon will have its Roadway Contractor shape and compact the base prior to paving, the cost of which will be charged to the Utilities account. A minimum charge of \$300 will be assessed for a maximum of 125m², with an additional \$2.00 per m² above 125m².

2.5 Utility Cuts In Areas Graded But No Roadway Structure In Place

- 1) Fillcrete (unshrinkable fill) full and complete all remaining trench to the underside of the future subbase; the City of Saskatoon will provide grade stakes for those elevations;
- 2) Or reinstallation of native backfill material is allowed as long as a minimum trench width of 1.2 m is excavated and native backfill is installed to 98% of Maximum Standard Proctor Dry Density, (complete with independent testing results paid for by the utility or contractor).

14001-3 UTILITY OR CONTRACTOR CONSTRUCTION

There may be occasions where it would be beneficial to both parties to have the Contractor or Corporation arrange for asphalt or concrete repairs by a private sector supplier. Prior arrangements should be made with the Roadways Manager or Superintendent.

The Roadways Branch City Yards telephone number is 975-2476 and you can contact one of the following at this number:

Mark Patola, Roadways Section Manager

Ed Hildebrandt, Roadways Superintendent

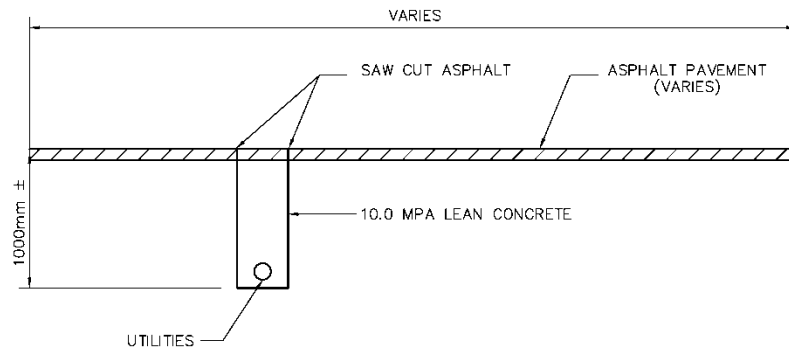
Dale Petrun, Operations Assistant

- 2 years of warranty on asphalt work by contractor.
- If work completed by a third party hired by a utility company is not satisfactory, the work will be repaired to a satisfactory state or the City of Saskatoon will make appropriate repairs and charge the utility accordingly.
- Random and scheduled inspections will be made of all work.

14001-4 DEEP BURIED UTILITIES (IE WATER AND/OR SEWER)

- All pavement edges are to be saw cut by contractor or corporation.
- If pavement edge has been damaged than the edge must be moved back to make the pavement edge a sharp clean line.
- All excavated material is to be hauled away.
- On all paved streets, the Contractor or Corporation shall place granular backfill (Class I Backfill) in 300 mm lifts (maximum) over the entire width of the trench and shall compact each lift to 97% of Standard Proctor Density at existing field moisture content, using **vibratory** mechanical compaction equipment.
- The compacted material shall be brought up to 450 mm below the existing base of asphalt.
- The Contractor or Corporation shall then supply and place 450 mm of street base gravel flush with the original base of asphalt; the street base gravel shall be placed in 150 mm lifts (maximum) and compacted to 100% of Standard Proctor Density at existing field moisture content.
- When the backfilling process can be co-ordinated with the City Yards crew for immediate asphalt patching, the street base should be left down to the base of existing asphalt. If not the hole should be filled to top of existing asphalt with base gravel.
- Asphalt should be 75mm thick or match existing whichever is greater.
- If existing asphalt is greater than 75mm, asphalt must be placed in two lifts.
- Tests shall be taken at a minimum of 50m spacing along the project.
- Test results are required on the following materials:
 - Granular base material
 - Base Gravel
- Copies of all test results must be submitted to the Technical Support Supervisor (Fax 975-2971) and to the Operations Manager (Fax 975-2500).
- If test results are less than the specified density contractor must excavate, re-compact and re-test to confirm density, if not paving costs will be increased by 20%.
- If tests are not provided, paving costs will be increased by 30%.

TYPICAL ASPHALT CUT
 0 - <300mm CUT

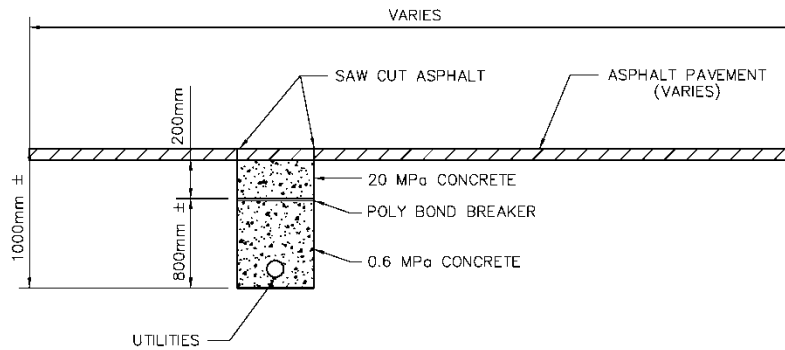


- * ASPHALT SHALL BE PLACED AT 75mm THICK OR MATCH EXISTING THICKNESS WHICHEVER IS GREATER.
- * IF EXISTING ASPHALT IS GREATER THAN 75mm, ASPHALT MUST BE PLACED IN TWO LIFTS.
- * ALL EXCAVATED MATERIAL TO BE HAULED AWAY.

1. ALL UTILITY CONSTRUCTION AND MAINTENANCE ACTIVITY INVOLVING EXCAVATION IN A CITY STREET OR LANE RIGHT-OF WAY MUST BE REPORTED TO THE INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON.
2. REPAIRS/RESTORATION OF THE STREET/LANE SURFACE SHALL BE DONE AS SHOWN.

REVISIONS			APPROVED	
1	MRH 03-12-22		GENERAL MANAGER	P. ENG.
2	HLO 06-01-20	ENGINEER		
3	HLO 07-02-28	ENGINEER		
DRAWN BY <u>RAV</u>		UTILITIES PLACEMENT STANDARDS		
DATE <u>98-11-06</u>				
CHECKED BY _____		SCALES : HOR. <u>NTS</u> VERT. _____		
DATE _____		PLAN NO. 102-0007-001r004		

TYPICAL STREET
 300mm – 1000mm CUT

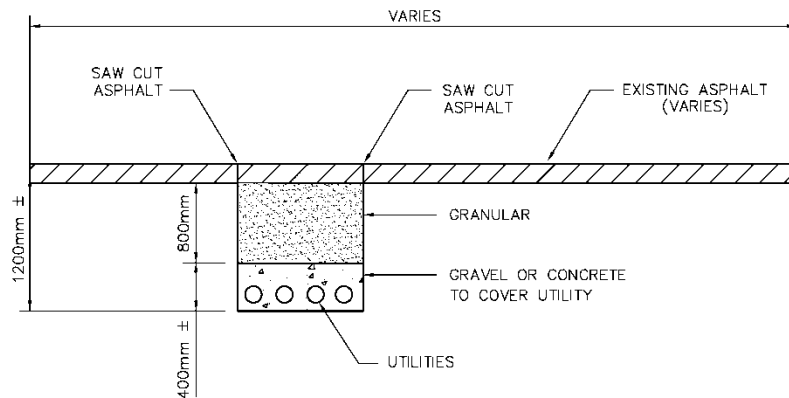


- * ASPHALT SHALL BE PLACED AT 75mm THICK OR MATCH EXISTING THICKNESS WHICHEVER IS GREATER.
- * IF EXISTING ASPHALT IS GREATER THAN 75mm, ASPHALT MUST BE PLACED IN TWO LIFTS.
- * ALL EXCAVATED MATERIAL TO BE HAULED AWAY.

1. ALL UTILITY CONSTRUCTION AND MAINTENANCE ACTIVITY INVOLVING EXCAVATION IN A CITY STREET OR LANE RIGHT-OF WAY MUST BE REPORTED TO THE INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON.
2. REPAIRS/RESTORATION OF THE STREET/LANE SURFACE SHALL BE DONE AS SHOWN.

REVISIONS			APPROVED	
1	MRH 03-12-22		GENERAL MANAGER	P. ENG.
2	HLO 06-01-20		ENGINEER	
3	HLO 07-02-28		ENGINEER	
DRAWN BY <u>RAV</u>		UTILITIES PLACEMENT STANDARDS SCALES : HOR. <u>NTS</u> VERT. _____ PLAN NO. 102-0007-002r004		
DATE <u>98-11-06</u>				
CHECKED BY _____				
DATE _____				

TYPICAL STREET
 300mm - 1000mm CUT

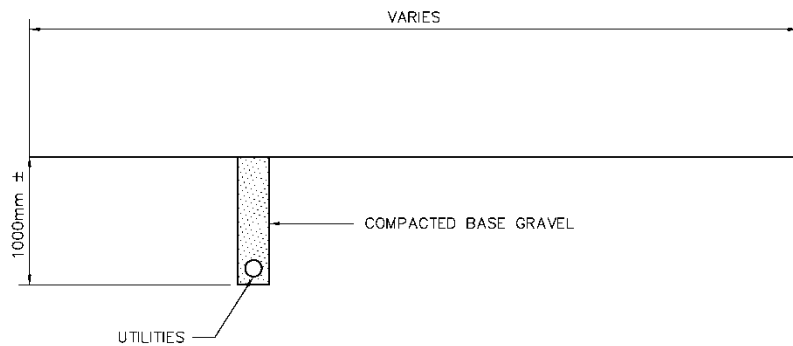


- * ASPHALT SHALL BE PLACED AT 75mm THICK OR MATCH EXISTING THICKNESS WHICHEVER IS GREATER. IF EXISTING ASPHALT IS GREATER THAN 75mm, ASPHALT MUST BE PLACED IN TWO LIFTS.
- * THE STREET BASE GRAVEL SHALL BE PLACED IN 150 MM LIFTS (MAXIMUM) AND COMPACTED TO 100 PERCENT OF STANDARD PROCTOR DENSITY AT EXISTING FIELD MOISTURE CONTENT.
- * COMPACTION TEST REPORTS MUST BE PROVIDED REPORTS CAN BE FAXED TO 975-2971.
- * ALL EXCAVATED MATERIAL TO BE HAULED AWAY.

1. ALL UTILITY CONSTRUCTION AND MAINTENANCE ACTIVITY INVOLVING EXCAVATION IN A CITY STREET OR LANE RIGHT-OF WAY MUST BE REPORTED TO THE INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON.
2. REPAIRS/RESTORATION OF THE STREET/LANE SURFACE SHALL BE DONE AS SHOWN.

REVISIONS			APPROVED	
1	MRH 03-12-22		UTILITIES PLACEMENT STANDARDS	GENERAL MANAGER
2	HLO 06-01-20	ENGINEER		
3	HLO 07-02-28	ENGINEER		
DRAWN BY <u>RAV</u>			SCALES : HOR. <u>NTS</u> VERT. _____	
DATE <u>98-11-06</u>			PLAN NO. 102-0007-003r004	
CHECKED BY _____				
DATE _____				

TYPICAL GRAVEL LANE



- * FILL BASE GRAVEL SHALL BE PLACED IN 150MM LIFTS (MAXIMUM) AND COMPACTED TO 95 PERCENT OF STANDARD PROCTOR DENSITY AT EXISTING FIELD MOISTURE CONTENT.
- * ALL EXCAVATION MATERIAL IS TO BE HAULED TO AN APPROVED DISPOSAL SITE AWAY FROM THE CONSTRUCTION AREA.

1. ALL UTILITY CONSTRUCTION AND MAINTENANCE ACTIVITY INVOLVING EXCAVATION IN A CITY STREET OR LANE RIGHT-OF WAY MUST BE REPORTED TO THE INFRASTRUCTURE SERVICES DEPARTMENT CITY OF SASKATOON.
2. REPAIRS/RESTORATION OF THE STREET/LANE SURFACE SHALL BE DONE AS SHOWN.

REVISIONS			APPROVED	
1	CC 02-04-08		GENERAL MANAGER	P. ENG.
2	HLO 06-01-20		ENGINEER	
3		ENGINEER		
DRAWN BY <u>RAV</u>		UTILITIES PLACEMENT STANDARDS		
DATE <u>98-11-06</u>				
CHECKED BY _____				
DATE _____		SCALES : HOR. <u>NTS</u> VERT. _____		
		PLAN NO. 102-0007-005r002		