

MEASUREMENT AND PAYMENT – 50% DESIGN

1.0 GENERAL

- 1.1 Section 01 22 17 addresses general requirements for Measurement and Payment for all *Items* under the *Schedule of Quantities and Prices*.
- 1.2 All Measurement and Payment provisions under any particular Section are applicable to the same *Items* or components of *Work* involved in other Sections.
- 1.3 All units of measurement for payment will be as given in the *Schedule of Quantities and Prices*. All payments will be based on respective unit or lump prices in the *Schedule of Quantities and Prices*, or for *Change Orders* issued.
- 1.4 Payment for *Items* under the *Schedule of Quantities and Prices* covers supply and installation of *Work* described under the *Items* and referenced by the Measurement and Payment clauses. Payment shall be full compensation for:
 - 1.4.1 The costs of all labour, equipment and material included in or required for the *Work* which, while not specifically listed in the *Schedule of Quantities and Prices*, are included in the *Work* specifically or by necessary inference from the *Scope of Work Documents*;
 - 1.4.2 All assessments payable with respect to labour as required by any statutory scheme such as unemployment insurance, holiday pay, insurance, CPP and all employee benefits and the *Workers' Compensation Act*; and
 - 1.4.3 All overhead costs, including head office, on-site overhead costs and all amounts for the *Contractor's* profit.
- 1.5 No payment will be made for unauthorized *Work* or *Work* beyond the limits shown on the *Contract Drawings*.
- 1.6 Unless specified otherwise, the standard methods of measurement will be as follows:
 - 1.6.1 Lineal measurements will be taken from end to end of the *Item* measured horizontally, or as described in individual Measurement and Payment clauses. No adjustment will be made for *Items* that are installed on a slope.
 - 1.6.2 Area measurements will be the geometric area calculated from conventionally accepted lineal horizontal measurements of applicable dimensions of the area to be measured, or as described in individual Measurement and Payment clauses. No adjustment will be made for *Items* that are installed on a slope.
 - 1.6.3 Volume measurements will be made using TIN surface models, based on surveys performed on a maximum 20 m grid, or as described in individual Measurement and Payment clauses or Specifications and Supplementary Specifications.
 - 1.6.4 Weight measurements for *Items* with materials delivered in truckloads shall be scaled and recorded by the *Contractor* on duplicate weigh slips at a certified scale, or as described in individual Measurement and Payment clauses or Specifications

MEASUREMENT AND PAYMENT – 50% DESIGN

and Supplementary Specifications. Weigh slips must be signed by the *Contractor* at the time of delivery and a copy supplied to the *Consultant* prior to each *Payment Certificate*.

- 1.7 Unless otherwise noted, this *Contract* has been designed and is to be constructed in the S.I. metric system of measurements.
- 1.8 Unless otherwise specified, accuracy of measurement will be to the nearest significant decimal value as given below:
- | | |
|------------------------|------------------------------|
| Length items | 0.1 metre |
| Area items | 0.1 square metre |
| Volume or weight items | 0.1 tonne or 0.1 cubic metre |
| Per unit items | Each |
| Lump sum items | As specified |
- 1.9 References given against each *Item* in the *Schedule of Quantities and Prices*, such as “2.3.4”, refer to articles in this section.
- 1.10 The following summaries are provided for information only and shall not limit the work required to satisfactorily complete an *Item*.

2.0 MEASUREMENT AND PAYMENT

2.1 Site Works

1.1.1 General Work

Measurement

General Work shall be measured on a lump sum basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for General Work in the *Contract Documents* including Mobilization and De-mobilization including loading, hauling and unloading of all labour, materials and equipment to and from the site, permits as required by governing authorities, and fines; Traffic Accommodation including traffic management *Consultant*, preparation and approval of a traffic accommodation strategy (TAS), certified flag persons, supply, installation, maintenance and removal of pylons, barriers, lighting, signage, and message and arrow boards, necessary or incidental to implement the TAS and to safely manage traffic for the duration of the *Project*. All traffic control and management shall be done in accordance with the governing authority's specifications; Temporary Site Signage including supply, installation, and maintenance of signage adequate to notify the public of the ongoing construction and for project identification, safety regulations, and other temporary signage, hardware, posts, and brackets as required to install signage, removal and disposal at a suitable site located and paid

MEASUREMENT AND PAYMENT – 50% DESIGN

for by the Contractor, when directed by the Consultant, and restoration after removal; Temporary Site Fencing including supply, installation, and maintenance of site fencing and gates adequate to separate the public, and deter persons from entering the work area, management of the fence in such a way as to not hinder the *Work*, removal and disposal of all fence and gate materials at a suitable site located and paid for by the *Contractor*, when directed by the *Consultant*, and restoration after removal; Locating and Protecting Utilities including all labour, material and equipment to protect existing utilities as per the Drawings and as directed by the *Owner's Representative* including water mains, sanitary sewer mains, stormwater outfalls, natural gas, telephone and fibre optic lines, oil and gas pipelines, including hydrovacating, hauling waste, dumping, managing and coordinating and backfilling; and Erosion and Sediment Control as specified in the *Contract Documents* including supply, delivery, installation, maintenance, removal and disposal at a suitable site located and paid for by the *Contractor*, after *Maintenance Period* completion, of all erosion control devices necessary for and incidental to controlling erosion.

1.2 Utilities – Water

1.2.1 Supply and Installation of Watermain

Measurement

Supply and Installation of Watermain shall be measured in lineal metres for each combination of pipe size, material type, pipe classification, and location (easement or right-of-way) to limits as defined by the *Contract Documents*. Lengths of fittings will not be deducted from the total length of pipe.

Payment

Payment shall be full compensation for Supply and Installation of Watermain as specified in the *Contract Documents* including supply and installation of pipe, supply and installation of warning signs and posts, tie-in to existing infrastructure, and bends, elbows, reducers, sweeps, caps, tees, other fittings, concrete thrust blocks, bearing blocks, cathodic protection, bedding, disinfecting, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, dewatering and landscape restoration work to pre-construction conditions or better.

MEASUREMENT AND PAYMENT – 50% DESIGN

1.2.2 Air Release Valves

Measurement

Air Release Valve shall be measured on a per unit basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Air Release Valve as specified in the *Contract Documents* including supply and installation of air release valve, insulation, top box, bottom box, casing, valve rod, cap, curb stop and riser, elbows, concrete thrust blocks, bearing blocks, cathodic protection, saddle and bolting, main stop, HDPE pipe, manhole frame and cover assembly, concrete slab top, concrete manhole barrels, base, drain, drain rock, and bedding, setting of appurtenances to final grade, supply and installation of warning sign and post, disinfecting, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

1.2.3 Blow Off Structures

Measurement

Blow Off Structures shall be measured on a per unit basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Blow Off Structures as specified in the *Contract Documents* including supply and installation of blow off structure, main stop, piping, bypass piping, curb stop, spools, drain, drain rock, frame and cover, concrete slab top, bends, caps, filter fabric, concrete sidewalk block and bedding, setting of appurtenances to final grade, disinfecting, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

1.2.4 Isolation Valves

Measurement

Isolation Valves shall be measured on a per unit basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Isolation Valves as specified in the *Contract Documents* including supply and installation of valve, top box, bottom box, casing, valve rod, riser pipe, cap, concrete thrust blocks, concrete sidewalk block, bearing blocks, cathodic protection, and bedding, setting of appurtenances to final grade, supply and installation of warning sign and post, disinfecting, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

MEASUREMENT AND PAYMENT – 50% DESIGN

1.2.5 Meter Chamber

Measurement

Meter Chamber shall be measured on a lump sum basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Meter Chamber as specified in the *Contract Documents* including supply and installation of concrete chamber, base, manhole barrels, slab tops, frames and covers, valve stem, appurtenance adjustments to final grade, ladder, full meter system as per the *Contract Drawings* including valves, flow meter, pressure gauge, couplings, connection to watermain, bolts, pipe supports, nipple, plug, pressure transmitter, flanges, reducers, gravel, and bedding, all tie-ins required, equipment testing, grouting, sealing, and mortar, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

1.2.6 CP Rail Crossing

Measurement

CP Rail Crossing shall be measured in lineal metres for each combination of pipe size, material type, pipe classification, and location (easement or right-of-way) to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for CP Rail Crossing as specified in the *Contract Documents* including drilling or boring, supply and installation of encasement pipe, carrier pipe, casing spacers, flange fittings to connect to gate valves or other fittings, concrete pipe anchors, concrete thrust blocks, bearing blocks, cathodic protection, anode test points as per the City of Calgary specifications for encasement pipe, and bedding, setting of appurtenances to final grade, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

1.2.7 Trenchless Installation under Sheep River from 10+380 to 10+720

Measurement

Trenchless Installation under Sheep River from 10+380 to 10+720 shall be measured in lineal metres for each combination of pipe size, material type, pipe

MEASUREMENT AND PAYMENT – 50% DESIGN

classification, and location (easement or right-of-way) to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Trenchless Installation under Sheep River from 10+380 to 10+720 as specified in the *Contract Documents* including directional drilling or boring, carrier pipe, tracer wire, flange fittings to connect to gate valves or other fittings, concrete pipe anchors, concrete thrust blocks, bearing blocks, and bedding, setting of appurtenances to final grade, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

1.2.8 Trenchless Installation from 14+010.02 to 14+439.90

Measurement

Trenchless Installation from 14+010.02 to 14+439.90 shall be measured in lineal metres for each combination of pipe size, material type, pipe classification, and location (easement or right-of-way) to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Trenchless Installation from 14+010.02 to 14+439.90 as specified in the *Contract Documents* including directional drilling or boring, carrier pipe, tracer wire, flange fittings to connect to gate valves or other fittings, concrete pipe anchors, concrete thrust blocks, bearing blocks, and bedding, setting of appurtenances to final grade, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

1.2.9 Highway 2 Crossing

Measurement

Highway 2 Crossing shall be measured in lineal metres for each combination of pipe size, material type, pipe classification, and location (easement or right-of-way) to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Highway 2 Crossing as specified in the *Contract Documents* including drilling or boring, carrier pipe, tracer wire, flange fittings to connect to gate valves or other fittings, concrete pipe anchors, concrete thrust blocks, bearing blocks, and bedding, setting of appurtenances to final grade, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

MEASUREMENT AND PAYMENT – 50% DESIGN

1.2.10 Road Crossings

Measurement

Road Crossings shall be measured on a per unit basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Road Crossings as specified in the *Contract Documents* including open cut, drilling or boring, carrier pipe, tracer wire, flange fittings to connect to gate valves or other fittings, concrete pipe anchors, concrete thrust blocks, bearing blocks, and bedding, setting of appurtenances to final grade, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, surface restoration, and dewatering.

1.2.11 Trenchless Road Crossing for 32nd Street

Measurement

Road Crossings shall be measured on a per unit basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Trenchless Road Crossing for 32nd Street as specified in the *Contract Documents* including drilling or boring, carrier pipe, tracer wire, flange fittings to connect to gate valves or other fittings, concrete pipe anchors, concrete thrust blocks, bearing blocks, and bedding, setting of appurtenances to final grade, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering.

1.2.12 Access and Driveway Crossings

Measurement

Access and Driveway Crossings shall be measured on a per unit basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Access and Driveway Crossings as specified in the *Contract Documents* including drilling or boring, carrier pipe, tracer wire, flange fittings to connect to gate valves or other fittings, concrete pipe anchors, concrete thrust blocks, bearing blocks, and bedding, setting of appurtenances to final grade, flushing, excavation, trenching, shoring, backfilling, moisture conditioning, compaction, and dewatering. Payment will only be made if the centreline of the pipe crosses a driveway or access.

MEASUREMENT AND PAYMENT – 50% DESIGN

1.3 Utilities – Miscellaneous

1.3.1 Roadway Pull-Out for Appurtenances

Measurement

Roadway Pull-Out for Appurtenances shall be measured on a per unit basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Roadway Pull-Out for Appurtenances as specified in the *Contract Documents* including supply and installation of culvert pipe, couplers, hardware, rip rap, geotextile fabric, and bedding, excavation, trenching, shoring, backfilling, dewatering, sub-grade preparation, supply and placement of granular sub-base and granular base, grading to specified tolerance, moisture conditioning, and compaction, gates, fence, and signs.

1.3.2 Testing and Commissioning

Measurement

Testing and Commissioning shall be measured on a lump sum basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Testing and Commissioning as specified in the *Contract Documents* including but not limited to all labour, material and equipment to flush, pig, pressure test and disinfect the waterline, supply of water for flushing, pigging, pressure testing and disinfection, and other related work for which payment is not included elsewhere.

1.3.3 Pig Launch and Retrieval Station

Measurement

Pig Launch and Retrieval Station shall be measured on a per unit basis to limits as defined by the *Contract Documents*.

Payment

Payment shall be full compensation for Pig Launch and Retrieval Station as specified in the *Contract Documents* including supply and installation of the pig launcher and retrieval station, frame and cover, associated piping, tees, and fittings, flanges, appurtenance adjustments, foundation, rock pit, drain rock, filter fabric, valves, connection to watermain, gravel, and bedding, all tie-ins required, equipment testing, grouting, sealing, and mortar, setting of appurtenances to final

UNIT PRICE CONTRACT
TOWN OF OKOTOKS
FOOTHILLS OKOTOKS REGIONAL WATER PROJECT
PIPELINE PHASE 1

SECTION: 01 22 17
PAGE 9 OF 9
JULY 2024
REVISION NUMBER: 0

MEASUREMENT AND PAYMENT – 50% DESIGN

grade, flushing, excavation, trenching, shoring, backfilling, moisture conditioning,
compaction, and dewatering.

END OF SECTION