Section 33 40 01 – Storm Sewers			
Delete			
		2.1.1 2.1.2 2.3.3 2.5 2.6.6 2.6.8.1	2.7.1 3.4.3 3.6.6.1 3.6.6.2 3.12.1 3.15.2
Add the following			
2.1	.1 (ss) .2 (ss)	Concrete Pipe	Non-reinforced circular concrete pipe and fittings: to ASTM C14M class 3, **minimum diameter 375mm**, maximum diameter 600mm, designed for flexible rubber gasket joints to ASTM C443M. Reinforced circular concrete pipe and fitting: to ASTM C76M class III for all pipe **greater than 600mm diameter and for 300mm diameter**, designed for flexible rubber gasket joints to ASTM C443M.
2.3	.3 (ss) .6 (ss) new	PVC Pipe, Mainline Profile	Pipes to have factory assembled spigot gaskets and integral bell joint features; joints to conform to all requirements ASTM D3212; elastomatic gaskets to confirm to ASTM F477 **or manufacturer approved method.** The use of spiral ribs is not permitted:
2.5	.1 (ss) **new** .2 (ss) **new**	**High Density Polyethylene Pipe**	**Pipe** .1 To AWWA C906 pressure class specified in Contract Documents. .2 Iron pipe size equivalent outside diameter. .3 To be compatible with specified mechanical joint fittings and valves without special adapters. .4 Other ribbed pipes of HDPE materials may be used where specified in the Supplementary Specifications or Contract Drawings. .5 Smooth transitions at invert for material and size changes. **Joints** .1 Heat butt fusion to ASTM D2657 and in accordance with manufacturer's recommendations. .2 Gasket joints for bell ends to ribbed HDPE pipes in accordance with manufacturer's recommendations. .3 Electrofusion couplings to be installed by certified trained personnel and in accordance to manufacturer's recommendations. Contractor to provide copy of certificate.

	.3 (ss) **new**		**Fittings** .1 Fabricated HDPE mitred fittings to AWWA C906 suitable for pressure rating specified in Contract Documents. .2 Moulded HDPE fittings to ASTM 3261 suitable for pressure rating specified and fusion to main pipe, dimensions as specified in Contract Documents. .3 Flanged joints to AWWA C906 flat faced stub end and loose hot-dip galvanized ductile iron (ASTM A536) backup ring drilling to ANSI B16.1, ANSI B16.5, or AWWA C207, class suitable for pressure rating specified in Contract Documents. .4 Nuts and bolts as specified for "Fittings" in this section. .5 Fittings for ribbed HDPE pipes to be compatible with the pipes specified.
2.6	.8.1 (ss) .8.3 (ss) new	Field installed Tees and Wyes	In-situ installation of tees and wyes into concrete, HDPE, PVC or steel spiral rib mainline pipes shall be made with approved PVC saddle installed to the manufacturer's specifications into a neatly cored hole in the pipe wall. **Such installation may only be carried out in exceptional circumstances with specific prior approval of the Contract Administrator.** The use of electrofused tees and wyes to be approved by the Contract Administrator.
2.6	.11 (ss) **new**	Flexible Joints	Where connections join concrete pipes, manholes or catchbasins, provide **flexible joints** as shown on Supplementary Detail Drawing **ST-19-SD**.
2.9	.1 (ss)	Granular Pipe Bedding and Surround Material	As shown on **Standard Detail Drawings with materials for bedding and surround** and as specified on Contract Drawings
3.4	.3 (ss)	Concrete Bedding and Encasement	Open excavation to be backfilled before the Contractor leaves the site at the end of the working day. Backfilling of uncured concrete will not be permitted. At the discretion of the City, plating of the excavation may be permitted.
3.6	.6.1 (ss) 6.2 (ss)	Pipes on Curved Alignments	Concrete pipe and ribbed profile PVC plastic pipe. Do not exceed joint deflection recommended by pipe manufacturers **or 3 degrees whichever is less**. Smooth profile PVC pipe: for 100mm to 300mm sizes conform to required curvature by minimum bending pipe barrel **through applying light manual pressure**. For greater curvature, **use 5 degree prefabricated PVC bends**. Joint deflection not permitted for smooth profile PVC pipe.

3.6	.14 (ss) new	Crossing of AC storm sewers	Any crossings of existing AC storm sewers will be replaced with approved materials by City forces.
3.10	.1 (ss) .2 (ss) .3 (ss)	Service Connection Installation	Install service connections to 3.6 and as shown on **Drawing ST-20-SD.** Install 40 X 90 mm marker stake at service terminus. Paint and mark as shown on **Supplementary** Detail Drawing ST-20-SD. Where specified, install chamber at specified location, set plumb and to specified elevation as shown on **Supplementary** Detail Drawing **ST-7-SD, ST-8-SD, ST-9-SD and ST-20-SD**, as applicable. If inspection chamber located in driveway, lane or paved surface install cover or lid as shown on **Supplementary** Detail Drawing **ST-8-SD, ST-9-SD and ST-20-SD** as applicable.
3.12	.1 (ss) .4 (ss) **new**	Inspection and Testing	The Contractor shall video inspect all completed storm sewers following completion of installation. The video inspection report shall conform to Supplementary Specification Section 33 01 30.1 –CCTV Inspection of Pipelines. Perform pressure and leakage testing of High Density Polyethylene (HDPE) piping to ASTM F1417.
3.15	.2 (ss)	Perforated Drain Pipe	Drain pipe to be a 100 mm minimum **and the insert at the catchbasin to be grouted in.**
3.16	(ss) new	Abandoned Storm Sewers	Abandoned storm sewers in arterial, collector or bus routes to be filled with control density fill or approved equal.