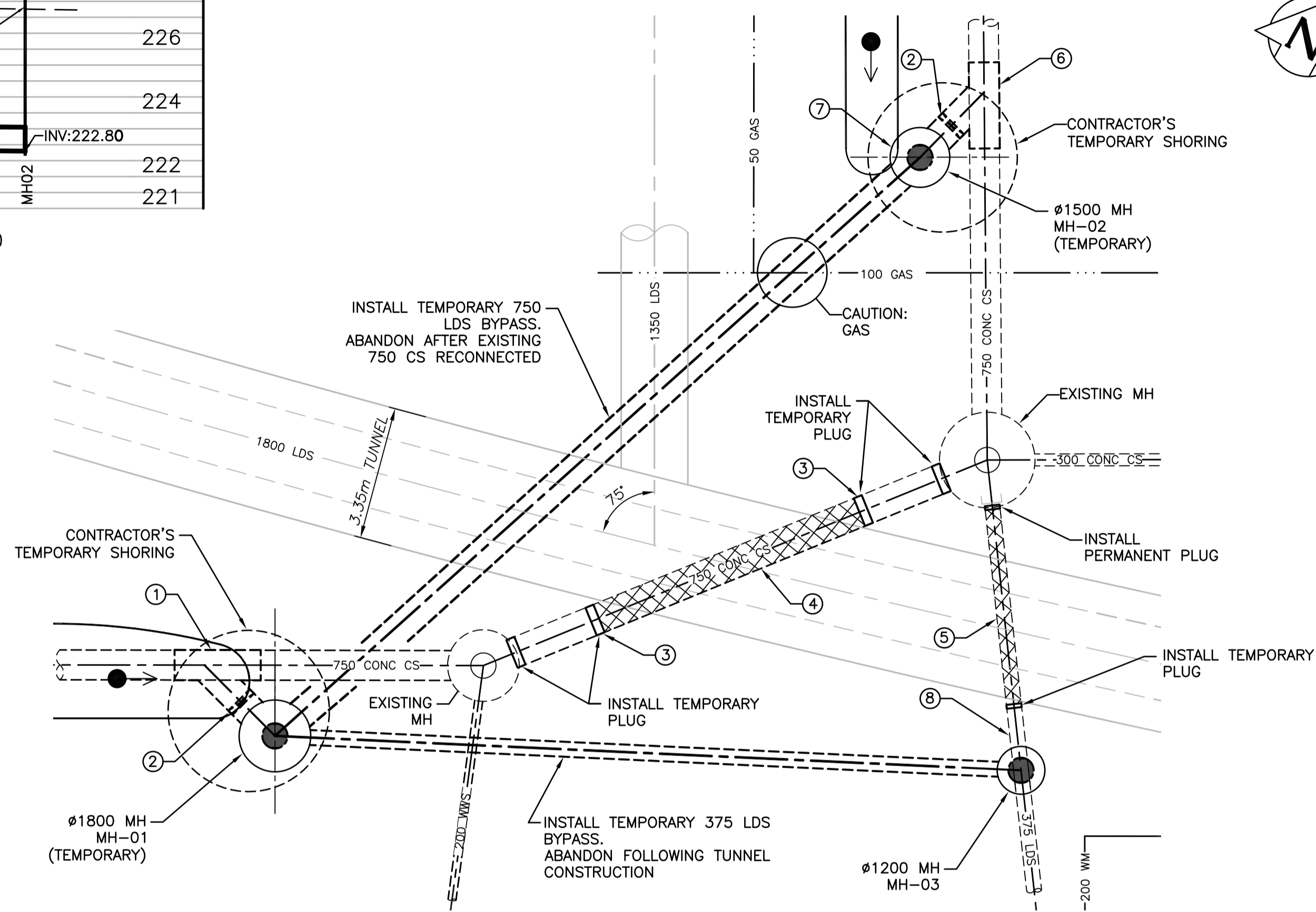


MANHOLE SCHEDULE		
REFERENCE	NORTHING	EASTING
MH-01	5523972.211	631812.986
MH-02	5523992.740	631820.207
MH-03	5523980.464	631829.833

PROFILE
NTS

- ① INSTALL 45'- 750mm PVC/ HDPE WYE, CONNECTED TO 750 CONCRETE WITH STEEL TRANSITION COUPLINGS. COUPLINGS TO BE DENSO TAPE WRAPPED PRIOR TO BACKFILLING.
- ② CONTRACTOR TO PROVIDE REMOVABLE PLUG.
- ③ SAW CUT EXISTING 750 CONC PIPE SQUARE TO ALLOW FOR FUTURE CONNECTION.
- ④ EXCAVATE AND REMOVE 7.5m OF EXIST. 750 CONC CS BACKFILL WITH CLSM, REINSTATE AS STD WALL STEEL PIPE THROUGH TOP OF TUNNEL.
- ⑤ EXCAVATE AND REMOVE EXISTING 375 LDS BACKFILL WITH CLSM.
- ⑥ INSTALL 45'- 750mm PVC/ HDPE WYE, CONNECTED TO 750 CONCRETE WITH STEEL TRANSITION COUPLINGS. COUPLINGS TO BE DENSO TAPE WRAPPED PRIOR TO BACKFILLING.
- ⑦ INSTALL SUMP FOR TEMPORARY PUMPS IN MANHOLE.
- ⑧ RECONNECT EXISTING 375 LDS TO NEW 1800 LDS.
- ⑨ ABANDON TEMPORARY MANHOLES AND PERMANENTLY PLUG PIPING FOLLOWING TUNNEL CONSTRUCTION.



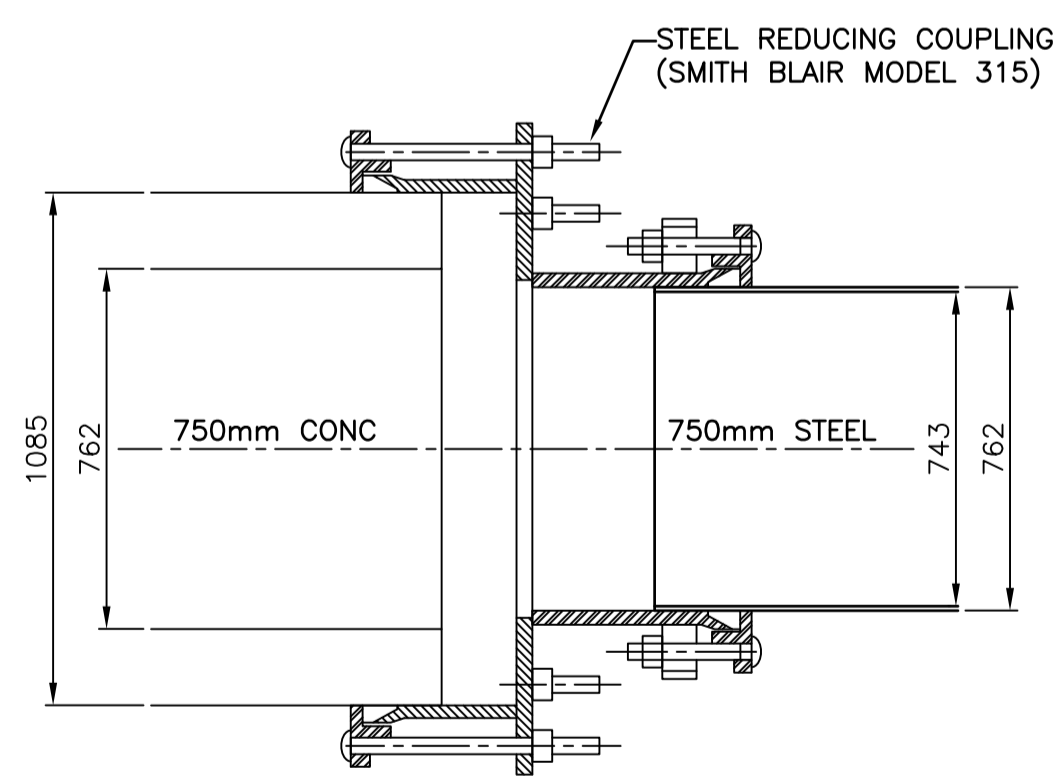
1 PLAN
1:100

2.2 INTERIOR LINING FOR STEEL PIPE
 A. THE PORTIONS OF STEEL PIPE EXTENDING THROUGH THE TUNNEL TO THE FLEXIBLE COUPLINGS MUST HAVE INTERNAL LINING.
 B. INTERNAL LINING FOR STEEL PIPE SHALL BE DENSO PROTAL 7250, OR APPROVED EQUAL IN ACCORDANCE WITH B7.
 C. USE FIELD APPLIED FINISHES ONLY FOR SHORT LENGTHS OF METAL PIPE IN A PIPING SYSTEM WHERE THE LENGTH OF PIPE WHICH REQUIRES COATING IS LESS THAN 1.0 M UNLESS OTHERWISE SPECIFIED; THE REQUIRED SHOP-APPLIED EXTERIOR FINISHES; THE MAKE UP CUTBACK DISTANCE AT JOINTS AND FOR FITTINGS, VALVES, AND OTHER APPURTENANCES.
 D. FOR DENSO PROTAL 7250, OR APPROVED EQUAL, APPLICATION, THE PRODUCT MUST BE APPLIED TO A MINIMUM THICKNESS OF 0.635 MM (25 MILS) AND PRIOR TO APPLICATION THE PIPE MUST BE PREPARED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL (SSPC) SPECIFICATION SP10. FOR FIELD WELDS APPLY COATING USING BRUSH GRADE PROTAL 7250 OR APPROVED EQUAL IN ACCORDANCE WITH B7. ALL APPLICATIONS SHALL BE IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 E. SUBMIT ALL APPLICABLE LINER PRODUCT INFORMATION TO THE CONTRACT ADMINISTRATOR FOR APPROVAL.

2.3 EXTERIOR COATING FOR STEEL PIPE
 A. ALL STEEL PIPE EXTENDING THROUGH THE TUNNEL TO THE FLEXIBLE COUPLINGS MUST HAVE AN EXTERNAL COATING.
 B. EXTERNAL COATING FOR STEEL PIPE FOR SANITARY SEWERS SHALL BE EITHER SHOP APPLIED TAPE WRAP; POLYKEN YGIII, IN ACCORDANCE WITH AWWA C214, OR DENSO PROTAL 7250 OR APPROVED EQUAL IN ACCORDANCE WITH B7.
 C. USE POLYKEN YGIII, OR APPROVED EQUAL, CONSISTING OF PRIMER AND TAPE APPLIED TO A MINIMUM THICKNESS OF 2 MM (80 MILS) IN ACCORDANCE WITH AWWA C209. FOR WELDED JOINTS, AND FITTINGS, FIELD APPLY TAPE TO PIPE AND FITTINGS.
 D. SUBMIT ALL APPLICABLE COATING PRODUCT INFORMATION TO THE CONTRACT ADMINISTRATOR FOR APPROVAL.

2.4 ALTERNATE COATING AND LINING FOR STEEL PIPE
 A. COAL TAR EPOXY: APPLY COAL TAR EPOXY TO THE INTERNAL AND EXTERNAL SURFACES OF PIPING IN ACCORDANCE WITH AWWA C210, TO A MINIMUM DRY FILM THICKNESS OF 350 MICRONS
 B. DEVOE BAR-RUST 2365: APPLY TWO COATS AT 6-8MILS DFT PER COAT OVER AN SP10 SURFACE PREPARATION, WITH WELDS RECEIVING AN ADDITIONAL STRIP COAT COVERING THE WELD AND 1" ON EITHER SIDE OF THE WELD.

2.5 COUPLINGS FOR STEEL PIPES
 A. THE COUPLINGS REQUIRED FOR CONNECTION OF UNLINED STEEL PIPE TO LINED STEEL PIPE SHALL BE SMITH BLAIR TYPE 315 OR APPROVED EQUAL IN ACCORDANCE WITH B7.



2 CONCRETE TO STEEL CONNECTION
NTS

Location	Event			
	DWF	1 year	2 year	5 year
1950mm Harrow				
Peak Flow (m3/s)	0.012	2.544	4.852	6.164
Peak Velocity (m/s)	0.176	1.587	1.822	1.988
300mm Stafford				
Peak Flow (m3/s)	0.0002	0.078	0.102	0.096
Peak Velocity (m/s)	0.068	1.043	1.145	1.099
750mm Taylor				
Peak Flow (m3/s)	0.004	0.364	0.825	0.931
Peak Velocity (m/s)	0.259	1.018	1.683	1.905
375mm Nathaniel *				
Peak Flow (m3/s)	0	0.287	0.631	0.878
Peak Velocity (m/s)	0	n/a	n/a	n/a

3 EXISTING FLOW RATES (APPROX.)
NTS

- NOTES:
1. REMOVE EXISTING 750 CS AND 375 LDS AS REQUIRED FOR TUNNEL CONSTRUCTION.
 2. MAKE ALL PIPE CUTS SQUARE TO ALLOW FUTURE CONNECTIONS.
 3. INSTALL BYPASS FOR 375 LDS AND 750 CONC CS BELOW TUNNEL.
 4. USE BYPASS THROUGHOUT TUNNEL CONSTRUCTION.
 5. REINSTATE 750 CS AS STD WALL STEEL PIPE THROUGH TOP OF TUNNEL.
 6. RECONNECT EXISTING 375 LDS TO NEW 1800 LDS.
 7. PROVIDE TEMPORARY PUMPING AS REQUIRED DURING CONSTRUCTION OF BYPASS TUNNEL.

EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PROFILE	PROPOSED
150 WM	WATER MAIN	150 WM	HYDRO	150 WM	WATER MAIN	150 WM	WATER MAIN	150 WM
+	HYDRANT	+	M.T.S.	+	HYDRANT, VALVE	+	HYDRANT, VALVE	+
⊗	VALVE	⊗	CONCRETE	300 LDS	LAND DRAINAGE SEWER	300 LDS	LAND DRAINAGE SEWER	300 LDS
300 LDS	LAND DRAINAGE SEWER	300 LDS	ASPHALT	250 WWS	WASTE WATER SEWER	250 WWS	WASTE WATER SEWER	250 WWS
250 WWS	WASTE WATER SEWER	250 WWS	SIDEWALK	X	CENTRELINE	X	CENTRELINE	X
○	MANHOLE	○	PLANNING	□	NORTH/WEST GUTTER	□	NORTH/WEST GUTTER	□
□	CATCH BASIN	□	PROPERTY LINE	○	SOUTH/EAST GUTTER	○	SOUTH/EAST GUTTER	○
▽	CURB INLET	▽	SURVEY BAR	◆, ○	N/W, S/E R'S	◆, ○	N/W, S/E R'S	◆, ○
∩	BEND	∩	GAS					
∩	REDUCER	∩	CURB STOP					
J	TEE	J	TEE					

LOCATION APPROVED UNDERGROUND STRUCTURES
 SUPV. U/G STRUCTURES COMMITTEE DATE
 NOTE:
 LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

NO.	REVISIONS	DATE	BY	DATE
1	RE ISSUED FOR TENDER	01/2018	JBC	
0	ISSUED FOR TENDER	01/2018	JBC	

KGS GROUP CONSULTING ENGINEERS

DESIGNED BY: MD
 CHECKED BY: ES
 DRAWN BY: JBC
 APPROVED BY: RBO

HOR. SCALE: 1:250
 VERTICAL: 1:50

RELEASED FOR CONSTRUCTION: K. ZUREK
 DATE: JAN 19, 2018

ENGINEER'S SEAL
DRAPER
 REGISTERED PROFESSIONAL ENGINEER
 37558

THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT

PROJECT TITLE: COCKBURN AND CALROSSIE COMBINED SEWER RELIEF WORKS - CONTRACT 5

TAYLOR AVENUE TEMPORARY LDS BYPASS

SHEET OF 19 OF 25
 COMPUTER FILE NAME: C-256.dwg
 CITY DRAWING NUMBER: LD-8430

CONSULTANT DRAWING NO. C-256

APEGN
 Certificate of Authorization
 CH2M HILL Canada Ltd.
 No. 1441

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