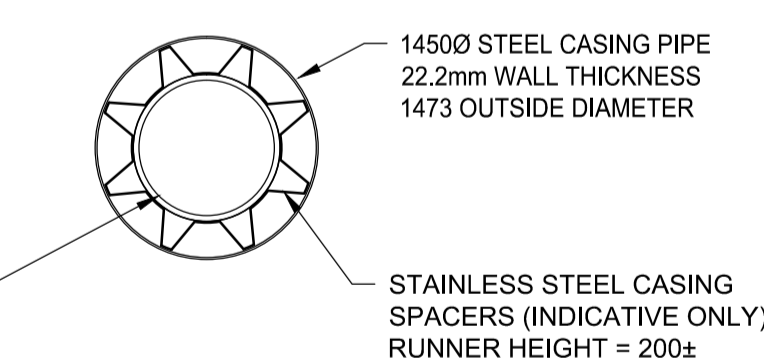
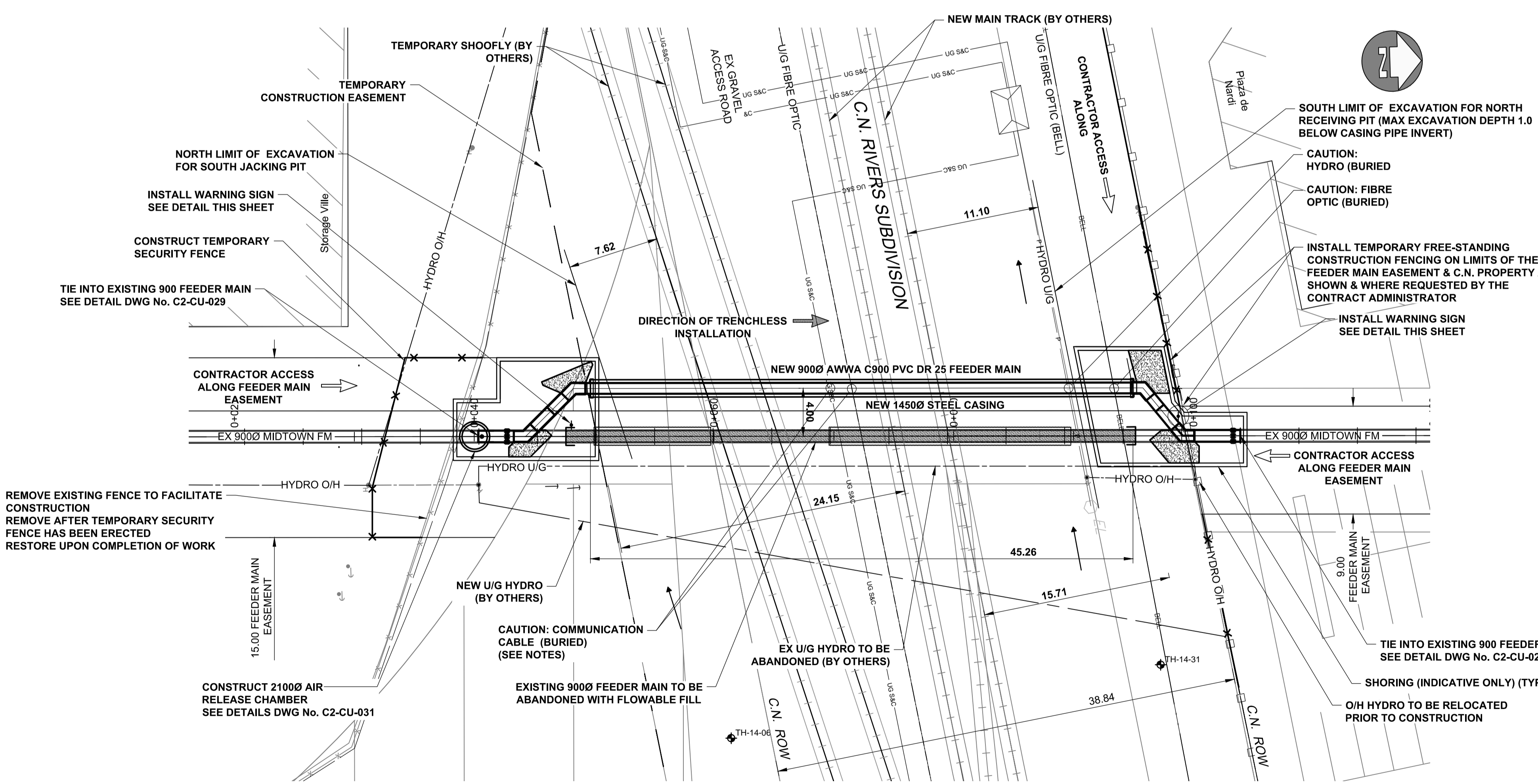


**900 FM CROSSING**  
RAIL CROSSING NOTES

RAILWAY MILEAGE AND SUBDIVISION NAME OF PIPELINE OWNER	MAIN LINE - RIVERS SUBDIVISION - MILE 3.79 CITY OF WINNIPEG, WATER AND WASTE DEPARTMENT	
CONTENTS TO BE HANDLED	POTABLE WATER	
MAXIMUM OPERATING PRESSURE	551 kPa	
MAXIMUM SURGE AND TEST PRESSURE	827 kPa	
MAXIMUM OPERATING TEMPERATURE	20° C	
MINIMUM OPERATING TEMPERATURE	4° C	
PIPING MATERIALS	CARRIER	CASING
NOMINAL DIAMETER	895	1450
OUTSIDE DIAMETER	973	1473
MATERIAL SPECIFICATION AND GRADE	PVC AWWA C900 DR25	WELDED STEEL MIN. YIELD STRENGTH 241 MPA
WALL THICKNESS	38.9 mm	22.2 mm
TYPE OF JOINT	GASKETED BELL & SPIGOT	PERMALOK
COATING	N/A	EPOXY OR POLYURETHANE
METHOD OF INSTALLATION	TRENCHLESS	
VENTS	N/A	NUMBER
SEALS	HEIGHT ABOVE GROUND	N/A
BURY	BASE OF RAIL TO TOP OF CARRIER NOT BENEATH TRACKS	3.172 (PROPOSED MAIN LINE) 1.18 (PROPOSED DITCH)
TOTAL EXTENT OF NEW CASING MEASURED PERPENDICULAR TO CENTRELINE OF TRACK	44.378	
ANGLE OF PIPE / TRACK CROSSING	72°	
DIRECTION OF FLOW	BI-DIRECTIONAL	
TYPE, SIZE AND SPACING OF INSULATORS OR SUPPORTS	PSI MODEL S METALLIC SPACERS 200 RUNNER HEIGHT 3.05 O.C. (MAX)	
CATHODIC PROTECTION	8 (TOTAL) - 11.5kg ZINC ANODES	
GEOTECHNICAL BOREHOLES	SEE PROFILE	
SOIL TYPE	CLAY	
BASE OF RAIL TO GROUND WATER	N/A	
NOTE: INSTALLATION AND MAINTENANCE TO BE IN ACCORDANCE WITH TC E10		

- NOTES:**
- ALL PVC FEEDER MAIN JOINTS TO BE RESTRAINED EXCEPT WHERE NOTED
  - ALL WORK ON CN PROPERTY SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE BID OPPORTUNITY AND CN REQUIREMENTS.
  - SCHEDULE:
    - SHAFTS SHALL BE BACKFILLED PRIOR TO OCTOBER 6th, 2017
    - SHUTDOWN AND DRAINING OF THE MIDTOWN FEEDER MAIN IS REQUIRED TO COMPLETE WORK. COORDINATE WITH THE CONTACT ADMINISTRATOR AS SPECIFIED IN THE BID OPPORTUNITY.
  - THE CONTRACTOR SHALL EXPOSE THE FEEDER MAIN TO CONFIRM JOINT LOCATIONS AT EACH TIE-IN PRIOR TO COMMENCING WITH SHORING INSTALLATION.
  - EXCAVATIONS AND SHORING TO CONFORM TO CN REQUIREMENTS AS SPECIFIED.
  - BED PIPE OUTSIDE OF CASING EXTENTS AS PER DETAIL DRAWING No. C2-CU-030
  - THE CONTRACTOR SHALL EXPOSE ALL BURIED COMMUNICATIONS CABLING AT COMMENCEMENT OF THE WORK AND COORDINATE WITH CN & UTILITY OWNERS TO ENSURE CABLES ARE NOT DAMAGED DURING CONSTRUCTION. CABLES CROSSING THE EXCAVATION SHALL BE SUPPORTED ACROSS THE EXCAVATION.
  - ISOLATION VALVES LOCATED AT:
    - HURST WAY
    - GRANT AVENUE
  - SITE ACCESS THROUGH CN RIGHT-OF-WAY AND FEEDER MAIN EASEMENTS AS SHOWN ON THIS DRAWING.
  - KEEP CONSTRUCTION FOOTPRINT WITHIN CN PROPERTY AND FEEDER MAIN EASEMENTS SHOWN ON DRAWINGS.
  - INSULATION TO BE INSTALLED DURING RAIL EMBANKMENT CONSTRUCTION. SEE DETAIL DWG No. C2-CU-030
  - ANODES TO BE INSTALLED WITHIN SHAFTS, EMBEDDED WITHIN UNDERLYING NATIVE SOILS WITH A 1.5 MINIMUM SEPARATION



**WARNING**

IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST:

- NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.
- TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS SEE PROVINCIAL REGULATION 210/72 FOR DETAILS.
- OBTAIN EXCAVATION PERMITS PRIOR TO CONSTRUCTION.

PA:60321148;900-WORK\9100-DD CAD;200-SHEETS\Municipal\63353-C2-CU-Midtown FM -Offline Replacement.dwg

150 WM	150 WM	150 WM	150 WM	150 WM	150 WM	150 WM	150 WM
HYDRANT	HYDRANT	HYDRANT	HYDRANT	HYDRANT	HYDRANT	HYDRANT	HYDRANT
VALVE	VALVE	VALVE	VALVE	VALVE	VALVE	VALVE	VALVE
LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER
WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER	WASTE WATER SEWER
SEWER SERVICE PIPE	SEWER SERVICE PIPE	SEWER SERVICE PIPE	SEWER SERVICE PIPE	SEWER SERVICE PIPE	SEWER SERVICE PIPE	SEWER SERVICE PIPE	SEWER SERVICE PIPE
DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE
MANHOLE	MANHOLE	MANHOLE	MANHOLE	MANHOLE	MANHOLE	MANHOLE	MANHOLE
CATCH BASIN	CATCH BASIN	CATCH BASIN	CATCH BASIN	CATCH BASIN	CATCH BASIN	CATCH BASIN	CATCH BASIN
CURB INLET	CURB INLET	CURB INLET	CURB INLET	CURB INLET	CURB INLET	CURB INLET	CURB INLET
CULVERT	CULVERT	CULVERT	CULVERT	CULVERT	CULVERT	CULVERT	CULVERT
EXISTING	NEW	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW

**UNDERGROUND STRUCTURES**

SUPV. U/G STRUCTURES	DATE

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.

**AECOM**

DESIGNED BY	ADB	CHECKED BY	
DRAWN BY	WJd	APPROVED BY	
HOR. SCALE	1:250	RELEASED FOR CONSTRUCTION	
VERTICAL	1:50		

ENGINEER'S SEAL

PROVINCE OF MANITOBA

**A. D. BRAUN**  
Member  
24453

REGISTERED PROFESSIONAL ENGINEER

CONSULTANT PROJECT NUMBER  
60321148

**THE CITY OF WINNIPEG**  
PUBLIC WORKS DEPARTMENT

Waverley Street Underpass at CN Mile 3.89 Rivers Sub  
Contract 2: Underpass Structure, Railworks,  
Roadworks, Land Drainage Sewer, Pumping Station  
and Landscaping Works

CITY DRAWING NUMBER  
U239-2016-C2-CU-028

SHEET **28** OF **41**

CONSULTANT DRAWING NUMBER  
**C2-CU-028**

**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

**APEGM**  
Certificate of Authorization  
AECOM Canada Ltd.  
No. 4671 Date: \_\_\_\_\_

BID OPPORTUNITY NO. 473-2016