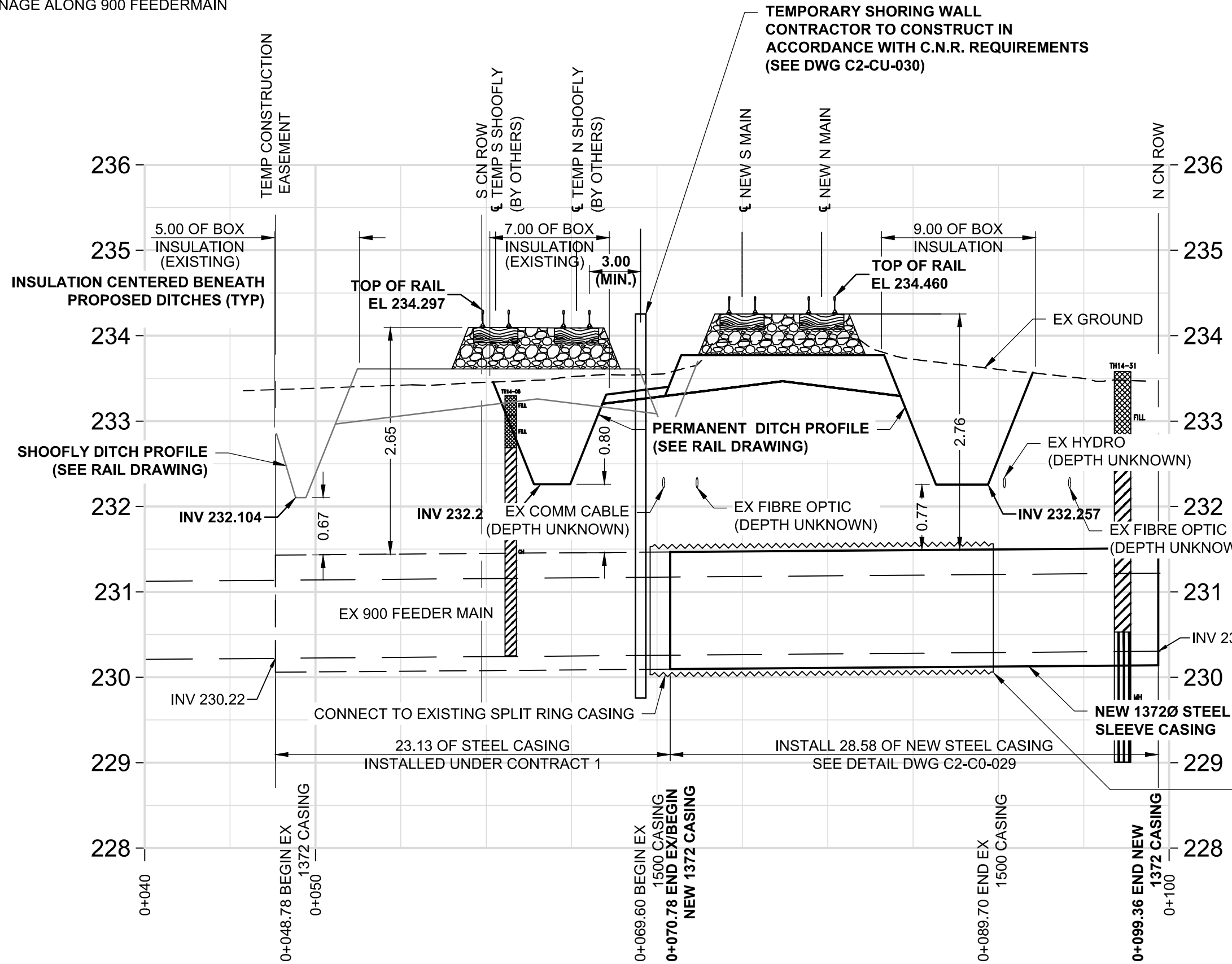
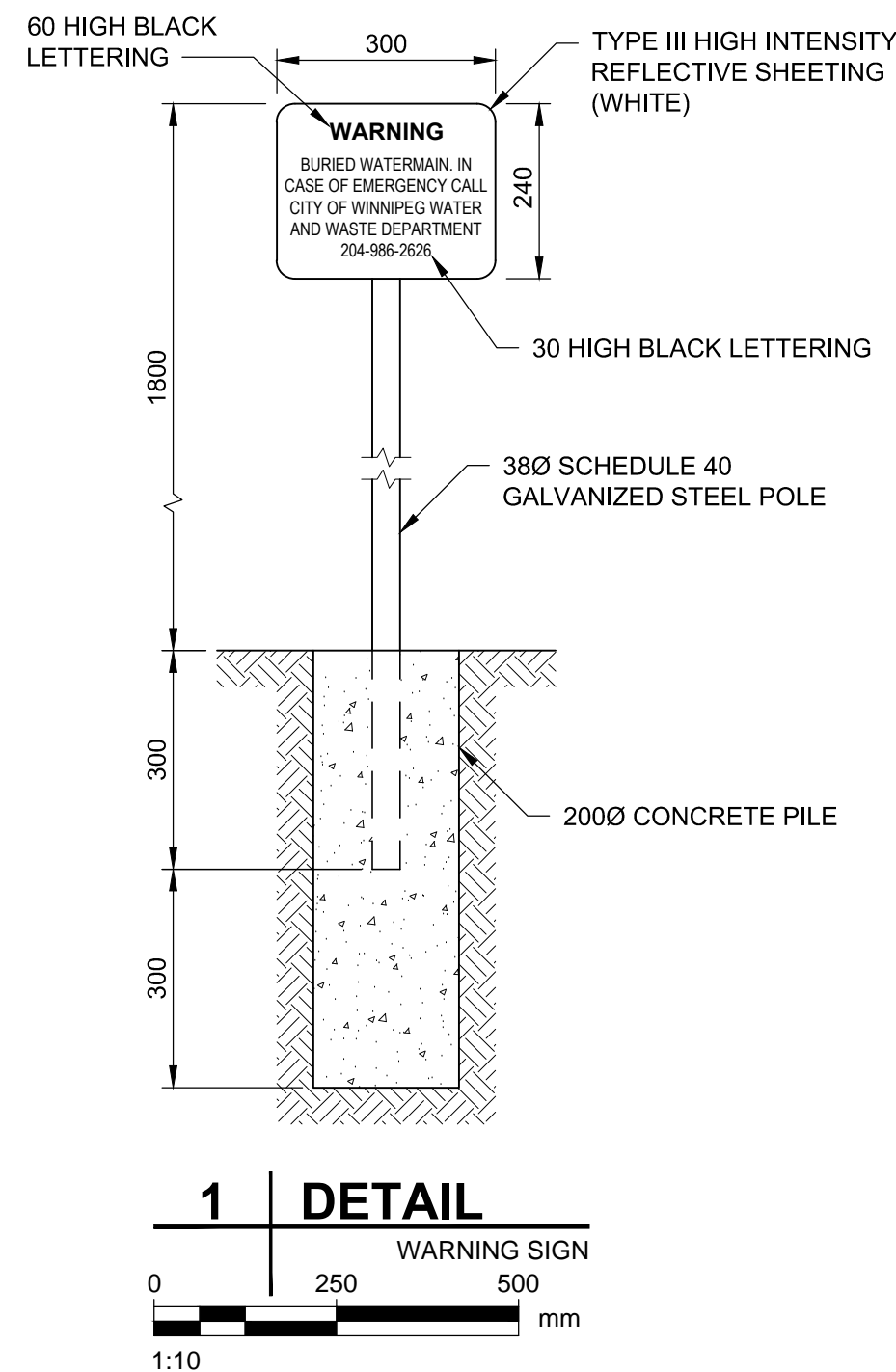


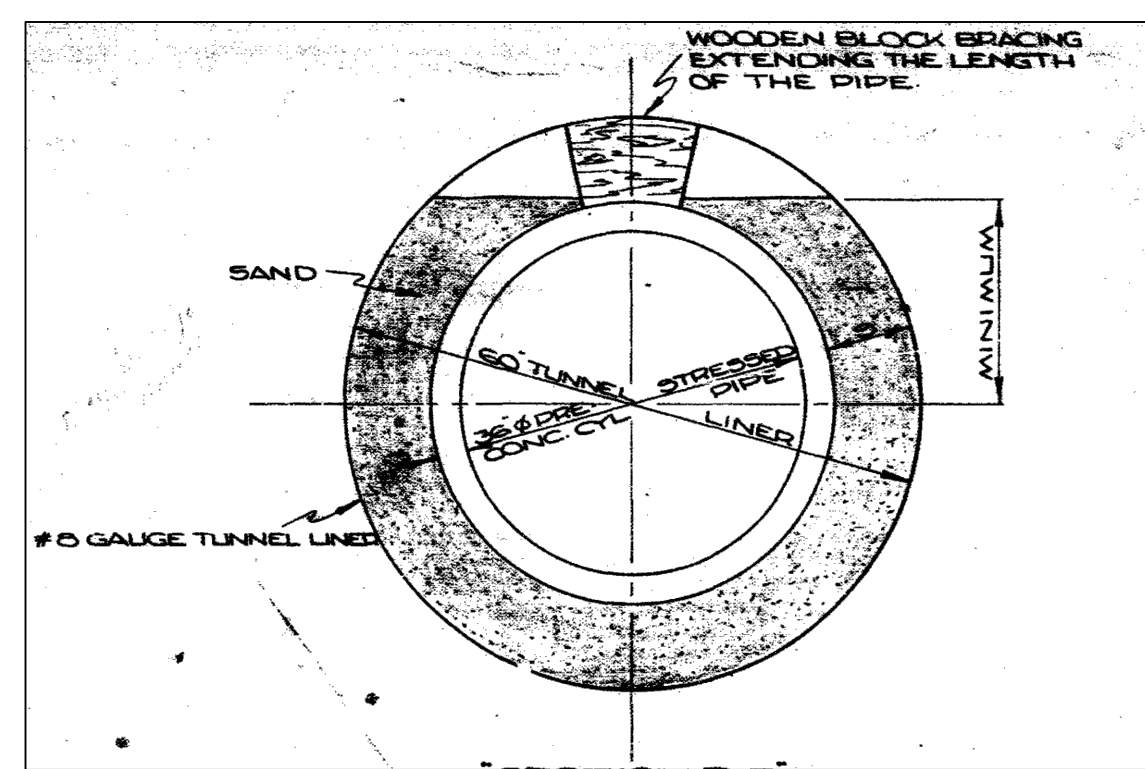
CHAINAGE ALONG 900 FEEDERMAIN



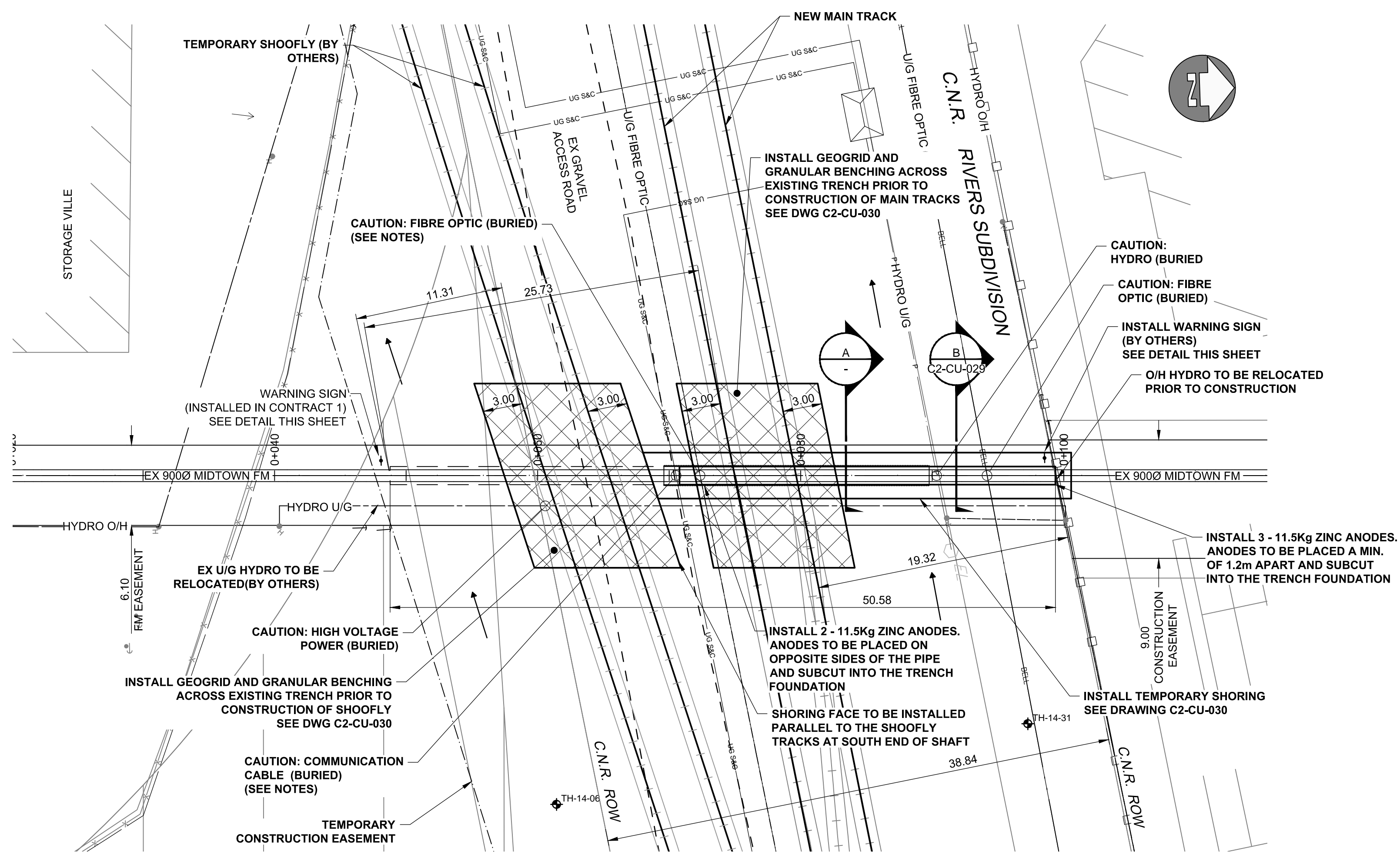
900 FM CROSSING

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 MAXIMUM OPERATING PRESSURE MAXIMUM SURGE AND TEST PRESSURE MAXIMUM OPERATING TEMPERATURE MINIMUM OPERATING TEMPERATURE		POTABLE WATER 551 kPa 827 kPa 20° C 4° C	
PIPING MATERIALS NOMINAL DIAMETER OUTSIDE DIAMETER MATERIAL SPECIFICATION AND GRADE		CARRIER 914 mm 1086 mm	CASING (NEW) 1372 mm 1413 mm FLANGED STEEL SPLIT SLEEVE CASING PIPE MIN. YIELD STRENGTH 241 mPA
WALL THICKNESS TYPE OF JOINT COATING		86 mm GASKETED BELL & SPIGOT N/A	20.7 mm GASKETED/FLANGED/BOLTED EPOXY
METHOD OF INSTALLATION INSTALL STRUCTURAL SPLIT SLEEVE CASING PIPE AROUND EXISTING FEEDERMAIN, SEE DETAILS			
VENTS N/A HEIGHT ABOVE GROUND SOUTH END NORTH END		NUMBER N/A PSI MODEL W-EPDM PSI MODEL W-EPDM	
BURY BASE OF RAIL TO TOP OF CARRIER NOT BENEATH TRACKS		2.76 m (PROPOSED MAIN LINE) 0.77 m	
TOTAL EXTENT OF NEW CASING MEASURED PERPENDICULAR TO CENTRELINE OF TRACK 49.58 m			
ANGLE OF PIPE / TRACK CROSSING		72°	
DIRECTION OF FLOW		BI-DIRECTIONAL	
TYPE, SIZE AND SPACING OF INSULATORS OR SUPPORTS PSI MODEL S METALLIC SPACERS 115mm RUNNER HEIGHT 1.2m O.C.			
CATHODIC PROTECTION GEOTECHNICAL BOREHOLES SOIL TYPE BASE OF RAIL TO GROUND WATER		10 (TOTAL) - 11.5kg ZINC ANODES SEE PROFILE CLAY N/A	
NOTE: INSTALLATION AND MAINTENANCE TO BE IN ACCORDANCE WITH TC E10			



A SECTION
EXISTING CASING DETAIL



NOTES:

- ALL WORK ON CN PROPERTY SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE BID OPPORTUNITY AND CN REQUIREMENTS.
- SCHEDULE:
 - WORK SHALL BE UNDERTAKEN PRIOR TO INSTALLATION OF THE NEW CN RAIL TRACK
 - SHUTDOWN AND ISOLATION 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 FEEDERMAIN TO CONFIRM THE OUTSIDE DIAMETER PRIOR TO PROCURING CASING SPACERS.
- EXCAVATIONS AND SHORING TO CONFORM TO CN REQUIREMENTS AS SPECIFIED.
- NEW CASING PIPE TO MATCH INSIDE DIAMETER OF THE EXISTING CASING PIPE AND BE DESIGNED WITH A COMPATIBLE CONNECTION.
- BED PIPE OUTSIDE OF CASING EXTENTS AS PER DETAIL THIS SHEET
- THE CONTRACTOR SHALL EXPOSE ALL BURIED COMMUNICATIONS CABLE AT COMMENCEMENT OF THE WORK AND COORDINATE WITH CN TO ENSURE CABLES ARE NOT DAMAGED DURING CONSTRUCTION. CABLES CROSSING THE EXCAVATION SHALL BE SUPPORTED ACROSS THE EXCAVATION.
- MATERIAL USED FOR BACKFILL OF THE MIDTOWN FEEDERMAIN CASING EXCAVATION SHALL MEET THE REQUIREMENTS OF CW2030 TYPE 1 MATERIAL EXCEPT AS MODIFIED HEREIN:
 - MATERIAL MUST BE THAWED. FROZEN MATERIAL WILL NOT BE PERMITTED.
 - MATERIAL SHALL BE A WELL GRADED AND READILY COMPACTABLE GRANULAR MATERIAL. OPEN GRADED MATERIAL (CLEAN STONE) WILL NOT BE PERMITTED.
 - LIMESTONE MATERIAL WILL NOT BE PERMITTED.
 - MATERIAL SHALL NOT CONTAIN MORE THAN 5% PASSING AN 80 μm SIEVE.
- SITE ACCESS THROUGH C.N.R. RIGHT-OF-WAY.
- KEEP CONSTRUCTION FOOTPRINT WITHIN FEEDERMAIN EASEMENT SHOWN ON DRAWINGS.

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.

P:\60321148\900-Work\9100-DD_CAD\200-SHEETS\Municipal\63353-C2-CO-CU-Midtown_FM_Casing_Pipe.dwg
 6/10/2016 9:10:00 AM

150 WM		150 WM		150 WM		150 WM		150 WM	
○	HYDRANT	⬇	+	⬆	+	○	HYDRANT	⬆	+
⊕	VALVE	⊕	○	⊕	○	⊕	VALVE	⊕	○
○	LAND DRAINAGE SEWER	⊕	○	⊕	○	○	LAND DRAINAGE SEWER	⊕	○
○	WASTE WATER SEWER	⊕	○	⊕	○	○	WASTE WATER SEWER	⊕	○
⊕	SEWER SERVICE PIPE	⊕	○	⊕	○	⊕	SEWER SERVICE PIPE	⊕	○
⊕	DRAINAGE CONNECTION PIPE	⊕	○	⊕	○	⊕	DRAINAGE CONNECTION PIPE	⊕	○
○	MANHOLE	○	○	○	○	○	MANHOLE	○	○
⊕	CATCH BASIN	⊕	○	⊕	○	⊕	CATCH BASIN	⊕	○
⊕	CURB INLET	⊕	○	⊕	○	⊕	CURB INLET	⊕	○
⊕	CULVERT	⊕	○	⊕	○	⊕	CULVERT	⊕	○
⊕	EXISTING	⊕	○	⊕	○	⊕	EXISTING	⊕	○
⊕	LEGEND - PLAN	⊕	○	⊕	○	⊕	LEGEND - PROFILE	⊕	○

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.

B.M.	ELEV.		

AECOM

DESIGNED BY	ADB	CHECKED BY	
DRAWN BY	KLC	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

METRIC WHOLE NUMBERS INDICATE MILLIMETRES DECIMALIZED NUMBERS INDICATE METRES		
BID OPPORTUNITY NO. 473-2016		
THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT		CITY DRAWING NUMBER U239-2016-C2-CU-028 SHEET 28 OF 41
WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB CONTRACT 2: UNDERPASS STRUCTURE, RAILWORKS, ROADWORKS, LAND DRAINAGE SEWER, PUMPING STATION AND LANDSCAPING WORKS		CONSULTANT DRAWING NUMBER C2-CU-028