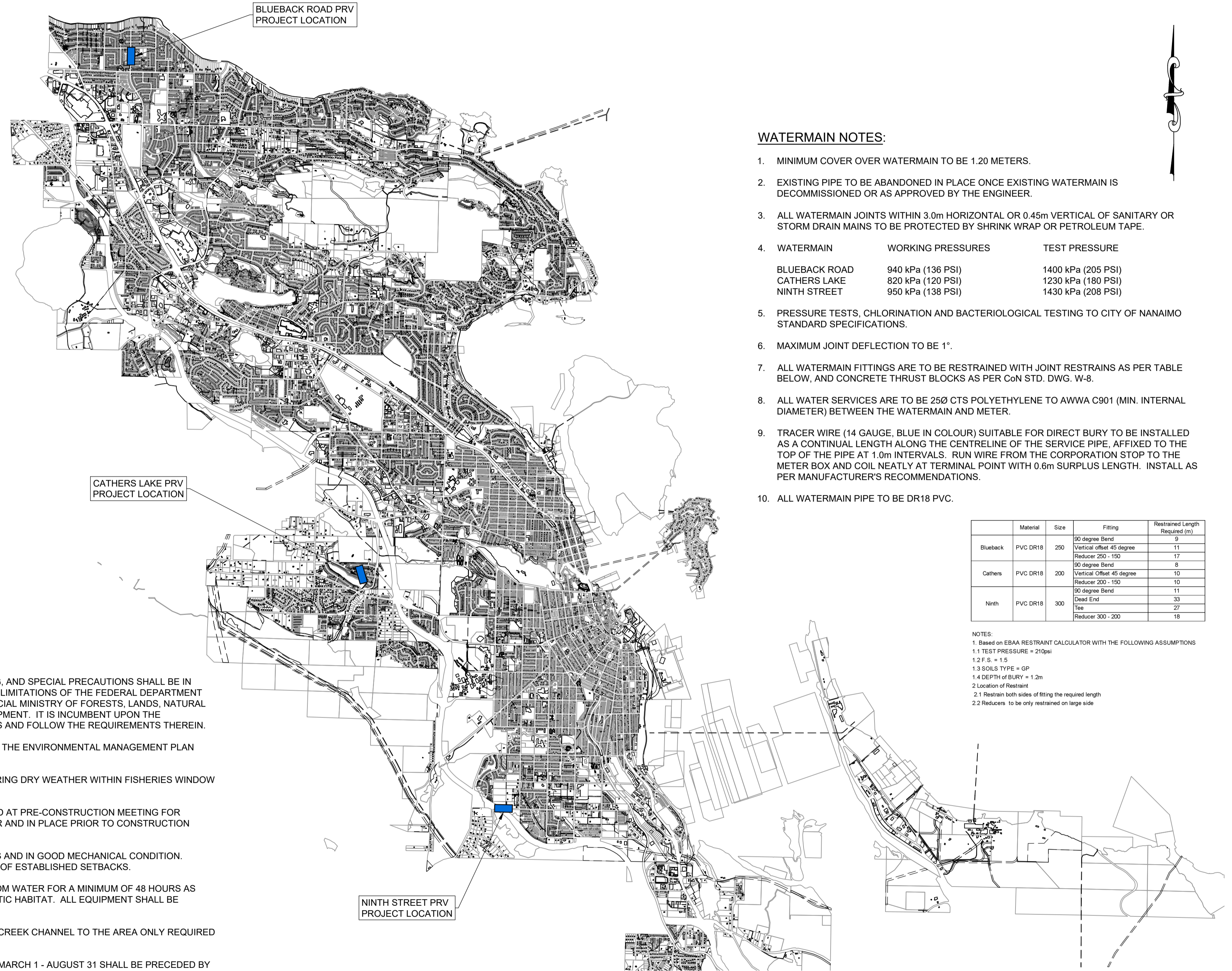


UPGRADE OF PRESSURE REDUCING VALVE STATIONS



SHEET No.	DRAWING No.	PROJECT	TITLE
01	28542	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	COVER SHEET, LOCATION PLAN, AND GENERAL NOTES
02	28543	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	BLUEBACK ROAD PRV SITE PLAN, SLAB AND KIOSK DETAILS
03	28544	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	BLUEBACK ROAD PRV MECHANICAL PLAN AND SECTIONS
04	28545	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	BLUEBACK ROAD PRV MECHANICAL SECTIONS
05	28546	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	BLUEBACK ROAD PRV MISCELLANEOUS DETAILS
06	28547	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	CATHERS LAKE PRV SITE PLAN, SLAB AND KIOSK DETAILS
07	28548	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	CATHERS LAKE PRV MECHANICAL PLAN AND SECTIONS
08	28549	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	CATHERS LAKE PRV MECHANICAL SECTIONS AND DETAILS
09	28550	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	NINTH STREET PRV SITE PLAN, SLAB AND KIOSK DETAILS
10	28551	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	NINTH STREET PRV MECHANICAL PLAN AND SECTIONS
11	28552	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	NINTH STREET PRV MECHANICAL SECTIONS AND DETAILS
12	28553	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	NINTH STREET PRV SURFACE RESTORATION AND DETAILS
13	28554	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL OVERALL KEY PLAN
14	28555	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL ELECTRICAL DETAILS
15	28556	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL BLUEBACK ROAD - SHEET 1 OF 2
16	28557	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL BLUEBACK ROAD - SHEET 2 OF 2
17	28558	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL CATHERS LAKE - SHEET 1 OF 2
18	28559	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL CATHERS LAKE - SHEET 2 OF 2
19	28560	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL NINTH ST. AND HOWARD AVE. - SHEET 1 OF 2
20	28561	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL NINTH ST. AND HOWARD AVE. - SHEET 2 OF 2
21	28562	UPGRADE OF PRESSURE REDUCING VALVE STATIONS	ELECTRICAL ELECTRICAL SPECIFICATIONS



WATERMAIN NOTES:

- MINIMUM COVER OVER WATERMAIN TO BE 1.20 METERS.
- EXISTING PIPE TO BE ABANDONED IN PLACE ONCE EXISTING WATERMAIN IS DECOMMISSIONED OR AS APPROVED BY THE ENGINEER.
- ALL WATERMAIN JOINTS WITHIN 3.0m HORIZONTAL OR 0.45m VERTICAL OF SANITARY OR STORM DRAIN MAINS TO BE PROTECTED BY SHRINK WRAP OR PETROLEUM TAPE.
- | WATERMAIN | WORKING PRESSURES | TEST PRESSURE |
|---------------|-------------------|--------------------|
| BLUEBACK ROAD | 940 kPa (136 PSI) | 1400 kPa (205 PSI) |
| CATHERS LAKE | 820 kPa (120 PSI) | 1230 kPa (180 PSI) |
| NINTH STREET | 950 kPa (138 PSI) | 1430 kPa (208 PSI) |
- PRESSURE TESTS, CHLORINATION AND BACTERIOLOGICAL TESTING TO CITY OF NANAIMO STANDARD SPECIFICATIONS.
- MAXIMUM JOINT DEFLECTION TO BE 1°.
- ALL WATERMAIN FITTINGS ARE TO BE RESTRAINED WITH JOINT RESTRAINS AS PER TABLE BELOW, AND CONCRETE THRUST BLOCKS AS PER CoN STD. DWG. W-8.
- ALL WATER SERVICES ARE TO BE 25Ø CTS POLYETHYLENE TO AWWA C901 (MIN. INTERNAL DIAMETER) BETWEEN THE WATERMAIN AND METER.
- TRACER WIRE (14 GAUGE, BLUE IN COLOUR) SUITABLE FOR DIRECT BURY TO BE INSTALLED AS A CONTINUAL LENGTH ALONG THE CENTRELINE OF THE SERVICE PIPE, AFFIXED TO THE TOP OF THE PIPE AT 1.0m INTERVALS. RUN WIRE FROM THE CORPORATION STOP TO THE METER BOX AND COIL NEATLY AT TERMINAL POINT WITH 0.6m SURPLUS LENGTH. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
- ALL WATERMAIN PIPE TO BE DR18 PVC.

	Material	Size	Fitting	Restraint Length Required (m)
Blueback	PVC DR18	250	90 degree Bend	9
			Vertical Offset 45 degree	11
			Reducer 250 - 150	17
Cathers	PVC DR18	200	90 degree Bend	8
			Vertical Offset 45 degree	10
			Reducer 200 - 150	10
Ninth	PVC DR18	300	Dead End	33
			Tee	27
			Reducer 300 - 200	18

- NOTES:
- Based on EBAA RESTRAINT CALCULATOR WITH THE FOLLOWING ASSUMPTIONS
 - TEST PRESSURE = 210psi
 - F.S. = 1.5
 - SOILS TYPE = GP
 - DEPTH OF BURY = 1.2m
 - Location of Restraint
 - Restrain both sides of fitting the required length
 - Reducers to be only restrained on large side

GENERAL NOTES:

- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH CITY OF NANAIMO MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS (MoESS).
- ALL LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED BY USE OF A PIPE LOCATOR AND MANUAL DIGGING. ALL OR ANY STRUCTURES NOT NECESSARILY SHOWN.
- COORDINATES ARE GROUND LEVEL (UTM NAD 83 WITH COMBINED SCALE FACTOR OF 1/0.99965), AND ALL ELEVATIONS ARE TO CANADIAN VERTICAL DATUM CVD28BC.
- LOCATION OF SERVICE CONNECTIONS TO BE DETERMINED ON SITE UNLESS SHOWN OTHERWISE.
- ANY ALTERNATIVES TO SPECIFIED MATERIALS OR APPURTENANCES TO BE APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.
- THE LOCATIONS OF EXISTING SERVICES ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION. EXISTING AND PROPOSED SERVICES MAY REQUIRE ADJUSTMENT WHERE A CONFLICT OCCURS. THE ENGINEER SHALL BE NOTIFIED OF ANY CONFLICT.
- TRENCHING DETAIL TO BE AS CITY OF NANAIMO STANDARD DWG T-1. TRAVELED AREA BACKFILL TO BE IMPORTED GRANULAR MATERIAL COMPACTED TO MINIMUM 95% MODIFIED PROCTOR, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- ASPHALT RESTORATION TO BE AS CITY OF NANAIMO STANDARD DWG T-4 OR T-4A PERMANENT PAVEMENT RESTORATION.
- ALL DISTURBED SURFACES TO BE RESTORED TO EXISTING CONDITION OR BETTER.
- A "PERMIT TO INSTALL WORKS WITHIN STREETS, LANES, AND CITY PROPERTY AREAS" WILL BE REQUIRED WERE CONSTRUCTION IS TO BE UNDERTAKEN IN CITY OF NANAIMO RIGHT-OF-WAYS AND/OR ON CITY OF NANAIMO OWNED UTILITIES OR PROPERTIES. UPON APPROVAL OF THE PERMIT, THE CITY OF NANAIMO'S ENGINEERING CONSTRUCTION BRANCH SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF WORK.

ENVIRONMENTAL NOTES:

- ENVIRONMENTAL WORK PROCEDURES, TIMING, AND SPECIAL PRECAUTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND LIMITATIONS OF THE FEDERAL DEPARTMENT OF FISHERIES AND OCEANS, AND THE PROVINCIAL MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT. IT IS INCUMBENT UPON THE CONTRACTOR TO ACQUIRE THESE GUIDELINES AND FOLLOW THE REQUIREMENTS THEREIN.
- ALL WORK TO BE DONE IN ACCORDANCE WITH THE ENVIRONMENTAL MANAGEMENT PLAN (WHERE APPLICABLE, PROVIDE REFERENCE).
- ALL IN-WATER CONSTRUCTION TO OCCUR DURING DRY WEATHER WITHIN FISHERIES WINDOW (AS SPECIFIED, JULY 1 - SEPTEMBER 15).
- ENVIRONMENTAL WORK PLAN TO BE PROVIDED AT PRE-CONSTRUCTION MEETING FOR APPROVAL BY CITY/ENVIRONMENTAL MONITOR AND IN PLACE PRIOR TO CONSTRUCTION (WHERE REQUIRED).
- ALL MACHINERY TO BE CLEAN, FREE OF LEAKS AND IN GOOD MECHANICAL CONDITION. REFUELING OF ALL MACHINES TO BE OUTSIDE OF ESTABLISHED SETBACKS.
- ALL CONCRETE WORK MUST BE ISOLATED FROM WATER FOR A MINIMUM OF 48 HOURS AS CEMENT AND CONCRETE ARE TOXIC TO AQUATIC HABITAT. ALL EQUIPMENT SHALL BE CLEANED AWAY FROM STORM DRAINS.
- MINIMIZE DISTURBANCE TO VEGETATION AND CREEK CHANNEL TO THE AREA ONLY REQUIRED TO PERFORM THE WORK.
- ANY TREE CLEARING DURING THE PERIOD OF MARCH 1 - AUGUST 31 SHALL BE PRECEDED BY A BIRD NEST SITE SURVEY.

LOCATION PLAN
1:40 000

PERMIT TO PRACTICE
No. 1001658

ISSUED FOR
TENDER