

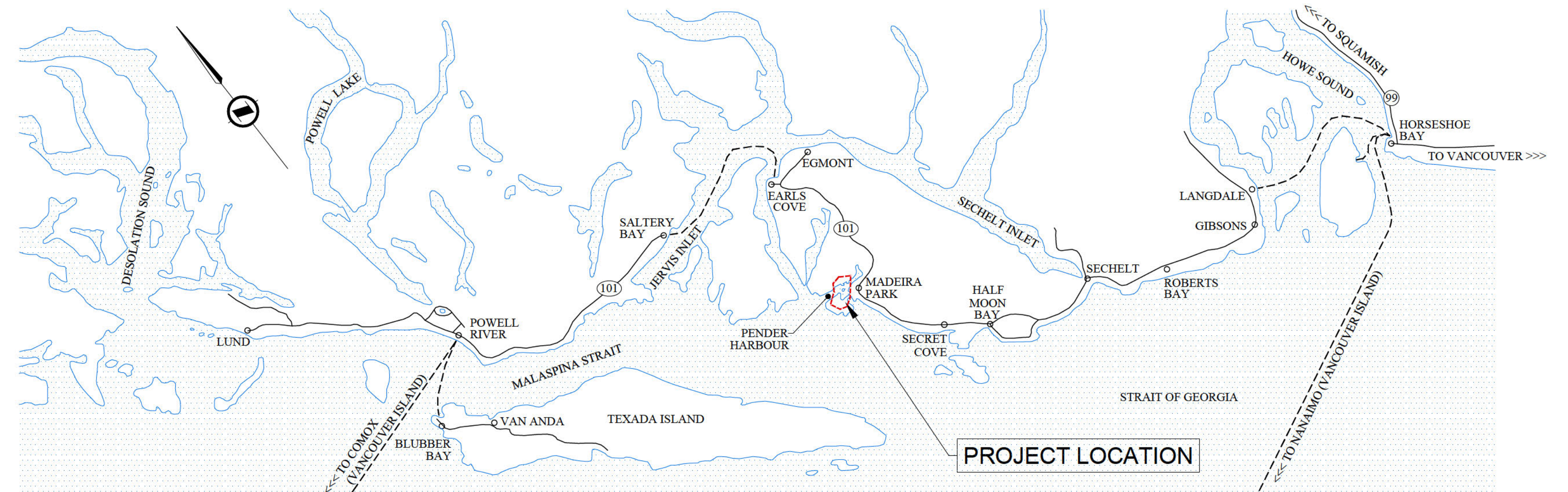
CLIENT. **SUNSHINE COAST REGIONAL DISTRICT**

DESCRIPTION. **SOUTH PENDER HARBOUR WATER MAIN REPLACEMENT**

OEL Project No. **723-3**

DRAWING INDEX

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KEY PLAN

NTS



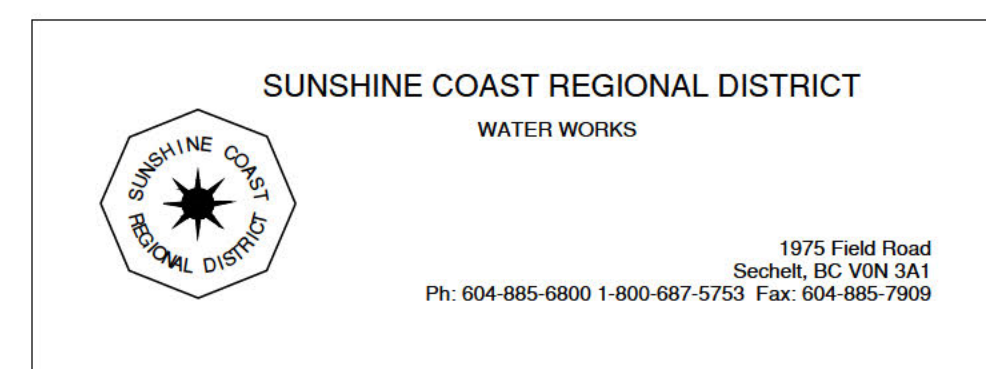
LOCATION PLAN

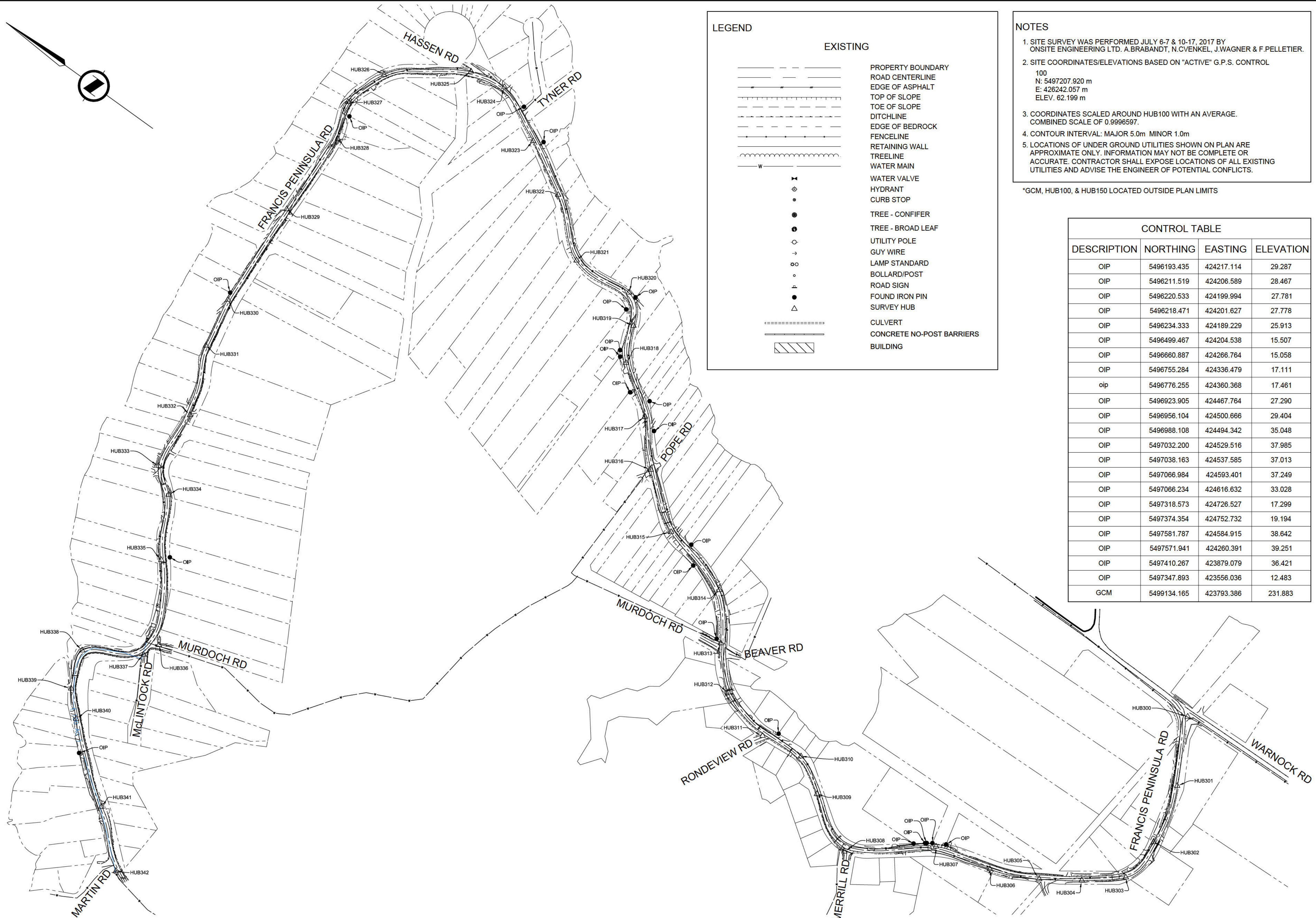
NTS

PREPARED BY:

ONSITE
ENGINEERING LTD.

ABBOTSFORD
UNIT 106 - 2825 CLEARBROOK ROAD
ABBOTSFORD, BC, V2T 6S3
PH.: 604-910-2040 FAX: 866-235-6943





LEGEND

EXISTING

- PROPERTY BOUNDARY
- ROAD CENTERLINE
- EDGE OF ASPHALT
- TOP OF SLOPE
- TOE OF SLOPE
- DITCHLINE
- EDGE OF BEDROCK
- FENCELINE
- RETAINING WALL
- TREELINE
- WATER MAIN
- WATER VALVE
- HYDRANT
- CURB STOP
- TREE - CONFIFER
- TREE - BROAD LEAF
- UTILITY POLE
- GUY WIRE
- LAMP STANDARD
- BOLLARD/POST
- ROAD SIGN
- FOUND IRON PIN
- SURVEY HUB
- CULVERT
- ▨ CONCRETE NO-POST BARRIERS
- ▨ BUILDING

NOTES

- SITE SURVEY WAS PERFORMED JULY 6-7 & 10-17, 2017 BY ONSITE ENGINEERING LTD. A.BRABANDT, N.CVENKEL, J.WAGNER & F.PELLETIER.
- SITE COORDINATES/ELEVATIONS BASED ON "ACTIVE" G.P.S. CONTROL 100
N: 5497207.920 m
E: 426242.057 m
ELEV. 62.199 m
- COORDINATES SCALED AROUND HUB100 WITH AN AVERAGE COMBINED SCALE OF 0.9996597.
- CONTOUR INTERVAL: MAJOR 5.0m MINOR 1.0m
- LOCATIONS OF UNDER GROUND UTILITIES SHOWN ON PLAN ARE APPROXIMATE ONLY. INFORMATION MAY NOT BE COMPLETE OR ACCURATE. CONTRACTOR SHALL EXPOSE LOCATIONS OF ALL EXISTING UTILITIES AND ADVISE THE ENGINEER OF POTENTIAL CONFLICTS.

*GCM, HUB100, & HUB150 LOCATED OUTSIDE PLAN LIMITS

CONTROL TABLE

| DESCRIPTION | NORTHING | EASTING | ELEVATION |
|-------------|-------------|------------|-----------|
| OIP | 5496193.435 | 424217.114 | 29.287 |
| OIP | 5496211.519 | 424206.589 | 28.467 |
| OIP | 5496220.533 | 424199.994 | 27.781 |
| OIP | 5496218.471 | 424201.627 | 27.778 |
| OIP | 5496234.333 | 424189.229 | 25.913 |
| OIP | 5496499.467 | 424204.538 | 15.507 |
| OIP | 5496660.887 | 424266.764 | 15.058 |
| OIP | 5496755.284 | 424336.479 | 17.111 |
| oip | 5496776.255 | 424360.368 | 17.461 |
| OIP | 5496923.905 | 424467.764 | 27.290 |
| OIP | 5496956.104 | 424500.666 | 29.404 |
| OIP | 5496988.108 | 424494.342 | 35.048 |
| OIP | 5497032.200 | 424529.516 | 37.985 |
| OIP | 5497038.163 | 424537.585 | 37.013 |
| OIP | 5497066.984 | 424593.401 | 37.249 |
| OIP | 5497066.234 | 424616.632 | 33.028 |
| OIP | 5497318.573 | 424726.527 | 17.299 |
| OIP | 5497374.354 | 424752.732 | 19.194 |
| OIP | 5497581.787 | 424584.915 | 38.642 |
| OIP | 5497571.941 | 424260.391 | 39.251 |
| OIP | 5497410.267 | 423879.079 | 36.421 |
| OIP | 5497347.893 | 423556.036 | 12.463 |
| GCM | 5499134.165 | 423793.386 | 231.883 |

CONTROL TABLE

| DESCRIPTION | NORTHING | EASTING | ELEVATION |
|-------------|-------------|------------|-----------|
| HUB100 | 5497207.920 | 426242.057 | 62.199 |
| HUB150 | 5496492.961 | 425149.113 | 4.452 |
| HUB300 | 5496008.560 | 424591.070 | 18.764 |
| HUB301 | 5495959.746 | 424495.928 | 22.025 |
| HUB302 | 5495938.631 | 424405.420 | 28.107 |
| HUB303 | 5495941.628 | 424336.987 | 32.771 |
| HUB304 | 5495993.424 | 424293.955 | 35.876 |
| HUB305 | 5496047.280 | 424257.542 | 34.698 |
| HUB306 | 5496117.329 | 424225.813 | 32.594 |
| HUB307 | 5496203.984 | 424205.628 | 29.411 |
| HUB308 | 5496313.035 | 424117.492 | 17.692 |
| HUB309 | 5496398.270 | 424164.255 | 19.327 |
| HUB310 | 5496451.594 | 424196.610 | 18.358 |
| HUB311 | 5496517.402 | 424187.537 | 15.751 |
| HUB312 | 5496599.001 | 424210.535 | 7.453 |
| HUB313 | 5496651.836 | 424264.865 | 13.836 |
| HUB314 | 5496701.271 | 424329.437 | 16.166 |
| HUB315 | 5496812.807 | 424358.140 | 15.756 |
| HUB316 | 5496893.403 | 424416.930 | 21.727 |
| HUB317 | 5496948.051 | 424477.480 | 31.135 |
| HUB318 | 5497019.387 | 424526.902 | 35.834 |
| HUB319 | 5497043.319 | 424579.560 | 37.385 |
| HUB320 | 5497078.667 | 424616.478 | 32.174 |
| HUB321 | 5497172.162 | 424609.559 | 23.578 |
| HUB322 | 5497253.499 | 424674.333 | 21.082 |
| HUB323 | 5497332.370 | 424718.611 | 19.052 |
| HUB324 | 5497416.305 | 424759.641 | 23.905 |
| HUB325 | 5497471.379 | 424749.126 | 27.507 |
| HUB326 | 5497576.142 | 424667.185 | 35.548 |
| HUB327 | 5497596.518 | 424601.341 | 36.032 |
| HUB328 | 5497576.204 | 424546.789 | 37.347 |
| HUB329 | 5497576.647 | 424414.239 | 27.964 |
| HUB330 | 5497568.428 | 424249.653 | 41.520 |
| HUB331 | 5497554.735 | 424173.130 | 40.425 |
| HUB332 | 5497512.270 | 424073.129 | 46.238 |
| HUB333 | 5497506.052 | 423982.183 | 44.697 |
| HUB334 | 5497467.781 | 423955.371 | 42.479 |
| HUB335 | 5497418.469 | 423868.177 | 32.632 |
| HUB336 | 5497345.719 | 423760.831 | 31.987 |
| HUB337 | 5497355.954 | 423735.300 | 30.924 |
| HUB338 | 5497435.768 | 423685.619 | 16.900 |
| HUB339 | 5497415.362 | 423628.556 | 11.649 |
| HUB340 | 5497382.091 | 423595.611 | 15.948 |
| HUB341 | 5497272.172 | 423509.402 | 15.642 |
| HUB342 | 5497196.949 | 423443.128 | 11.967 |

| No. | Date | Revision | Drw. | Chk. |
|-----|-----------|-------------------------|-------|------|
| F | AUG 1/25 | ISSUED FOR TENDER | SCRD | |
| E | JUL 04/18 | ISSUED FOR CONSTRUCTION | LN JM | |
| D | FEB 16/18 | RE-ISSUED FOR TENDER | SD JM | |
| C | SEP 15/17 | ISSUED FOR TENDER | SD JM | |
| B | SEP 08/17 | ISSUED FOR FINAL DESIGN | SD JM | |
| A | AUG 09/17 | ISSUED FOR REVIEW | SD JM | |

SUNSHINE COAST REGIONAL DISTRICT
WATER WORKS

1975 Field Road
Sechelt, BC V0N 3A1
Ph: 604-885-6800 1-800-687-5753 Fax: 604-885-7909

REFERENCE DRAWINGS

Designed: JM
Drawn: SD
Checked: JM
Surveyed: JW/EP
Date: FEB 2018

SCALE
0 1:3000 150

PREPARED BY:
ONSITE ENGINEERING LTD.
ABBOTSFORD
UNIT 106 - 2825 CLEARBROOK ROAD
ABBOTSFORD, BC V2T 6S3
PH: 604-910-2040 FAX: 866-235-6943

SUNSHINE COAST REGIONAL DISTRICT
SOUTH PENDER HARBOUR
OVERALL SITE
EXISTING CONDITIONS - PLAN

Client Project No. 723-3
OEL Project No. 723-3
Drawing No. 723-3-001
Sheet: 2 of 12 Revision E

SCRD STANDARD DETAIL DRAWINGS

- ALL WORK SHALL CONFORM TO THE MOST RECENT EDITION OF THE SUNSHINE COAST REGIONAL DISTRICT (SCRD) DESIGN AND CONSTRUCTION SPECIFICATIONS AND STANDARD DRAWINGS, AS WELL AS THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS. SCRDS SPECIFICATIONS TAKE PRECEDENCE.
- ALL NEW HIGH DENSITY POLYETHYLENE WATERMANS SHALL BE DR 11.
- ALL NEW DUCTILE IRON WATERMANS SHALL BE PRESSURE CLASS 350.
- WATERMAIN SHALL BE INSTALLED WITH 1.2m MINIMUM COVER UNDER ROADWAYS AND 1.0m ELSEWHERE. WATERMAIN SHALL BE INSTALLED TO SUIT EXISTING GROUND CONDITIONS. HDPE AND PVC WATERMANS ARE TO BE LINED WITH TRICEL WIRE.
- EXISTING WATER SERVICE LOCATIONS AND SIZES TO BE DETERMINED PRIOR TO CONSTRUCTION. INSTALL THE NEW WATER SERVICES, COMPLETE WITH NEW CURB STOP AND METER BOX AS REQUIRED, AT THE SAME ELEVATION AS THE EXISTING CONNECTION.
- ALL EXISTING UNDERGROUND UTILITIES (INCLUDING STORM, SANITARY, WATERMANS, GAS MAINS, ELECTRICAL, TELEPHONE, STREET LIGHTING, ETC.) CROSSING ALONG THE COMPLETE PROPOSED WATERMAIN ALIGNMENT, INCLUDING TIE-IN LOCATIONS, SHALL BE LOCATED AND EXPOSED AND DEPTHS OF ALL UTILITIES RECORDED. THIS WORK TO PRECEDE WATERMAIN INSTALLATION BY THE DISTANCE REQUIRED TO INSURE THAT THE LINE AND GRADE OF THE PROPOSED WATERMAIN CAN BE ADJUSTED TO SUIT FIELD CONDITIONS AS REQUIRED AND TO ENSURE THAT THE TEMPORARY ENDS OF THE WATERMAIN ARE SET TO ACCEPTABLE TIE IN ELEVATIONS. END PROPOSED WATERMAIN 1.0m FROM THE TIE IN LOCATIONS. ALL TIES TO EXISTING WATERMANS WILL BE COMPLETED AFTER TESTING AND FLUSHING.
- PROTECTION OF THE WATERMAIN: PARALLEL LINES: WATERMANS SHALL BE LAID AT LEAST 3m HORIZONTALLY FROM ANY SANITARY OR STORM SEWER, WHERE THIS HORIZONTAL SEPARATION IS NOT POSSIBLE, THE BOTTOM OF THE WATERMAIN SHALL BE AT LEAST 0.5m ABOVE THE TOP OF THE SEWER AND SUFFICIENTLY TO ONE SIDE OF THE SEWER TO ALLOW FOR SEWER REPAIRS WITHOUT DISTURBING THE WATERMAIN. IN THE VERTICAL SEPARATION IS NOT POSSIBLE, THE SEWER SHALL BE OF THE SAME SERVICE CAPABILITY AS THE WATERMAIN, WITH PRESSURE CLASS JOINTS DESIGNED TO REMAIN WATER TIGHT IF THE GROUNDWATER TABLE PERIODICALLY RISES ABOVE THE SEWER, AND ARE PRESSURE TESTED BEFORE BACKFILLING. ALL JOINTS WITHIN 3m OF THE SANITARY OR STORM SEWER SHALL BE EITHER WRAPPED WITH HEAT SHRINK PLASTIC OR PACKED WITH INERT PETROLIUM COMPOUND AND WRAPPED IN TAPE IN ACCORDANCE WITH ANS/AWWA STANDARDS C209 AND C211-90 OR INCASED IN ACCORDANCE WITH MMCD STANDARDS G6 and G7.
- CROSSINGS: WHERE A WATERMAIN CROSSES A SANITARY OR STORM SEWER, THE LINES SHALL BE LAID WITH THE WATERMAIN CROSSING OVER THE SEWER AND WITH THE MIDDLE OF PIPE LENGTHS LOCATED AT THE CROSSING POINT, TO MAXIMIZE THE SEPARATION BETWEEN JOINTS. WHERE A MINIMUM 3m JOINT SEPARATION AND/OR MINIMUM 0.5m CLEAR VERTICAL SEPARATION IS NOT POSSIBLE AT THE CROSSING, PRECAUTIONS TO IMPROVE WATER TIGHTNESS OF THE SEWER JOINTS AND STRUCTURAL IMPROVEMENTS SUCH AS HIGHER STRENGTH WATERMAIN AND/OR SEWER AT THE CROSSING ARE REQUIRED. ALL JOINTS WITHIN 3m OF THE CROSSING SHALL BE EITHER WRAPPED WITH HEAT SHRINK PLASTIC OR PACKED WITH INERT PETROLIUM COMPOUND AND WRAPPED IN TAPE IN ACCORDANCE WITH ANS/AWWA STANDARDS C209 AND C211-90 OR INCASED IN ACCORDANCE WITH SCRDS STANDARD G6.
- ALL WATER SERVICE CONNECTIONS TO BE 25mm DIAMETER TYPE K COPPER SERVING PIPE FROM PROPERTY LINE TO THE NEW WATERMAIN UNLESS NOTED OTHERWISE.
- THRUST BLOCKS TO BE PROVIDED AT ALL FITTINGS AND CHANGES IN DIRECTION UNLESS NOTED OTHERWISE, WHERE CONDITIONS DO NOT PERMIT THE USE OF THRUST BLOCKS, JOINT RESTRAINTS ARE TO BE USED.
- THE SUNSHINE COAST REGIONAL DISTRICT WILL REMOVE AND RETURN TO THE SUNSHINE COAST REGIONAL DISTRICT WORKS YARD ALL EXISTING FIRE HYDRANTS ASSEMBLIES, GATE VALVES, ETC. CO-INCIDENT WITH THE IN OF WATERMAIN.
- ALL PRESSURE TESTING, CHLORINATION AND FLUSHING TO BE PERFORMED TO THE MINISTRY OF HEALTH AND AWWA STANDARDS. SEE SCRDS DRAWING STANDARD N2.
- RECORD DRAWINGS SHALL BE MAINTAINED BY THE CONTRACTOR THAT ACCURATELY DOCUMENT LOCATION AND DEPTH OF INSTALLED WORKS FOR SUBMISSION TO THE SCRDS.
- CONTRACTOR TO SUPPORT HYDRO POLES AS REQUIRED.
- CONTRACTOR TO CONFIRM LOCATION OF TIE IN LOCATIONS PRIOR TO CONSTRUCTION. WATERMAIN LOCATION APPROX.

WATER WORKS NOTES DRAWING NUMBER: **N1**

SCRD STANDARD DETAIL DRAWINGS

THE FOLLOWING IS COMPLEMENTARY TO THE SCRDS BYLAWS AND DOES NOT NULLIFY THEM IN PART OR WHOLE.

- THE SUNSHINE COAST REGIONAL DISTRICT ENGINEER OR ONLY AUTHORIZED REPRESENTATIVE, HENCEFORTH REFERRED TO AS 'SCRD ENGINEER', MAY BE SCHEDULED TO VISIT WATERWORKS PROJECTS, (BVEN 48 HOURS NOTICE, BETWEEN 9:30 AM AND 12:30 PM, MONDAY TO FRIDAY, SUBJECT TO AVAILABILITY.
- IN ACCORDANCE WITH BYLAW 303, SECTION 8, PAGE 2, ARTICLE 8, THE OWNERS REPRESENTATIVE SHALL ARRANGE TO MEET WITH THE SCRDS ENGINEER PRIOR TO THE START OF CONSTRUCTION. AT THIS TIME THE SCRDS ENGINEER WILL INFORM THE OWNERS REPRESENTATIVE OF THE REQUIRED STAGES OF INSPECTION.
- QUALIFIED INSPECTORS FROM THE PRIVATE SECTOR (I.E. THIRD PARTY ENGINEERS), MAY BE USED AS AN ALTERNATIVE TO THE SCRDS ENGINEER FOR THE PURPOSES OF LEAKAGE TESTING AND DIRECTION PROCEDURE, PROVIDED THAT THE SCRDS HAS APPROVED THE USE OF THEIR SERVICES, AND THAT A QUALIFIED PROFESSIONAL ENGINEER PROVIDES A SIGNED AND SEALED LETTER, CONFIRMING THAT THE TESTS WERE COMPLETED TO MMCD, VCL, AWWA, AND SCRDS STANDARDS.
- THE SCRDS ENGINEER, OR AUTHORIZED INSPECTOR, MUST BE PRESENT AND WITNESS THE LEAKAGE TESTING AS DESCRIBED IN BYLAW 303, SECTION 8, PAGE 2, ARTICLE 8.1.3. THE SCRDS ENGINEER OR AUTHORIZED INSPECTOR MUST BE PRESENT WHEN THE MAIN IS FULLY PRESSURIZED AND AGAIN FOLLOWING TWO HOURS OF CONSTANT PRESSURIZATION.
- PRIOR TO DISSECTION OF THE WATERWORKS, THE SCRDS MUST RECEIVE WRITTEN NOTIFICATION OF THE DE-CHLORINATION METHOD THAT WILL BE USED FOLLOWING THE FLUSHING OF THE WATERWORKS. THE SCRDS ENGINEER, OR AUTHORIZED INSPECTOR, MUST BE PRESENT AND WITNESS THE DISSECTION AS DESCRIBED IN BYLAW 303, SECTION 8, PAGE 10, ARTICLE 8.1.3. THE SCRDS ENGINEER, OR AUTHORIZED INSPECTOR, MUST BE PRESENT WHEN THE MAIN IS FULLY CHLORINATED AND AGAIN FOLLOWING TWENTY-FOUR HOURS OF CHLORINATION.
- THE COLLECTION OF SAMPLES FOR COLIFORM BACTERIA TESTING WILL BE PERFORMED BY THE SUNSHINE COAST REGIONAL DISTRICT SENIOR WATER TECHNICIAN, OR ONLY AUTHORIZED REPRESENTATIVE. THIRD PARTY PERSONNEL WILL NOT BE PERMITTED TO COLLECT SAMPLES FOR COLIFORM TESTING. SAMPLES FOR COLIFORM TESTING WILL NOT BE TAKEN UNTIL THE DISSECTION AND FLUSHING OF THE WATERWORKS HAS BEEN COMPLETED TO THE SATISFACTION OF THE SCRDS ENGINEER.
- THE SCRDS UTILITIES COORDINATOR WILL BE ASKED TO PROCEED WITH THE FINAL TIE-UP ON THE COMPLETION OF THE ABOVE MENTIONED LEAKAGE TESTING, DISSECTION, AND COLIFORM BACTERIA TESTING, AND COLIFORM BACTERIA TESTING OF THE SCRDS ENGINEER.

INSPECTION NOTES DRAWING NUMBER: **N2**

MMCD STANDARD DETAIL DRAWINGS

UTILITY TRENCH DRAWING NUMBER: **G4**

NOTE: 1. TRENCHING TO COMPLY WITH ALL REQUIREMENTS OF THE WORKERS' COMPENSATION BOARD.
2. REFER TO CONTRACT DRAWINGS AND SECTION 02232 FOR DETAILED SPECIFICATIONS.

SCRD STANDARD DETAIL DRAWINGS

| CLASSIFICATION | MINIMUM THICKNESS WITH SUBGRADE SOIL CLASSIFICATION SC & BETTER | MINIMUM THICKNESS WITH SUBGRADE SOIL CLASSIFICATION ML/C/L/CL |
|----------------|---|---|
| LOCAL | 50mm A.C. SURFACE COURSE | 50mm A.C. SURFACE COURSE |
| | 75mm BASE COURSE | 75mm BASE COURSE |
| COLLECTOR | 35mm A.C. SURFACE COURSE | 35mm A.C. SURFACE COURSE |
| | 40mm A.C. LOWER COURSE | 40mm A.C. LOWER COURSE |
| ARTERIAL | 40mm A.C. SURFACE COURSE | 40mm A.C. SURFACE COURSE |
| | 60mm A.C. LOWER COURSE | 60mm A.C. LOWER COURSE |

PAVEMENT RESTORATION DRAWING NUMBER: **G5**

NOTE: 1. REFER TO MMCD CONTRACT DRAWINGS, SECTIONS S1 23 01 AND S2 12 16 FOR DETAILED SPECIFICATIONS.
2. BASE, SUBBASE AND BACKFILL COMPACTED TO 90% MODIFIED PROCTOR DENSITY.
3. SCRDS STANDARD DETAL G6 BASED ON MMCD STANDARD DETAL G6. ANY UPDATES TO MMCD AFFECTING MMCD STANDARD DETAL G6 MAKE AFTER 2014/04/08 TAKE PRECEDENCE OVER SCRDS STANDARD DETAL G6.

SCRD STANDARD DETAIL DRAWINGS

| MAXIMUM SPACING OF ANCHOR BLOCKS (SEE NOTE 4) | | | |
|---|--------------|--------------------------|--------------|
| SANITARY AND STORM GREY SEWERS | | WATERMANS AND CONCREMANS | |
| SLOPE | MAX. SPACING | SLOPE | MAX. SPACING |
| 15% - 20% | 25m | 10% OR GREATER | 10m |
| 20% - 30% | 20m | | |
| 30% - 40% | 15m | | |
| 20%+ OVER | 10m | | |

PIPE ANCHOR BLOCKS DRAWING NUMBER: **G8**

NOTE: 1. APPLICABLE TO ALL PIPE MATERIALS.
2. USE ALTERNATIVES 1 OR 2 AS SPECIFIED ON CONTRACT DRAWINGS.
3. USE 20 MPa CONCRETE UNLESS SPECIFIED OTHERWISE ON CONTRACT DRAWINGS.
4. REFER TO CONTRACT DRAWINGS FOR SPECIFIED SPACING IF OTHER THAN MAXIMUM SHOWN IN TABLE.

SCRD STANDARD DETAIL DRAWINGS

WATER SERVICE CONNECTION DoS DRAWING NUMBER: **W1-S**

NOTE TO SCALE

SCRD STANDARD DETAIL DRAWINGS

CAPS, PLUGS & TEES, 90° ELBOWS, 45° ELBOWS, 22 1/2° ELBOWS, 11 1/2° ELBOWS, VERTICAL BENDS.

| MINIMUM ALLOWABLE TONNAGE BEARING CAPACITY (MPa) | FITTING SIZE (mm) | THURST (kN) | MINIMUM ROCK BASE AREA (m²) | THURST (kN) | MINIMUM ROCK BASE AREA (m²) | THURST (kN) | MINIMUM ROCK BASE AREA (m²) | THURST (kN) | MINIMUM ROCK BASE AREA (m²) | THURST (kN) | MINIMUM ROCK BASE AREA (m²) |
|--|-------------------|-------------|-----------------------------|-------------|-----------------------------|-------------|-----------------------------|-------------|-----------------------------|-------------|-----------------------------|
| 1815.1 CONCRETE OR SHALE | 100 | 36 | 0.019 | 23 | 0.023 | 12 | 0.009 | 6 | 0.007 | 3 | 0.004 |
| | 150 | 33 | 0.037 | 47 | 0.046 | 25 | 0.023 | 13 | 0.009 | 7 | 0.005 |
| | 200 | 57 | 0.056 | 81 | 0.084 | 44 | 0.460 | 22 | 0.023 | 11 | 0.009 |
| 1845.1 HARD CLAY | 300 | 122 | 0.130 | 172 | 0.177 | 93 | 0.093 | 48 | 0.046 | 24 | 0.023 |
| | 100 | 36 | 0.023 | 23 | 0.037 | 12 | 0.019 | 6 | 0.009 | 3 | 0.006 |
| | 150 | 33 | 0.056 | 47 | 0.084 | 25 | 0.046 | 13 | 0.019 | 7 | 0.009 |
| 1845.1 SAND CLAY | 200 | 57 | 0.102 | 81 | 0.140 | 44 | 0.074 | 22 | 0.037 | 11 | 0.019 |
| | 300 | 122 | 0.214 | 172 | 0.297 | 93 | 0.458 | 48 | 0.084 | 24 | 0.037 |
| | 100 | 36 | 0.056 | 23 | 0.084 | 12 | 0.046 | 6 | 0.019 | 3 | 0.009 |
| 1845.1 SAND CONC. USING OR FINE COARSE | 150 | 33 | 0.112 | 47 | 0.093 | 25 | 0.093 | 13 | 0.046 | 7 | 0.019 |
| | 200 | 57 | 0.165 | 81 | 0.279 | 44 | 0.149 | 22 | 0.074 | 11 | 0.037 |
| | 300 | 122 | 0.148 | 172 | 0.604 | 93 | 0.310 | 48 | 0.167 | 24 | 0.084 |
| 1815.1 SOFT CLAY | 100 | 36 | 0.167 | 23 | 0.242 | 12 | 0.150 | 6 | 0.065 | 3 | 0.037 |
| | 150 | 33 | 0.844 | 47 | 0.492 | 25 | 0.260 | 13 | 0.139 | 7 | 0.065 |
| | 200 | 57 | 0.595 | 81 | 0.845 | 44 | 0.455 | 22 | 0.232 | 11 | 0.121 |

CONCRETE BLOCKING DRAWING NUMBER: **W8**

NOTE: 1. CONCRETE THRUST BLOCKS SHALL EXTEND INTO UNDISTURBED SOIL. THRUST IN 90° VERTICAL SOILS WILL REQUIRE REMOVAL OF SOIL AND REPLACEMENT WITH COMPACTED SOIL OR EQUIVALENT MATERIAL TO RESIST THRUST OR SPECIAL ANCHOR BLOCKS AS DIRECTED BY THE CITY ENGINEER.
2. BLOCKING WILL BE REQUIRED FOR ALL ELBOWS, TEE'S, PLUGS, CAPS, PIPE DEFLECTIONS, AND OTHER FITTINGS ON LIVE MAINS WHERE ANCHOR RODS ARE NOT PRACTICAL.
3. THRUST BLOCKS SHALL BE AT LEAST 100mm DEEP CONCRETE OR HIGH EARLY STRENGTH CONCRETE IF REQUIRED.
4. AT VERTICAL BENDS BLOCKING SHALL BE OF SUFFICIENT WEIGHT TO RESIST OUTWARDS THRUST.
5. BLOCKING SHALL BE KEPT OFF BELLS WHERE POSSIBLE.
6. FOR SPECIFIC AT IF LARGER PIPES, SEE ENGINEER.

SCRD STANDARD DETAIL DRAWINGS

THRUST BLOCK LOCATIONS DRAWING NUMBER: **W9**

MMCD STANDARD DETAIL DRAWINGS

GATE VALVE INSTALLATION DRAWING NUMBER: **W3**

NOTE: 1. REFER TO CONTRACT DRAWINGS FOR VALVE INSTALLATION DETAILS IN AREAS OF UNSTABLE GROUND (WHERE APPLICABLE).
2. REFER TO CONTRACT DRAWINGS AND SECTION 02666 FOR DETAILED SPECIFICATIONS.

MMCD STANDARD DETAIL DRAWINGS

FIRE HYDRANT INSTALLATION DRAWING NUMBER: **W4**

NOTE: 1. REFER TO SUPPLEMENTAL SPECIFICATIONS FOR HYDRANT PAINTING REQUIREMENTS.
2. REFER TO CONTRACT DRAWINGS AND SECTION 02666 FOR THE DETAILED SPECIFICATIONS.
3. FOR INSTALLATIONS SHOWN ON CONTRACT DRAWINGS WHERE WATER (AT SEASONAL HIGH) IS ABOVE BASE OF DRAIN ROCK, INSERT THREADED PLUGS IN DRAIN HOLES AND SUBSTITUTE GRANULAR PIPE BEDDING FOR DRAIN ROCK. (COMPACT PIPE BEDDING TO 90% MODIFIED PROCTOR DENSITY)

MMCD STANDARD DETAIL DRAWINGS

BLOW-OFF FOR WATERMAIN DRAWING NUMBER: **W8**

NOTE: 1. 20 MPa CONCRETE.
2. REFER TO CONTRACT DRAWINGS AND SECTION 02666 FOR DETAILED SPECIFICATIONS.

SCRD STANDARD DETAIL DRAWINGS

AIR VALVE ASSEMBLY DRAWING NUMBER: **W6**

NOTE TO SCALE

NOTE: 1. WATER BOX TO BE ARMED ALL UTILITY BOX OR APPROVED EQUIVALENT.
2. ALL INSTALLATIONS IN UNSTABLE SOILS SHALL BE STAYED.
3. ALL AIR VALVES TO BE OF THE DOUBLE ACTING TYPE, TYPICAL CITY WORKING AS IN OR EQUIVALENT.

| No. | Date | Revision | Drw. | Chk. |
|-----|-----------|-------------------------|------|------|
| F | AUG 1/25 | ISSUED FOR TENDER | LN | JM |
| E | JUL 04/18 | ISSUED FOR CONSTRUCTION | SD | JM |
| D | FEB 16/18 | RE-ISSUED FOR TENDER | SD | JM |
| C | SEP 15/17 | ISSUED FOR TENDER | SD | JM |
| B | SEP 08/17 | ISSUED FOR FINAL DESIGN | SD | JM |
| A | AUG 09/17 | ISSUED FOR REVIEW | SD | JM |

SUNSHINE COAST REGIONAL DISTRICT
WATER WORKS

1975 Field Road
Sechelt, BC V0N 3A1
Ph: 604-885-6800 1-800-687-5753 Fax: 604-885-7909

REFERENCE DRAWINGS

| | |
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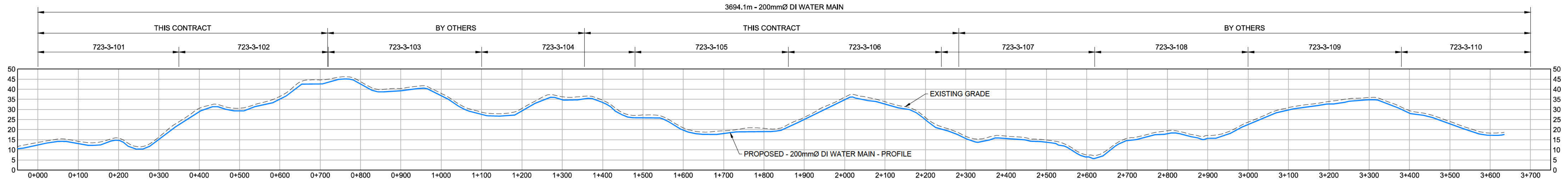
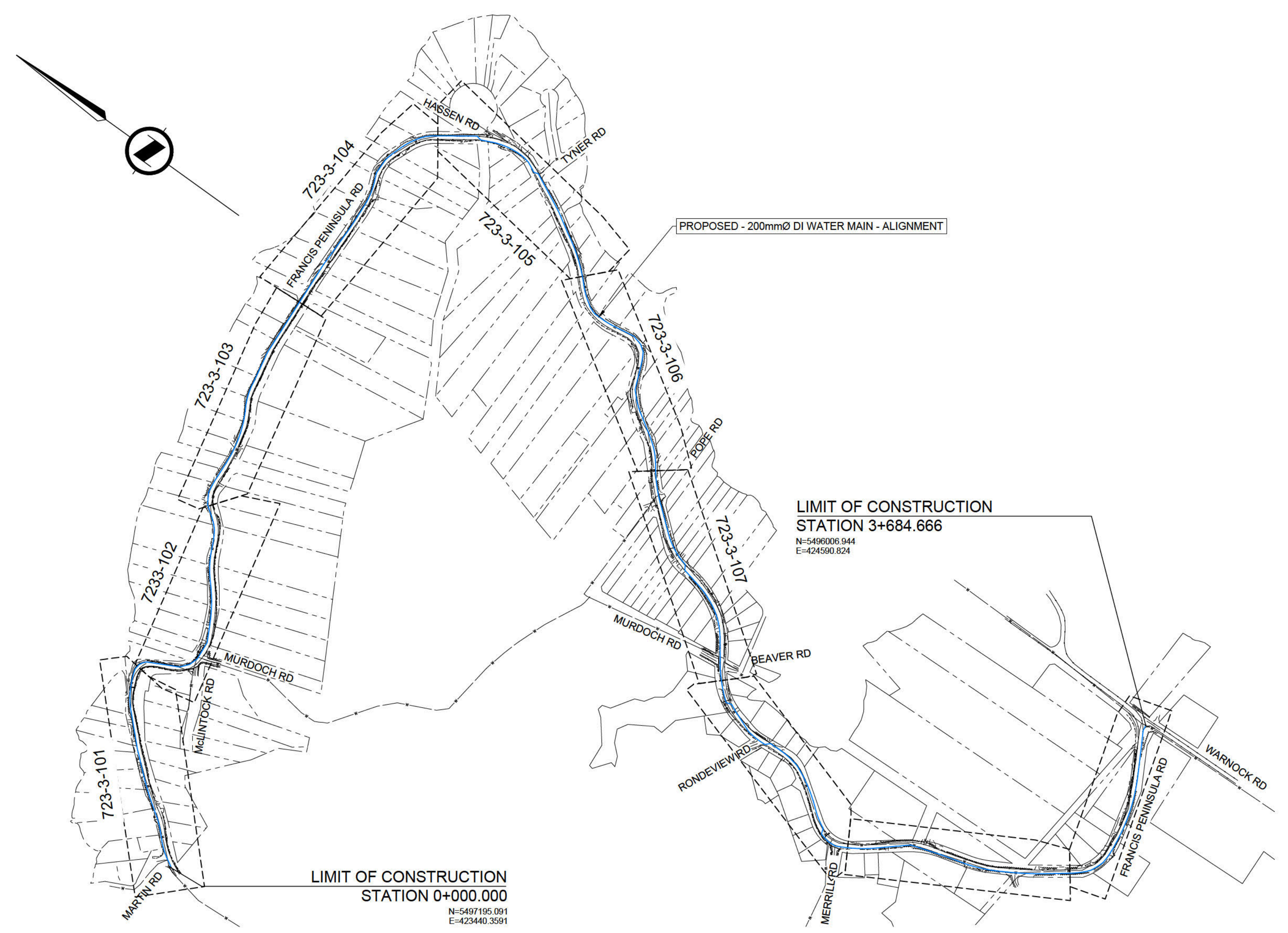
Designed: JM
Drawn: SD
Checked: JM
Surveyed: -
Date: FEB 2018

PREPARED BY:
ONSITE ENGINEERING LTD.
ABBOTSFORD
UNIT 106 - 2825 CLEARBROOK ROAD
ABBOTSFORD, BC V2T 6S3
PH: 604-910-2040 FAX 866-235-6943

SUNSHINE COAST REGIONAL DISTRICT
SOUTH PENDER HARBOUR
WATER MAIN REPLACEMENT
DETAILS & NOTES

Client Project No.
OEL Project No. 723-3
Drawing No. 723-3-002
Sheet: 3 of 12 Revision E

| LEGEND | |
|----------|--------------------|
| PROPOSED | |
| | WATER MAIN |
| | WATER VALVE |
| | HYDRANT |
| | AIR RELEASE VALVE |
| | BLOW-DOWN ASSEMBLY |



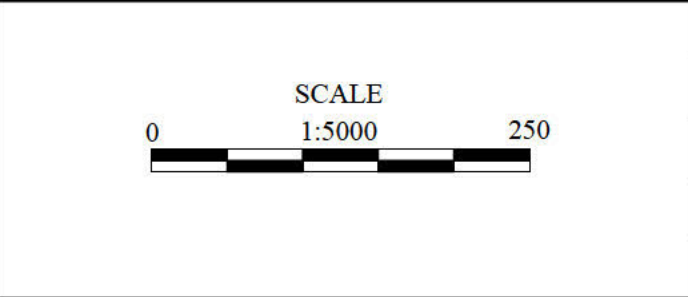
NOT FOR CONSTRUCTION

| No. | Date | Revision | Drw. | Chk. |
|-----|-----------|-------------------------|------|------|
| F | AUG 1/25 | ISSUED FOR TENDER | SCRD | |
| E | JUL 04/18 | ISSUED FOR CONSTRUCTION | LN | JM |
| D | FEB 16/18 | RE-ISSUED FOR TENDER | SD | JM |
| C | SEP 15/17 | ISSUED FOR TENDER | SD | JM |
| B | SEP 08/17 | ISSUED FOR FINAL DESIGN | SD | JM |
| A | AUG 09/17 | ISSUED FOR REVIEW | SD | JM |

SUNSHINE COAST REGIONAL DISTRICT
WATER WORKS

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Sechelt, BC V0N 3A1
Ph: 604-885-6800 1-800-687-5753 Fax: 604-885-7909

| REFERENCE DRAWINGS |
|--------------------|
| |
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| | |
|-----------|----------|
| Designed: | JM |
| Drawn: | SD |
| Checked: | JM |
| Surveyed: | JW/EP |
| Date: | FEB 2018 |

PREPARED BY:
ONSITE ENGINEERING LTD.
ABBOTSFORD
UNIT 106 - 2825 CLEARBROOK ROAD
ABBOTSFORD, BC V2T 6S3
PH: 604-910-2040 FAX: 866-235-6943

SUNSHINE COAST REGIONAL DISTRICT
SOUTH PENDER HARBOUR
LOCATION KEY
PLAN & PROFILE

| | |
|--------------------|-----------|
| Client Project No. | 723-3 |
| OEL Project No. | 723-3 |
| Drawing No. | 723-3-100 |
| Sheet: | 5 of 12 |
| Revision | E |

