

- Mechanical Specifications**
PART 1 - GENERAL
- IN GENERAL, THE SCOPE OF WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
 - DEMOLITION - DRAIN PIPING AND REMOVE EXISTING CORRODED 200mm (8"), 350mm (14") VALVES AND PIPE SUPPORTS AND DISPOSE OF.
 - INSTALL NEW 200mm (8") AND 350mm (14") VALVES, PIPING, FITTINGS AND SUPPORTS, AND IN SERVICE LEAK TEST. INSTALLATION OF NEW 100mm (4") PVC WELL WATER AND RIVER WATER BRANCH PIPING TO FISH TANKS.
 - GENERAL CLEANUP AFTER COMPLETION.
 - OWNER'S OCCUPANCY
 - EXISTING FACILITY WILL BE OPERATED DURING CONSTRUCTION PERIOD FOR EXECUTION OF NORMAL OPERATIONS. COOPERATE WITH OWNER IN SCHEDULING OPERATIONS TO MINIMIZE CONFLICT AND FACILITATE OWNER USAGE.
 - TIMING
 - PIPING AND VALVES ARE IN A SEMI ENCLOSED LOCATION SUBJECT TO FREEZING IF THE PIPE IS LEFT FILLED WITH NO WATER FLOW. ALL VALVE REPLACEMENT AND PIPING MODIFICATIONS IS TO BE SCHEDULED BETWEEN APRIL 15, 2019 AND OCTOBER 15, 2019. REPLACEMENT OF EXISTING CORRODED PIPING SUPPORTS CAN BE PERFORMED DURING OR OUTSIDE THIS TIME PERIOD WITH COORDINATION OF OWNER. TOTAL PROJECT COMPLETION IS REQUIRED BY DECEMBER 31, 2019. POND 1 TO LP 1 WILL HAVE ALL FISH REMOVED FROM MARCH 31, 2016 TO MAY 31, 2016. TEMPORARY HOSES ARE TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AS REQUIRED TO PREVENT FISH FROM DURING PIPELINE SHUTDOWNS THAT EXCEED TWO HOURS. LONGER THAN TWO HOUR DURATION COORDINATE TEMPORARY TIE IN LOCATIONS WITH OWNER. EXISTING PVC UNION CONNECTIONS ARE INSTALLED IN PONDS TO ALLOW CONNECTION TO WELL OR RIVER WATER SUPPLY.
 - PIPELINE SHUTDOWN TO ENABLE WORK WILL BE LIMITED TO SPECIFICALLY TIED AND SCHEDULED LOCATIONS. FISH WILL OFTEN REMAIN OCCUPIED IN PONDS IN ASSOCIATED AREA WHILE PIPELINE WORK IS BEING CONDUCTED. AREA WATER FLOW SHUTDOWNS MUST BE COORDINATED IN SPECIFIC SEQUENCES AND TIGHT TIMELINES WITH THE OWNER TO ALLOW BUSINESS CONTINUITY. IN MANY LOCATIONS WATER FLOW SHUTDOWN TO OCCUPIED TANKS MUST NOT EXCEED TWO HOURS. THERE WILL BE SPECIFIC SECTIONS DURING SPECIFIC SEASONS WHERE THAT TWO HOURS COULD BE LENGTHENED SIGNIFICANTLY WITH SAID COORDINATION WITH SITE OWNER.
 - PROTECTION
 - SOME TANKS WILL CONTAIN FISH STOCK.
 - PROVIDE PROTECTION AND CONTAINMENT MECHANISMS TO CAPTURE MATERIALS TO PREVENT SOLID AND LIQUID CONTAMINATION, AND OBJECTS FROM FALLING INTO WATER OR TANKS.
 - TYPE OF PROTECTION AND CONTAINMENT MECHANISMS TO BE APPROVED BY OWNER.
 - THIS CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES IN ORDER THAT THE WORK HEREIN MAY BE CARRIED OUT.
 - ALL LABOR, MATERIALS, AND WORKMANSHIP SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF ACCEPTED SUBSTANTIAL COMPLETION OF THE WORK.
 - THE CONTRACTOR SHALL MAKE A THOROUGH EXAMINATION OF THE SITE PRIOR TO BIDDING THE WORK IN ORDER TO BECOME AWARE OF THE EXTENT OF DEMOLITION, NEW WORK AND THE EXTENT OF REQUIRED COORDINATION WITH OTHER TRADES. THIS SHALL INCLUDE VERIFICATION OF EXISTING DIMENSIONS TO CONFIRM FITTINGS BEING PURCHASED ARE COMPATIBLE WITH EXISTING PIPING. NO ADDITIONAL COSTS WILL BE CONSIDERED DUE TO A FAILURE TO EXAMINE EXISTING SITE CONDITIONS AND FACILITY OPERATIONS. BEFORE BEGINNING THE WORK, THE CONTRACTOR SHALL CONFIRM TO THEIR OWN SATISFACTION THAT THE WORK OF THIS TRADE CAN BE CARRIED OUT WITHOUT CHANGES TO THE EQUIPMENT SHOWN ON THE DRAWINGS. ANY DEFECTS, INTERFERENCES OR CONFLICTS SHALL BE REPORTED AT ONCE TO THE OWNER FOR RESOLUTION. NO ADDITIONAL COSTS WILL BE CONSIDERED DUE TO A FAILURE TO REPORT SUCH OCCURRENCES.
 - CUTTING AND PATCHING IS TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - CONNECTIONS INTO EXISTING SYSTEMS TO BE MADE AT DATE AND TIME APPROVED BY OWNER. MAKE REQUEST FOR CONNECTION DATE AND TIME IN WRITING.
 - SUBMIT ONE COPY OF FIELD RED-LINED RECORD DRAWINGS TO OWNER FOR REVIEW.
 - CONTRACTOR IS RESPONSIBLE FOR GENERAL CLEANUP OF WORK AREAS AFTER COMPLETION.
 - ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS.
 - ALL WORK SHALL BE DONE IN A SAFE MANNER, IN ACCORDANCE WITH NEW BRUNSWICK CONSTRUCTION SAFETY ASSOCIATION REQUIREMENTS, SITE SAFETY REQUIREMENTS, AND FIRE WATCH IF ANY WELDING/CUTTING IS DONE IN A COMBUSTIBLE AREA.

- PART 2 - PRODUCTS
- PIPING, FITTINGS, AND HARDWARE FOR MODIFICATIONS TO EXISTING 200mm (8") WELL WATER PIPING AND 350mm (14") RIVER WATER PIPING.
 - ANY REPLACEMENT PIPING IF REQUIRED SHALL BE DUCTILE IRON CEMENT LINED CLASS 52, C151 AWWA STD.
 - PIPE RESTRAINTS TO BE MEGALUG SERIES 1100 ASTM A536 DUCTILE IRON AS MANUFACTURED BY EBAA IRON INC. OR APPROVED EQUAL.
 - RESTRAINED FLANGE ADAPTERS SHALL BE MEGALUG SERIES 2100 ASTM A536 DUCTILE IRON AS MANUFACTURED BY EBAA IRON INC. OR APPROVED EQUAL. FLANGE BOLT PATTERN SHALL BE ANSI CLASS 125 PATTERN.
 - 100mm (4") NPT BRANCH OUTLET TEES FOR 200mm (8") AND 350mm (14") DUCTILE IRON PIPE SHALL BE SERIES 313 DUCTILE IRON BODY WITH FUSION BONDED EPOXY FINISH, NSF 61 NITILE GASKET, 304 SS HARDWARE AS MANUFACTURED BY SMITH BLAIR OR APPROVED EQUIVALENT.
 - PIPE CLAMPS TO BE FABRICATED 10mm x 94mm (3/8" x 2") FLAT BAR WITH HOT DIPPED GALVANIZED FINISH. SIZE TO MATCH DUCTILE IRON PIPE OUTSIDE DIAMETER.
 - ANCHORS FOR PIPE CLAMPS SHALL BE KWIC BOLT 3 WEDGE TYPE GALVANIZED CONSTRUCTION AS MANUFACTURED BY HLT. USE 16mm (5/8") FOR BOTH 200mm (8") PIPE AND 350mm (14") PIPE.
 - BOLTS SHALL BE A193 GR. B7.19.2.2 GALVANIZED.
 - NUTS SHALL BE 1M OR 2G-B7.19.2.2 GALVANIZED.
 - GASKETS FOR STANDARD FLANGE ASSEMBLIES SHALL BE FULL FACE EPDM, FDA APPROVED.
 - GASKETS FOR RESTRAINED FLANGE ADAPTERS SHALL BE EBAA-SEAL AS MANUFACTURED BY EBAA IRON INC. OR APPROVED EQUAL.
 - ALL COMPONENTS MUST BE RATED FOR POTABLE WATER USE.
 - BRANCH PIPE AND FITTINGS 25mm - 100mm (1" - 4"), POLYVINYL CHLORIDE (PVC)
 - PIPE: PVC, GREY, POTABLE WATER, TYPE 1, GRADE 1, OR CLASS 12454-B, TO ASTM D1784, D1785, AND D2487 SCHEDULE 80 UNLESS NOTED OTHERWISE.
 - JOINTS: SOCKET WELDED BY USE OF SOLVENT-BASED CEMENTS EXCEPT WHERE CONNECTING TO VALVES AND COMPONENTS WITH THREADED OR FLANGED CONNECTIONS AND AT UNIONS, UNLESS NOTED OTHERWISE.
 - FITTINGS: SOCKET AND THREADED TYPE TO ASTM D2487 AND D2485 TO MATCH PIPE.
 - FLANGES: 125 LB STANDARD WITH HOLE PATTERN TO ANSI B16.1, ASTM D2484 AND CONFORMING TO PIPE AND FITTINGS STANDARDS AS SPECIFIED ABOVE. ONE PIECE MOLDED SOCKET FLAT-FACE TYPE.
 - GASKETS: EPDM, FDA APPROVED, ANSI CLASS 150, FULL-FACE TYPE FOR PLASTIC FLANGES OR EQUAL. WHEN MATING RAISED FACE FLANGES, PROVIDE FILLER GASKET BETWEEN O.D. OF RAISED FACE TO O.D. OF FLANGE.
 - FLANGE BOLTS, NUTS AND WASHERS: GALVANIZED CARBON STEEL, GRADE B, TO ASTM A307 AND ASTM A563.
 - HEAVY HEX HEAD SERIES.
 - SIZE, NUMBER AND LENGTH AS SHOWN IN AWWA C115 AND C115 FOR PLAIN FLANGE CONNECTIONS.
 - PRIMER AND SOLVENT-BASED CEMENT: TO ASTM 2564 AND MANUFACTURER'S RECOMMENDATIONS LISTED BY NSF FOR POTABLE WATER APPLICATIONS.
 - THREAD LUBRICANT: TEFLON TAPE.
 - BUTTERFLY VALVES 100mm (4") AND 200mm (8")
 - STANDARD OF ACCEPTANCE: BRAY SERIES 30-119-UC, KEYSTONE, ZOMAX.
 - TYPE: LINED, WAFFER BUTTERFLY.
 - BODY MATERIAL: DUCTILE IRON ASTM A396 EPOXY COATED.
 - DISC UNDERCUT: DUCTILE IRON NYLON 11 COATED.
 - SEAT/LINER MATERIAL: ONE PIECE FOOD GRADE EPDM WITH INTEGRAL RAISED FACE SEALING SURFACE. LINER TO TOTALLY ISOLATE FLOWING MEDIA FROM BODY AND STEM.
 - SHAFT: 304 OR 316 SS.
 - ACTUATOR: MULTI-POSITION LEVER LOCK.
 - PRESSURE RATING: 345 kPa (50 PSI), ACTUAL OPERATING PRESSURE: 103 kPa (15 PSI).
 - ENDS, CLASS: WAFFER, CLASS 125.
 - SERVICE: WELL WATER, RIVER WATER.
 - BUTTERFLY VALVES 350mm (14")
 - STANDARD OF ACCEPTANCE: BRAY SERIES 30-119-UC, KEYSTONE, ZOMAX.
 - TYPE: LINED, WAFFER BUTTERFLY.
 - BODY MATERIAL: DUCTILE IRON ASTM A396 EPOXY COATED.
 - DISC UNDERCUT: DUCTILE IRON NYLON 11 COATED.
 - SEAT/LINER MATERIAL: ONE PIECE FOOD GRADE EPDM WITH INTEGRAL RAISED FACE SEALING SURFACE. LINER TO TOTALLY ISOLATE FLOWING MEDIA FROM BODY AND STEM.
 - SHAFT: 304 OR 316 SS.
 - ACTUATOR: MANUAL GEAR, WITH HANDWHEEL. SIZE ACTUATOR FOR 207 kPa (30 PSI) DIFFERENTIAL PRESSURE. ACTUAL OPERATING PRESSURE IS 103 kPa (15 PSI).
 - PRESSURE RATING: 345 kPa (50 PSI).
 - ENDS, CLASS: WAFFER, CLASS 125.
 - SERVICE: RIVER WATER.
 - TEMPORARY BYPASS HOSE AND FITTINGS 100mm (4")
 - HOSE: FDA APPROVED FOOD GRADE HOSE, FLEXIBLE PVC WITH RIGID PVC HELIX, SMOOTH BORE, CORRUGATED OD. HOSE ALLOWABLE WORKING PRESSURE 200 kPa (29 PSI) AT 20°C (68°F). ACTUAL OPERATING PRESSURE IS 100 kPa (15 PSI). PROVIDE IN 15M (50 FOOT) LENGTHS WITH 304 OR 316 SS QUICKLOCK (CAMLOCK) INSTALLED ON ONE END AND FEMALE QUICKLOCK FITTING ON THE OPPOSITE END. QUANTITY TO BE 36 ASSES.
 - PROVIDE SS MALE QUICKLOCK ADAPTER TO BOTH MALE AND FEMALE PVC UNIONS. CONFIRM ON SITE LOCATION AND TYPE OF UNION TO MATCH TO. SOME UNIONS ARE MALE AND SOME ARE FEMALE. QUANTITY 12 EACH TYPE.
 - TURN OVER HOSE AND FITTINGS TO OWNER UPON COMPLETION OF PROJECT.

- PART 3 - EXECUTION
- INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - ENSURE ALL NECESSARY COMPONENTS ARE ON HAND BEFORE ISOLATING, DRAINING AND REMOVING PIPE FROM SERVICE. ANY LINES REMOVED FROM SERVICE MUST BE RE-COMMISSIONED THE SAME DAY AND AS QUICKLY AS POSSIBLE.
 - APPLY ANTI-SEIZE COMPOUND LIBERALLY TO ALL THREADED HARDWARE BEFORE ASSEMBLY.
 - PIPE PRESSURE TESTING - ALL VALVES AND FITTINGS TO BE IN SERVICE TESTED AFTER COMPLETION OF ALL JOINTS. TESTS SHALL SHOW THAT THE NEW PIPING WILL HOLD WATER FOR 2 HOURS CONTINUOUSLY AND SHALL BE WITNESSED BY THE OWNER. ANY LEAKS FOUND DURING TESTING MUST BE REPAIRED AND A RETEST COMPLETED BEFORE THE SYSTEM IS ACCEPTABLE. CONTRACTOR SHALL MAINTAIN AN ACCURATE AND UP TO DATE RECORD OF ALL TESTING.

SPECIFICATION

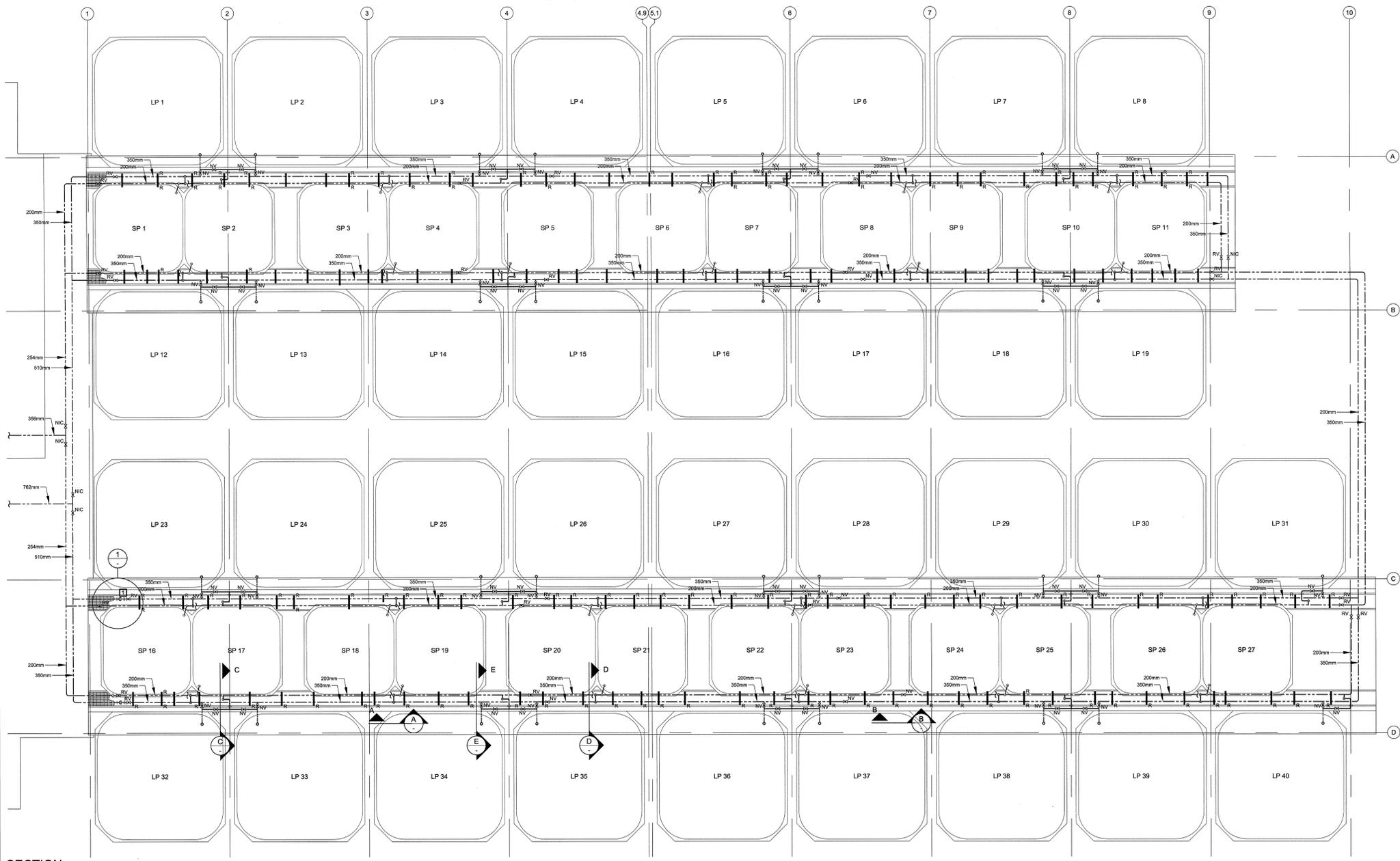
---	2000 WELL WATER (EXISTING)
---	3500 HEADPOND WATER (EXISTING)
---	REPLACE 200mm VALVE (16 TOTAL)
---	REPLACE 350mm VALVE (8 TOTAL)
---	NEW 200mm VALVE (1 TOTAL)
---	NEW 350mm VALVE (5 TOTAL)
---	200mm STRAP (EXISTING)
---	350mm STRAP (EXISTING)
---	REPLACE 200mm STRAP (26 TOTAL)
---	REPLACE 350mm STRAP (93 TOTAL)
---	NOT IN CONTRACT

LEGEND

PVC	POLYVINYL CHLORIDE PIPE
DI	DUCTILE IRON PIPE
HOG	HOT DIPPED GALVANIZED
SS	STAINLESS STEEL

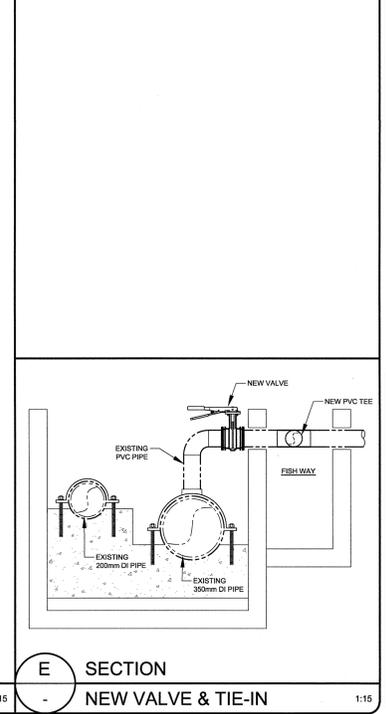
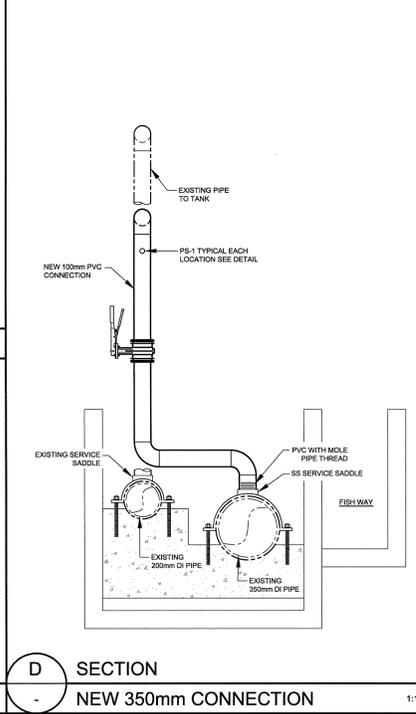
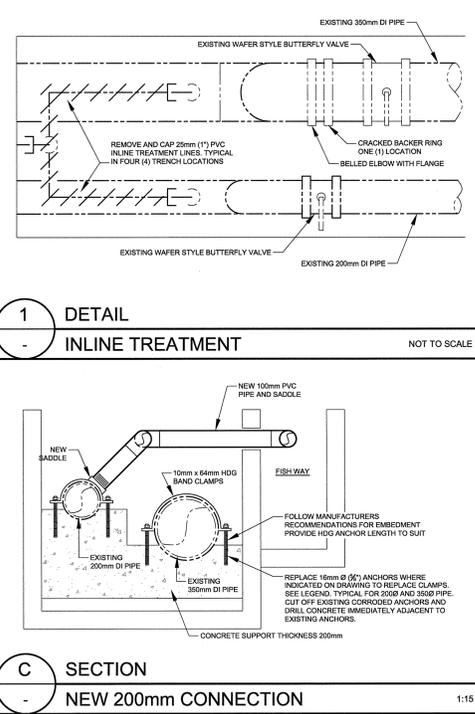
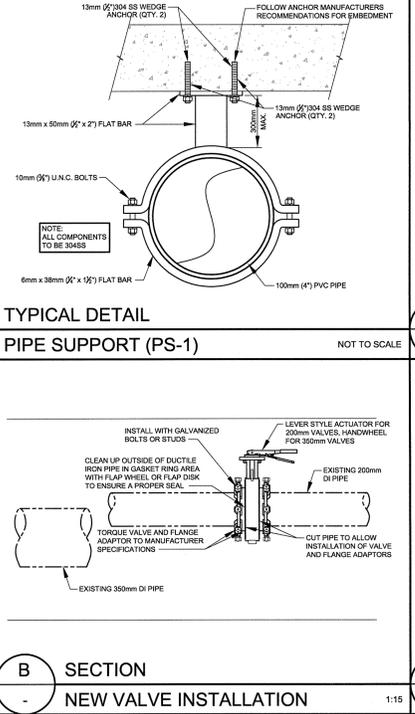
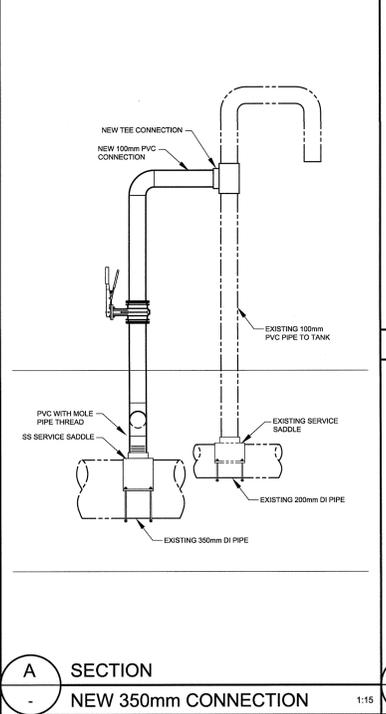
KEYNOTES

□	CRACKED 350mm BACKER RING IN THIS LOCATION. REPLACE VALVE WITH CARE IF LEAK DEVELOPS AT BELL, REPLACE BACKER RING AND RUBBER PACKING RING.
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SECTION

WATER PIPING LAYOUT



LEGEND

---	2000 WELL WATER (EXISTING)
---	3500 HEADPOND WATER (EXISTING)
---	REPLACE 200mm VALVE (16 TOTAL)
---	REPLACE 350mm VALVE (8 TOTAL)
---	NEW 200mm VALVE (1 TOTAL)
---	NEW 350mm VALVE (5 TOTAL)
---	200mm STRAP (EXISTING)
---	350mm STRAP (EXISTING)
---	REPLACE 200mm STRAP (26 TOTAL)
---	REPLACE 350mm STRAP (93 TOTAL)
---	NOT IN CONTRACT

KEYNOTES

□	CRACKED 350mm BACKER RING IN THIS LOCATION. REPLACE VALVE WITH CARE IF LEAK DEVELOPS AT BELL, REPLACE BACKER RING AND RUBBER PACKING RING.
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No.	Issue	Date
0	RELEASED FOR CONSTRUCTION	2015-SEP-03

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Const. North

Drawn By: SET
Eng. Standards: JAF
Designed By: RJM
Eng. Design: JAF

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VALVE REPLACEMENT MACTAGUAC FISH HATCHERY MACTAGUAC, NB

FLOOR PLAN, DETAILS AND SPECIFICATIONS

Project No: FRE-00227479-A0
Dwg. No: 2200-1 Rev. No: 0
Scale: AS SHOWN This drawing is not to be scaled

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