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| **Inspection & Test Plan**  **Project no.: Project name: Inspection Legend**: H = Hold point; S = Surveillance; W = Witness    **Client: Water Authority Responsibility Legend:** PM = Project Manager; SS = Site Supervisor; C = Client Rep; I = Inspector | | | | | | | | | | | | | | |
| **No.** | **Inspection Activity** | **Specification / Drawing Reference** | **Inspection Procedure and Acceptance Criteria** | **Verification Document** | **Aquatec** | | | **Skerman Civil** | | | **Urban Utilities** | | | **Records / Comments** |
| **Insp.** | **Resp.** | **Sign and date** | **Insp.** | **Resp.** | **Sign and date** | **Insp.** | **Resp.** | **Sign and date** |
| **1.0 SITE PRELIMINARIES** | | | | |  | | |  | | |  | | |  |
| 1.1 | Management Plans |  | □ Management Plans Submitted and approved |  | H | PM |  | H | C |  | H | I |  |  |
| 1.2 | Permit to Work |  | □ All required permits received |  | H | PM |  | H | C |  | H | I |  |  |
| 1.3 | Drawings | Aquatec Civil/Mech  Drawings | □ IFC Drawings confirmed latest revision and  approved | IFC Drawings | H | PM |  | H | C |  | H | I |  |  |
| 1.4 | Backfill Design Approval | Aquatec Civil/Mech Drawings | □ Foundation and Backfill design has been reviewed and modified where necessary with letter of endorsement from RPEQ Geotech (Must be site-  specific) | RPEQ Letter of Endorsement | H | PM |  | H | C |  |  |  |  |  |
| 1.5 | Backfill Materials Approval | Aquatec Civil/Mech  Drawings | □ All backfill material certificates submitted and  approved for use by Geotechnical Engineer | Material Certificates | H | PM |  | W | C |  |  |
| **2** | **PRECAST CONCRETE INSTALLATION** | | |  |  |  |  |  |  |  |  |  |  |  |
| 2.1 | Excavation set-out | Aquatec Civil/Mech  Drawings | □ Setout points established and offset for recovery |  | W | SS |  | W | C |  |  |  |  |  |
| 2.2 | Excavation to Base R.L | Aquatec Civil/Mech Drawings | * Shoring and benching completed as required * Where over-excavation occurs, excavation shall be filled with suitable material to satisfaction of geotechnical engineer |  | W | SS |  | H | C |  | W | I |  |  |
| 2.3 | Testing of Base | Aquatec Civil/Mech Drawings | * 2 x DCP tests completed on excavation floor and bearing capacity of >100kPa confirmed * If excavation base material deemed unsuitable, unsuitable foundation to be replaced with suitable   material with approval. | DCP Report | H | SS |  | H | C |  | W | I |  |  |
| 2.4 | Sub-Base Preparation | Aquatec Civil/Mech Drawings | * Approved Sub-Base material placed and compacted * Sump and pump set up to keep excavation dry (if required) * Pump Station Base R.L, centre and orientation set out and confirmed |  | W | SS |  | W | C |  | W | I |  |  |
| 2.5 | Testing of Sub-Base | Aquatec Civil/Mech  Drawings | * Sub-base confirmed at 98% compaction | Compaction Test Report | H | SS |  | H | C |  | W | I |  |  |
| 2.6 | Precast Items Check | Aquatec Coring Drawings | * Precast items checked for damage * Precast items checked against drawings for correct dimensions, cast-ins, coatings and penetrations |  | S | SS |  | W | CS |  | W | I |  |  |
| 2.7 | Base and Increment Placement | Craning and Excavation Plan  Aquatec Civil/Mech Drawings | * Precast items lifted into chamber as per craning and excavation plan * Precast items jointed as per drawings * Orientation of inlet stub and penetrations as per drawings |  | S | SS |  | W | CS |  | W | I |  |  |
| 2.8 | Cover Slab Installation | Craning and Excavation Plan  Aquatec Civil/Mech Drawings | * Cover Slab lifted onto pump station as per craning and excavation plan * Cover Slab orientation and alignment correct as per drawings * Cover Slab sealed to pump station as per drawings |  | S | SS |  | W | CS |  |  |  |  |  |
| 2.9 | Placement of Ballast Concrete | Aquatec Civil/Mech Drawings | * 25MPa Concrete Used * Correct Volume Used * Sufficient Vibration | Concrete Dockets | S | SS |  | W | CS |  |  |  |  |  |
| 2.10 | Placement and Compaction of Backfill | Aquatec Civil/Mech Drawings | * Backfill placed and compacted in 200mm layers to 95% as per drawings * Compaction test taken every 5th layer (1m) | Compaction Test Reports | S | SS |  | W | CS |  |  |  |  |  |
| 2.11 | As Built Pickup | Aquatec Civil/Mech  Drawings | * Survey pickup completed * All as-constructed data recorded. | Survey Pickups  Redlined Drawings | S | SS |  | W | C |  |  |  |  |  |
| **3.0** | **PUMP STATION MECH FITOUT** | | |  |  |  |  |  |  |  |  |  |  |  |
| 3.1 | Materials check | Aquatec Civil/Mech Drawings | * Pumps, Pipework, valves, fittings, fasteners, brackets, etc. as per drawings and specifications * Materials checked for damage | Delivery Dockets Material Certificates | H | SS |  | W | C |  |  |  |  |  |
| 3.2 | Pump and Pipeline set out | Aquatec Pipework Layout  Drawings | * Layouts and IL's are consistent with drawings |  | S | SS |  | W | C |  |  |  |  |  |

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| 3.3 | Pump Pedestal Installation | Aquatec Civil/Mech Drawings | * Anchors installed to correct depth and as per manufacturers recommendation * Pumps level * Pedestal anchors torqued * Guide rails installed and plumb |  | S | SS |  | W | C |  | W | I |  |  |
| 3.4 | Pipe and Pipe Support Installation | Aquatec Civil/Mech Drawings | * Pipe and fittings installed as per project drawings * Pipe supports erected as per drawings with neoprene gaskets between metal and PE liner * Fasteners torqued correctly and marked * Dissimilar metals isolated * Pipework flushed, drained and dried as required * HDPE Vactor pipe vacuum tested to confirm no leaks □   PE Welding spark testing |  | S | SS |  | W | C |  |  |  |  |  |
| 3.5 | Valve Installation | Aquatec Civil/Mech Drawings | * Valves installed as per drawings * Handles fitted and secure * Valve operation checked * Valve orientation correct * Fasteners torqued correctly and marked |  | S | SS |  | W | C |  |  |  |  |  |
| 3.6 | Ladders and misc. installation | Aquatec Civil/Mech Drawings | * Anchors installed to correct depth and as per manufacturers recommendation * Ladders and misc. steelwork plumb and level * Bracket anchors torqued with neoprene gaskets between metal and PE liner |  | S | SS |  | W | C |  |  |  |  |  |
| 3.7 | Grouting | Aquatec Civil/Mech Drawings | * Confirm grout product has not passed expiry date * Concrete surfaces scrabbled as required * All penetrations and pipe supports grouted as per manufactures specification |  | S | SS |  | W | C |  |  |  |  |  |
| 3.8 | Thrust Blocks | Aquatec Civil/Mech Drawings | * Reinforcing placed as per drawings * 2 x layers hydrotite used * Walls scabbled * Adequate Vibration used | Concrete Dockets | H | SS |  | H | C |  | H | I |  |  |
| 3.9 | Trench Fill and Compaction | Aquatec Civil/Mech Drawings | * Marker tape installed as required * Trench backfilled with imported suitable trench fill |  | S | SS |  | W | C |  |  |  |  |  |
| 3.10 | As Built Pickup | Aquatec Civil/Mech Drawings | * Final inspection of mechanical works completed * Survey pickup completed * All as-constructed data recorded. | Survey Pickups Redlined Drawings | H | SS |  | H | C |  | H | I |  |  |
| **4.0** | **DRAINS, CONDUITS & VENTS** | | |  |  | | | | | | | | | |
| 4.1 | Materials check | Aquatec Civil/Mech  Drawings | * Pipework, fittings and adhesives as per drawings |  | H | SS |  | W | C |  |  |  |  |  |
| 4.2 | Pipeline set out | Aquatec Civil/Mech  Drawings | * Layouts and IL's are consistent with drawings |  | W | SS |  | W | C |  |  |  |  |  |
| 4.3 | Pipework Connections | Aquatec Civil/Mech Drawings | * Pipework installed as per project drawings * Invert, grade and alignment checked * Connections completed with no excessive loading exerted onto cast-ins. |  | S | SS |  | W | C |  |  |  |  |  |
| 4.4 | Trench Fill and Compaction | Aquatec Civil/Mech Drawings | * Marker tape installed as required * Trench backfilled with imported suitable trench fill |  | W | SS |  | W | C |  |  |  |  |  |
| 4.5 | As Built Pickup | Aquatec Civil/Mech  Drawings | * Survey pickup completed * All as-constructed data recorded. | Survey Pickups  Redlined Drawings | S | SS |  | W | C |  |  |  |  |  |
| **5.0** | **PUMP STATION CONCRETE SLABS** | | |  |  |  |  |  |  |  |  |  |  |  |
| 5.1 | Slab set-out | Aquatec Civil/Mech  Drawings | * Setout points established and offset for recovery |  |  |  |  | W | C |  |  |  |  |  |
| 5.2 | Excavation for slab | Aquatec Civil/Mech Drawings | * Bearing Capacity confirmed as per drawings * If excavation base material deemed unsuitable, unsuitable foundation to be replaced with suitable material with approval. * Where over-excavation occurs, excavation shall be filled with material to satisfaction of geotechnical   engineer |  |  |  |  | W | C |  |  |  |  |  |
| 5.3 | Formwork | Aquatec Civil/Mech  Drawings | * Formwork installed as per drawings * Form release applied as required |  |  |  |  | W | C |  |  |  |  |  |
| 5.4 | Reinforcement | Consultant Drawings MW Specifications | * Correct reinforcing sizes and spacing * Minimum cover as per drawing * Appropriate lap / cog lengths * Cover to conduits as per drawings |  |  |  |  | W | C |  |  |  |  |  |

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| 5.6 | Pre-Pour | Consultant Drawings MW Specifications | * Relevant persons notified of pour * Inspection and certification completed (as applicable) * all debris removed from formwork * Correct bar chairs and qty in place * Conduits positioned correctly |  | W | SS |  | H | C |  | H | I |  |  |
| 5.7 | Concrete Pours | Consultant Drawings MW Specifications | * Concrete docket checked to confirm mix is as per drawings * Free dropping not permitted * Adequate vibration used * Finish as per specification and drawings | Pour record /Docket |  |  |  | S | C |  |  |  |  |  |
| 5.8 | Post-Pour | MW Specifications AS 3600 | * Compressive strength adequate prior to stripping * Curing agent applied immediately after stripping |  |  |  |  | W | C |  |  |  |  |  |
| 5.9 | As Built Pickup | MW Specifications | * Survey pickup completed as required * All as-constructed data recorded. | Survey Pickups  Redlined Drawings | W | SS |  | W | C |  |  |  |  |  |
| **6.0** | **ELECTRICAL INSTALLATION** | | | | | | | | | | | | | |
| 6.1 | Switchboard check | Electrical Drawings | * Switchboard and instruments as per drawings and specifications * Materials checked for damage | Delivery Dockets Material Certificates | H | PM |  | H | C |  | H | I |  |  |
| 6.2 | Switchboard check | Electrical Drawings | * FAT test results received | FAT Results | H | PM |  | H | C |  | H | I |  |  |
| 6.3 | Switchboard Installation | Aquatec Civil/Mech Drawings  AS 3000 | * Conduits are installed as per drawings * Communications GeoSCADA * Mastic sealant used on underside of switchboard * Switchboard fixed down using correct dyna bolts |  | S | SS |  | S | C |  |  |  |  |  |
| 6.4 | Switchboard Installation | Aquatec Civil/Mech Drawings  AS 3000 | * Pre SAT |  | S | SS |  | S | C |  | H | I |  |  |
| 6.5 | Switchboard Installation | Aquatec Civil/Mech Drawings  AS 3000 | * SAT |  | S | SS |  | S | C |  | H | I |  |  |
| 6.6 | Earthing | Electrical Drawings  AS 3000 | * Main earth stake correctly installed and labelled * Earthing cables terminated safely and correctly |  | S | SS |  | S | C |  |  |  |  |  |
| 6.7 | Consumer Mains | Electrical Drawings AS 3000 | * Conduits meet AS 3000 requirements and are free of obstructions * Conduit penetration into POS is sealed and at correct depth * Consumer mains installed to conduits and labelled as requried * Cable testing and terminations completed * Sealing of conduits completed |  | S | SS |  | S | C |  |  |  |  |  |
| 6.8 | Instrumentation and Control | Electrical Drawings AS 3000 | * Flowmeter installed, labelled and terminated as per drawings * Level control instrumentation installed, terminated and labelled as per drawings * Pump controllers terminated and labelled as per drawings * Sealing of conduits completed |  | S | SS |  | S | C |  |  |  |  |  |
| 6.9 | Lighting and power | Aquatec Drawings Electrical Drawings  AS 3000 | * Lighting setout as per drawings * Light & Power components are as per drawings |  | S | SS |  | S | C |  |  |  |  |  |
| 7.0 | As Built Pickup |  | * All as-constructed data recorded. | Redlined Drawings | S | SS |  | W | C |  |  |  |  |
| **8.0** | **CLOSEOUT** | | | | | | | | | | | | | |
| 8.1 | Non Conformances |  | * Non-conformances closed out |  | H | PM |  | H | C |  | H | I |  |  |
| 8.2 | Hydrostatic Testing | AS3735 | * AQT Test Record Documentation |  | H | PM |  | H | C |  | H | I |  |  |
| 8.3 | Final Site Inspection | Project Specifications and Drawings | * Site Clean and Clear of all Construction Waste and Debris disposed of legally and in accordance with legislation * 100% Visual Inspection of install by PM, Client and MW * Installation checked against drawings to confirm all works are as per design * Site Reinstated to a standard equal to or better than existing in accordance with Project specification |  | H | PM |  | H | C |  | H | I |  |
| Project Completed Date….................. | | | | | | | | | | | | | | |

**Signed By Aquatec Representative**

**Signed By Civil Contractor Representative**

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**Signed By Water Authority Representative**

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