**PERIODIC MAINTENANCE PROCEDURES FOR HYDRAULIC SERVICES**

**HCAA-002b**

The following maintenance procedures and schedule identify the preventative and mandatory maintenance requirements. The maintenance procedures for each service or service component are identified with maintenance parameters and duration between service. The maintenance procedures also clarify if the works are preventative or mandatory. Preventative maintenance items ensure the correct operation of the hydraulic systems, mandatory maintenance satisfies Authorities statutory requirements for health and safety. The maintenance schedule is derived from the maintenance procedure list creating an annual program to monitor and maintain the hydraulic systems.

**Stormwater**

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| --- | --- | --- | --- | --- |
| **Item/Drawings** | **Maintenance** | **Period** | **Mandatory Maintenance** | **Preventative Maintenance** |
| Downpipes | Check drainage / Leaking joints | Monthly | No | Yes |
| Stormwater Pits / Grated Drains | Removal of any debris and silt / check grates are sound. | 3 Months | No | Yes |
| RWO’s | Remove any debris - check clear | Monthly | No | Yes |
| Stormwater/subsoil Pump Station | Routine service by Pump Suppliers staff (or authorised agent)1. Check power supply is on and connections in control panel are secured.
2. Check isolating and non-return valves are in good condition and are not seized
3. Adjust pump coupling and mechanical seal spring tension
4. Check float switches for pump start, pump stop and high level alarm
5. With pump running manually, check the following:
* Pump rotation
* Current draw
* Panel indicator lights
* Suction and discharge pressures
* Power supply voltages
* Contactor overload settings (adjust to motor maximum current draw)
* High / Low level alarm
1. Switch pumps and duty selectors to automatic
2. Adjust pressure switch settings to desired pressures for duty and stand by pumps.

Check pit condition and presence of silt build up | 6 Months | No | Yes |

**Sanitary Plumbing & Drainage**

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| --- | --- | --- | --- | --- |
| **Item/Drawings** | **Maintenance** | **Period** | **Mandatory Maintenance** | **Preventative Maintenance** |
| Pipework Generally | Check for leaks / damages or blockages. | 12 Months | No | Yes |
| Sewer Pump Station | Routine service by Pump Suppliers staff (or authorised agent)1. Check power supply is on and connections in control panel are secured.
2. Check isolating and non return valves are in good condition and are not seized
3. Adjust pump coupling and mechanical seal spring tension
4. Check float switches for pump start, pump stop and high level alarm
5. With pump running manually, check the following:
* Pump rotation
* Current draw
* Panel indicator lights
* Suction and discharge pressures
* Power supply voltages
* Contactor overload settings (adjust to motor maximum current draw)
* High / Low level alarm
1. Switch pumps and duty selectors to automatic
2. Adjust pressure switch settings to desired pressures for duty and stand by pumps.

Check pit condition and presence of silt build up | 6 Months | No | Yes |
| Dilution Pit | Check Pit condition and remove any silt and debri | 6 Months | No | Yes |
| Tundish points | Allow to check drain and remove and silt or debris | 12 Months | No | Yes |

**Cold and Lab Water**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item/Drawings** | **Maintenance** | **Period** | **Mandatory Maintenance** | **Preventative Maintenance** |
| Exposed Pipework | Check for leaks and condition of pipework. | 12 Months | No | Yes |
| Stop Valves | Shut down and open valve to ensure ease of operation. | 12 Months | No | Yes |
| Fixtures / Taps Generally | Inspect for correct operation and soundness. | 3 Months | No | Yes |
| Backflow Devices – RPZD’s and TDCV’s | As per 3500 and The Plumbing Code of Australia 1. Check pipework for leaks
2. Check and clean Y-type strainer as necessary
3. Check operation of valve
4. Carry- out statutory maintenance and re-testing, complete report and forward to Sydney Water Corporation
 | 12 Months | Yes | Yes |
| Domestic & FHR Pumpset | Routine service by Pump Suppliers (or authorised agent) undertaking system check of unit incorporating the following: 1. Check amperage and insulation resistance
2. Check control panel, panel lights, auto alternation, isolation valves, check valves, shaft seal, bearings, pump rotation, VFD + Transducer.
 | 6 Months | No | Yes |
| Filters | Routine service to check operating pressures and run test cycle to ensure operation | 6 Months | No | Yes |
| Safety Showers and Eye Wash | Test operation  | Weekly | Yes | Yes |
| Reverse Osmosis | Review operation and test water quality | Weekly | No | Yes |
| Reverse Osmosis | Complete service by Millipore | 6 Months | Yes | No |
| Drinking Fountains | Check operation and filters | 6 months | No | Yes |

**Hot/Warm Water Services**

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| --- | --- | --- | --- | --- |
| **Item/Drawings** | **Maintenance** | **Period** | **Mandatory Maintenance** | **Preventative Maintenance** |
| Exposed Pipework | Check for all leaks and condition of exposed pipework in particular lagging | 12 Months | No | Yes |
| Hot Water Heating Plant | 1. Check temperature levels and settings.
2. Ensure area is clear of flammable material and other unwanted materials.
 | Weekly | No | Yes |
| Hot Water Heating Plant | Routine Service Rheem staff (or authorized agent). | Quarterly | No | Yes |
| Hot water plant TPR Valves | Ease lever to check for operation | 6 Months | No | Yes |
| Thermostatic Mixing valves | Temperature testing at fixture outlets to be recorded in log book | Monthly | No | Yes |
| Thermostatic Mixing valves | Test valve outlet temperature, correct fail safe operation, and ensure cartridge components are operable and replaced as required | 12 Months | Yes | Yes |
| Thermostatic Mixing valves | Replace mixing valve cartridge | 3 years | Yes | Yes |
| Undersink boiling water units and filters | Check operation of boiling water unit and check filter cartridges | 6 Months | No | Yes |

**Rainwater Harvesting System Services**

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| **Item/Drawings** | **Maintenance** | **Period** | **Mandatory Maintenance** | **Preventative Maintenance** |
| Tank | Empty tank of all water and debris, clean thoroughly with chlorine | 3 Yearly | No | Yes |
| Rainwater Re-use Pump | 1. Check power supply is on and connections in control panel are secured.
2. Check pump set mountings are in good order and secure
3. Check water supply is on and bleed pump of any traped air
4. Check isolating and non return valves are in good condition and are not seized
5. Adjust pump coupling and mechanical seal spring tension
6. With pump running manually, check the following:
* Pump rotation
* Current draw
* Panel indicator lights
* Suction and discharge pressures
* Power supply voltages
* Contactor overload settings (adjust to motor maximum current draw)
1. Drain water from air vessels. Check and adjust air pressure in each vessel to be the same
2. Switch pumps and duty selectors to automatic
3. Adjust pressure switch settings to desired pressures for duty and stand by pumps.
 | 6 Months | No | Yes |
| Filtration – Backwash | Clean plastic parts with a soft ,damp cloth only; do not use solvents, detergents, or acidic cleaning agents | 6 Months | No | Yes |
| Filtration Bag | Clean plastic canister and replace filter cartridge | 3 Months | No | Yes |
| UV Disinfection | Isolate power and water supply to unit, remove tube and clean with soft cloth and surgical alcohol | 6 months | No | Yes |
| UV Disinfection | Replace UV tube | 36 Months | Yes | Yes |

**Fire Hydrant Services – With Pump**

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| --- | --- | --- | --- | --- |
| **Item/Drawings** | **Maintenance** | **Period** | **Mandatory Maintenance** | **Preventative Maintenance** |
| Log book | All maintenance and testing to be recorded in Log Book | Monthly | Yes | Yes |
| Pump Service | Routine service by Pump Suppliers staff (or authorised agent) undertaking system check of unit incorporating the following:1. Remove any corrosion from battery terminals
2. Clean, or replace as required, engine fuel sludge / sediment trap and air filter elements
3. Remove and clean heat exchanger strainer(s)
 | 6 Months | No | Yes |
| Pump Service | Yearly maintenance is the same as 6 months with the addition of the following:1. Replace engine oil with new oil that meets the engine manufacturers specification
2. Replace engine oil filter and fuel filters
3. Check the condition of the fuel and replace if defective
4. Inspect Engine cooling hoses and replace where necessary
5. Flush engine cooling system and refill using manufacturers approved corrosion inhibitor
6. Pressure test engine cooling system
7. Inspect pump / driver coupling for wear and alignment
8. Grease pump bearings to the manufacturers specifications
9. Ensure all non-return valves are operating freely and are seating correctly
10. Disassemble pump and repack pump glands
 | 12 Months | Yes | Yes |
| Pump Service | Replace batteries on diesel pump | 2 Years | Yes | Yes |
| Testing of Pumps | Yearly maintenance is the same as 6 months with the addition of the following:1. With the pump room door closed and the pump testing technician present, record results from the following tests:
* Run the pump set at shut off (zero flow) for 3 min allow all equipment to attain normal operating temperature
* Run the pump set at 130% of duty flow for 4 min and record the results.
* Reduce the flow to duty flow for sufficient time to record the water supply proving test results
* Further reduce the flow until shut off (zero flow) is achieved and continue to run the pumpset until total run time has reached 10min
1. Simulate an engine fail to start and ensure that engine start cycling requirements and alarm activations are satisfied
 | 12 Months | Yes | Yes |
| Testing of Pumps | 1. Check that the main isolating switch is in the in position and the green power supply lamps are illuminated and that no red warning lamps are on
2. Check that the fuel tank is full
3. Check for any obvious signs of physical damage or deterioration
4. Test the float charge voltage of both the monitor and engine start batteries and record the result.
5. Start pumpset by reducing the applied water pressure to the starting device and run engine continuously for not less than 10min on the first automatic start and check that the driver achieves full speed within 15s of starting
6. Record the starting pressures, test run time and the hour meter reading at completion of the test
7. During and after the running period Check:
* Pump operates at correct discharge pressure. Record suction and discharge pressure
* Pump gland and drain operates efficiently
* Out of balance condition or abnormal noises are not evident
* Water, oil and fuel leaks are not evident and fittings on ancillary equipment are secure
* Battery charger or alternator / generator is operating correctly
* Battery charger power failure alarm operates correctly
* Cooling is discharging
 | Monthly | Yes | Yes |
| Isolating Valves | 1. Check all isolating valves including underground key-operated valves are in the correct operating position.
2. Check all above ground valves are secured
 | 6 Months | Yes | Yes |
| Hydrant Landing Valves | Check all hydrant valves are:1. Accessible.
2. Hand-wheels are securely fitted.
3. Blanking caps are in good condition.
 | 6 Months | Yes | Yes |
| Booster Assembly | Check booster assembly:1. Is accessible.
2. Hand-wheels are securely fitted.
3. Pressure gauges and blanking caps, where fitted, are in good condition
4. For condition of washers on booster assembly connection inlets and replace if signs of deterioration.
5. For legible block plans incorporating working and test pressures.

NOTE: The block plan should be appropriately located in the pump room and at the booster connections. | 6 Months | Yes | Yes |
| Block Plan | Check block plan is up to date, legible and in an appropriate location. | 6 Months | Yes | Yes |
| Test | Yearly Tests are the same as the 6 monthly with inclusion of the following:Undertake flow test on hydrant system ensuring minimum operating pressure and flow is achieved in accordance with AS2419 - 10litres/second @ 700kPa | 12 Months | Yes | Yes |
| Test | 5 Yearly Tests are the same as the 6 monthly with inclusion of the following:Pressure test on incoming water supply to ensure hydrant system design criteria is satisfied. | 5 years | Yes | Yes |

**Fire Hose Reels**

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| **Item/Drawings** | **Maintenance** | **Period** | **Mandatory Maintenance** | **Preventative Maintenance** |
| Fire Hose Reels | 1. Check that the operating instructions are legible.
2. Check for any damage or corrosion of components that could adversely affect the operation of the reel.
3. Check that all hose reel cabinets are accessible, clear of extraneous materials, clearly and correctly marked and in good repair.
4. With the nozzle closed and stop valve open, test that the hose reel can be unwound freely in its intended direction by unwinding at least 5m of hose.
5. With the nozzle closed, pressurize the reel by opening the stop valve. Determine if there are any leaks form the gland, nozzle, stop valve, hose or any fittings.
6. Test water to ensure it is able to flow through the reel by opening and closing the nozzle.
 | 6 Months | Yes | Yes |
| Fire Hose Reels | Yearly maintenance is the same as 6 months with the addition of the following:1. Check all hoses for kinking, excessive damage or wear, or collapse
2. With the stop valve and nozzle fully opened, measure the water flow rate from the most disadvantaged hose reel – 0.66L/s

All maintenance and testing to be recorded in Log Book | 12 Months | Yes | Yes |
| Combined Fire Hose Reels and Domestic Pump Set | Check all valves are secured in the open position, check and record operating pressure, check pump operation and ensure all indicator lights are operational and not indicating fault. | 6 Months | Yes | Yes |

**Fire Protection**

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| **Item/Drawings** | **Maintenance** | **Period** | **Mandatory Maintenance** | **Preventative Maintenance** |
| Log book | Weekly Recording in Log Book | Weekly | Yes | Yes |
| Sprinkler Pumps | These systems require a statutory inspection and testing procedure to be followed as per AS 1851.4 | Monthly | Yes | Yes |
| Sprinkler valves | These systems require a statutory inspection and testing procedure to be followed as per AS 1851.4 | Monthly | Yes | Yes |

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| **JANUARY** |  | **FEBUARY** |  | **MARCH** |  | **APRIL** |  | **MAY** |  | **JUNE** |  | **JULY** |  | **AUGUST** |  | **SEPT** |  | **OCTOBER** |  | **NOVEMBER** |  | **DECEMBER** |
| **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |  | **Log Book** |
| **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |  | **Hydrant and Sprinkler Pumps** |
| **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |  | **Combined Fire Hose Reels and Domestic Pump Set** |
| **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |
| **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |  | **Booster Assembly** |
| **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |  | **Fire Hydrants** |
| **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |  | **Fire Hose Reels** |
| **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |  | **Block Plan** |
| **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |  | **Signage** |
| **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |  | **Safety Showers and Eye Wash** |
| **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |  | **Thermostatic Mixing Valves** |
| **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |
| **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |  | **Isolation Valves** |
| **Backflow Devices – RPZD’s + TDCV** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |  | **Sprinkler Valves** |
| **UV Disinfection for Rainwater** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |  | **UV Disinfection** |
| **Stormwater and Sewer Pump Service** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **JANUARY** |  | **FEBUARY** |  | **MARCH** |  | **APRIL** |  | **MAY** |  | **JUNE** |  | **JULY** |  | **AUGUST** |  | **SEPT** |  | **OCTOBER** |  | **NOVEMBER** |  | **DECEMBER** |
| **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |  | **Downpipes** |
| **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |  | **Gutters** |
| **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |  | **Pits / Grated Drains** |
| **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |  | **RWO’s** |
| **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |  | **Overland Flow Paths** |
| **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |  | **Pumps** |
| **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |  | **Filters** |
| **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |  | **Reverse Osmosis** |
| **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |  | **Drinking Fountains** |
| **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |  | **Undersink boiling water units and filters** |
| **Rainwater and Sprinkler Tank** |  | **Rainwater and Sprinkler Tank** |  | **Rainwater and Sprinkler Tank** |  | **Rainwater and Sprinkler Tank** |  | **Rainwater and Sprinkler Tank** |  | **Rainwater and Sprinkler Tank** |  | **Rainwater and Sprinkler Tank** |  |  |  |  |  |  |  |  |  |  |
| **Rainwater Reuse Pump and filters** |  | **Rainwater Reuse Pump** |  | **Rainwater Reuse Pump** |  | **Rainwater Reuse Pump** |  | **Rainwater Reuse Pump** |  | **Rainwater Reuse Pump** |  | **Rainwater Reuse Pump and filters** |  |  |  |  |  |  |  |  |  |  |
| **Fixtures / Taps** |  |  |  |  |  | **Fixtures / Tap** |  |  |  |  |  | **Fixtures / Taps** |  |  |  |  |  | **Fixtures / Tap** |  | **Fixtures / Tap** |  | **Fixtures / Tap** |
| **Hot Water Heating** |  |  |  |  |  |  |  |  |  |  |  | **Hot Water Heating**  |  |  |  |  |  | **Hot Water Heating**  |  | **Hot Water Heating**  |  | **Hot Water Heating**  |
| **TPR Valves** |  |  |  |  |  | **TPR Valves** |  |  |  |  |  | **TPR Valves** |  |  |  |  |  | **TPR Valves** |  | **TPR Valves** |  | **TPR Valves** |
| **Dilution Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |  | **General Purpose Pit** |
| **Surcharge Gully** |  |  |  |  |  | **Surcharge Gully** |  |  |  |  |  |  |  |  |  |  |  | **Surcharge Gully** |  | **Surcharge Gully** |  | **Surcharge Gully** |
| **Exposed Pipework** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **Exposed Pipework** |  | **Exposed Pipework** |
| **Stop Valves** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **Stop Valves** |  | **Stop Valves** |
| **Tundish Points** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |