**{title}**

{organizationName}

Design Report

|  |  |
| --- | --- |
| **Project Number** | {projectNumber} |
| **Project Stage** | {projectStage} |
| **Designer** | {designer} |
| **Reviewed** | {reviewed} |
| **Approved** | {approved} |
| **Revision** | {revision} |
| **Client** | {client} |
| **Date** | {reportDate} |

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# Design Summary

{organizationName} have been engaged by {client} to complete the design of {title}.

The project consists of {levelCountTxt} and has been designed based on the following:

{#hasWaterService}

|  |  |
| --- | --- |
|  | **Water Services** |
| Calculation Method | {waterCalcMethod} |
| Pipe Sizing Method | The smallest pipe size possible is selected where the flow rate is below the specified maximum velocity (unless the pipe size has been overridden) |
| Pressure Loss Method | {waterLossMethod} |

{/}

{#hasGasService}

|  |  |
| --- | --- |
|  | **Gas Services** |
| Calculation Method | International Fuel Gas Code Equation 2018 |
| Pipe Sizing Method | The smallest pipe size possible is selected that:   * Achieves the specified pressure drop through the system * Is below the specified maximum velocity |

{/}

{#hasWastewaterService}

|  |  |
| --- | --- |
|  | **Wastewater Services** |
| Calculation Method | {wastewaterCalcMethod} |
| Pipe Sizing Method | As per the tables in the system settings |

{/}

# Design Parameters

The design parameters that each system have been designed to are:

{#pressureFlowSystems}

|  |  |  |
| --- | --- | --- |
| **{nameFS}** | |  |
| {#isNotGasFS}Temperature | {temperatureFS} | {/} |
| {#isGasFS}Gas Type | {gasTypeFS} | {/} |
| {#isHotwater}Insulation Material | {insulationMaterial} | {/} |
| {#isHotwater}Insulation Thickness | {insulationThicknessMM} | {/} |
| Velocity | Riser: {riserVelocityMS} |  |
| Reticulation: {reticulationVelocityMS} |  |
| {#isNotGasFS}Connections: {connectionsVelocityMS} | {/} |
| {#isHotwater}Return: {returnVelocityMS} | {/} |
| Material | Riser: {riserMaterial} |  |
| Reticulation: {reticulationMaterial} |  |
| {#isNotGasFS}Connections: {connectionsMaterial} | {/} |
| Minimum Pipe Size | Riser: {riserMinimumPipeSize} |  |
| Reticulation: {reticulationMinimumPipeSize} |  |
| {#isNotGasFS}Connections: {connectionsMinimumPipeSize} | {/} |
| Spare Capacity | Riser: {riserSpareCapacityPCT} |  |
| Reticulation: {reticulationSpareCapacityPCT} |  |
| {#isNotGasFS}Connections: {connectionsSpareCapacityPCT} | {/} |

{/pressureFlowSystems}

{#drainageFlowSystems}

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **{nameFS}** | | | | | | | | |
| **Material** | | Stacks: {stacksMaterial} | | | | | | |
| Pipes: {pipesMaterial} | | | | | | |
| Vents: {ventsMaterial} | | | | | | |
| **Horizontal Pipe Sizing** | | | | | | | | |
| **Min. Units** | **Max. Units** | | | **Size** | | | | **Grade** |
| {#horizontalPipeSizing}{minUnits} | {maxUnits} | | | {sizeMM} | | | | {gradePCT}{/horizontalPipeSizing} |
| **Vent Pipe Sizing** | | | | | | | | |
| **Min. Units** | | | **Max. Units** | | | **Size** | | |
| {#ventSizing}{minUnits} | | | {maxUnits} | | | {sizeMM}{/ventSizing} | | |
| **Stack Pipe Sizing** | | | | | | | | |
| **Min. Units** | **Max. Units** | | | **Size** | | | **Max. Units Per Level** | |
| {#stackPipeSizing}{minUnits} | {maxUnits} | | | {sizeMM} | | | {maximumUnitsPerLevel}{/stackPipeSizing} | |
| **Stack Vent Sizing** | | | | | | | | |
| **Min. Units** | | | **Max. Units** | | | **Size** | | |
| {#stackVentPipeSizing}{minUnits} | | | {maxUnits} | | | {sizeMM}{/stackVentPipeSizing} | | |
| **Maximum Unvented Pipe Length** | | | | | | | | |
| **Pipe Size** | | | | | **Max. Length** | | | |
| {#maxUnventedLengthM}{sizeMM} | | | | | {minLength}{/maxUnventedLengthM} | | | |

{/drainageFlowSystems}

# Product Selection

The design and calculations have been undertaken using the following products:

{#pipes}

{#isNotSewer}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Product** | {productName} | | | | |
| **Manufacturer** | {manufacturer} | | | | |
| **Contact** | {contact} | | | | |
| **Technical Data** | Nominal Diameter | Internal Diameter (mm) | Outside Diameter (mm) | Colebrook White Coefficient | Safe Working Pressure (k Pa) |
| {#technicalData}{techKey} | {diameterInternalMM} | {diameterOutsideMM} | {colebrookWhiteCoefficient} | {safeWorkingPressureKPA}{/technicalData} |

{/}

{#isSewer}

|  |  |  |
| --- | --- | --- |
| **Product** | {productName} | |
| **Manufacturer** | {manufacturer} | |
| **Contact** | {contact} | |
| **Technical Data** | Nominal Diameter | |
| {#technicalData}{techKey} | {/technicalData} |

{/}

{/pipes}

{#mixingValves}

|  |  |  |
| --- | --- | --- |
| **Product** | {productName} | |
| **Manufacturer** | {manufacturer} | |
| **Contact** | {contact} | |
| **Technical Data** | Flow Rate | Pressure Loss (k Pa) |
| {#technicalData}{techKey} | {pressureLoss}{/technicalData} |

{/mixingValves}

{#prv}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Product** | {productName} | | | | |
| **Manufacturer** | {manufacturer} | | | | |
| **Contact** | {contact} | | | | |
| **Technical Data** | Nominal Diameter | Min. Inlet Pressure  (k Pa) | Max. Inlet Pressure (k Pa) | Min. Flow Rate  (L/s) | Max. Flow Rate  (L/s) |
| {#technicalData}{techKey} | {minInletPressureKPA} | {maxInletPressureKPA} | {minFlowRateLS} | {maxFlowRateLS}{/technicalData} |

{/prv}

{#backflowValves}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Product** | {productName} | | | | |
| **Manufacturer** | {manufacturer} | | | | |
| **Contact** | {contact} | | | | |
| **Technical Data** | Nominal Diameter | Min. Inlet Pressure  (k Pa) | Max. Inlet Pressure (k Pa) | Min. Flow Rate  (L/s) | Max. Flow Rate  (L/s) |
| {#technicalData}{techKey} | {minInletPressureKPA} | {maxInletPressureKPA} | {minFlowRateLS} | {maxFlowRateLS}{/technicalData} |

{/backflowValves}

{#balancingValves}

|  |  |
| --- | --- |
| **Product** | {productName} |
| **Manufacturer** | {manufacturer} |
| **Contact** | {contact} |

{/balancingValves}

{#circulatingPumps}

|  |  |
| --- | --- |
| **Product** | {productName} |
| **Manufacturer** | {manufacturer} |
| **Contact** | {contact} |

{/circulatingPumps}

{#hotWaterPlant}

|  |  |
| --- | --- |
| **Product** | {productName} |
| **Manufacturer** | {manufacturer} |
| **Contact** | {contact} |

{/hotWaterPlant}

{#greaseInterceptorTrap}

|  |  |
| --- | --- |
| **Product** | {productName} |
| **Manufacturer** | {manufacturer} |
| **Contact** | {contact} |

{/greaseInterceptorTrap}

# Appendix A – Reference Drawings - Pressure

# Appendix B - Reference Drawings - Drainage

# Appendix C - Water Services Calculations

# Appendix D - Gas Services Calculations

# Appendix E - Drainage Services Calculations

# Appendix F - Read-Only Link

{readOnlyLink}

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