



## **South Coast Correctional Centre Upgrade**

### **Sketch Design Submission for Hydraulic Services**

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# 1 Hydraulic Design Philosophy

## 1.1 General

The existing 600 bed facilities are connected to the authority water, gas and drainage infrastructure. The hydraulic services infrastructure are adequate for the additional load require to the proposed development.

### Maximum Security Facility (Building Y1, Y2)

We intend to use these existing connections located at south side of building C to supply the new 160 maximum security facility to the south, The roof gutters will collect rain water and transfer via down pipes to the new in-ground 60,000L rain water tank, The collected rain water will be used for all WCs for flushing .

### Minimum Security Facility (Building O1, O2,O4,O5,O6,O7 and O8)

We intend to use these existing connections for Water, gas and drainage located on the east side of the proposed new 200 bed minimum security facility.

The roof gutters will collect rain water and transfer via down pipes to the new in-ground 100,000L rain water tank, the collected rain water will be used for all WCs for flushing.

# 2 Building Specific Hydraulic Design – Stage 1

## 2.1 Management Hydraulic Design – Building G1

### 2.1.1 Cold water

Cold water will be supplied from a connection to the existing 100mm located at the west side of the building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Water sup meter will be provided.

Cold water will be supplied to the fixtures fittings and localized Gas boost hot water units

### 2.1.2 Hot water

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a centralized Thermostatic mixing valve set to 42 degree to all fixtures and fittings.

### 2.1.3 Reuse water.

Reuse water will be provided to all WCs for flushing from the existing site collection tanks and pumping distribution system.

### 2.1.4 Natural gas

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure located at the west side of the building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement, gas regulator will be provided .

### 2.1.5 Sanitary drainage

The sanitary drainage system will connect to the 225mm existing sewer site wide reticulated network located at the west of the proposed building. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### 2.1.6 Gutters and Down pipes

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## 2.2 Industries Hydraulic Design – Building H1

### 2.2.1 Cold water

Cold water will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.



Cold water will be supplied to the fixtures fittings and localized hot water units

### **2.2.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a centralized Thermostatic mixing valve set to 42 degree to all fixtures and fittings.

### **2.2.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

### **2.2.4 Natural gas**

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **2.2.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **2.2.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## **2.3 AVL Hydraulic – Building I**

### **2.3.1 Cold water**

Cold water will be supplied from a connection to the existing site wide reticulated infrastructure located at the north of the proposed building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures fittings and localized hot water units

### **2.3.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a centralized Thermostatic mixing valve set to 42 degree to all fixtures and fittings

### **2.3.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

### **2.3.4 Natural gas**

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure located at the north of the proposed building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **2.3.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **2.3.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## **2.4 Medium Security Accommodation Hydraulic Design – Buildings M1 to M4**

### **2.4.1 Cold water**

Cold water will be supplied from existing reticulation to the building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures fittings and localized hot water units



#### **2.4.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

#### **2.4.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

#### **2.4.4 Natural gas**

Natural gas will be supplied from existing reticulation to the building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

#### **2.4.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

#### **2.4.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

### **2.5 Medium Security Programs Room Hydraulic Design – Buildings M+**

#### **2.5.1 Cold water**

Cold water will be supplied from existing reticulation to the building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures fittings and localized hot water units

#### **2.5.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

#### **2.5.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

#### **2.5.4 Natural gas**

Natural gas will be supplied from existing reticulation to the building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

#### **2.5.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

#### **2.5.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## **2.6 Visits Expansion Hydraulic Design – Building N1**

### **2.6.1 Cold water**

Cold water will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Cold water will be supplied to the fixtures fittings and localized hot water units

### **2.6.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

### **2.6.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

### **2.6.4 Natural gas**

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **2.6.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **2.6.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## **2.7 Reception Alterations Hydraulic Design – Building N2**

### **2.7.1 Cold water**

Cold water will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures fittings and localized hot water units

### **2.7.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

### **2.7.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

### **2.7.4 Natural gas**

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **2.7.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **2.7.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## **2.8 Clinic Expansion Hydraulic Design – Building N3**

### **2.8.1 Cold water**

Cold water will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Cold water will be supplied to the fixtures fittings and localized hot water units

### **2.8.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency. Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

### **2.8.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

### **2.8.4 Natural gas**

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **2.8.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **2.8.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## **2.9 Maximum Security Accommodation Hydraulic Design – Building Y**

### **2.9.1 Cold water**

Cold water will be supplied from a connection to the existing site wide reticulated infrastructure located south of building C. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures fittings and localized hot water units

### **2.9.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a centralized Thermostatic mixing valve set to 42 degree to all fixtures and fittings.

### **2.9.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the new 60,000L collection tanks and pumping distribution system.

### **2.9.4 Natural gas**

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure located south of building C. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **2.9.5 Sanitary drainage**

The 225mm sanitary drainage system will connect to the existing 225mm network located north of building A. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **2.9.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the new rainwater reuse system.

## **2.10 Satellite Clinic & Programs Security Hydraulic Design – Building Z**

### **2.10.1 Cold water**

Cold water will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Cold water will be supplied to the fixtures fittings and localized hot water units

### **2.10.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency. Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

### **2.10.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

### **2.10.4 Natural gas**

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **2.10.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **2.10.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## 3 Building Specific Hydraulic Design – Stage 2

### 3.1 Minimum Security Entry & Visits Hydraulic Design – Building 01

#### 3.1.1 Cold water

Cold water will be supplied from a connection to the existing 150mm water located to the east of the proposed site. Ring main to site O and Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures, fittings and localized hot water units

#### 3.1.2 Hot water

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

#### 3.1.3 Reuse water.

Reuse water will be provided to all WCs for flushing from the new 100,000L collection tanks filtration and pumping distribution system.

#### 3.1.4 Natural gas

Natural gas will be supplied from a connection to the existing 100mm gas reticulated infrastructure. Isolation ring main to site O, valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement.

#### 3.1.5 Sanitary drainage

The sanitary drainage system will connect to the existing sewer 225 mm located to the east of the proposed site. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

#### 3.1.6 Gutters and Down pipes

The roof gutters will collect rain water and transfer via down pipes to the new rainwater storage tank to be used for rain water harvest system.

### 3.2 Minimum Security Programs Hydraulic Design Building O2

#### 3.2.1 Cold water

Cold water will be supplied from a connection to the existing 150mm water located to the east of the proposed site. Ring main to site O and Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures, fittings and localized hot water units

#### 3.2.2 Hot water

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a centralized Thermostatic mixing valve set to 42 degree to all fixtures and fittings.

#### 3.2.3 Reuse water.

Reuse water will be provided to all WCs for flushing from the new 100,000L collection tanks filtration and pumping distribution system.

#### 3.2.4 Natural gas

Natural gas will be supplied from a connection to the existing 100mm gas reticulated infrastructure. Isolation ring main to site O, valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement.

### **3.2.5 Sanitary drainage**

The sanitary drainage system will connect to the existing sewer 225 mm located to the east of the proposed site. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **3.2.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the new rainwater storage tank to be used for rain water harvest system.

## **3.3 Minimum Security Hydraulic Design – Building O5, O6, O7and O8**

### **3.3.1 Cold water**

Cold water will be supplied from a connection to the existing 150mm water located to the east of the proposed site. Ring main to site O and Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures, fittings and localized hot water units

### **3.3.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

### **3.3.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the new 100,000L collection tanks filtration and pumping distribution system.

### **3.3.4 Natural gas**

Natural gas will be supplied from a connection to the existing 100mm gas reticulated infrastructure. Isolation ring main to site O, valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement.

### **3.3.5 Sanitary drainage**

The sanitary drainage system will connect to the existing sewer 225 mm located to the east of the proposed site. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **3.3.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the new rainwater storage tank to be used for rain water harvest system.

## **3.4 Carpark Hydraulic Design –**

### **3.4.1 Cold water**

Not required

### **3.4.2 Hot water**

Not required

### **3.4.3 Reuse water.**

Reuse water will be provided to all hose taps for flushing from the exiting site collection tanks and pumping distribution system.

### **3.4.4 Natural gas**

Not required

### **3.4.5 Sanitary drainage**

Not required

### **3.4.6 Carpark drainage**

Refer civil works

### **3.5 Staff Amenities Hydraulic Design – Building R**

#### **3.5.1 Cold water**

Cold water will be supplied from a connection to the exiting 50mm located at the east of building Q. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Cold water will be supplied to the fixtures, fittings and localized hot water units

#### **3.5.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency. Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

#### **3.5.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the new 5000 L collection tanks located at the north sit of the building rain water reuse system will include filtration and pumping distribution system.

#### **3.5.4 Natural gas**

Natural gas will be supplied from a connection to the exiting 50mm located at the east of building Q. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Natural gas will be supplied to the hot water generators only in a low pressure arrangement

#### **3.5.5 Sanitary drainage**

The sanitary drainage system will connect to the exiting 225 mm located at the east of building Q. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

#### **3.5.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the new rainwater storage tank to be used for rain water harvest system.

### **3.6 Medium Security Accommodation Hydraulic Design – Buildings W1& W2**

#### **3.6.1 Cold water**

Not required

#### **3.6.2 Hot water**

Not required

#### **3.6.3 Reuse water.**

Not required

#### **3.6.4 Natural gas**

Not required

#### **3.6.5 Sanitary drainage**

Not required

#### **3.6.6 Gutters and Down pipes**

Not required

### **3.7 Medium Security Programs Room Hydraulic Design – Buildings W+**

#### **3.7.1 Cold water**

Cold water will be supplied from existing reticulation to the building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network. Cold water will be supplied to the fixtures fittings and localized hot water units

#### **3.7.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency. Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings



### **3.7.3 Reuse water.**

Reuse water will be provided to all WCs for flushing from the exiting site collection tanks and pumping distribution system.

### **3.7.4 Natural gas**

Natural gas will be supplied from existing reticulation to the building. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **3.7.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

### **3.7.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

## **3.8 Recreation Security Programs Room Hydraulic Design – Buildings K1**

### **3.8.1 Cold water**

Cold water will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Cold water will be supplied to the fixtures fittings and localized hot water units

### **3.8.2 Hot water**

Hot water will be generated locally with pipe work reticulation in a flow and return system to reduce the lengths of dead legs and improve efficiency.

Tempered water will be provided by a Thermostatic mixing valve to all fixtures and fittings

### **3.8.3 Reuse water.**

Not required

### **3.8.4 Natural gas**

Natural gas will be supplied from a connection to the existing site wide reticulated infrastructure. Isolation valves will be provided to allow periodic or emergency maintenance without disruption to the wider network.

Natural gas will be supplied to the hot water generators only in a low pressure arrangement

### **3.8.5 Sanitary drainage**

The sanitary drainage system will connect to the existing site wide reticulated network. Manholes and inspection openings will be strategically located to allow periodic or emergency maintenance of the system.

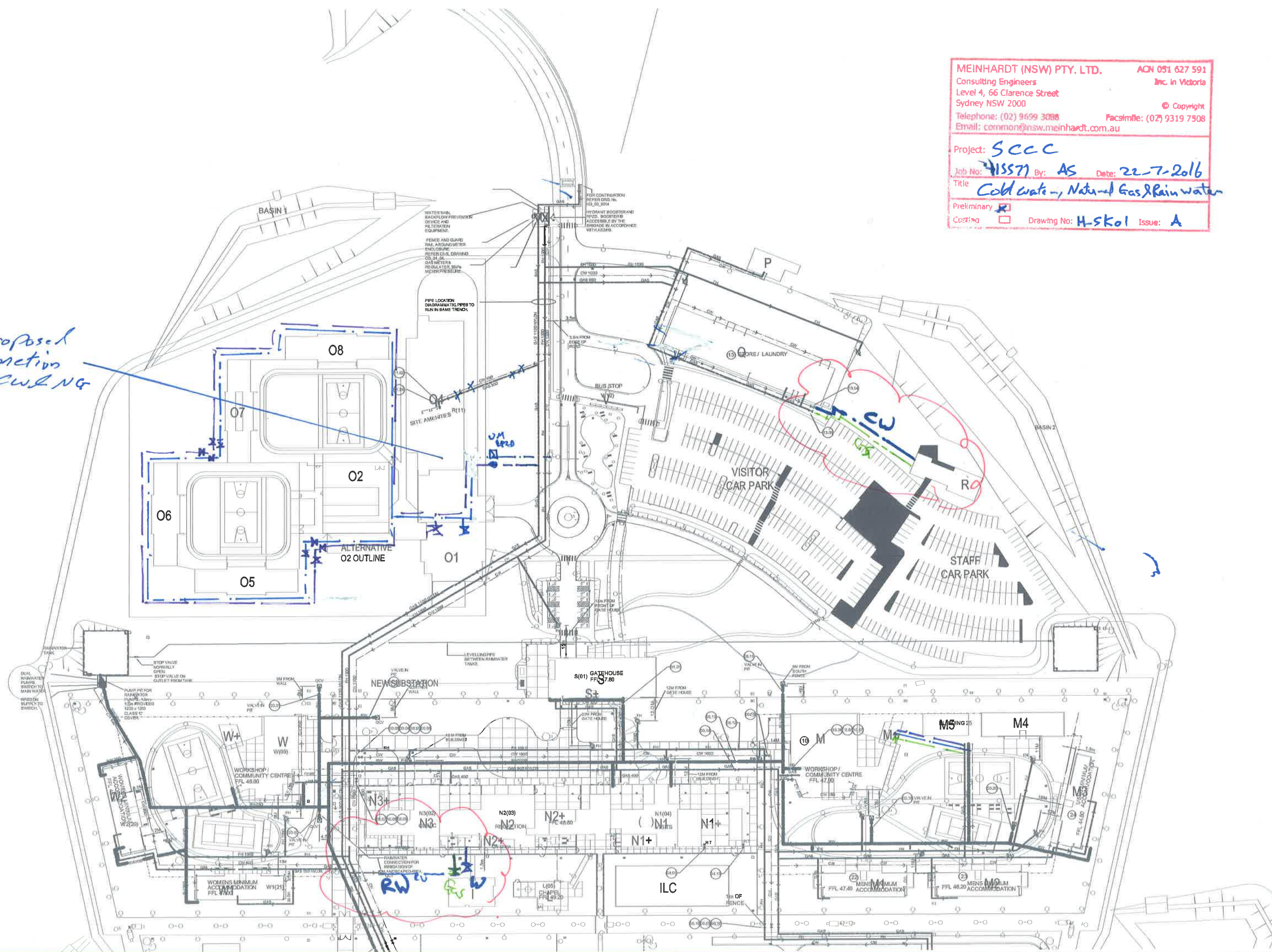
### **3.8.6 Gutters and Down pipes**

The roof gutters will collect rain water and transfer via down pipes to the existing site wide rainwater reuse system.

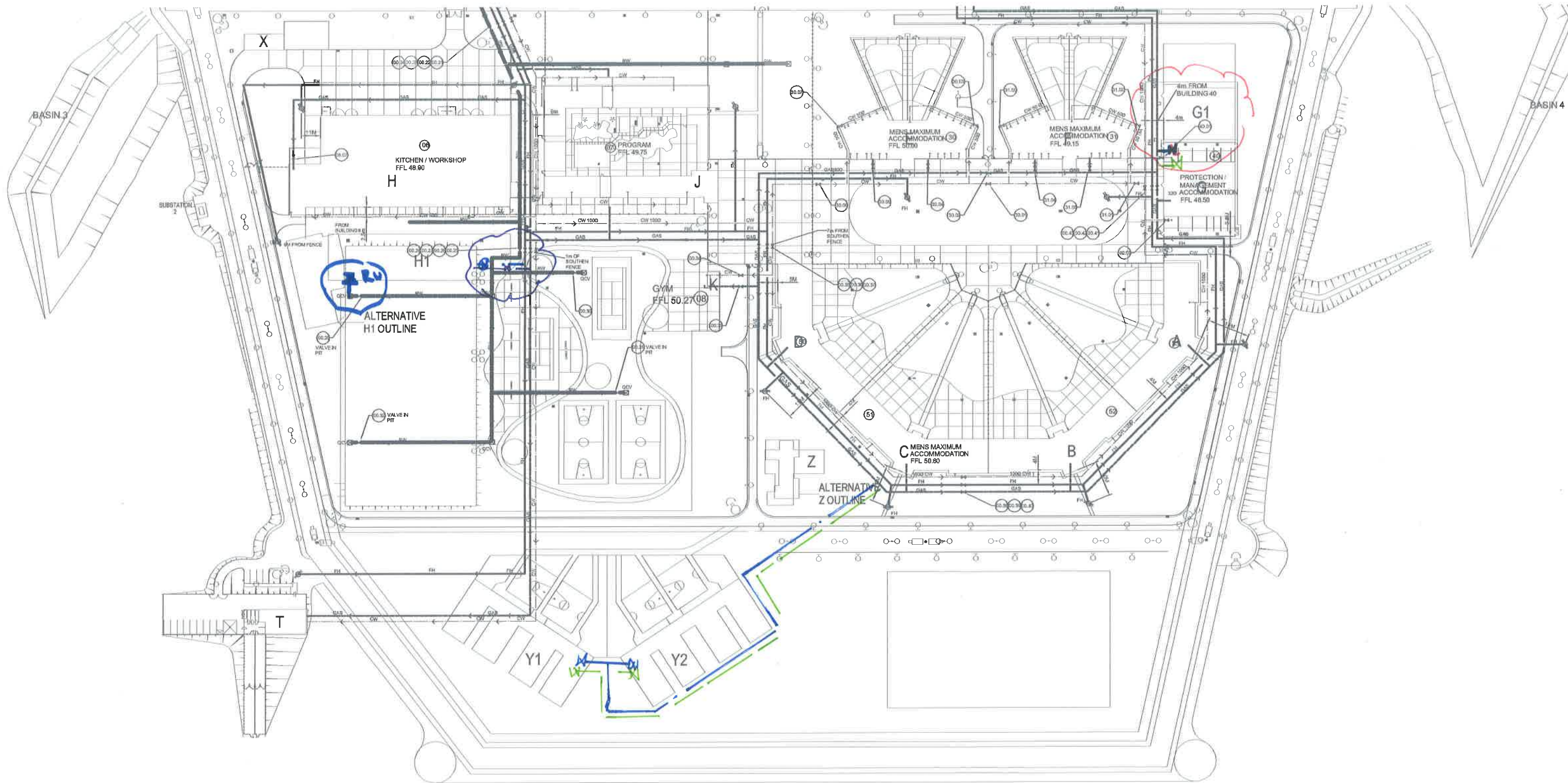
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Project: **SCCC**  
 Job No: **415571** By: **AS** Date: **22-7-2016**  
 Title: **Cold water, Natural Gas & Rain water**  
 Preliminary   
 Drawing No: **H-5K01** Issue: **A**

*Proposed connection to CW & NG to*







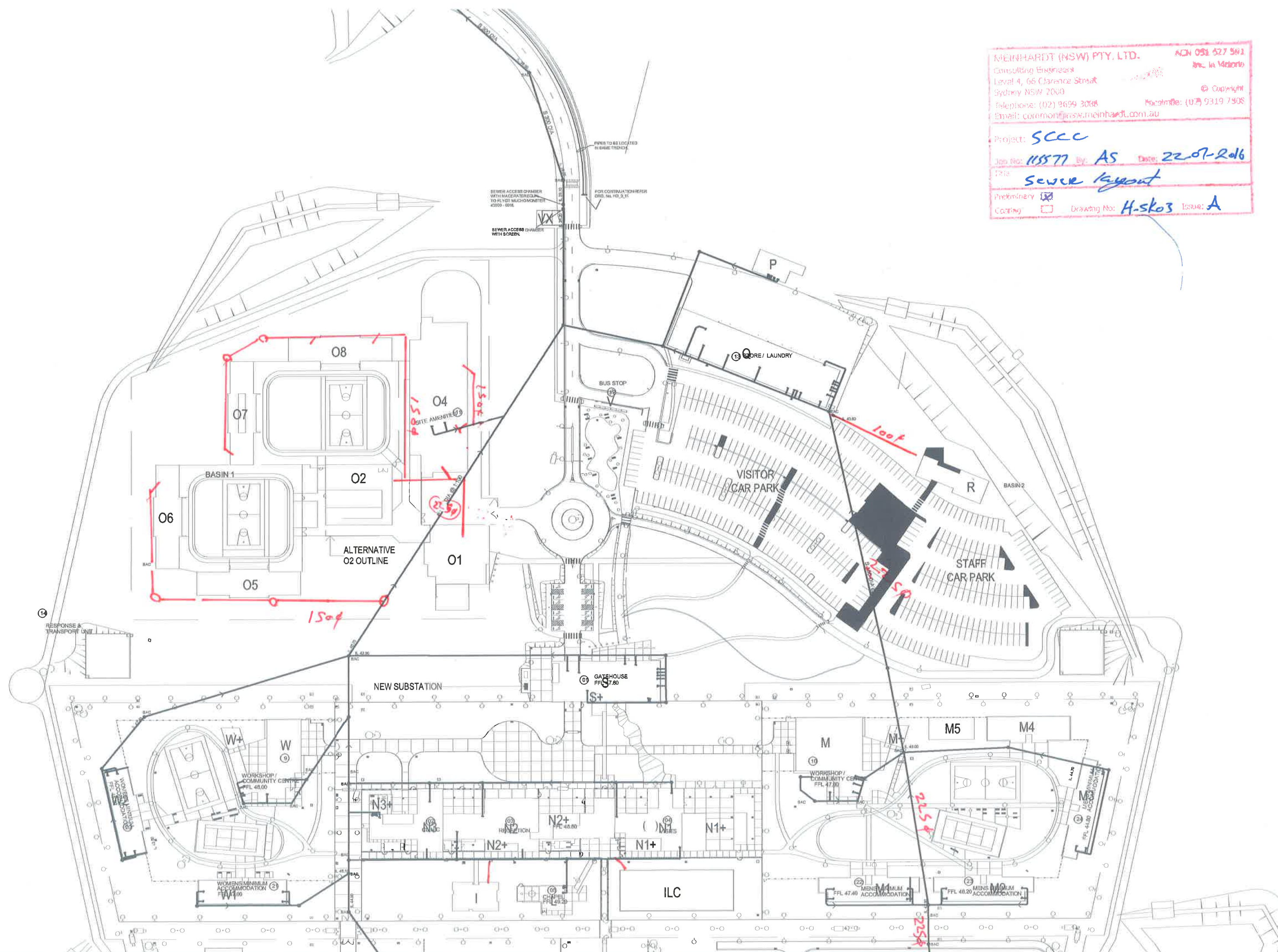
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Project: **SCCC**  
 No: **115571** By: **AS** Date: **22-7-2016**  
 Title: **CW, NG & Rainwater Rev**  
 Drawing No: **H-SK02** Issue: **A**

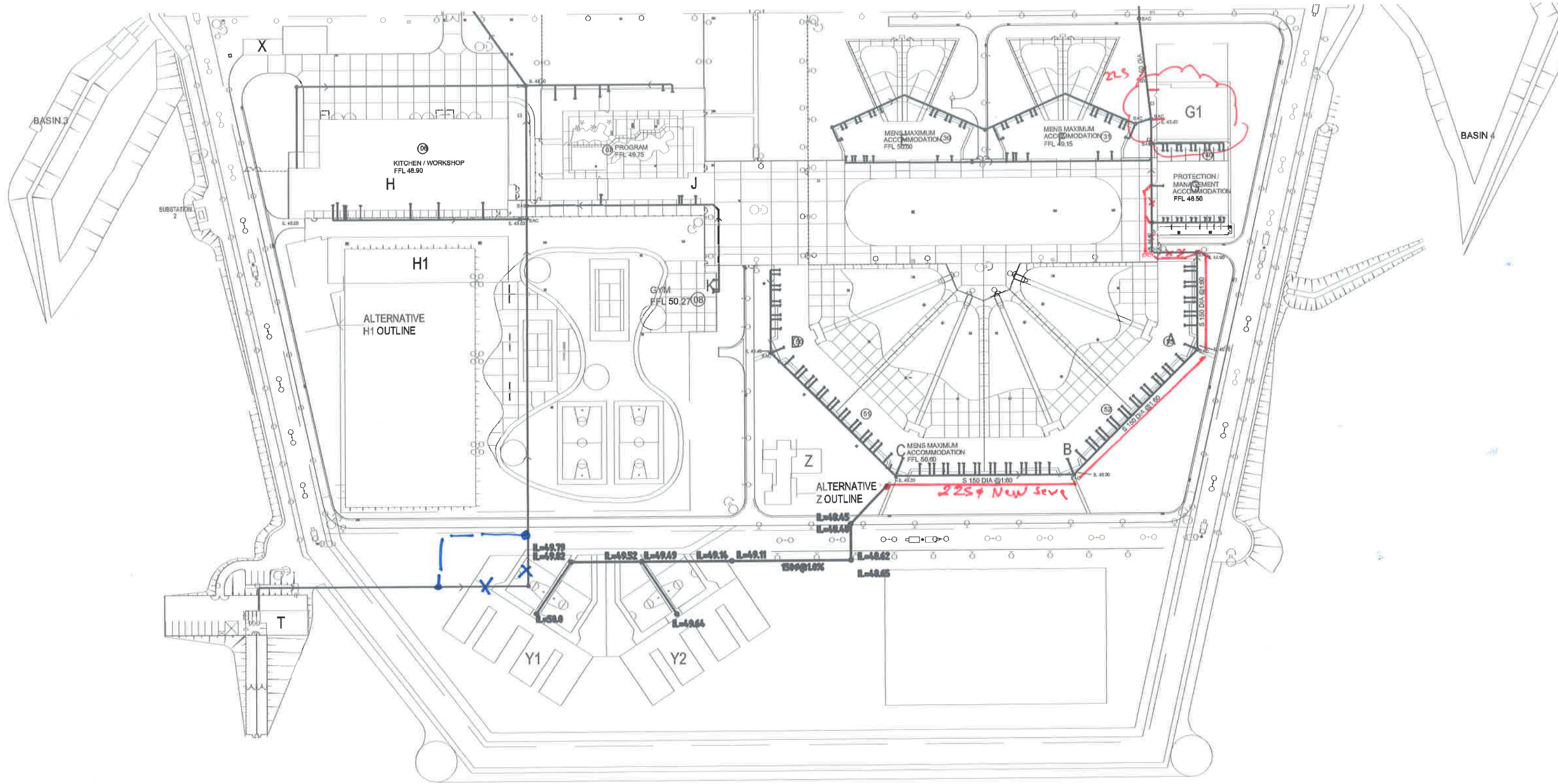


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Project: **SCCC**  
 Job No: **11577** By: **AS** Date: **22-07-2016**  
 Title: **sewer layout**  
 Preliminary   
 Conting  Drawing No: **H-sk03** Issue: **A**







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Project: *SCCC*  
 Job No: *11577* By: *AS* Date: *22-7-2016*  
 Title: *Sewer layout*  
 Preliminary  Drawing No: *H-4504* Issue: *A*  
 Coating