# 6.0 MSCP PROPOSAL.
# 6.2 DESIGN PROPOSAL.

### 6.2.9 The Elevations.

The new building will be a striking addition to the area. It will be seen from a distance when approaching both on foot and by car from all adjoining streets and be identified by its kinetic facade.

The elevations will reflect the function and aspect of a naturally ventilated multistorey car park above a conditioned retail environment at ground floor level.

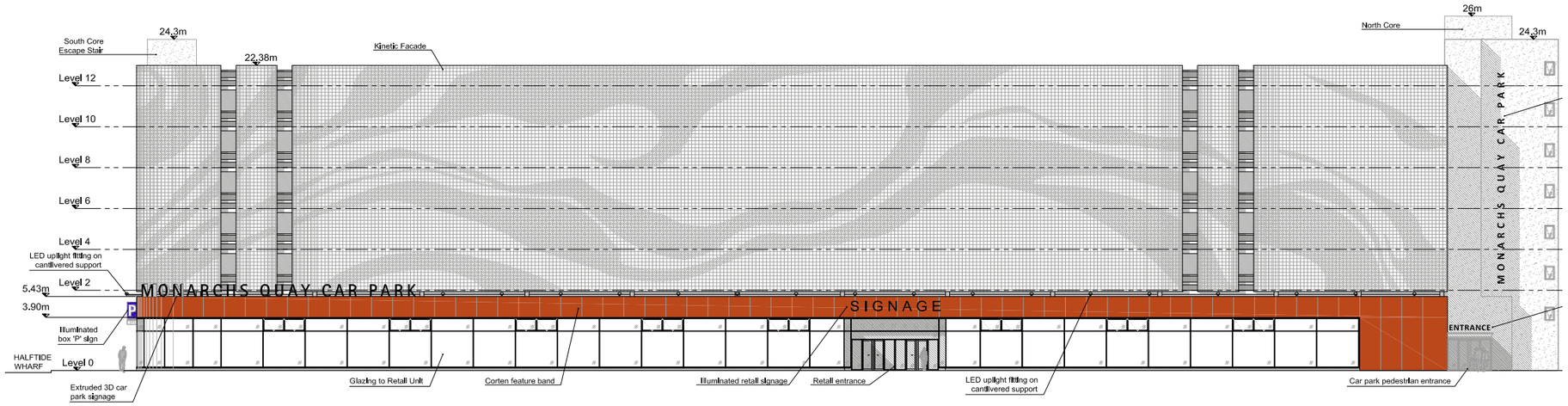
The frontage of the building is the main point of entry and exit for vehicles and pedestrians.

The retail and back of house are expressed as a solid element protruding into the street and responding in materiality to the industrial context of Building 1 opposite.

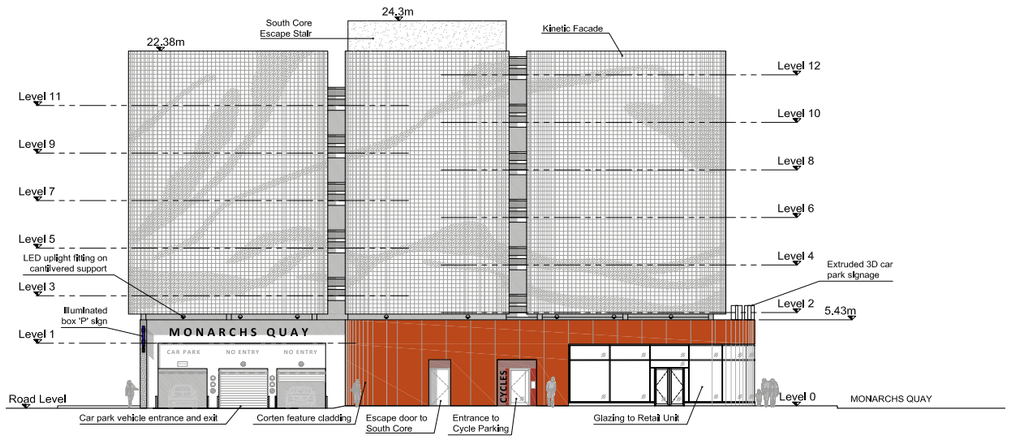
The MSCP is a lightweight element floating above responding to the next phase development which will be leisure and media in a modern material treatment.

The active frontage will be kinetic, an artistic response to the dynamic water front landscape

The corners of the building are rounded to soften the boundaries, a technique used in the industrial buildings of the dockside.

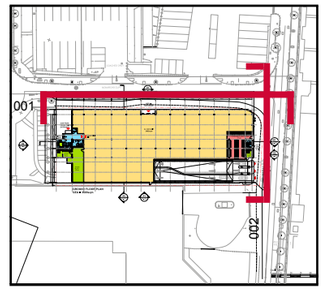



Elevation 001




ELEVATION 002

Key plan



# 6.0 MSCP PROPOSAL.
# 6.2 DESIGN PROPOSAL.

### 6.2.9 The Elevations.

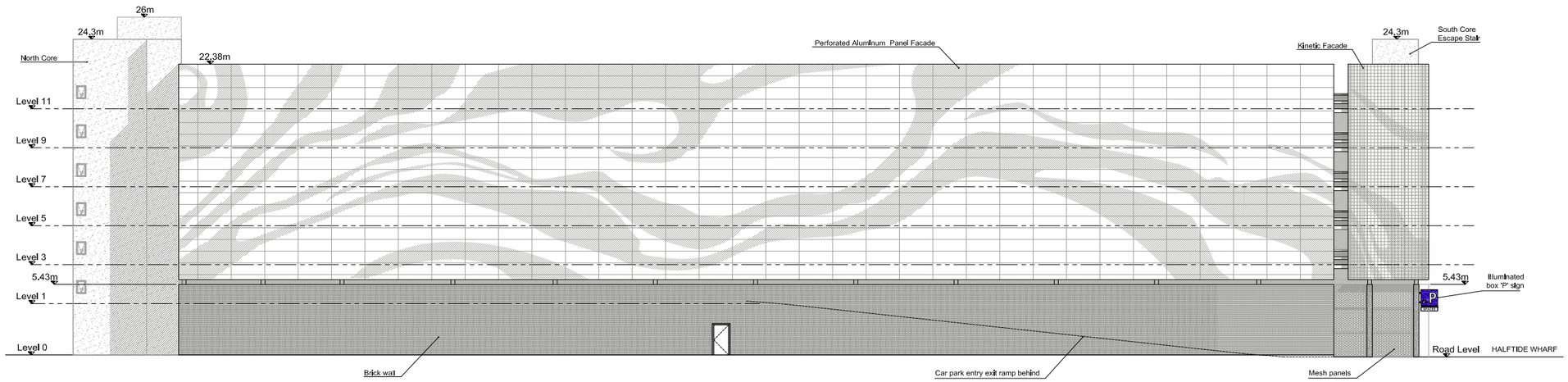
All facing materials are to be robust for minimal maintenance.

Where the elevations are no longer required to be active, the material treatment becomes static.
Main circulation core located outside of the plan to allow for future shared access to leisure centre in next phases.

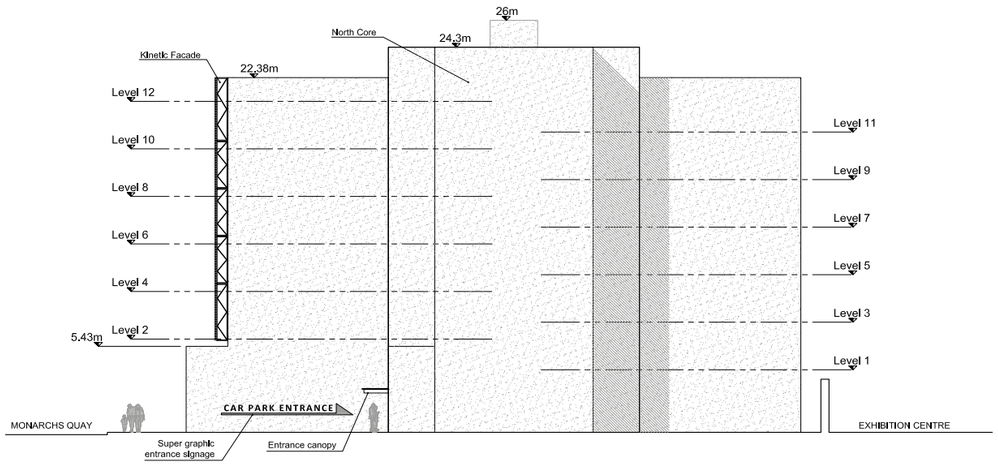
The openings to the MSCP will be strong vertical lines with rounded corners reminiscent of the

All disabled and Parent and Child Spaces adjoin one main lift core.

Two way traffic circulating continuously around the building allowing optimum traffic management in and out of the building

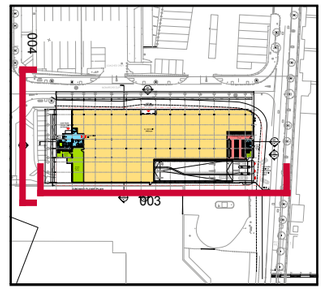



Elevation 003




Elevation 004

Key plan

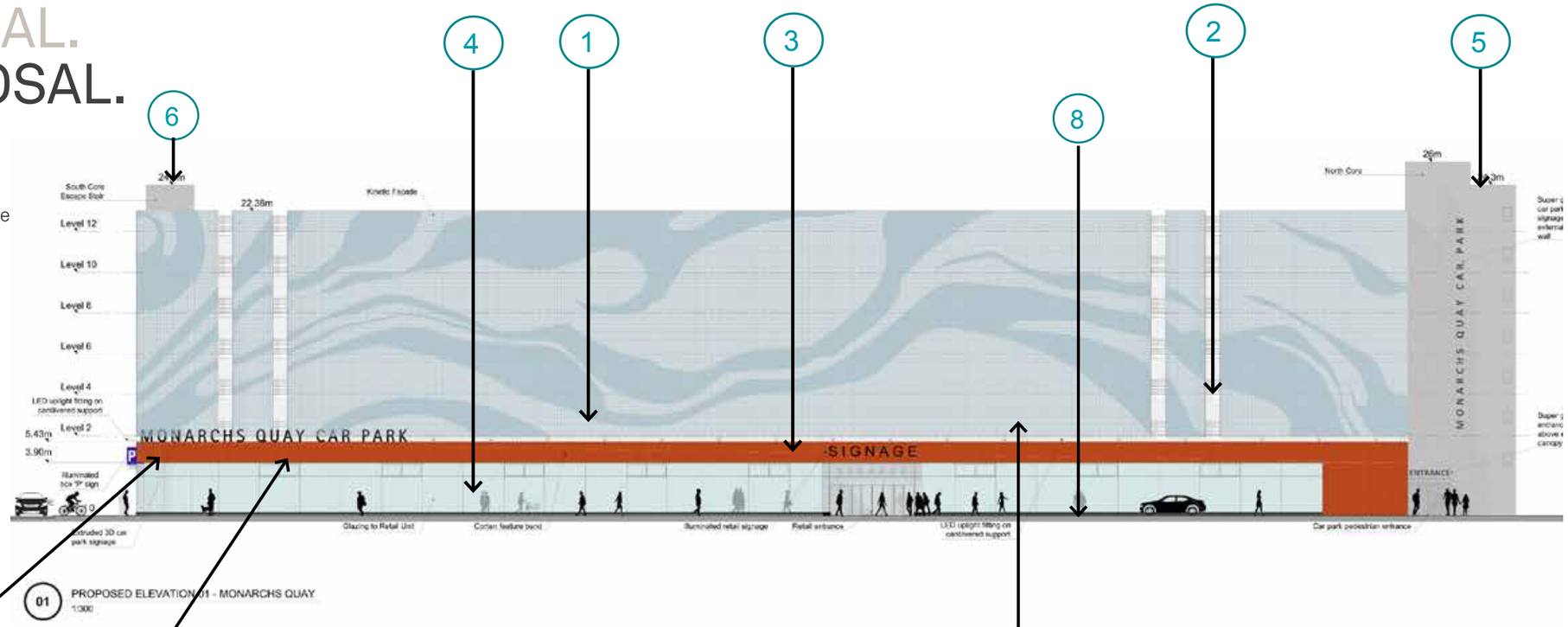


# 6.0 MSCP PROPOSAL.
# 6.2 DESIGN PROPOSAL.

## 6.2.10 Materiality.

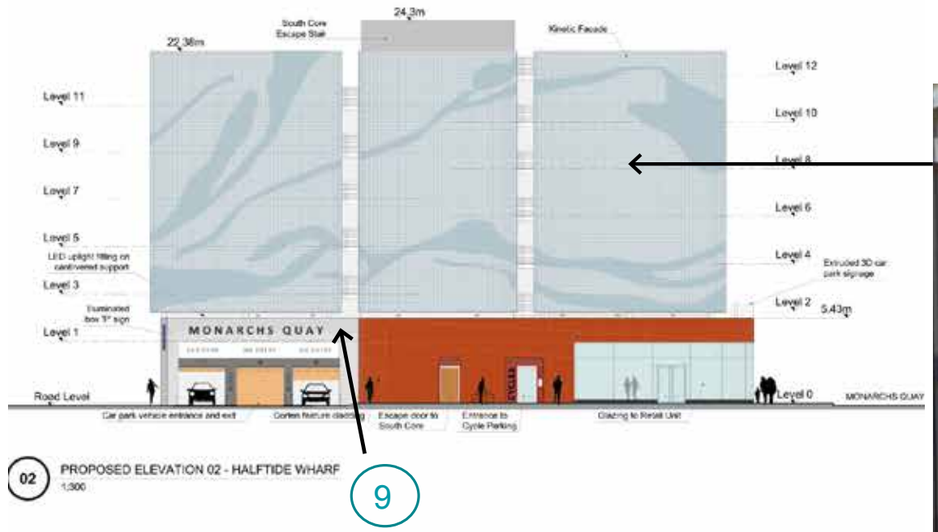
Key
1. Anodised aluminium flat pixels fixed to marine grade stainless steel .
2. Perimeter edge protection - galvanised hollow rectangular steel section with metal mesh infill and handrail set back behind facade.
3. Corten cladding to soffit and walls
4. Framed double glazed clear fixed windows
5. Reinforced precast concrete cores and lift overuns
6. Roofs to lift cores - PVC waterproof membrane
7. Framed entrance doors
8. Brick plinth dark brick to match Building 1 on Monarch's Quay
9. Concrete

A selection of precedents that might inform the quality of materials and archietcture.



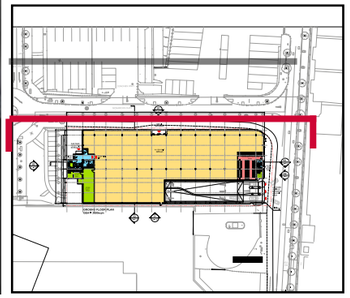


Precedent image of corten cladding




Prototype of the double wave aluminium pixel.

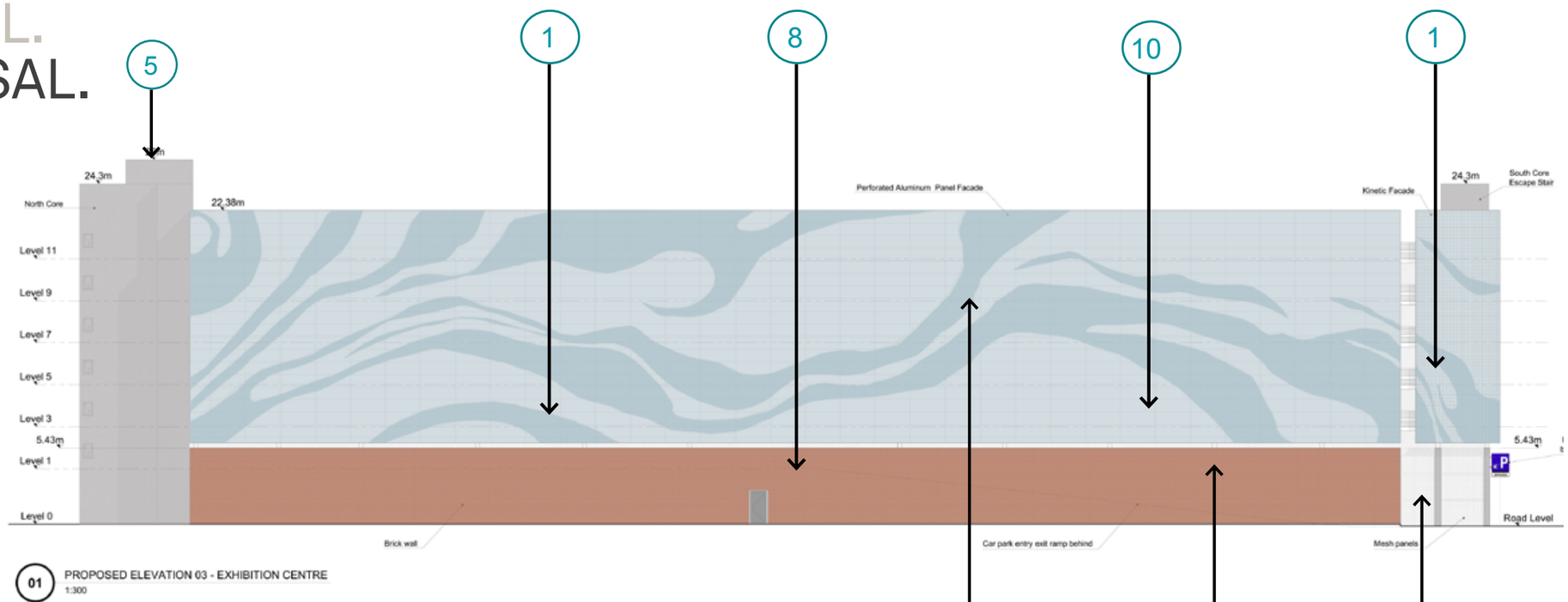
Key plan



# 6.0 MSCP PROPOSAL.
# 6.2 DESIGN PROPOSAL.

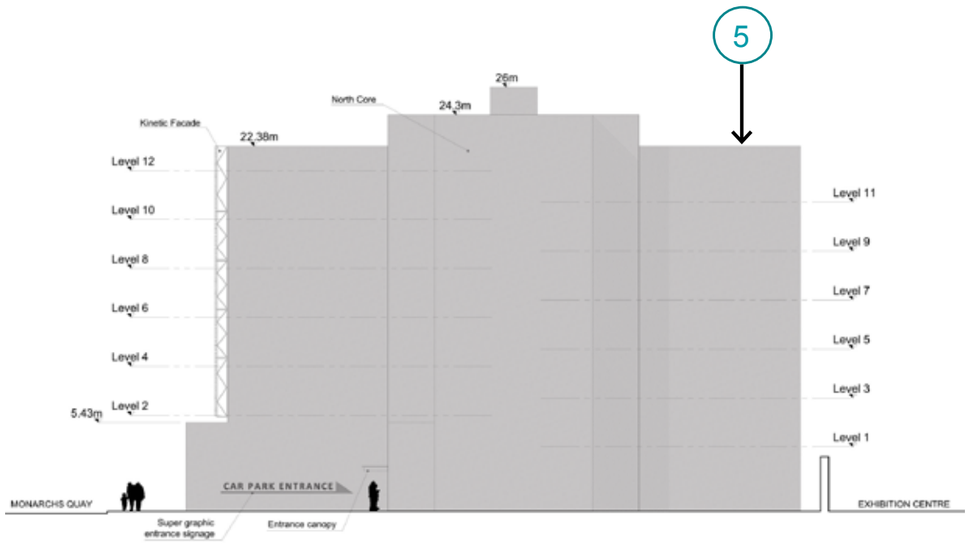
### 6.2.11 Materiality.

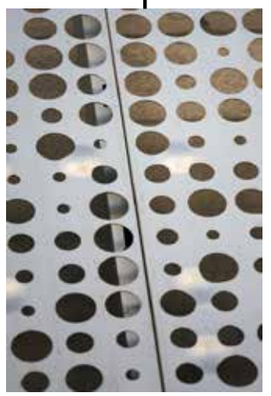
Key
1. Anodised aluminium flat pixels fixed to marine grade stainless steel .
2. Perimeter edge protection - galvanised hollow rectangular steel section with metal mesh infill and handrail set back behind facade.
3. Corten cladding to soffit and walls
4. Framed double glazed clear fixed windows
5. Reinforced precast concrete cores and lift overuns
6. Roofs to lift cores - PVC waterproof membrane
7. Framed entrance doors
8. Brick to match Building 1 on Monarch's Quay
9. Concrete
10. Perforated anodised alumium panels
11. Galvanised mesh




01 PROPOSED ELEVATION 03 - EXHIBITION CENTRE
1:300

Precedent image of perforated facade with pattern



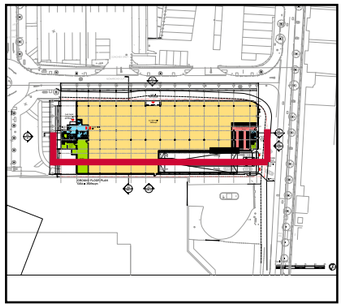



perforated aluminium panel

brick texture & colour/ dark mortar

11

Key plan



# 6.0 MSCP PROPOSAL.
# 6.2 DESIGN PROPOSAL.

## 6.2.12 Materiality.

More specifically elements of the scheme are described below :

1. The lift and stair cores - reinforced precast concrete. (Image. 1)
2. Roofs to lift cores - PVC waterproof membrane.
3. Primary structure in painted steel.(image 5)
4. Edge protection to ramp and centre grid line as flexible crash barrier system.
5. Rainwater downpipes in galvanised steel.
6. Roller shutter doors to car park entrance in metal. (Image. 4)
7. Waterproofing to concrete decking - colour coded surface protection to all concrete decking. (Image 2)
8. Lift doors to be glass with translucent glazing to both levels.

1. Precast concrete core

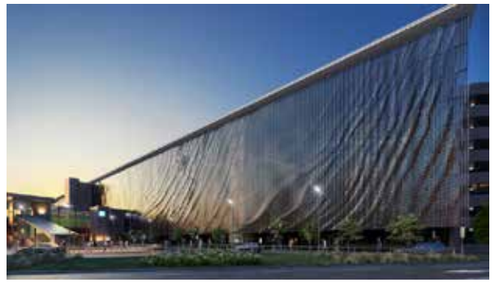
7. Roof floor level

Precedent image of kinetic facade

3. Perforated panels looking from inside to the outside


6. Vehicle roller shutters

3. Structural framing system with coloured soffits to define floor levels



Precedent images of kinetic facade at Brisbane Airport MSCP

# 6.0 MSCP PROPOSAL.
# 6.2 DESIGN PROPOSAL.

### 6.2.13 Kinetic Facade Detailed Study.

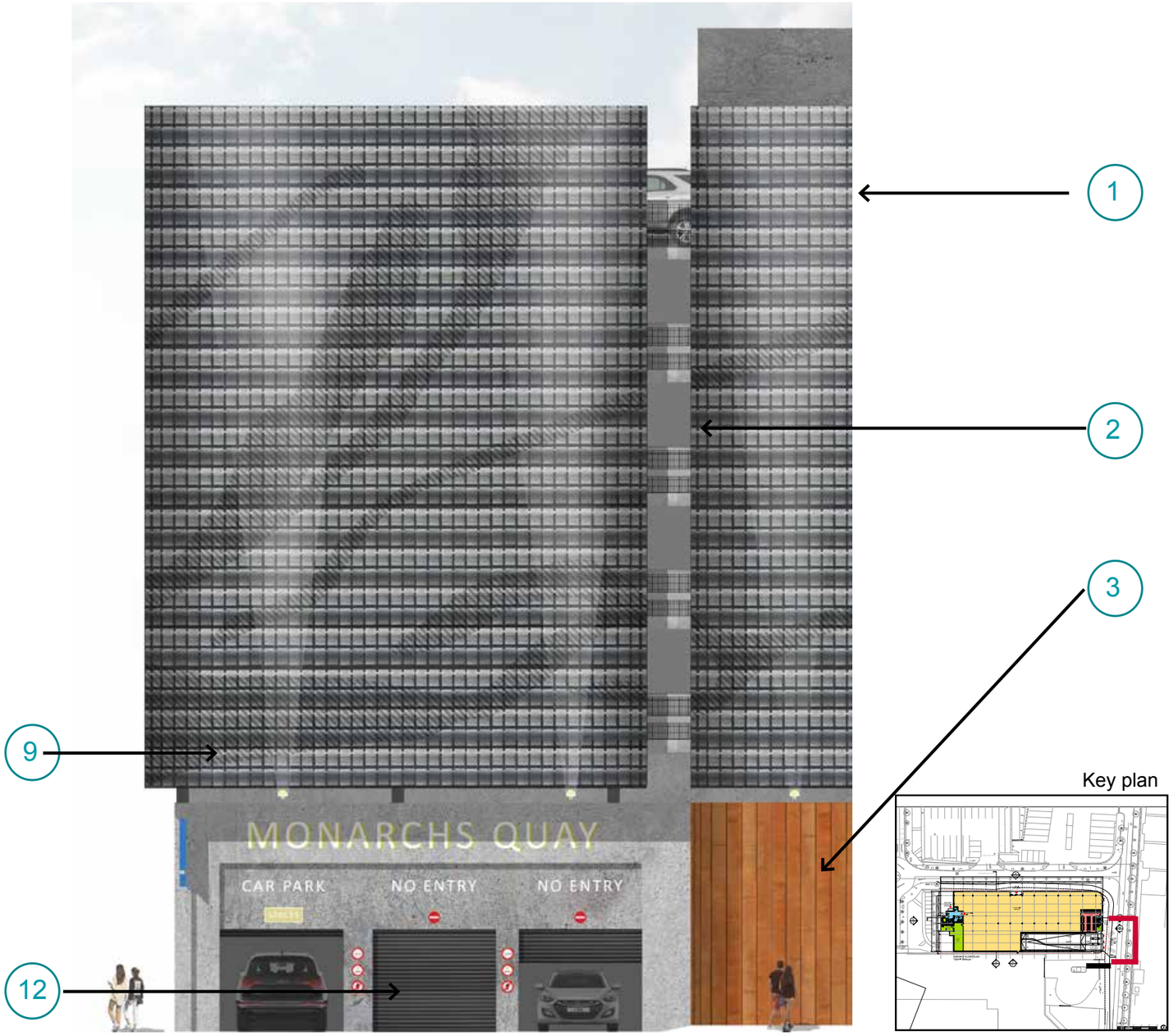
The lightweight facades on the east and south elevations will appear to ripple fluidly as the wind activates suspended aluminium panes representing water movement in a pixelated arrangement . The aluminium will be a galvanised finish which will weather naturally.

Each aluminium plate or pixel is attached to marine grade stainless steel fixings. Refer to Appendix 1 for Locker Architectural Ltd who have prepared a Risks and Mitigation report on Glare, maintenance and noise for this element of the construction and a typical construction detail.

### 6.2.14 Corten Facade.

The retail unit at ground floor will be framed in a corten steel panel finish raised above finished floor level witha brick plinth. Corten steel will weather to a rust colour reminiscent of the industrial worn brick and metals of the dockside.

Key
1. Anodised aluminium flat pixels fixed to marine grade stainless steel .
2. Perimeter edge protection - galvanised hollow rectangular steel section with metal mesh infill and handrail set back behind facade.
3. Corten cladding to soffit and walls
4. Framed double glazed clear fixed windows
5. Reinforced precast concrete cores and lift overuns
6. Roofs to lift cores - PVC waterproof membrane
7. Framed entrance doors
8. Brick to match Building 1 on Monarch's Quay
9. Concrete
10. Perforated anodised alumium panels
11. Galvanised mesh
12. Metal roller shutter



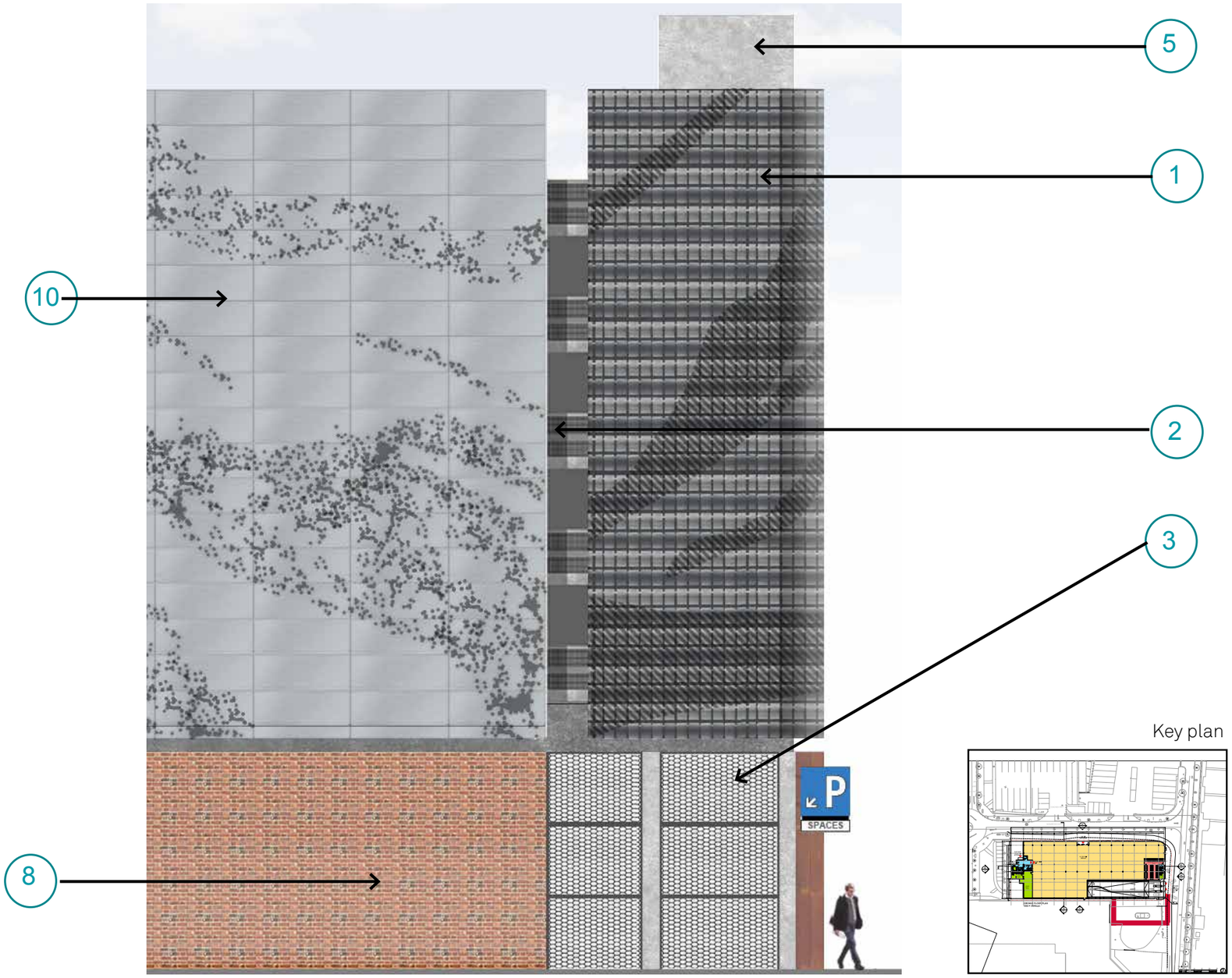
# 6.0 MSCP PROPOSAL.
# 6.2 DESIGN PROPOSAL.

### 6.2.15 Static Facade Detailed Study.

The western elevation will be an aluminium anodised perforated panel system fixed to a secondary structure attached to the steel frame. The colour of the panels will match the kinetic facade.

The perforation will form an overall wave pattern over the whole face of the elevation. These panels will disguise the fire protecting secondary skin fixed on the car park side of the cladding.

Key
1. Anodised aluminium flat pixels fixed to marine grade stainless steel .
2. Perimeter edge protection - galvanised hollow rectangular steel section with metal mesh infill and handrail set back behind facade.
3. Corten cladding to soffit and walls
4. Framed double glazed clear fixed windows
5. Reinforced precast concrete cores and lift overuns
6. Roofs to lift cores - PVC waterproof membrane
7. Framed entrance doors
8. Brick to match Building 1 on Monarch's Quay
9. Concrete
10. Perforated anodised alumium panels
11. Galvanised mesh
12. Metal roller shutter




Key plan

# 6.0 MSCP PROPOSAL.
# 6.3 ACCESS STATEMENT.

The development will offer inclusive design for safe and easy use for all.

The building's entrances have been designed to be easily understood by people approaching especially for the first time. Cars approach the multistorey car park along Half Tide Wharf whilst pedestrians access the buillding from Monarch's Quary, level with the street by automatic opening doors. Two fully accessible lifts in the north main stair core 1 will stop at every level, one of which will be firefighting. Where glass forms part of the door design to the stair core and to the lift cars, translucent glass will be specified. Contrasting colours according to the requirements of Part M of the building regulations will take into account colours that visually impaired people will be able to identify. Handrails to the staircores will be extended around the outer edges.

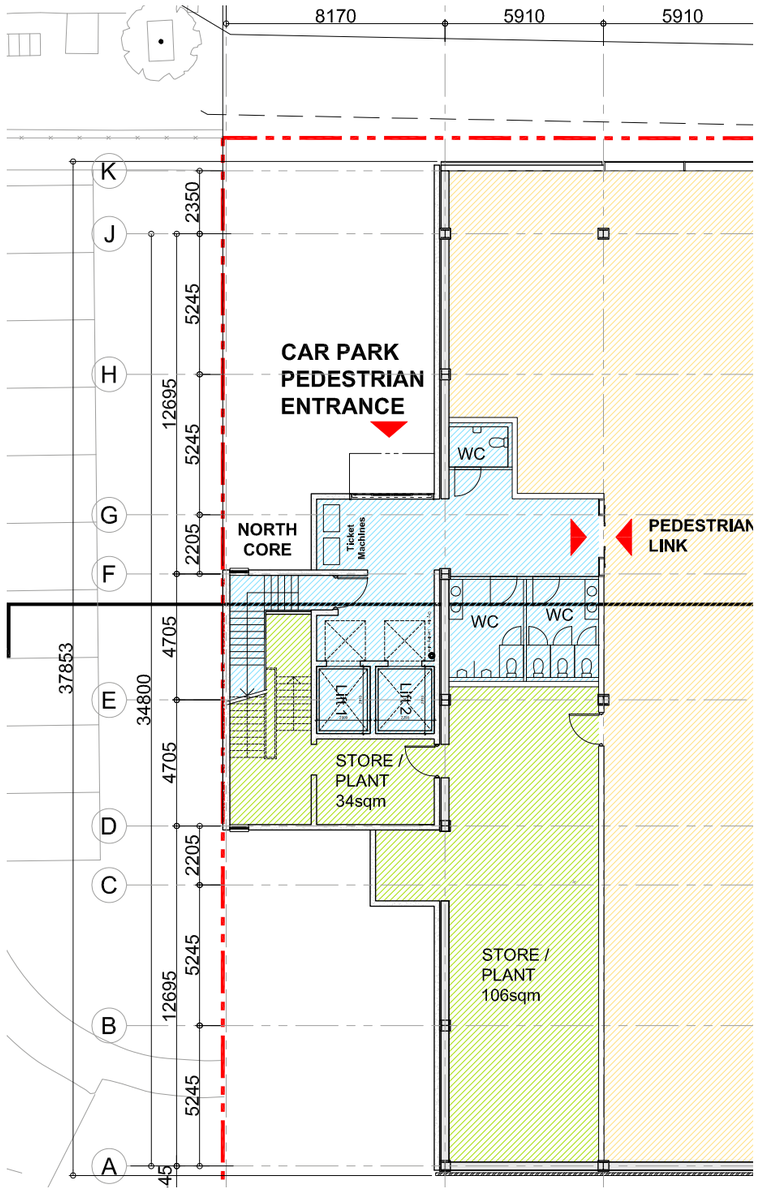
Open 24 hours a day, the car park operator will manage the security of the building. However it is anticipated that CCTV cameras will be located at key points on the exterior and interior of the building, robust low energy lighting will be fitted and both the top decks will be illuminated to provide a secure environment for customers using the car park at night. Pedestrian aisles will lead customers towards the main north lift core.

Lighting to all internal deck levels will be activated on a PIR system which means luminaires will be activated when motion is detected. A light spillage report prepared by Sure Engineering shows there will be no adverse effect on bird and bat boxes mounted to Building one opposite from roof level or uplighting.

A total of 53 bays are dedicated to disabled and parentchild parking. Out of that total, 12 Nr bays are dedicated disabled parking, 11 are for Parent and Child and the rest are shared between disabled and Parent and Child. The bays sizes comply with Part M of the building regulations and are lto be ocated next to the North core 1 which is served on every level by two lifts. Accessible toilets are provided at ground floor level with level access to and from Monarch's Quay.

Cyclists can lock up their bikes in a safe store adjacent to the car park entrance accessed from Half Tide Wharf. Cars will approach the vehicle entrance upon which an automatic roller shutter door will open allowing the car to enter and exit the building.

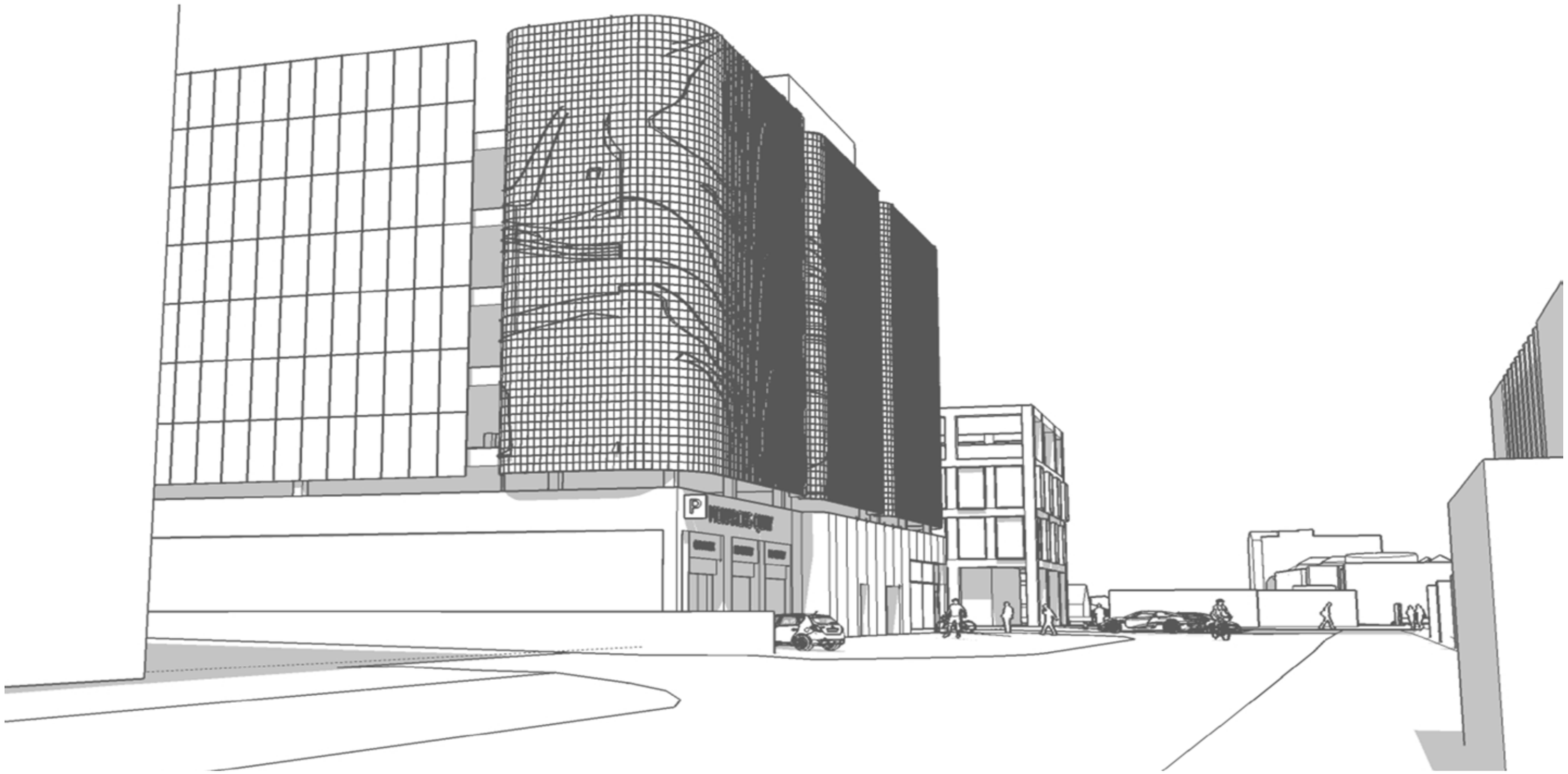
The retail unit will be serviced from a dedicated layby located outside of the store. A full transport assessment demonstrates how cars impact the wider street planning.




Ground floor plan showing pedestrian entrance to MSCP

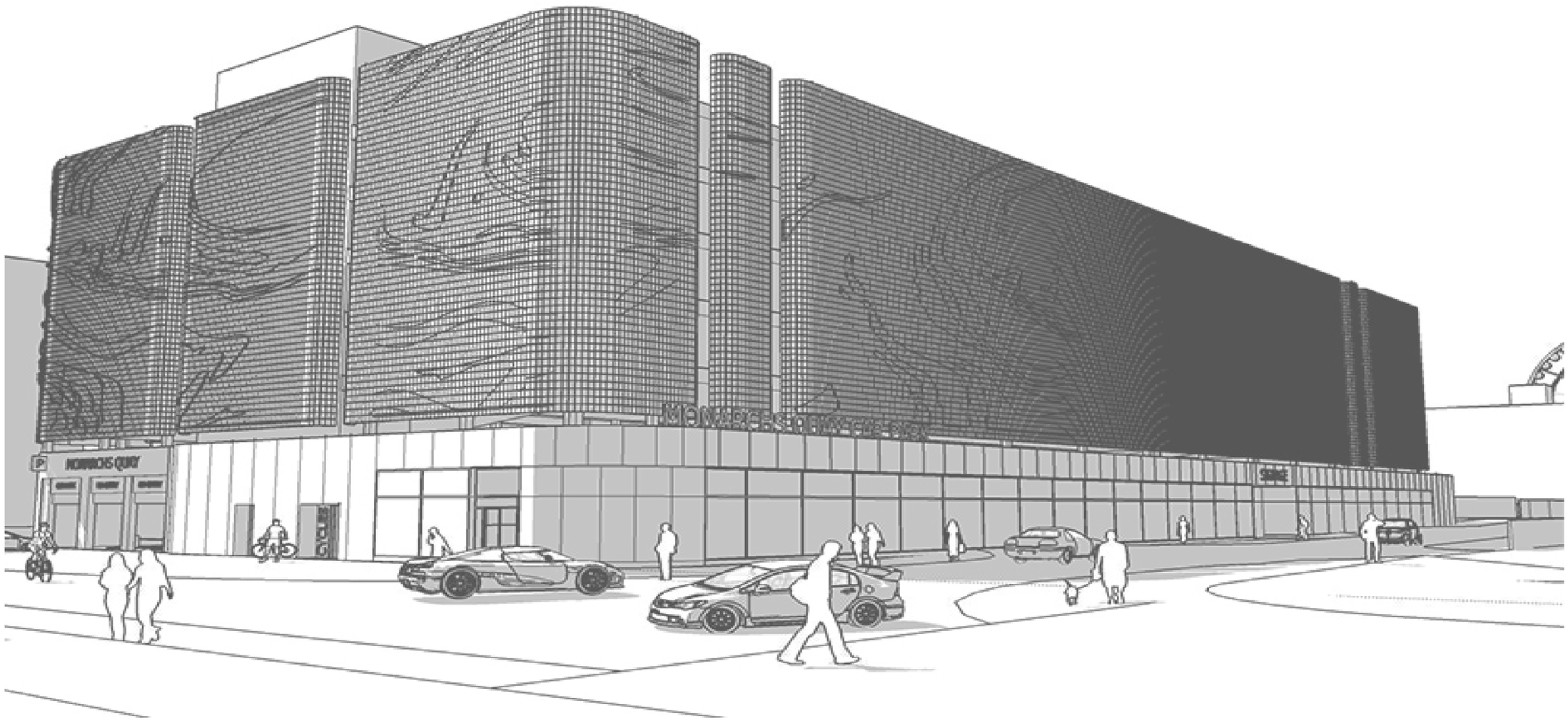
# 6.0 MSCP PROPOSAL.
# 6.4 MASSING.

6.4.1 View 1.



# 6.0 MSCP PROPOSAL.
# 6.4 MASSING.

6.4.1 View 2.



# 6.0 MSCP PROPOSAL.
# 6.5 APPENDIX.

## 6.5.1 Appendix.

Locker ARCHITECTURAL LIMITED

**Monarch Quay Primary Risks and Mitigations**

**Glare**

Considering drivers and pedestrians on roads surrounding Monarch Quay MSCP when viewing the façade: -

- Apart from the SW 'Half Tide Wharf' approach road, driven vehicles are either very close to the building or on its shaded side during daylight hours.
- The proximity to the building means that only high noon light is likely to be reflected into the field of view of vehicle drivers.
- On the 'Half Tide Wharf' approach road, driven vehicles will be in the path of reflected light from the South façade during the pre-noon hours.

Glare from the pixels of the kinetic façade can be mitigated by the following measures: -

- Low surface reflection will be achieved via surface finishes. The moving pixels will be made from aluminium which will be anodised to a give low reflective finish. The process of anodising imposes a protective oxide layer by an electrolytic process. Low reflective surfaces have recently been developed and tested to provide non-glare cladding on Network Rail installations.
- We have designed the pixels to have an ogee type double curve profile. Light reflecting off this surface will be effectively "scrambled" such that direct reflection is not viable.
- Perforations in the pixels will also contribute to disrupting glare.

**Maintenance**

It is important to design into the façade, a system which requires as little maintenance as possible to over 40,000 pixels. We will take the following measures: -

- Only non-corroding, non-perishable materials will be used in the construction of the kinetic façade.
- Anodic separation will be incorporated in the fixing of components.
- Each pixel is made from only 3 components. There are no screws or fixings forming the pixels.
- The pixels will be anodised. This electrolytic treatment changes the surface of the aluminium so that it cannot corrode. It is not a coating. The anodising treatment we propose will not be susceptible to UV degradation.
- Teflon or similar polymer bushes will be installed to allow the pixels to swing without lubrication or maintenance. This material will be UV proof and fire proof.
- The façade system will be tested to demonstrate durability on storm conditions.
- All fixings will be marine grade stainless steel.



Locker Architectural Ltd, Farrell Street, Warrington, Cheshire WA1 2WW.
Tel: Sales-01925 406600 ~ Accounts-01925 406602 ~ Purchasing-01925 406606
Fax: 01925 444386 Email: sales@lockergroup.com Web: www.architecturalwiremesh.com
Registered No. 6752595 England VAT Reg.No.: GB 896117588

Locker ARCHITECTURAL LIMITED

- Modular elements will allow replacement of affected sections through vandalism or accidental damage.

**Noise**

Risk of noise from movement will be mitigated by the following measures: -

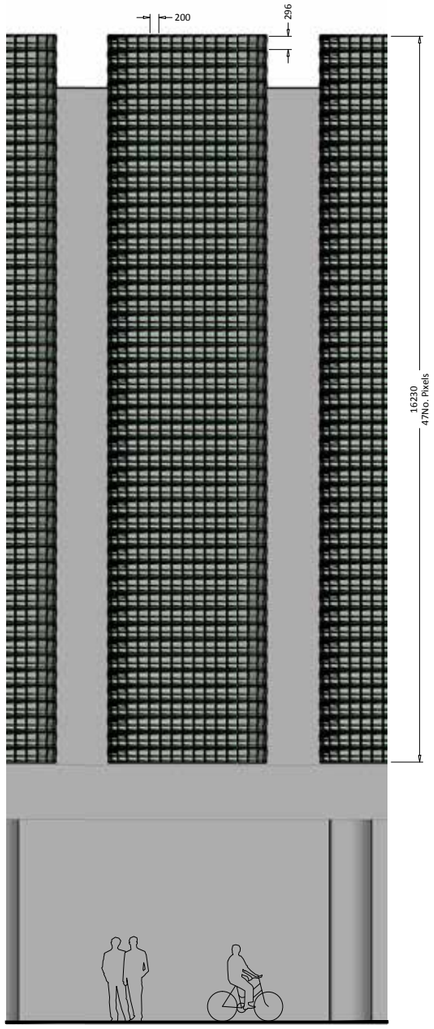
- Friction to the moving components will be reduced via synthetic material bearings or bushings providing passive lubrication, and will be noiseless.
- There will therefore be no metal-to-metal contact between moving parts to causing clattering.
- The arc of swing will be restricted to 30 degrees about the vertical. Swinging pixels will not be able to strike adjacent surfaces.
- The above will be tested and proven during the mock-up process.

A Locker Group Company

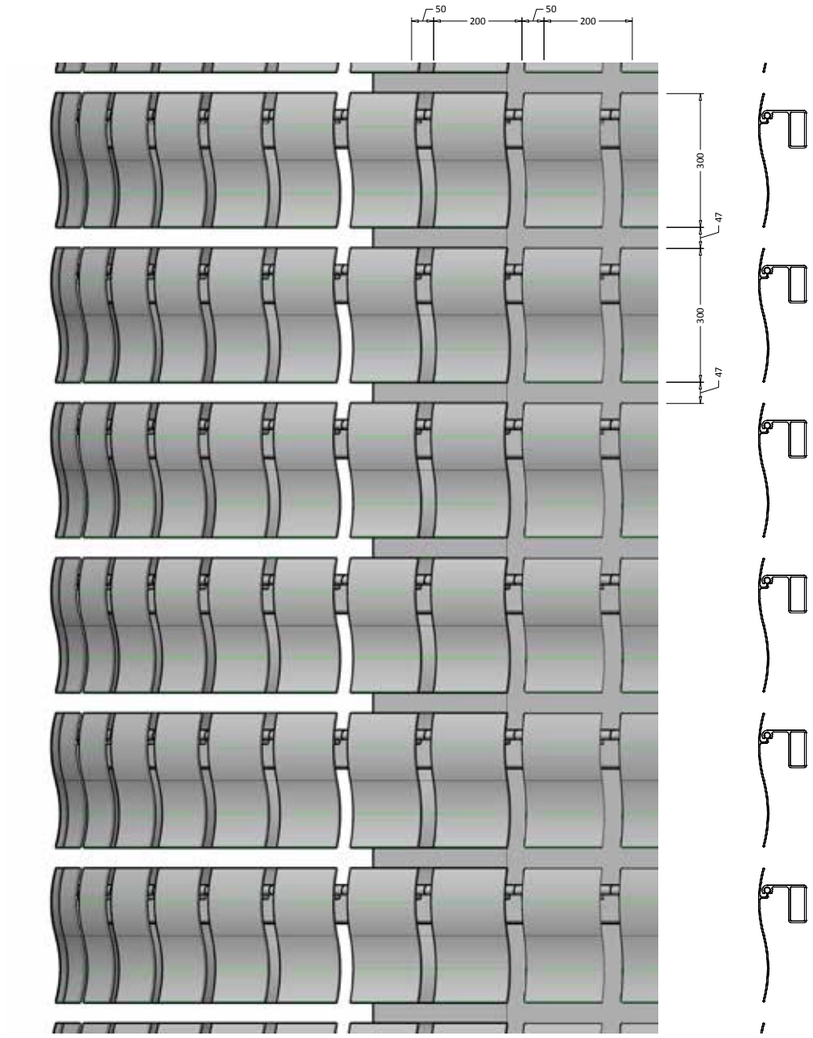
Locker Architectural Ltd, Farrell Street, Warrington, Cheshire WA1 2WW.
Tel: Sales-01925 406600 ~ Accounts-01925 406602 ~ Purchasing-01925 406606
Fax: 01925 444386 Email: sales@lockergroup.com Web: www.architecturalwiremesh.com
Registered No. 6752595 England VAT Reg.No.: GB 896117588

# 6.5 APPENDIX.

## 6.5.2 Prototype.




Typical Partial Elevation
1:50 @ A1
1:100 @ A3




Typical Detail Elevation
1:5 @ A1
1:10 @ A3



Typical Section
Fixings to primary structure not shown
1:5 @ A1
1:10 @ A3

Notes:

1. All technical components subject to final design and engineering

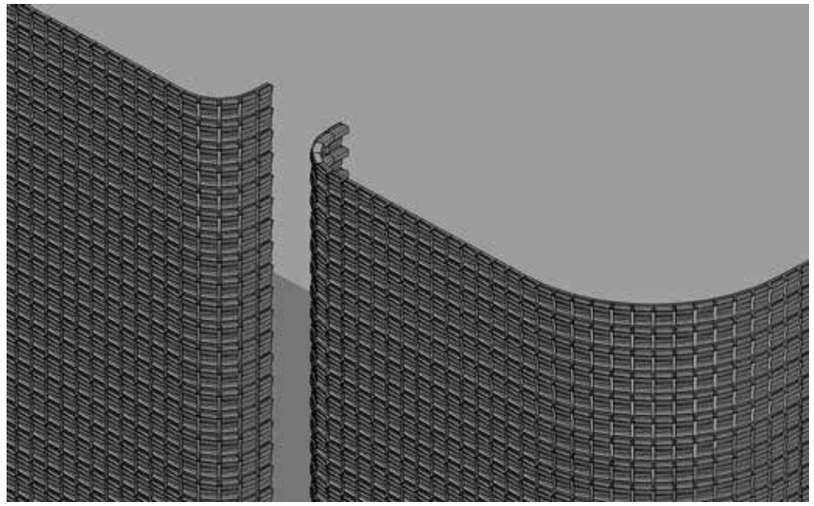
Enquiry number: ATA E0189
Locker Ref: P6690:A3373
Title: Monarchs Quay MSCP, Liverpool Kinetic Facade, Detail Elevations
Drawing Number: P-102 Rev 0
Date: 2017-10-04

Locker ARCHITECTURAL LIMITED
FARRELL STREET, WARRINGTON, CHESHIRE, ENGLAND, WA1 2WW
T: +44 (0)1925 406600
F: +44(0)1925 444386
E: sales@lockerwire.co.uk

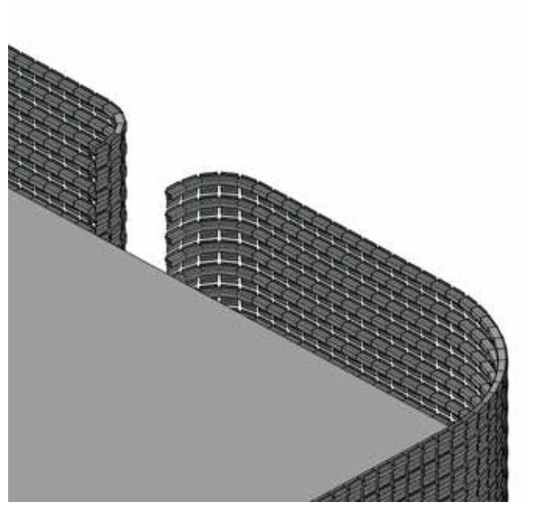
**Artura**
Design and Engineering for Architectural Structures.
T: +44 (0)1174 030374
E: info@artura.ltd
W: www.artura.ltd

# 6.5 APPENDIX.

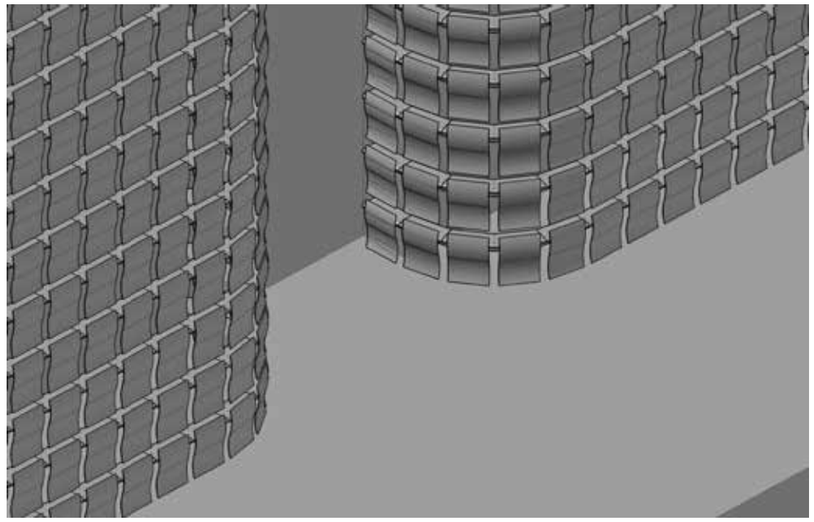
## 6.5.2 Prototype.



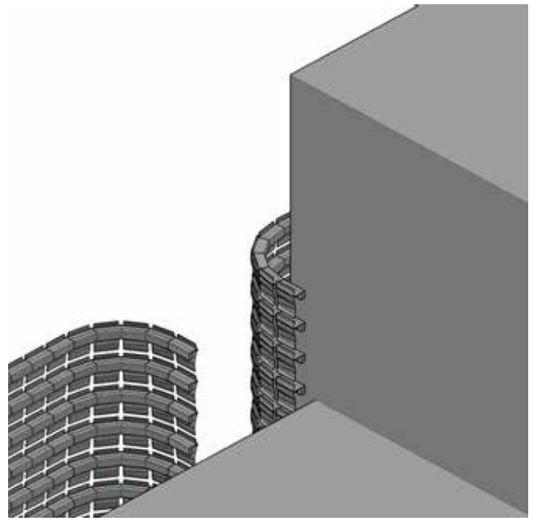
Detail Isometric from Outside of Facade
Upper Edge
Fixings to building not shown



Detail Isometric from Inside of Facade
Upper Edge
Fixings to building not shown



Detail Isometric from Outside of Facade
Lower Edge



Detail Isometric from Inside of Facade
Upper Edge. Showing Wrap Around Stair Core
Fixings to building not shown

Notes:

1. All technical components subject to final design and engineering

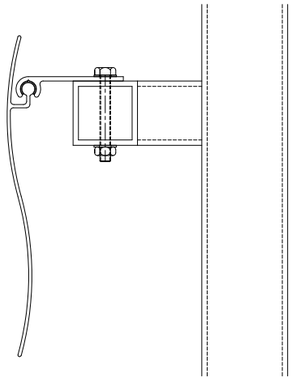
| | |
|---|---|
| Enquiry number: | ATA E0189 |
| Locker Ref: | P6690:A3373 |
| Title: | Monarchs Quay MSCP, Liverpool Kinetic Facade, Detail Isometric |
| Drawing Number: | P-104 Rev 0 |
| Date: | 2017-10-05 |

Locker ARCHITECTURAL LIMITED
FARRELL STREET, WARRINGTON, CHESHIRE, ENGLAND, WA1 2WW
T: +44 (0)1925 406600
F: +44(0)1925 444386
E: sales@lockerwire.co.uk

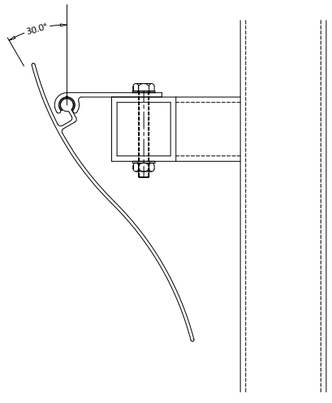
**Artura**
Design and Engineering for Architectural Structures.
T: +44 (0)1174 030374
E: info@artura.ltd
W: www.artura.ltd

# 6.5 APPENDIX.

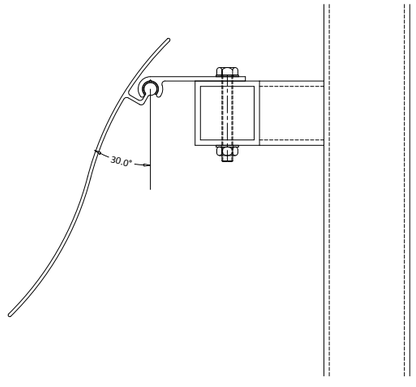
## 6.5.2 Prototype.



Section
Curved - Cranked hinge - 300
1:2 @ A1
1:4 @ A3



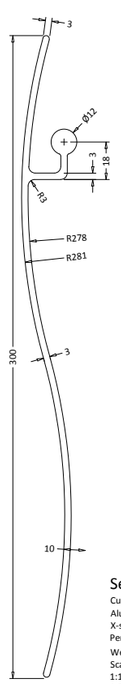

Section
Curved - Cranked hinge - 30° swing in
1:2 @ A1
1:4 @ A3




Section
Curved - Cranked hinge - 30° swing out
1:2 @ A1
1:4 @ A3

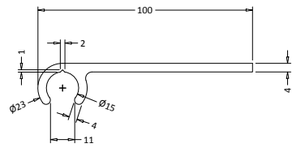
Notes:

1. All technical components subject to final design and engineering

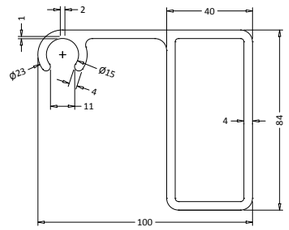



Section Pixel:
Curved - Cranked hinge - Bulbed
Aluminium grade: 5000 series
X-section area: 1687mm²
Perimeter: 692mm
Weight/m: 4.5 kg/m (approx 1.5kg (3¼ lb) per Pixel)
Scales
1:1 @ A1
1:2 @ A3

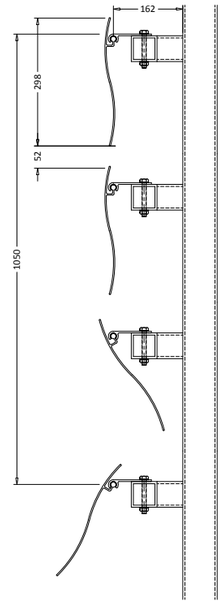

Section PTFE Bush
Extruded PTFE
Scales
1:1 @ A1
1:2 @ A3




Section P-profile
Aluminium grade: 6063 T6
X-section area: 515mm²
Perimeter: 255mm
Weight/m: 1.4kg/m
Scales
1:1 @ A1
1:2 @ A3




Alternative Section P-profile
Aluminium grade: 6063 T6
X-section area: 1272mm²
Perimeter: 620mm
Weight/m: 3.5kg/m
Scales
1:1 @ A1
1:2 @ A3




Section
Curved - Cranked hinge - Facade build-up
1:5 @ A1
1:10 @ A3



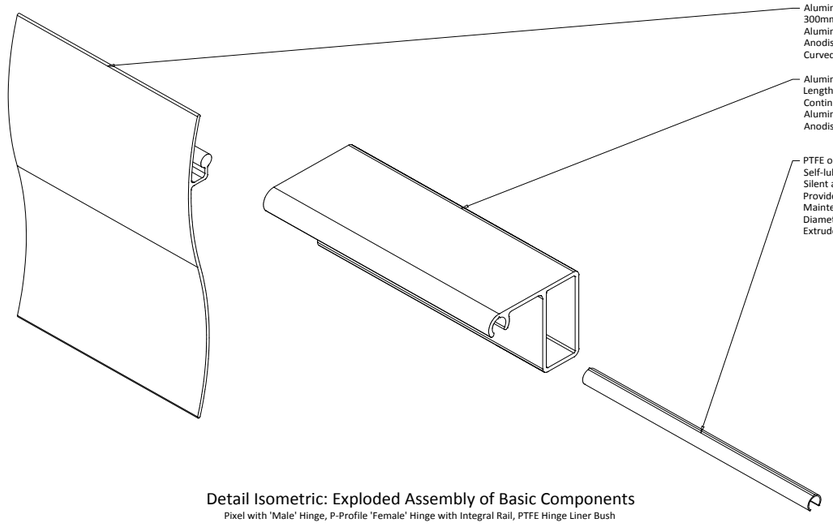
| | |
|---|---|
| Enquiry number: | ATA E0189 |
| Locker Ref: | P6690:A3373 |
| Title: | Monarchs Quay MSCP, Liverpool<br>Kinetic Facade, Detail Sections |
| Drawing Number: | P-105 Rev 0 |
| Date: | 2017-10-04 |

Locker ARCHITECTURAL LIMITED
FARRELL STREET,
WARRINGTON, CHESHIRE,
ENGLAND, WA1 2WW
T: +44 (0)1925 406600
F: +44(0)1925 444386
E: sales@lockerwire.co.uk

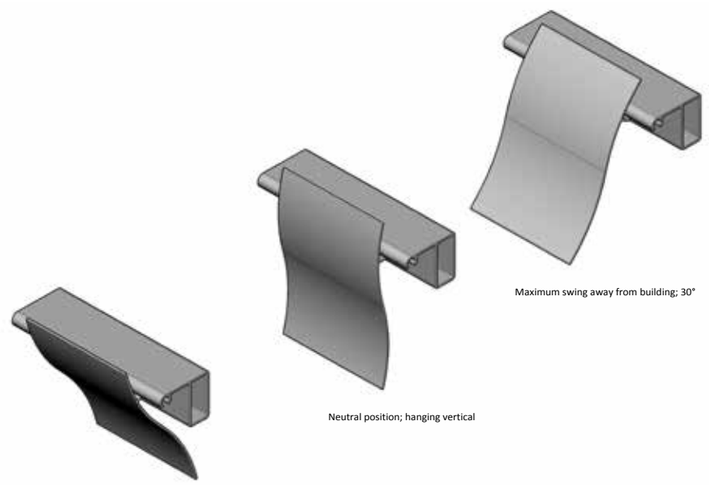
**Artura**
Design and Engineering for Architectural Structures.
T: +44 (0)1174 030374
E: info@artura.ltd
W: www.artura.ltd

# 6.0 MSCP PROPOSAL.
# 6.5 APPENDIX.

## 6.5.2 Prototype.



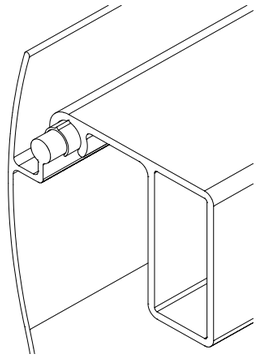

Detail Isometric: Exploded Assembly of Basic Components
Pixel with 'Male' Hinge, P-Profile 'Female' Hinge with Integral Rail, PTFE Hinge Liner Bush



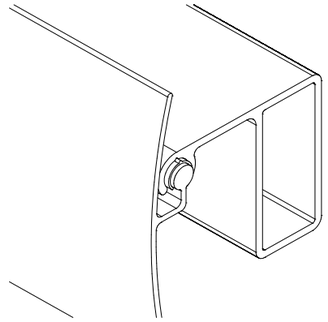

Detail Isometric: Basic 250mm Assembly Unit Showing Extents of Travel
30° Maximum 'Swing'

Notes:

1. All technical components subject to final design and engineering



Detail: Isometric Basic Assembly of Components
Rear aspect



Detail: Isometric Basic Assembly of Components
Front aspect

| | |
|---|---|
| Enquiry number: | ATA E0189 |
| Locker Ref: | P6690:A3373 |
| Title: | Monarchs Quay MSCP, Liverpool<br>Kinetic Facade, Technical Details |
| Drawing Number: | P-105 Rev 0 |
| Date: | 2017-10-05 |


Locker ARCHITECTURAL LIMITED
FARRELL STREET, WARRINGTON, CHESHIRE, ENGLAND, WA1 2WW
T: +44 (0)1925 406600
F: +44(0)1925 444386
E: sales@lockerwire.co.uk

**Artura**
Design and Engineering for Architectural Structures.
T: +44 (0)1174 030374
E: info@artura.ltd
W: www.artura.ltd

# 6.0 MSCP PROPOSAL.
# 6.5 APPENDIX.

6.5.2 Prototype.

Photos of the full scale prototype show the curved profile and method of fixing which allows individual pixels to move independent of each other in a backwards/ forwards rotation.