

CASE STUDY

Satu Bumi's capabilities to deliver highly customised GRC precast solutions



INTRODUCTION

This case study has been prepared to highlight Satu Bumi's capabilities in working with its customers to provide highly customised and successful GRC landscaping solutions for commercial projects.

With around two hundred employees, ten thousand square meters of factory space, and a large catalogue of standard sized planters and street furniture, Satu Bumi is one of the largest manufacturers of GRC landscaping products in the Southern Hemisphere. Therefore, Satu Bumi's is easily able to demonstrate its capacity to fulfill very large volume-based orders. However, in addition to capacity, Satu Bumi's primary market differentiator is its capability to provide custom GRC landscaping solutions that meet the design intent of some of the most complex customised commercial landscaping projects.

Satu Bumi's focus on the provision of custom landscaping solutions is soundly underpinned by its Product Engineering Division which has thirty-five employees fully engaged in the pre-production stages of the development of custom GRC designs. This includes six full-time drafts-people that are focused on the design and ready-for-production CAD-based shop drawings for custom projects and a large team of mould makers that have the depth of experience required to make moulds for almost any GRC precast design requirement.

The following example project has been used to illustrate how Satu Bumi works with its customers to create highly customised and practical GRC landscaping solutions.

Example Project – 511 Church Street

This example project was chosen for the case study because it

required the design and delivery of a range of highly customised GRC landscaping elements that showcased Satu Bumi's process driven customisation capabilities.

Project Details

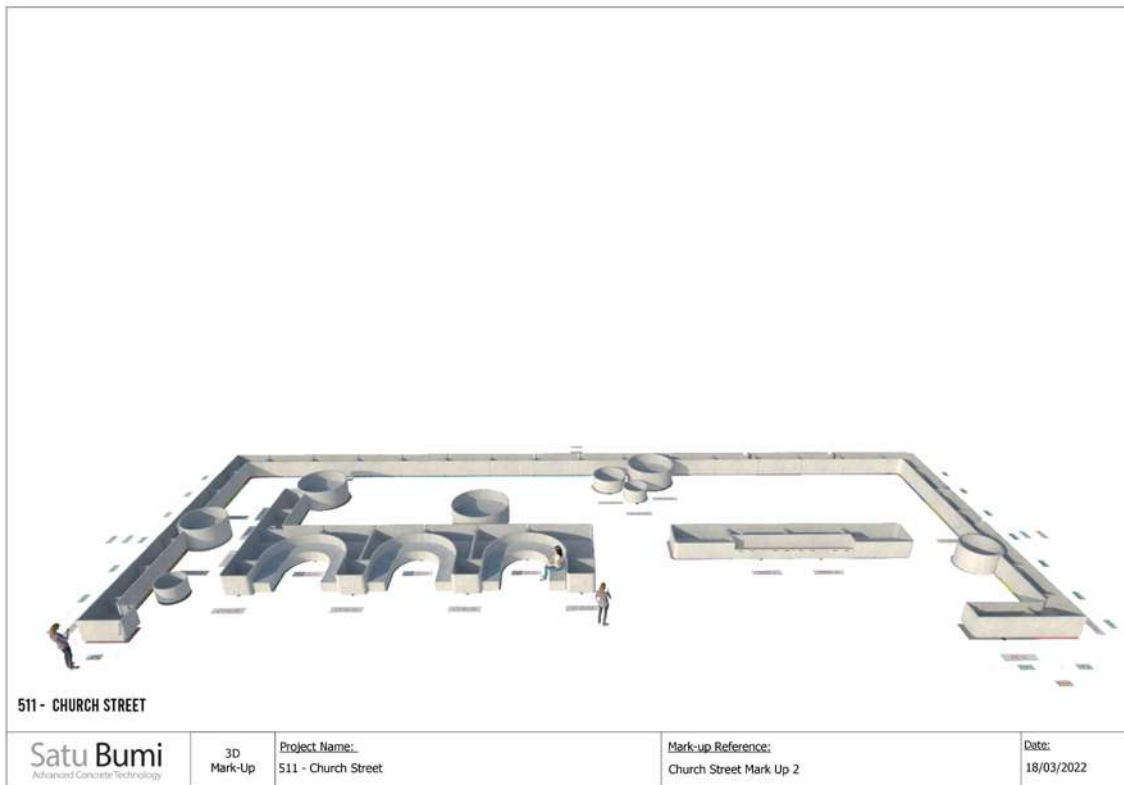
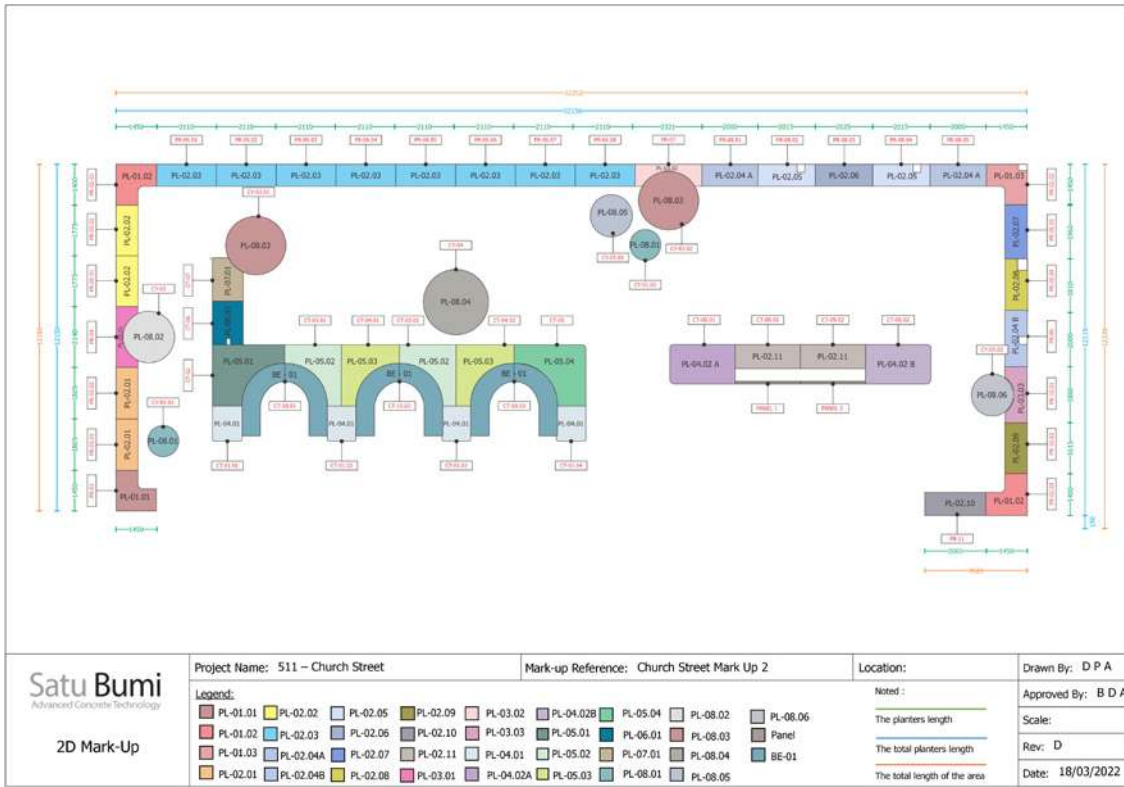
Address	: 511 Church Street, Richmond, Melbourne
Property Owner	: Cremorne Properties
Project Management	: Maben Group
Landscaper	: Living Landscapes

Preliminary Quotation Stage

Upon request from the Maben Group, and based on pre-construction landscape architect's drawings, Satu Bumi's Geelong based Estimating Team provided a preliminary quotation for a highly customised GRC precast solution for the refurbishment of an outdoor social space at 511 Church Street, Richmond. The solution included several different shaped and sized GRC elements including standard rectangular shaped planters, standard cylindrical shaped planters, numerous custom shaped planters, bench seats and a bar-b-q section.

Final Quotation Stage

Upon notification by the customer that Satu Bumi's preliminary quotation was competitive, and on the receipt of the customer's approved landscaping drawings, Satu Bumi's Estimating Team produced Satu Bumi's final quotation for the project. The final quotation was provided to the customer in conjunction with the following 2D and 3D markups which were produced by Satu Bumi's Production Engineering Team to ensure the deliverables for the project were clearly understood by all the relevant parties.

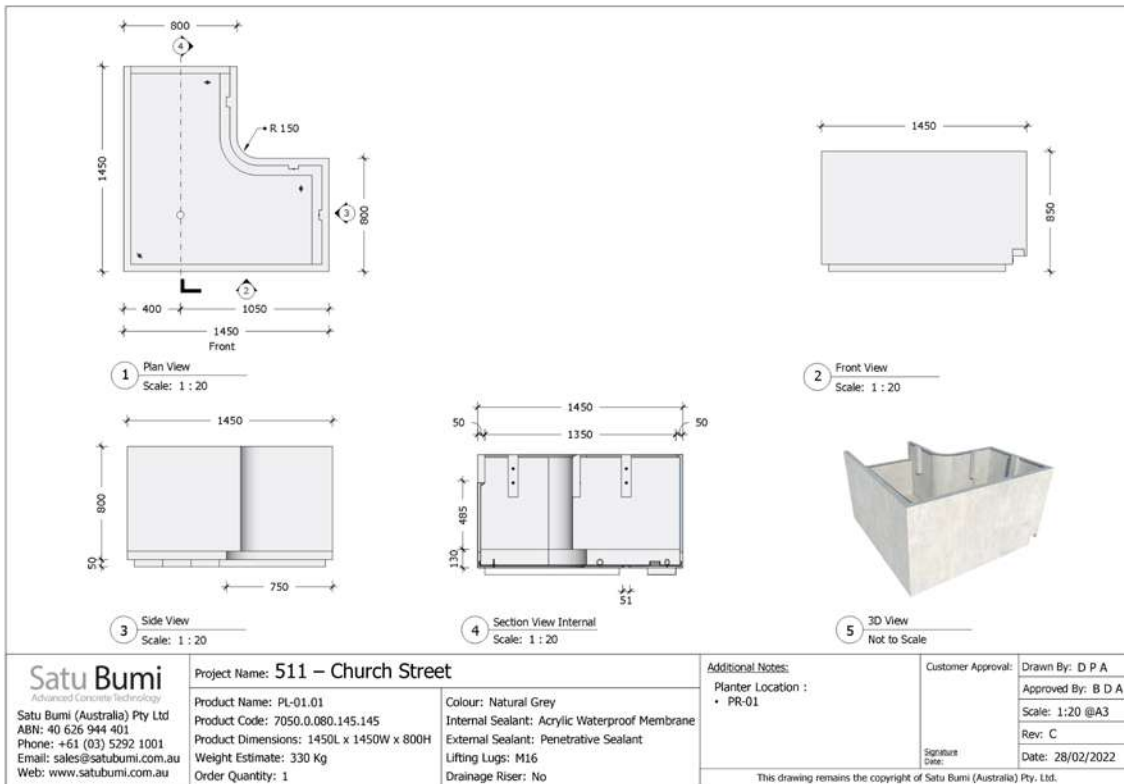


Shop Drawings Stage

Upon the customer's approval of Satu Bumi's final quotation and agreement on the commercial terms for the project, Satu Bumi's Product Engineering Team completed a fifty-six-page set of detailed shop drawings that included each of the GRC elements on the project shown in the above mark-ups. These shop drawings then went through an iterative fine tuning and approval process in conjunction with the customer. Since these drawings would become the blueprint for the manufacturing process, they needed to be accurate to the finest detail. The following are examples from

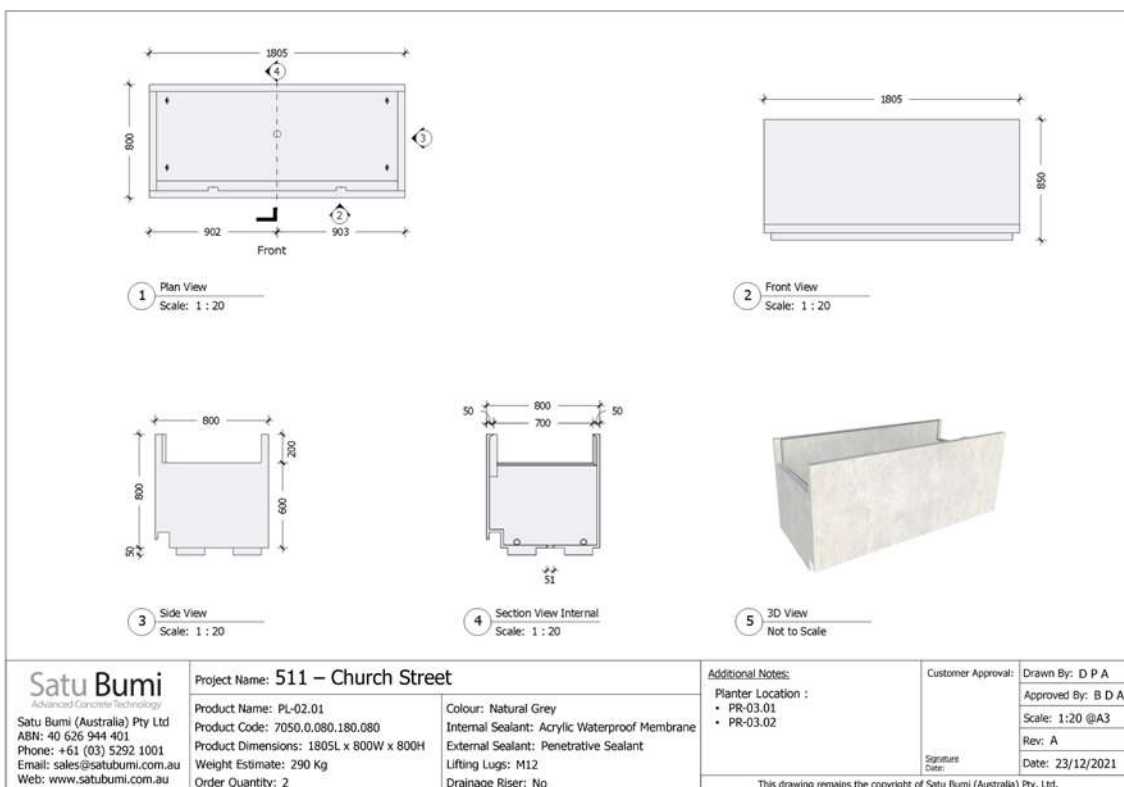
the approved shop drawings that show some of the detail of the customised elements required for the project.

The first drawing highlights a corner-piece planter with several customised elements including a curved inner edge, ferrule reinforcement and imbedded ferrules for the subsequent attachment of a handrail. The ferrule reinforcement was included to provide the structural strength required to hold the handrail and the precise locations of the imbedded ferrules were crucial for the on-site attachment of the handrail after installation of the planters.



The second drawing highlights a rectangle planter with lowered side walls and a bottom edge lip on its front wall to accommodate the post-installation addition of mood lighting. After planting-up, the lowered side walls design for the adjoining planters gave the appearance of the top of the garden being continuous.

Each of the drawings also show the location of embedded lifting lugs for use with a crane during the on-site installation process. Some of the fifty-nine GRC elements required for the project weighed over half a ton and the use of lifting lugs assisted in avoiding damage when manoeuvring them into position.



Manufacturing Stage

Upon final customer approval of the shop drawings, the manufacturing stage commenced and included the following substages:

- 1 Sub Stage -1**
Detailed pre-cast mould making
- 2 Sub Stage -2**
Spraying up of the moulds with GRC
- 3 Sub Stage -3**
Curing
- 4 Sub Stage -4**
Demoulding and finishing
- 5 Sub Stage -5**
Staging and numbering
- 6 Sub Stage -6**
Packing ready for containerised shipping

Each manufacturing substage included managed quality control processes and checkpoints to ensure the highest quality result. This included the staging of each of the adjoining GRC elements on a perfectly flat staging floor to ensure they were precisely matched and numbered so that they could be easily installed on-site using a Placement Roadmap provided by Satu Bumi.



One of the GRC elements during the manufacturing stage and after packing

Delivery Stage

Upon final packing quality control, the products were shipped to Satu Bumi's warehousing facilities at the port of Melbourne where they were stored until the site was ready to receive them. After liaison between Satu Bumi's Administration Coordinator and the site project team, the products were loaded on a series of trucks and delivered to the site for installation.

Installation Stage

The installation of all the GRC elements was managed by Living Landscapes which is one of Melbourne's leading landscaping companies. To assist in the installation process, Satu Bumi provided: -

- 1 Document -1**
An "Unpacking & Installation Guide", and
- 2 Document -2**
A "Placement Roadmap" for the location of each of the planters.

OUTCOME

Satu Bumi delivered a highly customised quality GRC landscaping solution on time and at a competitive price. Satu Bumi's processes from the preliminary quotation through to design, manufacture and delivery provided a smooth transition from start to finish which, in conjunction with the Maben Group and Living Landscapes, resulted in a successful landscaping project within which the GRC elements formed a major part.

- ✓ Delivered on time
- ✓ Competitively priced
- ✓ Commercial grade quality
- ✓ Met the architect's design intent

CUSTOMERS' THOUGHTS

"The 511 Church Street deck was brought together with quality GRC products efficiently designed and supplied by Satu Bumi. The project required a mixture of rectangular perimeter planters, cylindrical tree planters, curved banquet seating and even a removable GRC wall for the BBQ area. Satu Bumi was hands on and extremely accommodating throughout the design and build to help deliver this key aspect of the project."

Daniel Castagnini – Maben Project Manager

"We are grateful for the excellent service, level of detail, and timely support provided by the team at Satu Bumi whilst they assisted us at 511 Church Street, Richmond. Satu Bumi has always maintained high quality products that are supplied to us for our projects to ensure our customers' satisfaction."

Chris Brenchley – Living Landscapes Director



511 CHURCH STREET, RICHMOND, MELBOURNE