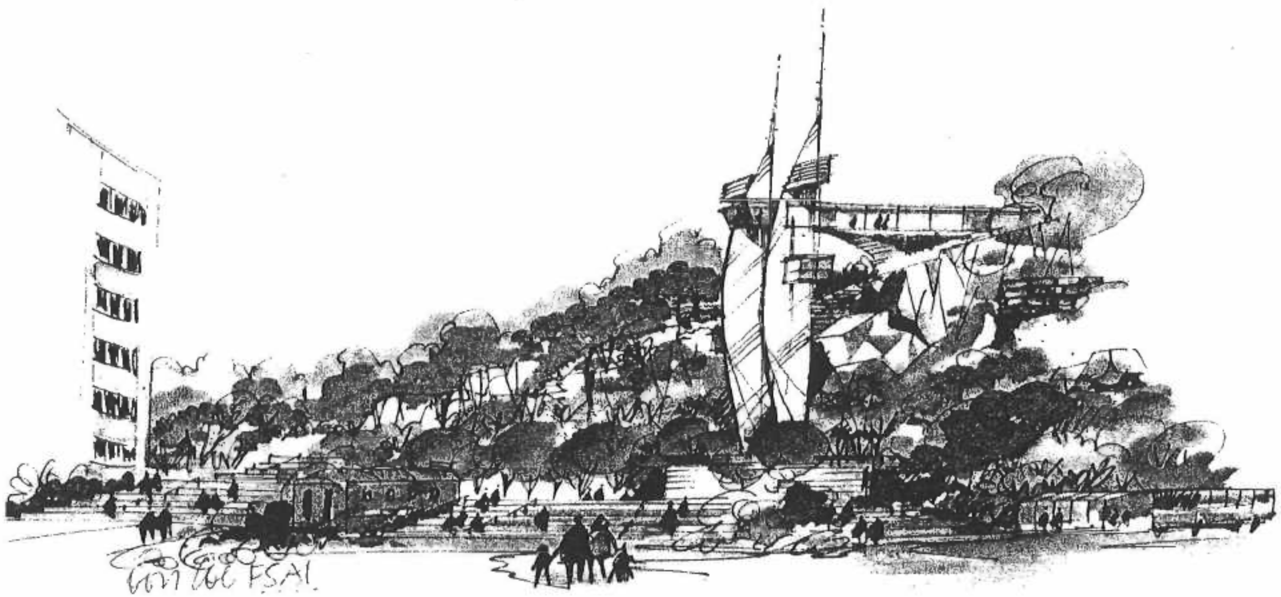
FORT REGENT REDEVELOPMENT
JERSEY SPORTS VILLAGE



STRUCTURAL SCHEME DESIGN REPORT

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CONTENTS

evision date of issue status

1.0 INTRODUCTION

This report covers the work undertaken during the scheme design stage of the project, a description of the main elements of the structure is given plus the design criteria and parameters to which the detail design of the project will be completed.

Information has also been provided to allow the Cost Consultant develop the final project cost plan. It should be noted that this is preliminary and subject to refinement and amendment during the following stages of design. A suitable cost contingency should thus be made to allow for ongoing design development and co-ordination plus unknowns and associated risks to the project.

2.0 THE PROJECT

The Fort Regent Redevelopment consist of a number of exciting proposals to re-create the existing leisure complex as Jersey's Sports Village.

Most significantly the redevelopment will open up a whole new access route to the complex from the town centre by way of a new lift tower and glazed walkway link. The new tower will be a pre-cast concrete structure to maximise the speed of construction and to provide a high quality concrete finish. Standing approximately 35m high, it will be restrained against the granite cliff face at mid-height. The walkway link will be a steel structure with minimal structural elements to support the glazed enclosure.

At the northern end of the complex, a new visitors centre will be built to act as an orientation point for visitors entering the complex via the new lift tower and walkway. The centre will be a single storey steel structure with glazed walls.

In the existing complex building, a number of changes of use will be made to the spaces in between the northern tip of the building and the central rotunda. The existing squash courts and their surrounding concrete mezzanine floors will be demolished and replaced with a new exercise and aerobics area . A new bridge link will span 23m over the exercise area between the existing rampart walkways.

Approximately 2000 new spectator seats are to be provided in the adjacent sports hall. These will be split between fixed seating on new lightweight steel tiers at ground and first floor level, and retractable 'bleacher' seating.

Finally, in the central rotunda itself, approximately 1400m2 of new floor space will be created to provide a new indoor bowls facility, by constructing a new suspended floor supported on the existing columns around the perimeter of the hall. The new floor, which is circular on plan, will be supported on a grillage of steel members, which hangs in a catenary, so as to form a bowl shape when viewed from below.

All of the new structures within the existing building envelope will be steel. Wet trades will be avoided. Floors will generally be of timber construction or timber decking supported on cold rolled steel joists.

It is anticipated that the redevelopment works will be phased so that the complex will remain open to the public throughout.

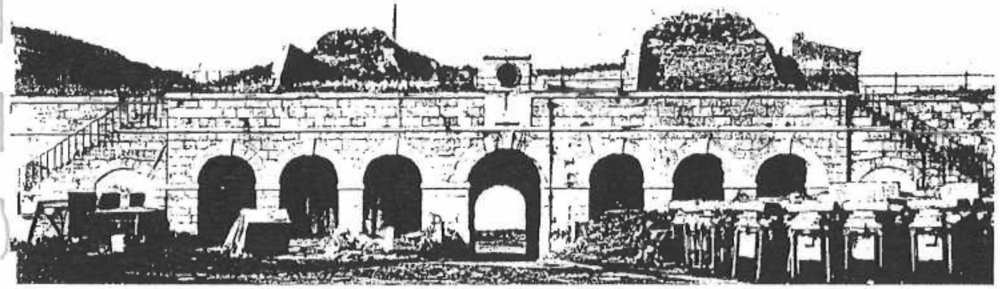
THE SITE

Existing Building

Fort Regent was constructed between 1806 and 1814 as a defence against Napoleon. The original building consists of masonry walls enclosing a central parade ground (see figure 1). In general, the defence outer walls are 3m thick, with vaults set inside the walls around the entire perimeter of the parade ground.

In the 1970's the parade ground was enclosed with a portalised steel roof structure, to form the Fort Regent Leisure Complex. In the centre of the complex a circular hall-the 'Rotunda' – was constructed with an elegant steel domed roof (see figure 2). Nearly all the roof steelwork in the complex is exposed and the extensive use of hollow sections was ground–breaking in its day.

Since the original building was constructed a number of alterations and refurbishment's have been made. Most significantly, a series of concrete balconies have been constructed around the perimeter of the rotunda.



lgure 1: The Fort before the First Redevelopment

3.2. Ground Conditions

The Fort is constructed on a large granite outcrop, or 'granophyre'. The rock mass strength of the granite has been found to be 70 MPa. (see section 3.4 below). This means that the rock is approximately twice as strong as typical structural concrete – although the local effects of discontinuities and weathering must be taken into account.

3.3. Underground Services and Features

The Fort contains a well, located to the Northeast of the rotunda.

In the mid-1990's, a large underground cavern was constructed underneath the Northern end of the rock, approximately 30m below the surrounding ground level. The cavern houses a water storage tank. A tunnel, containing a water pipe serving the tank leads off to the north approximately 30m under Snow Hill.

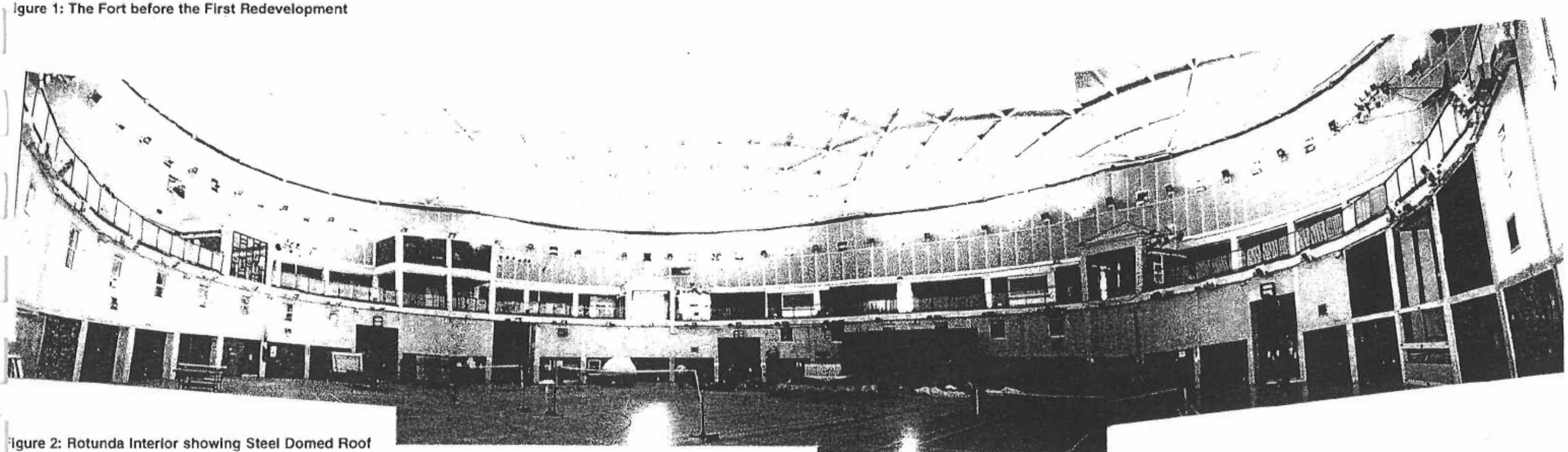
Other, shallower services in the vicinity of Snow Hill include a number of electrical cables serving the old cable car station and the Snow Hill sub-station.

3.4. Surveys and Investigations

A number of as-built drawings have been obtained from archives, including original for the refurbishment to the Rotunda area and the squash courts at the northern end of the complex circa 1980, plus a number of general layouts of the complex dating from the 1930's to the mid-1980's.

Preliminary geotechnical and geological information has been obtained from the site investigation report for the Fort Regent Cavern project, dating from 1993.

It is recommended that a full site investigation is carried out at the start of detailed design, including a survey of the rock face adjacent to the proposed lift tower.



'igure 2: Rotunda Interior showing Steel Domed Roof

4.0. DESCRIPTION OF THE STRUCTURAL WORK

I. Superstructure

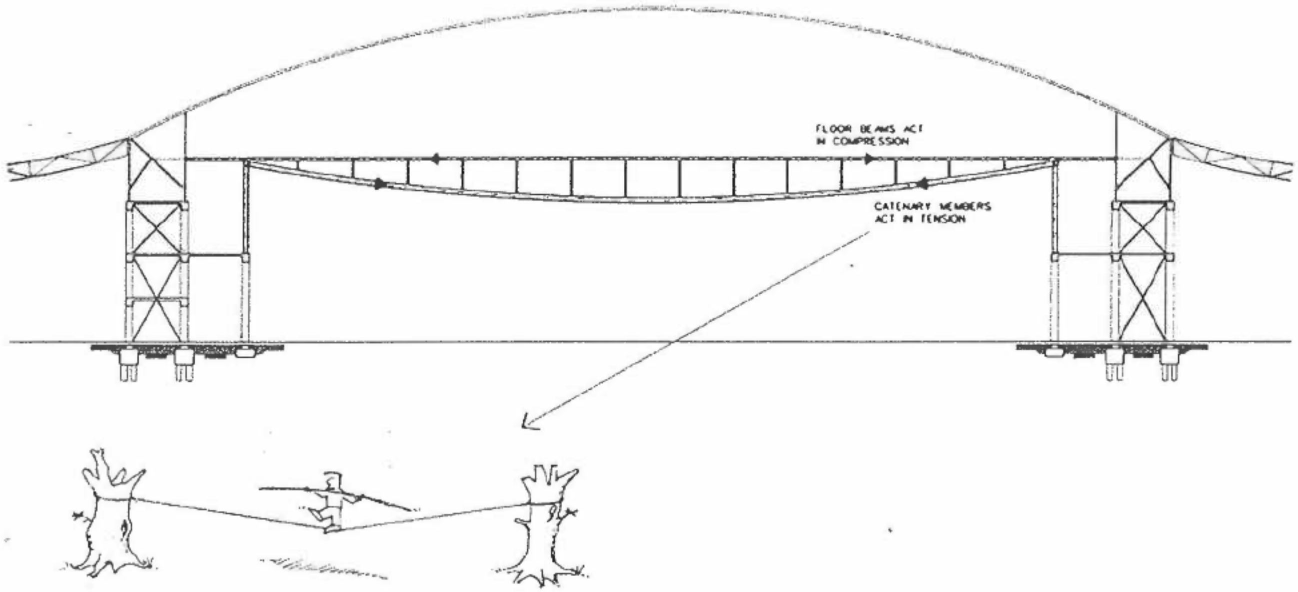
4.1.1. Rotunda Infill floor

The Rotunda infill floor is 44m in diameter, and it supported on new steel columns placed on top of the 36 existing reinforced concrete columns around the perimeter of the hall.

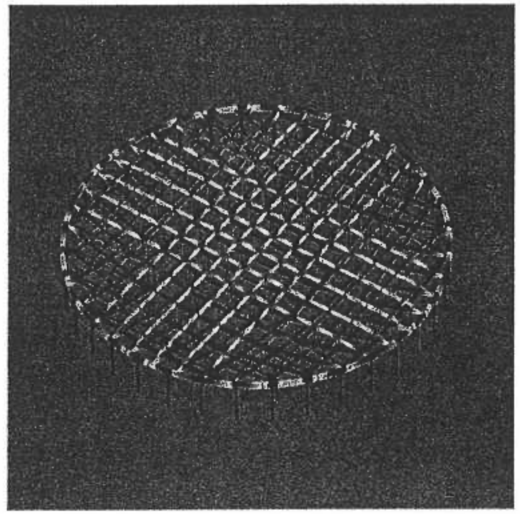
The as-built drawings of the existing reinforced concrete columns show that they have some spare capacity, so a form of structure was chosen that shares the new loads as evenly as possible onto the existing columns, thus avoiding the need for strengthening works and underpinning.

The category form of the floor was chosen to mirror the dome structure of the rotunda roof and maintain the distinctive visual identify of the building. The bowl shaped catenary structure mirrors the dome of the roof not only in appearance, but in structural terms as well: whereas the grillage elements of the existing dome structure act in compression, the grillage elements of the catenary act in tension. The large horizontal tying forces created by the tension members are counteracted by the grillage of floor beams which acts as a stiff diaphragm, in compression. (See figure 3). Hence, only vertical loads are carried by the new and existing columns around the perimeter of the Rotunda.

The floor of the new Rotunda infill floor is constructed from timber decking on cold-formed steel joists. This has been chosen in order to minimise cost and weight, and to avoid the use of wet trades. The advice of the British Bowling Association has been sought, and they have confirmed that timber deck is acceptable for playing bowls.



STRUCTURAL PRINCIPLES OF ROTUNDA INFILL FLOOR

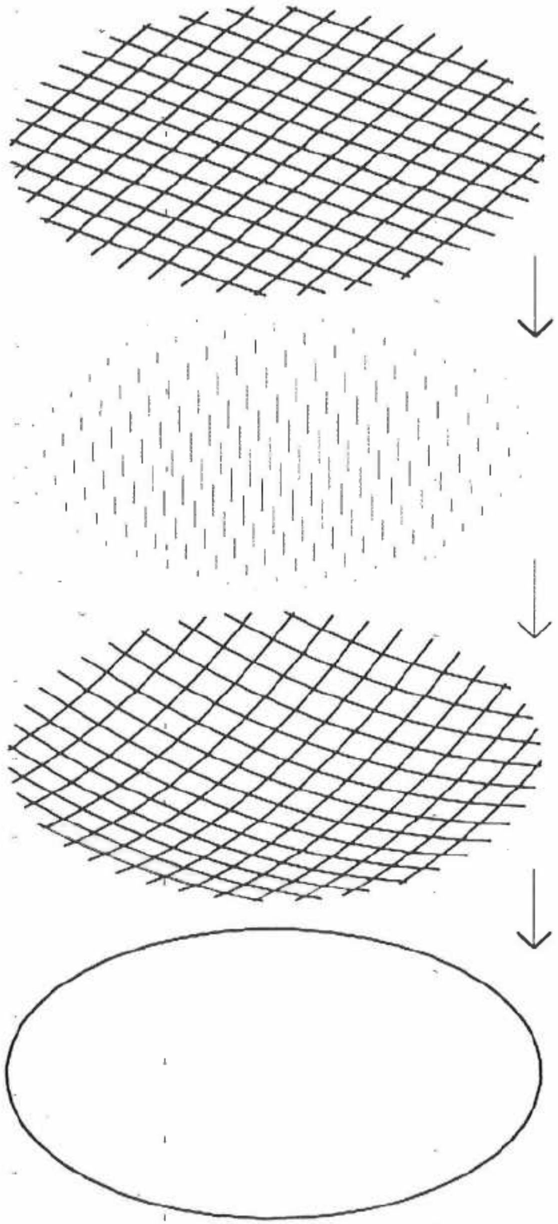


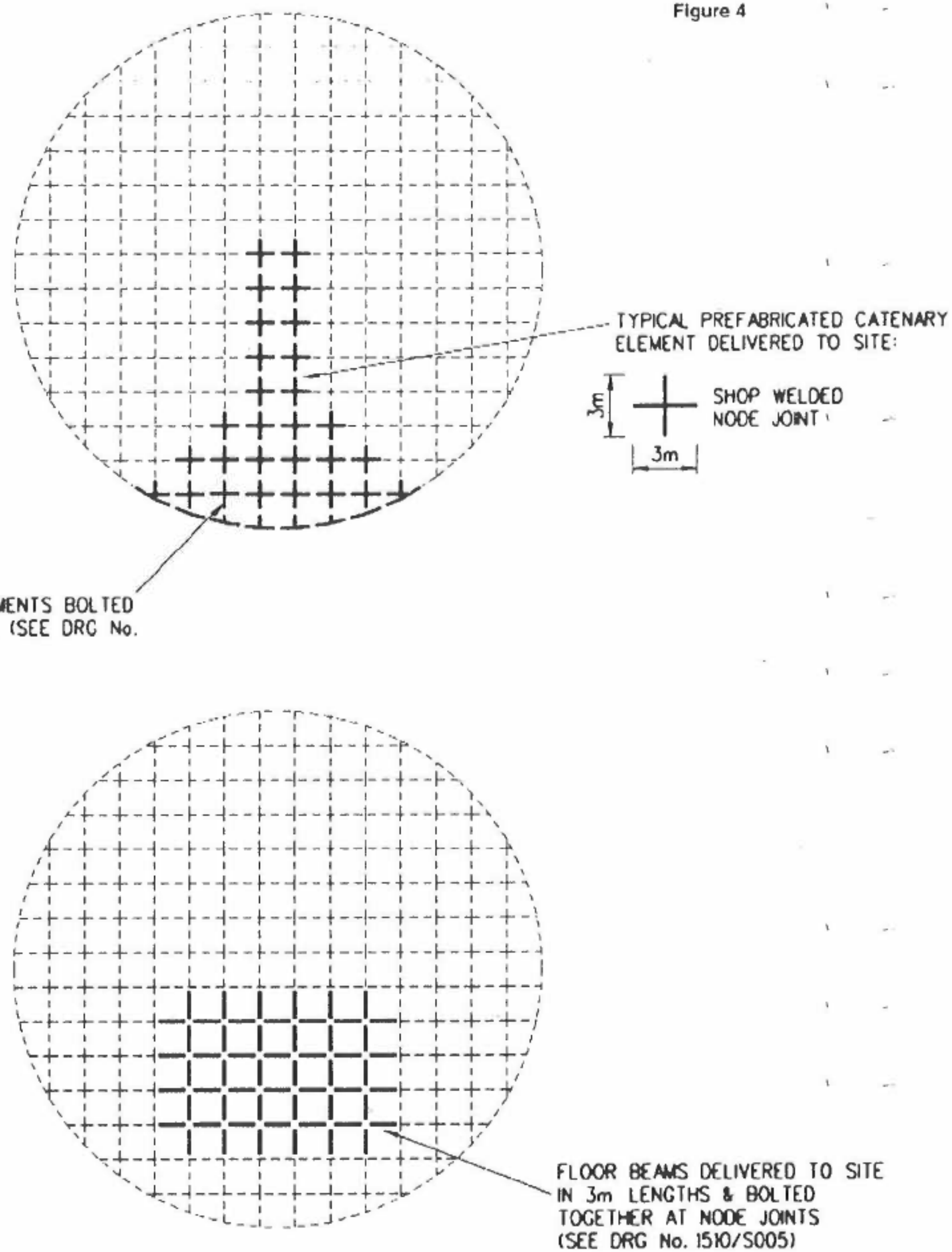
Structural Analysis

Figure 3

CONSTRUCTION OF ROTUNDA INFILL FLOOR:

Figure 4





4.1.2. Lift Tower

The lift tower stands approximately 35m high and contains two external lifts, linking street level with the new glazed walkway at the top of the cliff.

The two lift shafts are separate concrete channels linked at mid-height, where they are restrained against the rock face, and at walkway level, where they support the steel walkway structure. Above the walkway level, each lift shaft has a motor room, above which the tower rises to a decorative pinnacle

In order to obtain a high-quality concrete finish and to minimise the temporary works required during construction, the towers are constructed from pre-cast concrete segments, which are 'stitched' together by in-situ reinforced concrete infills (see figure 5). These infills are designed to take all the axial stresses resulting from gravity loads and wind loads.

Hence, the structural function of the pre-cast elements is to transfer shear forces between the in-situ infills when the tower is subjected to wind loads. It is envisaged that the pre-cast elements will be bedded together with a relatively soft mortar.

The key advantages of using pre-cast concrete for the lift tower rather than steel are that the need for additional cladding panels is avoided, and that a concrete tower is inherently more durable than a clad steel tower would be. (It is thought that an un-clad steel tower would be aesthetically inappropriate for the site).

4.1.3. Visitors Centre and Walkways

The Visitors Centre is a 20m diameter, single storey steel building. The roof is a domed steel grillage, in the same style as the existing Rotunda roof, but on a smaller scale. The roof is supported around its perimeter by sixteen steel columns, hence no internal columns are required.

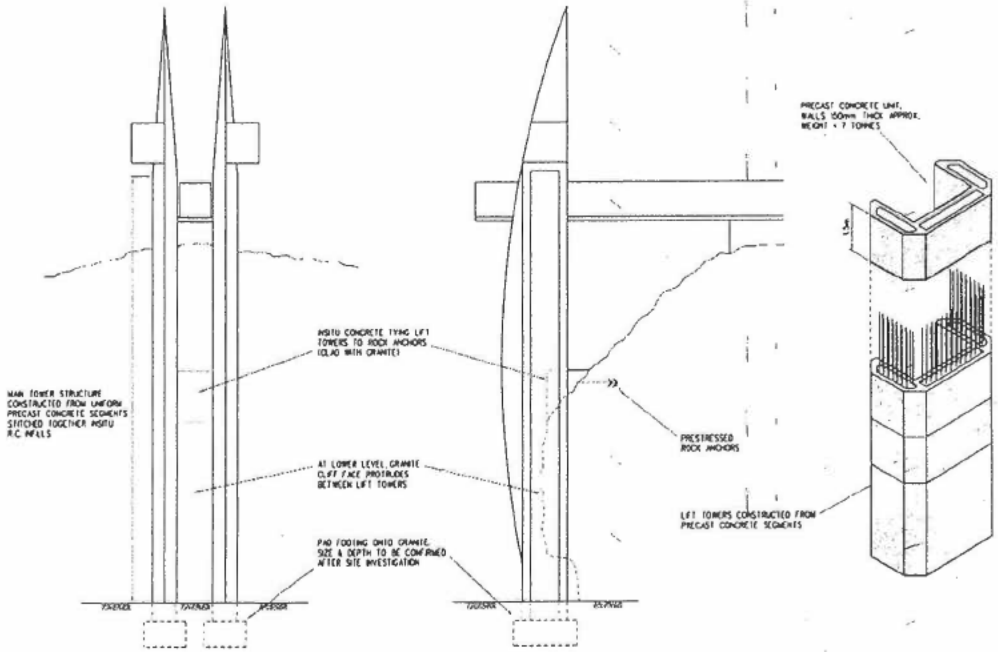
The centre has a timber hardwood suspended floor supported on steel beams, approximately 1m above ground level.

4.1.4. Other Structures

The other structural work in the redevelopment project consists of a new walkway link bridge spanning 23m between existing rampart walkways at the northern end of the site and new tiered seating at ground and first floor level around three sides of the existing sports hall.

The link bridge is a bow-string structure with steel beams strengthened by high-tensile stainless steel tie rods.

The tiered seating is supported on a steel structure with exposed steel columns. The primary and secondary beams are hot-rolled steel sections which support terraced seating levels constructed from cold-formed sections with timber plywood decking.



LIFT TOWER STRUCTURE

Figure 5

4.2 Stability

The Rotunda infill floor structure is tied back to the existing braced steel frame which supports the doomed roof, via the new floor level steelwork spanning between the edge of the catenary structure and the perimeter wall of the Rotunda. The existing steel frame is braced in both radial and tangential directions.

The lift tower is restrained in both directions against the existing rock face, at mid-height, via prestressed rock anchors. Above the anchors the tower acts as a vertical cantilever. The bending moments induced in the lift tower by lateral loads are resisted by a couple set up between horizontal reactions at the rock anchors and frictional forces on the base of the pad foundation.

The lift tower restrains the end of the walkway bridge in the direction perpendicular to the axis of the walkway, but bridge bearings between the walkway beams and the lift tower permit sliding movement of the lift towers in the directions parallel to the axis of the walkway.

The visitors centre is stabilised radially by the A-frame columns around the perimeter and tangentially by cross-bracing between the columns.

The pad footings to the A-frame columns will require anchoring into the granite below, to resist over-turning.

The walkway link is supported on V-columns at 6m centres, which provide stability parallel to the axis of the walkway. Stability perpendicular to the axis of the walkway is provided by cross bracing between the v-columns.

The other structures within the envelope of the existing building, i.e. the new internal bridge link and the tiered seating, gain their stability through connections to the existing rampart walls.

4.3 Substructure

It is anticipated that none of new structural elements within the existing envelope of the Fort Regent Building will require new foundations, (see section 9.0 'Design Risk').

The new lift tower is to be founded on a pad footing on top of the granite. The level of the top of the granite in the vicinity of the lift tower will be confirmed by the site investigation.

As mentioned in section 3.2, the typical rock mass strength of the granite is 70mpa, which is approximately twice the strength of typical structural concrete. Hence, the bearing capacity of the granite is not a cause for concern.

The walkway link and new visitors centre will be founded on concrete pad footings on top of the granite. The footings to the visitors centre and the walkway link will require anchoring into the granite bedrock, to transfer shear and uplift forces. A provisional design for the anchors is shown on drawing S008. This will be subject to confirmation after a geotechnical site investigation is carried out at the start of Detail Design.

4.4 Demolition and Temporary Works

The refurbishment works towards the northern end of the existing building will involve the demolition of the concrete mezzanine slabs around the existing squash courts and their supporting structures. These slabs were constructed as part of a refurbishment in the late 1970s/early 1980s, and do not contribute to the overall stability of the building.

The nature of the other works inside the existing building envelope (ie the rotunda infill, the new tiered seating and the new link bridge) is such that the overall stability of the building is not affected.

4.5 External Works

The construction of the new visitors centre and walkway link will involve relatively shallow excavations to expose the top of the bedrock for the pad footings. There is a possibility that in some locations, areas of fill will be encountered, dating from the original construction of the fort, hence deeper excavations will be required. More information will be available after a geotechnical site investigation has been carried out.

The base of the new lift tower will also require a shallow excavation to expose the top of the granite bedrock for the pad footings. Statutory services checks have revealed that there is an existing cast iron sewer running within a meter of the new footing. This will require re-routing.

In addition, some cutting of the existing cliff face will be required adjacent to the new lift tower, so that the lower portion tower will appear to be chased into the rock.

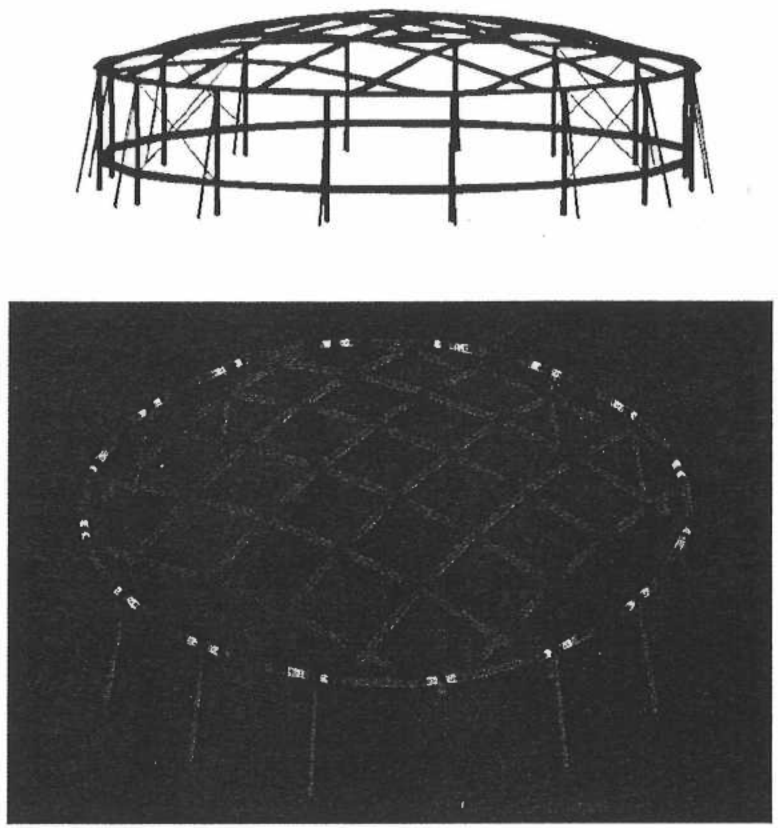


Figure 6 Visitors Centre

.0 DESIGN CRITERIA

Movements

The new steel structures within the existing envelope of the building do not require movement joints.

The external walkway link, which is 150m long in total, will have provision for movement at the junctions with the visitors centre, approximately half way along its length.

At the junction between the end of the walkway link and the top of the lift tower bridge bearings will permit movement parallel to the axis of the walkway but will provide restraint in the direction perpendicular to the axis of the walkway.

Deflections

In general, steelwork deflections under total characteristic loads will be limited to span/250.

The rotunda infill floor will be precambered to counteract dead load deflections. (The batten system used to support the bowling surface will allow for any residual self weight deflections to be taken out). Under the full design live load (see section 7.1 below), deflection will be limited to span/250. Under a simulated bowling load (ie 20 people distributed randomly across the floor), live load deflections will be limited to 6mm maximum. This is in accordance with the Bowling Association's guidelines for bowling surfaces.

The lateral deflections of the new lift shaft will be limited to height/300

5.3 Settlements

As the new and existing structures are founded on the granite bedrock, settlement issues not a cause for concern.

5.4 Durability

Corrosion protection for internal and external steelwork will be by appropriate paint systems.

Concrete cover for the precast units of the lift tower will be 50mm for external surfaces and 25mm for internal surfaces. Concrete cover for any reinforcement used in foundations will be 50mm.

5.5 Fire Protection

Exposed elements of new steelwork within the existing building envelope will be fire protected with intumescent paint. The soffit of the new tiered seating will be protected with fireboard.

The new single-storey structures outside the existing building envelope will not require fire protection.

5.6 Tolerances

The new steelwork is to be fabricated and erected to normal Nation Structural Steelwork Specification tolerances, with the exception of the rotunda infill floor, for which a tighter tolerance on the level of the floor beams will be required.

5.7 Disproportionate Collapse

The rotunda infill floor is a two-way spanning structure supported on 36 columns around the perimeter. Therefore these is sufficient redundancy to cope with the accidental removal of a beam or column element without disproportionate collapse occurring.

All steelwork structures will be checked to comply with the relevant clauses of the Building Regulations and BS8110.

6.0 DESIGN STANDARDS

BS5930	Site Investigations
BS5950	Structural Use of Steelwork in Buildings
BS6399: Part 1	Loadings for Buildings: Code of Practice for Dead and Imposed Loads
BS6399: Part 2	Code of Practice for Wind Loads
BS6399: Part 3	Code of Practice for Imposed Roof Loads
BS8110	Structural Use of Concrete
BS8004	Foundations

7.0 DESIGN LOADS

7.1 Vertical Loads

7.1.1 Rotunda Infill Floor Imposed Loads

Uniformly distributed loads:

"Gymnasium/Public Assembly"	5.0KN/m^2
Allowance for suspended services	0.25KN/m^2

Point Load:

"Gymnasium"	3.6KN

7.1.2 New Tiered Seating

Uniformly distributed loads:

"Public Assembly with fixed seating"	4.0KN/m^2
Point Load	3.6KN

7.1.3 Other Corridors, Circulation Areas and Assembly Areas.

Uniformly distributed loads	4.0KN/m^2
Point Load	4.5KN

7.2 Lateral Loads

7.2.1 Wind Loads

The wind pressures have been derived from an effective wind speed of 52m/s.

7.2.2 Notional Horizontal Loads

Notional horizontal loads applied to steel structures are the greater of 1% of the ultimate dead load or 0.5% of the ultimate dead and live loads

8.0 MATERIAL GRADES

8.1 Steel

All internal steelwork is grade 43A (S275JR) unless noted otherwise on the drawings. All external steelwork is grade 43B (S275JO) unless noted otherwise on the drawings.

8.2 Concrete Grades

Precast Lift Tower Elements*	C40
Insitu Lift Tower Elements	C40
Reinforced Foundations	C40
Mass Concrete Foundations	C30

* The precast elements are to be white visual concrete with a special class finish (as defined in BS8110). The quality of the finish may be obtained by brushing or light sand blasting, this will be confirmed during detail design.

9.0 DESIGN RISKS

This scheme design report has been prepared using the best information currently available. Certain areas of the design will be subject to further refinement once more information becomes available as part of the Detail Design process. Such areas include:

FOUNDATION DESIGN: The size and form of the new foundations cannot be fully defined until a full site investigation is carried out.

WIND LOADS: It is recommended that a wind tunnel test is carried out to check the local effects of funnelling and turbulence around the proposed lift tower.

WORKS WITHIN THE EXISTING BUILDING: The design has been prepared so far on the reasonable assumption that the existing building structure matches what is shown on the archive drawings and that the workmanship is of good quality. If either of these assumptions turns out to be incorrect, some additional structural works may be required. It is recommended that structural investigations are carried out on site during detail design.

APPENDIX 1.0 - HAZARD IDENTIFICATION AND RISK ASSESSMENT

Ref	Life Cycle, Phase/Mode	Hazard	Causes & Failures Leading To Hazard	Consequences	Persons Affected	Pre Control Risk Estimate			Risk Control Measures	Post Control Risk Estimate			Confirmed Actions/Carried Forward
						S	L	R		S	L	R	
1	Excavation	Ground Collapse	Inadequate knowledge of existing conditions	- Instability of adjacent structures - Buried personnel	- Site operatives - Public	4	2	8	Geotechnical site investigation	4	1	4	Instruct geotechnical site investigation at start detail design
2	Excavation	Collision with buried services	Inadequate knowledge of existing services	- Electrocution - Explosion	- Site operatives	4	2	8	- Survey of existing services - Check with statutory authorities for deep buried services	4	1	4	Design foundations with reference to survey information
3	Rock cutting	Instability Rock falls	Inadequate knowledge of existing conditions	Buried personnel	Site operatives Public	4	2	8	Include cliff face survey in site investigation	4	1	4	Instruct geotechnical site investigation at start detail design
4	Demolition within existing building	Noise Dust	Inappropriate phasing/timing of works	- Nuisance - Damage to hearing	- Site operatives - Other Building users	2	5	10	Careful phasing of works Screening off of demolition area	1	4	4	Allow adequate time in programme Inform tenderers of constraints
5	Phasing work within building in use by public	Transporting materials into building	Inappropriate/poorly defined access routes Unwieldy structural elements	Injuries from falling objects	Building users	5	2	10	Careful phasing of works Clearly defined routes for transporting materials Structural elements designed to be lightweight and easily transportable	4	1	4	Allow adequate time in programme Inform tenderers of constraints Develop structural details with access constraints in mind
6	Connection to existing structures	Temporary instability or collapse	Inadequate knowledge of	Injury to personnel	- Site operatives - Public	4	2	8	Survey of existing structures during detail design	4	1	4	Develop details and outline method statement for connections to existing structures

Ref	Life Cycle, Phase/Mode	Hazard	Causes & Failures Leading To Hazard	Consequences	Persons Affected	Pre Control Risk Estimate S	L	R	Risk Control Measures	Post Control Risk Estimate S	L	R	Confirmed Actions/Carried Forward
7	Steelwork erection Lift tower construction	Crane collision with personnel	Use of crane in confined site	Injury to personnel	Site operatives	4	2	8	Limit size of structural elements so as to minimise need for heavy craneage	4	1	4	Consider crane positions. Allow sufficient time in construction programme
8	Lift Tower construction	Working at height	Inadequate scaffold Overcrowding on scaffold Materials stored on scaffold	Injury to personnel	Site operatives Public	4	2	8	Simplify lift tower construction through use of pre-cast elements	4	1	4	Develop lift tower details with buildability in mind Clearly communicate site constraints and design intent for construction process in tender documents

RISK CALCULATION DEFINITION

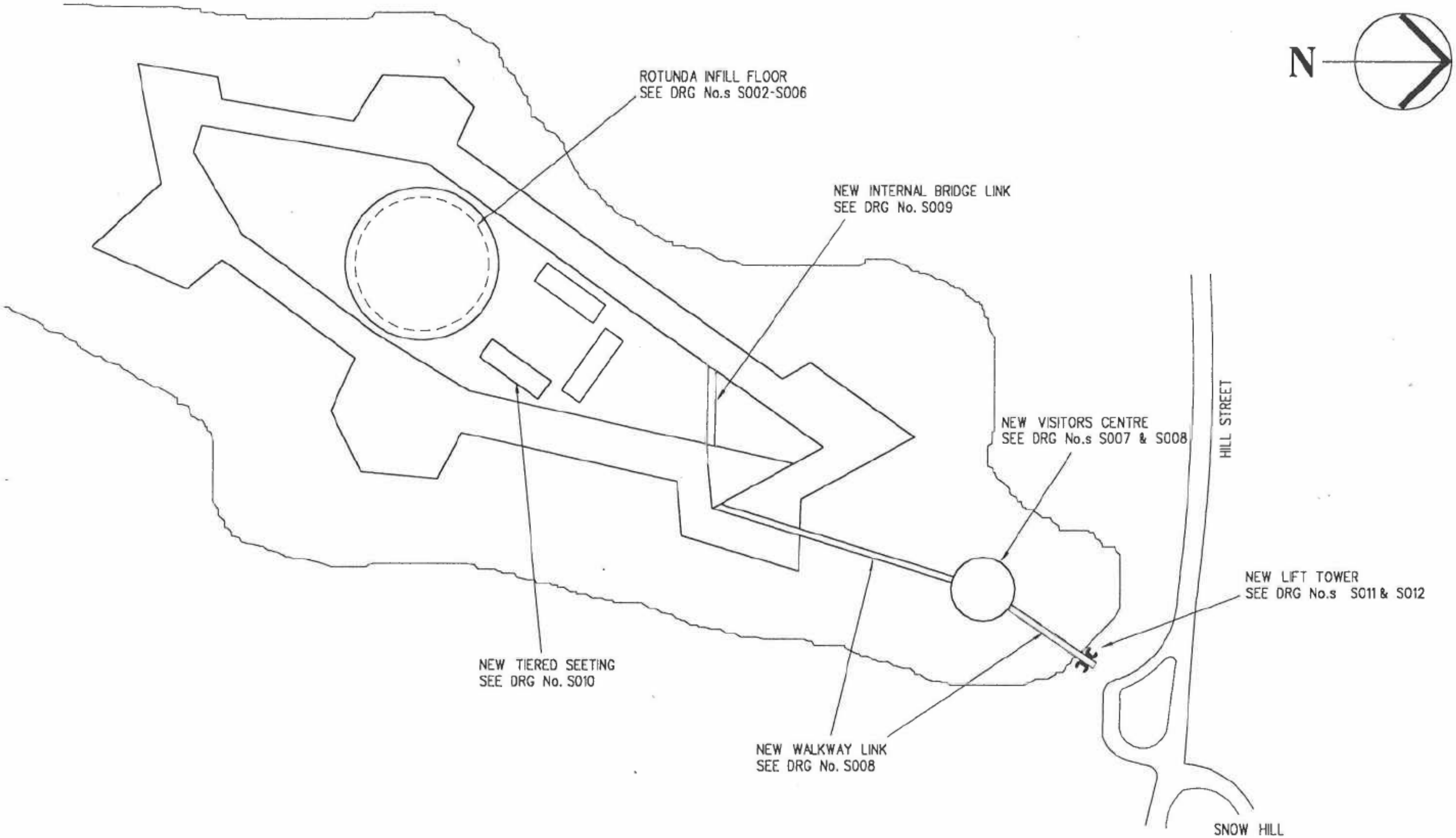
Risk = Severity x Probability

Severity		**Rating**
Catastrophic	Causes multiple facilities	5
Critical	May cause fatalities	4
Major	May cause severe injury or severe property damage	3
Minor	May cause minor injury or occupational illness	2
Negligible	Probably wouldn't affect health & safety	1

Probability		
Frequent	Likely to occur frequently	5
Probable	Will occur several times during the life of the project	4
Occasional	Likely to occur sometime in the life of the project	3
Remote	Unlikely, but possible to occur in the life of the project	2
Improbable	So unlikely that it can be assumed that occurrence may not be experienced	1

Risk Product	
15-25	High to Unacceptable
9-12	Medium
1-6	Negligible to Low

APPENDIX 2.0 - SCHEME DRAWINGS



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PROJECT: FORT REGENT REDEVELOPMENT
JERSEY SPORTS VILLAGE

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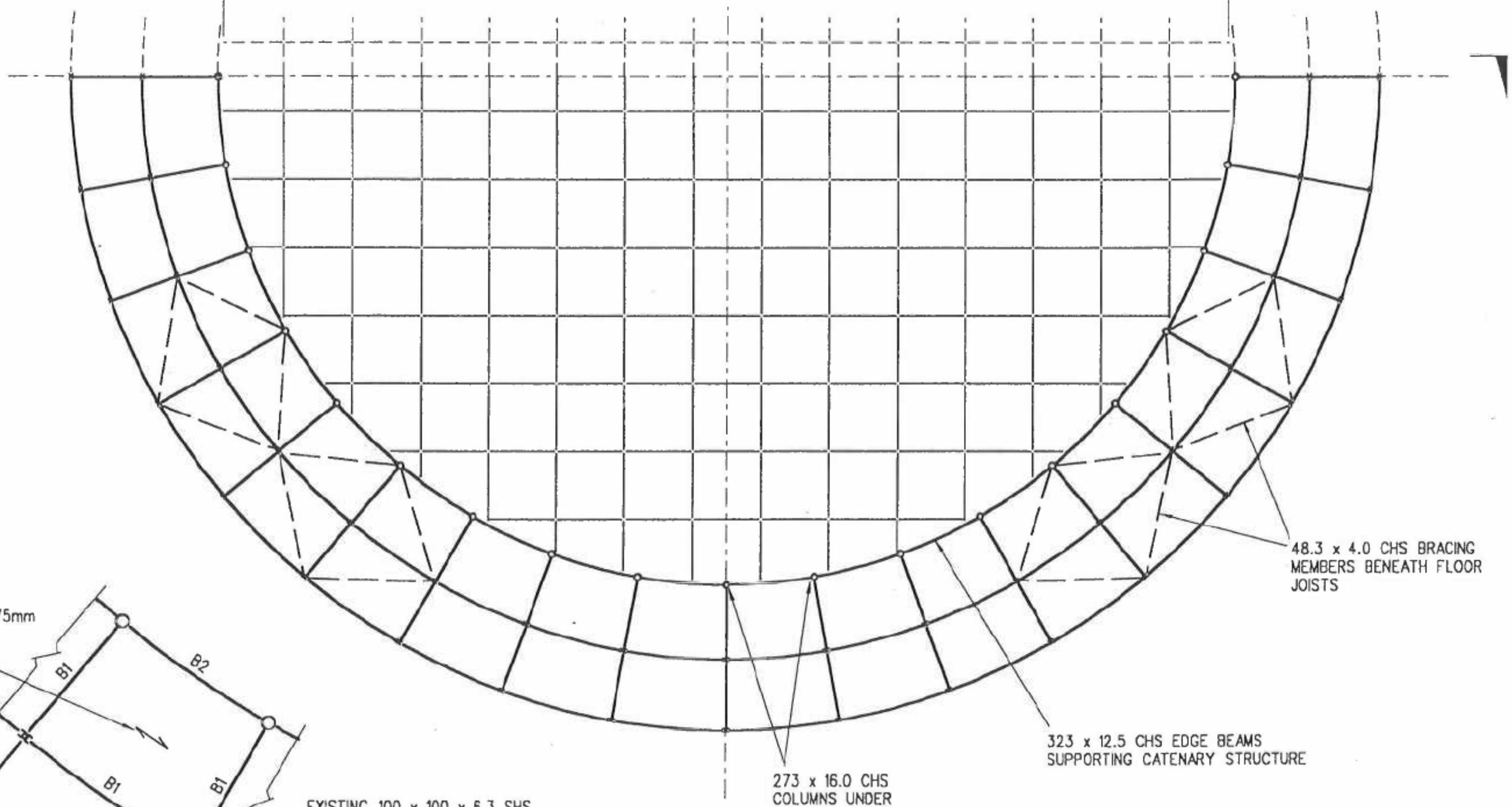
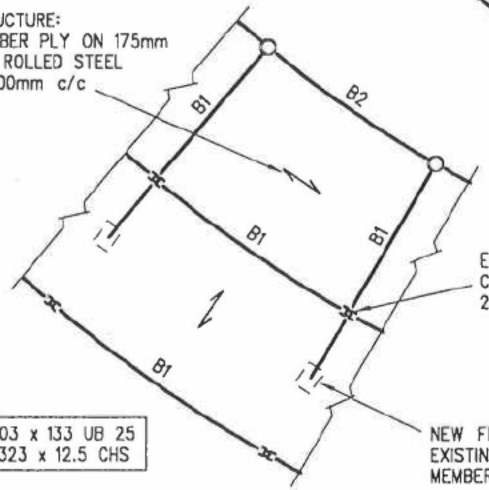
PLOT DATE 15 JUN 1999



PLAN



B1 - NEW 203 x 133 UB 25
B2 - NEW 323 x 12.5 CHS

TYPICAL BAY (1:100)

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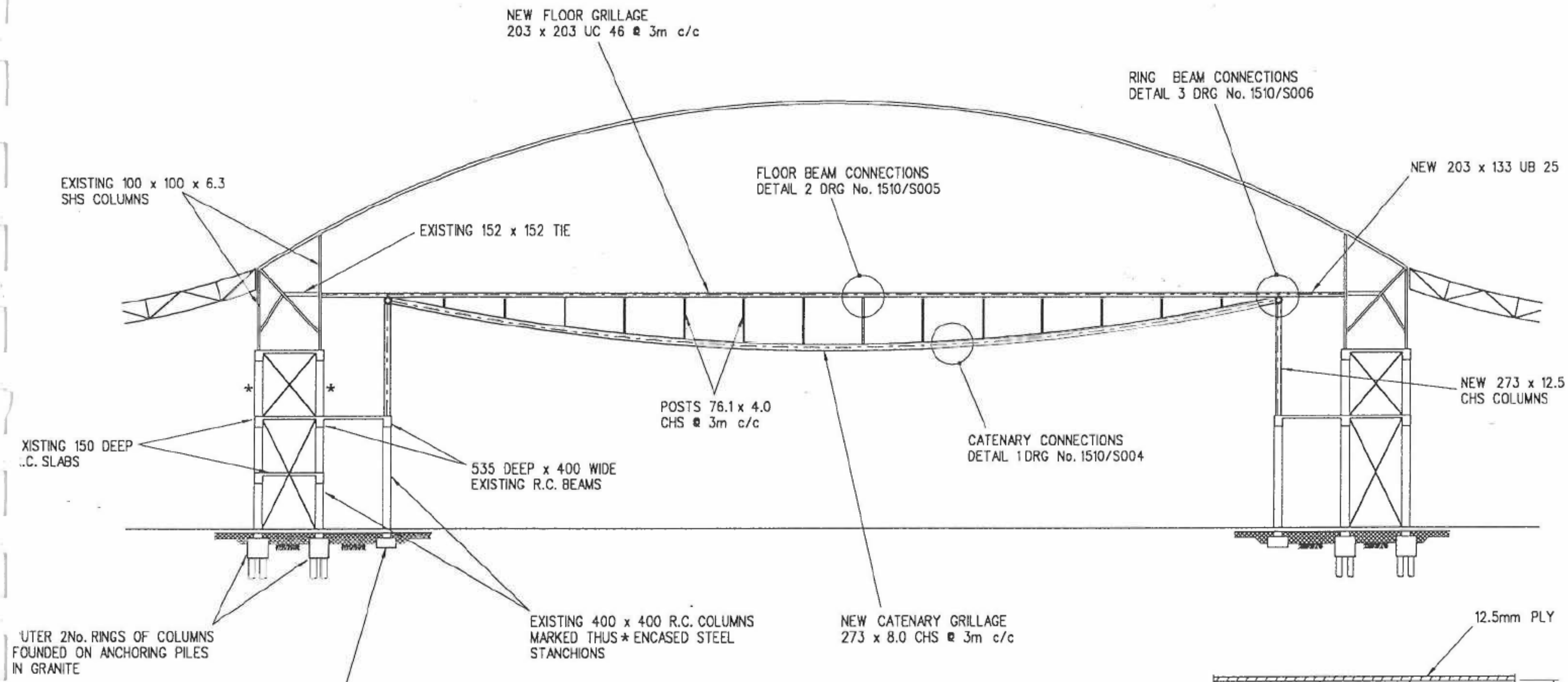
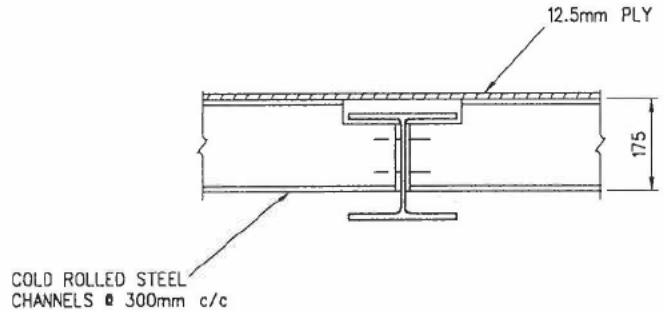
PLOT DATE 15 JUN 1999



SECTION 1 - 1



TYPICAL FLOOR BUILD UP (1:10)

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PROJECT FORT REGENT REDEVELOPMENT
JERSEY SPORTS VILLAGE

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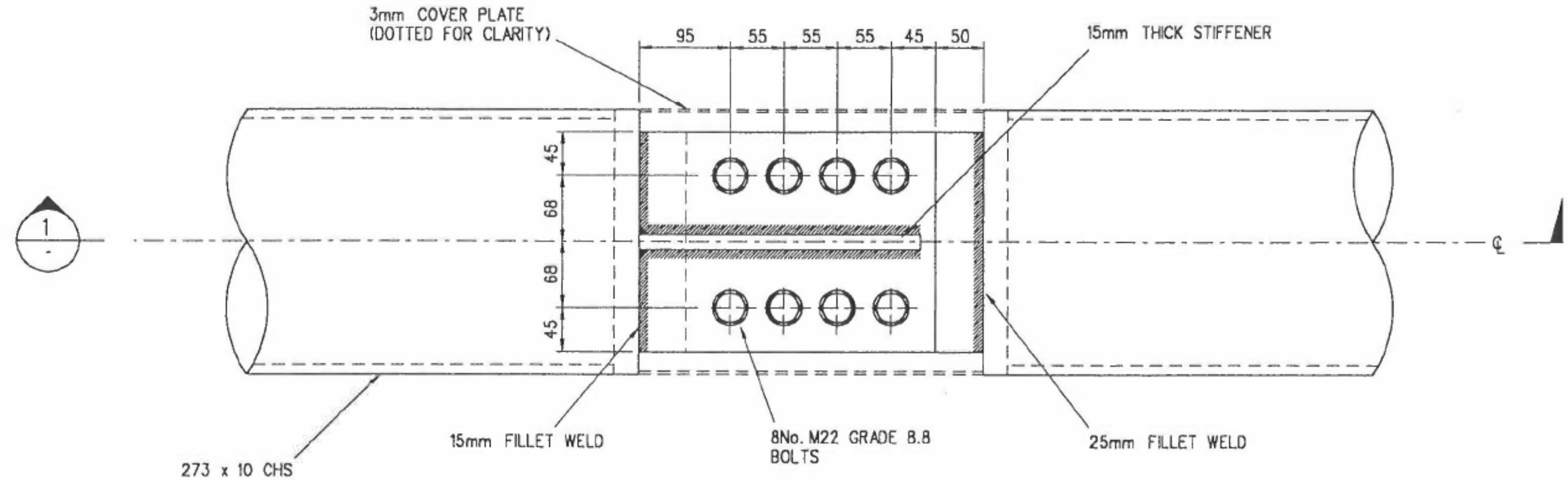

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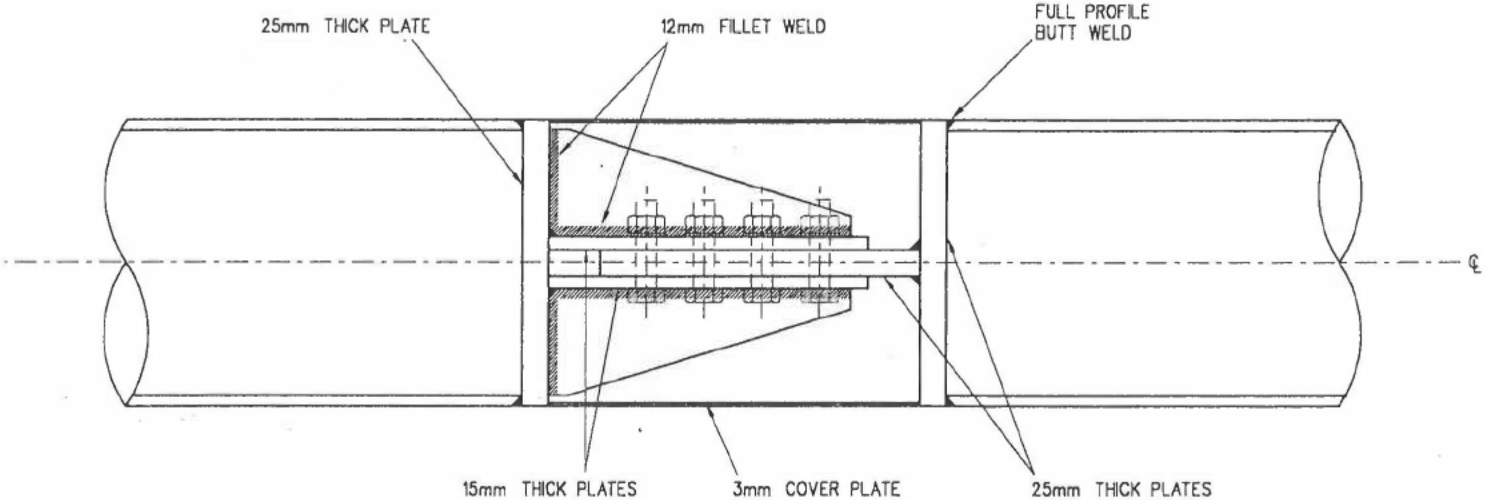

SECTION 1 - 1

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PROJECT FORT REGENT REDEVELOPMENT JERSEY SPORTS VILLAGE

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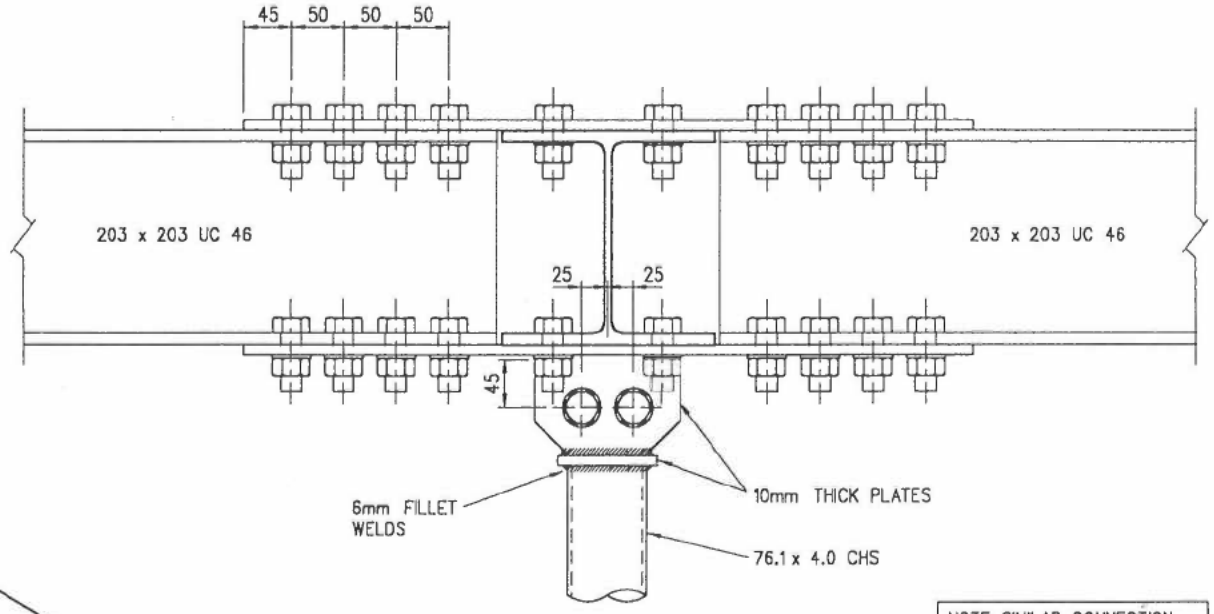
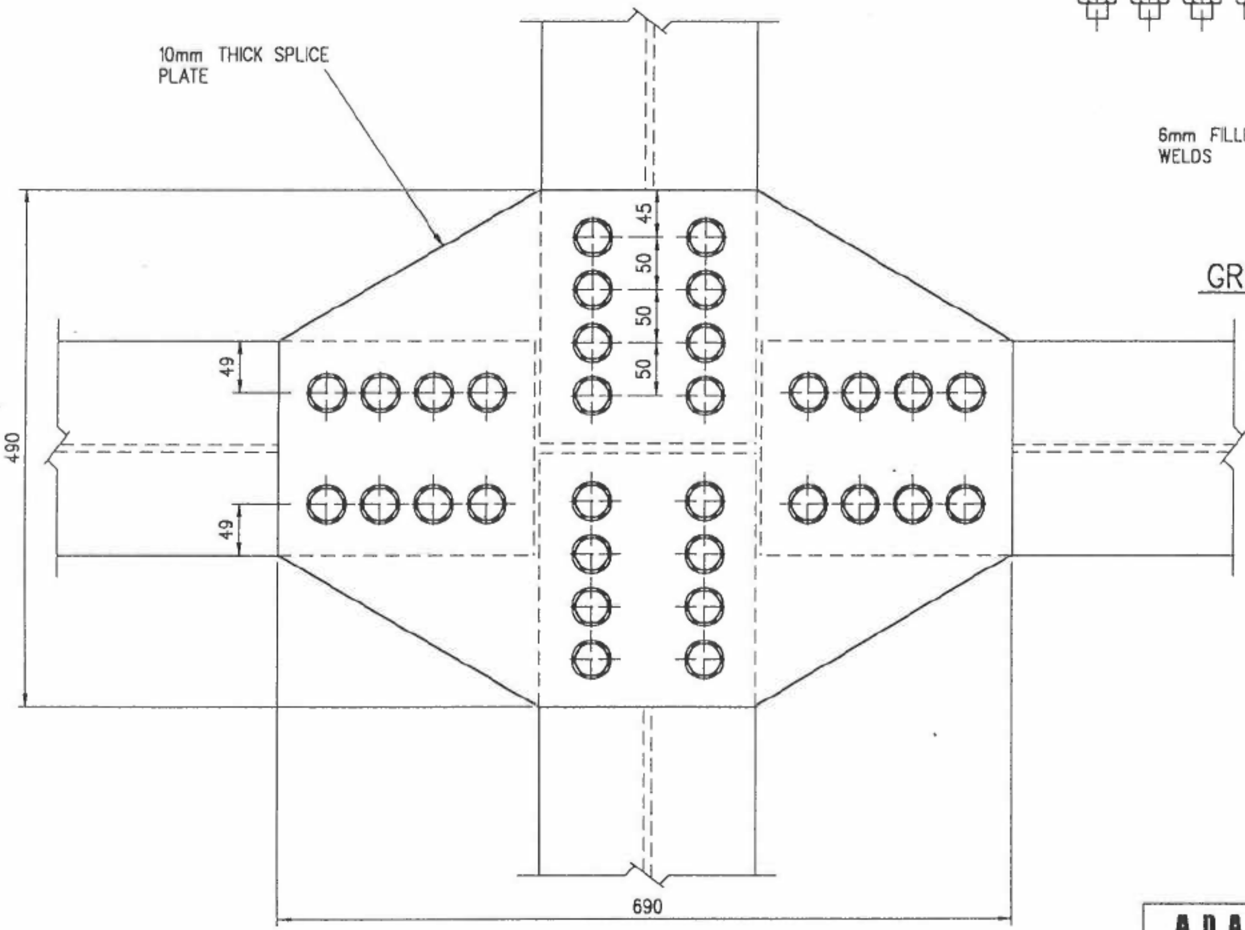
PLOT DATE 15 JUN 1999



GRILLAGE CONNECTION DETAIL

NOTE: SIMILAR CONNECTION DETAIL AT OPPOSITE END OF 76.1 x 4.0 CHS



SECTION 2 - 2

ALL BOLTS M20 GRADE 8.8

ALL STEEL GRADE S275

REV	DATE	DESCRIPTION	BY	CHECKED

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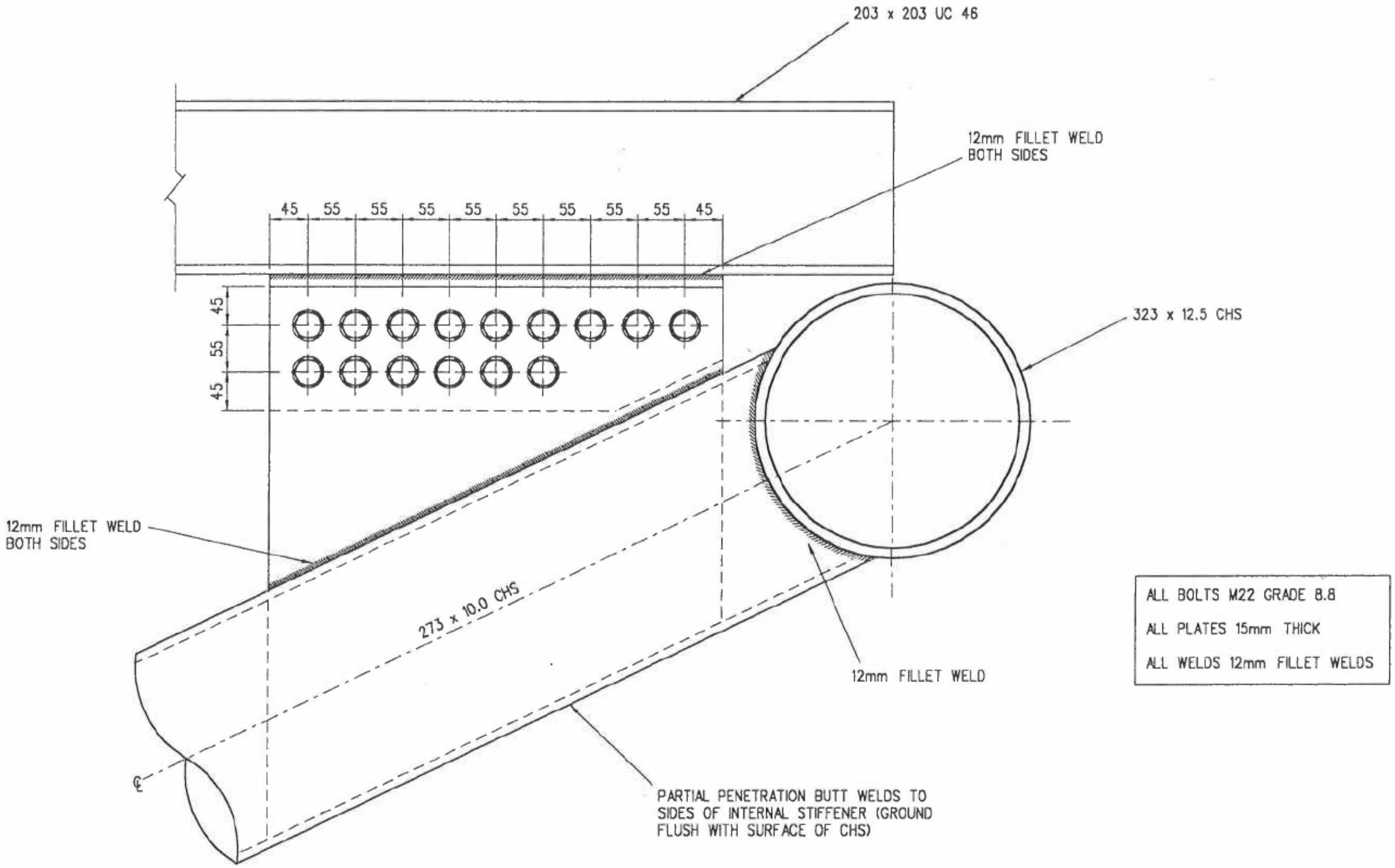
PROJECT FORT REGENT REDEVELOPMENT JERSEY SPORTS VILLAGE

DRAWN	SCALE	CAD FILENAME	DATE	CHECKED	STATUS
[redacted]	1:5	s005.plt	JUNE 1999	[redacted]	PRELIMINARY

TITLE	PROJECT No.	DRAWING No.	REVISION
ROTUNDA DETAILS SHEET 2	1510	S005	P1

PLOT DATE 15 JUN 1999



RING BEAM CONNECTION DETAIL

REV DATE DESCRIPTION BY CHECKED

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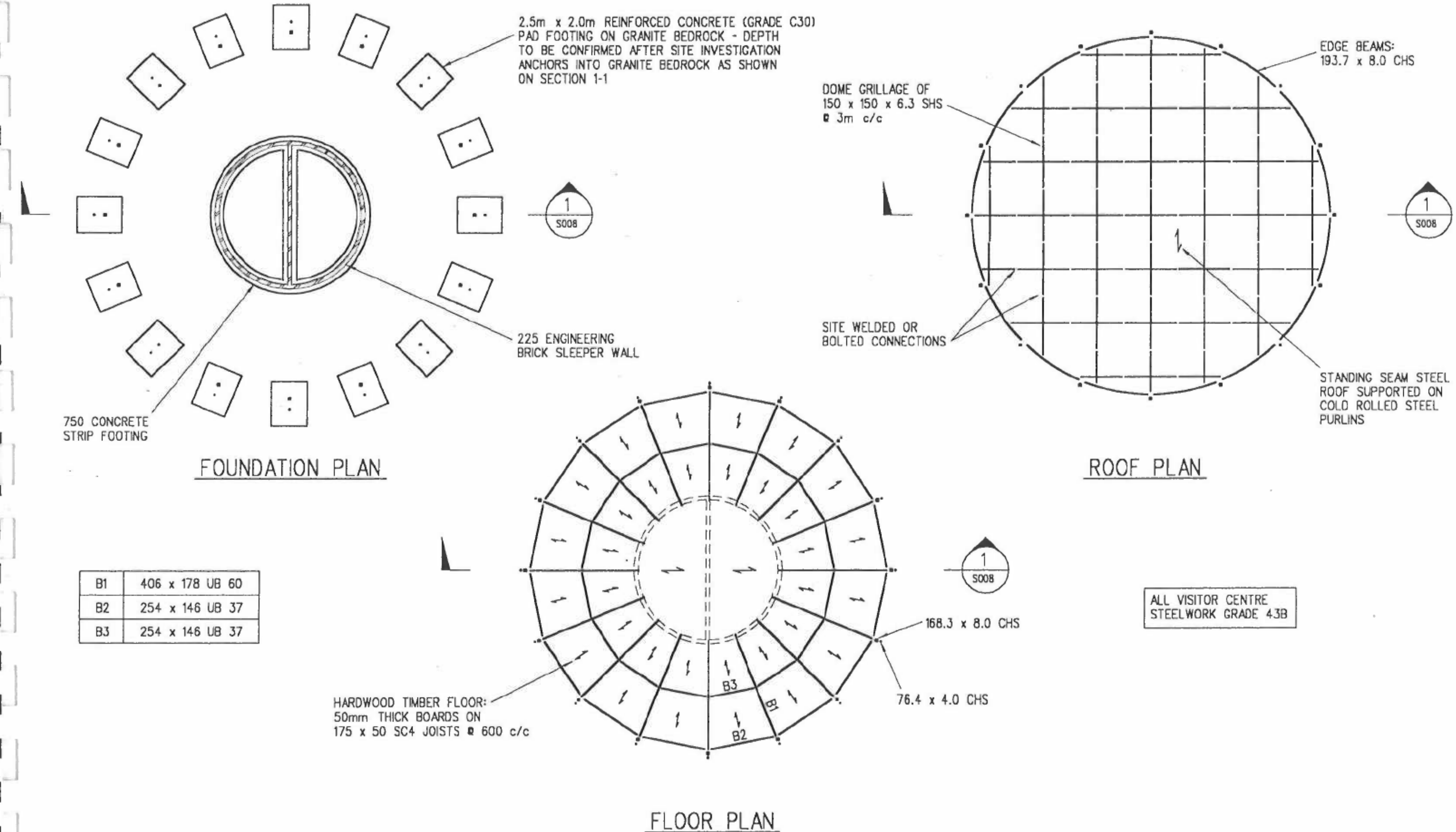
PROJECT: FORT REGENT REDEVELOPMENT JERSEY SPORTS VILLAGE

DRAWN	SCALE	CAD FILENAME	DATE	CHECKED	STATUS
[redacted]	1:5	s006.plt	JUNE 1999	[redacted]	PRELIMINARY

TITLE: ROTUNDA DETAILS SHEET 3

PROJECT No.	DRAWING No	REVISION
1510	S006	P1

PLOT DATE 15 JUN 1999



B1	406 x 178 UB 60
B2	254 x 146 UB 37
B3	254 x 146 UB 37

ALL VISITOR CENTRE STEELWORK GRADE 43B

REV DATE DESCRIPTION BY CHECKED

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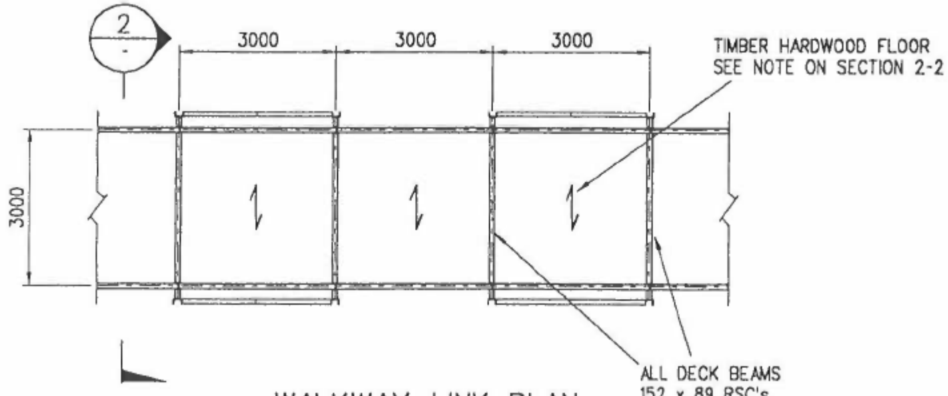
PROJECT: FORT REGENT REDEVELOPMENT JERSEY SPORTS VILLAGE

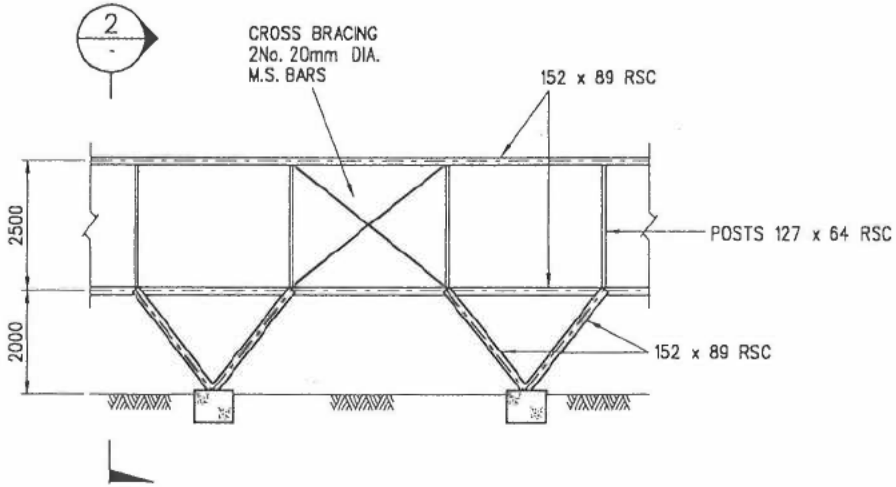
DRAWN	SCALE	CAD FILENAME	DATE	CHECKED	STATUS
[redacted]	1:200	s007.plt	JUNE 1999	[redacted]	PRELIMINARY

TITLE	PROJECT No.	DRAWING No	REVISION
VISITORS CENTRE GENERAL ARRANGEMENTS	1510	S007	P1

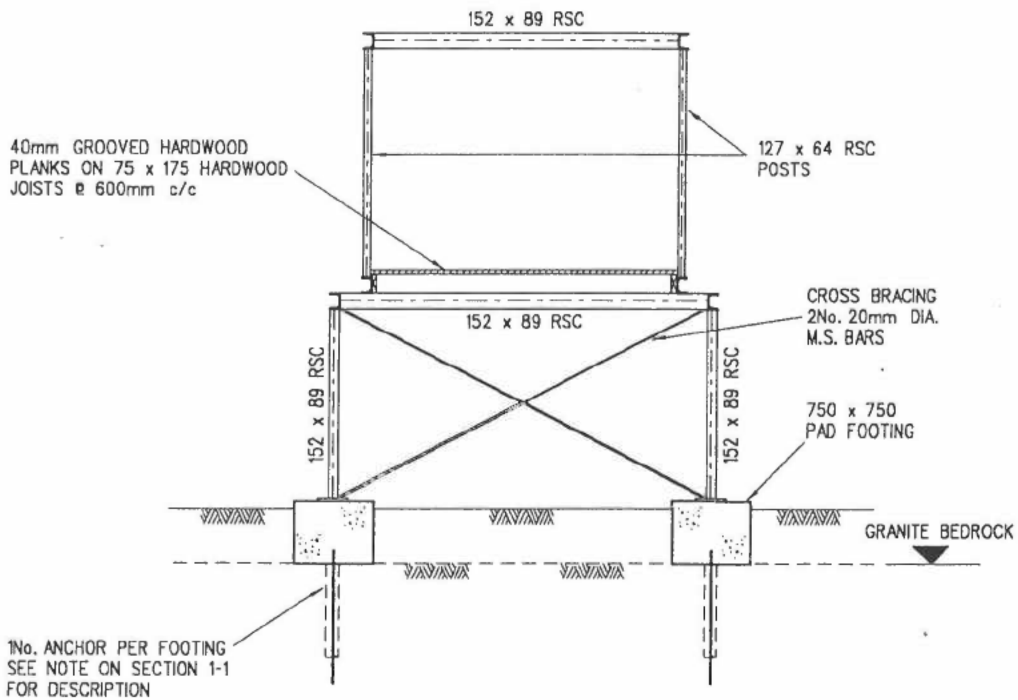
PLOT DATE 15 JUN 1999



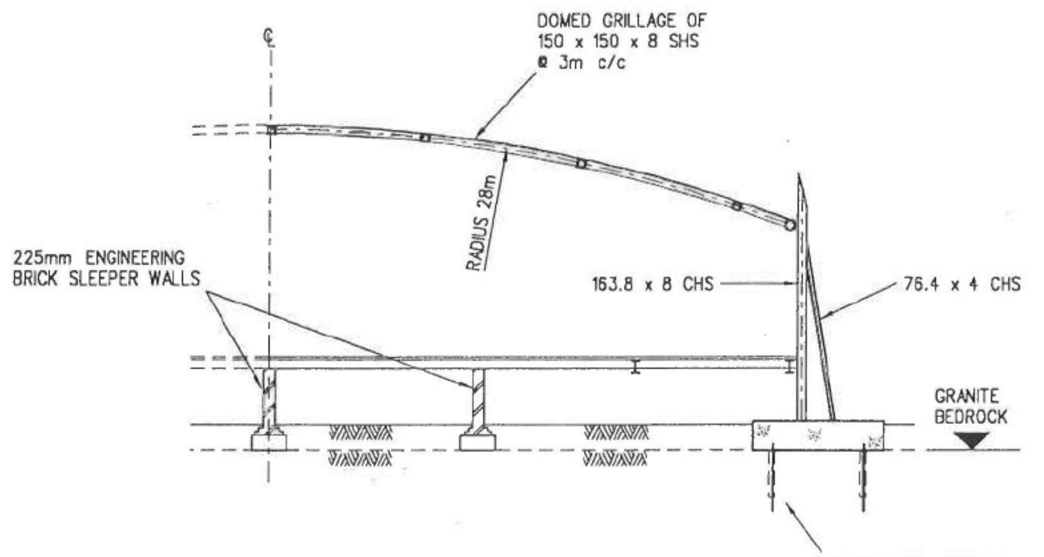
WALKWAY LINK PLAN



WALKWAY LINK ELEVATION



WALKWAY LINK SECTION 2 - 2 (1:50)



VISITOR CENTRE SECTION 1 - 1

REV	DATE	DESCRIPTION	BY	CHECKED

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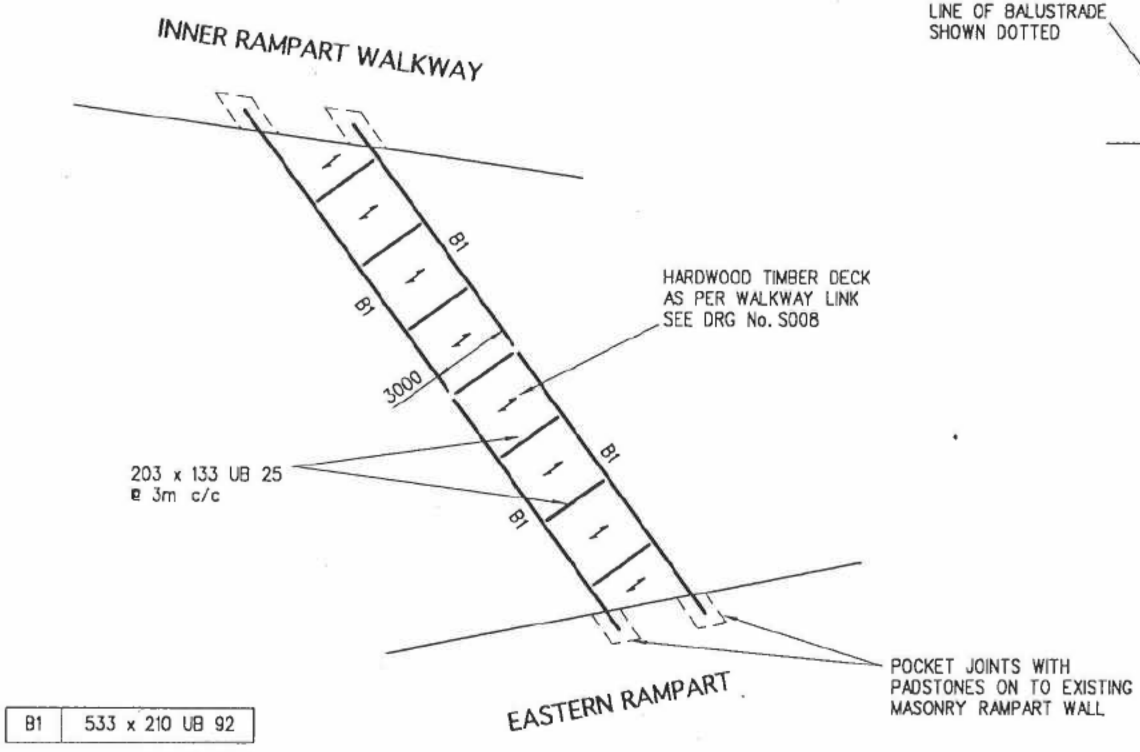
PROJECT: FORT REGENT REDEVELOPMENT
JERSEY SPORTS VILLAGE

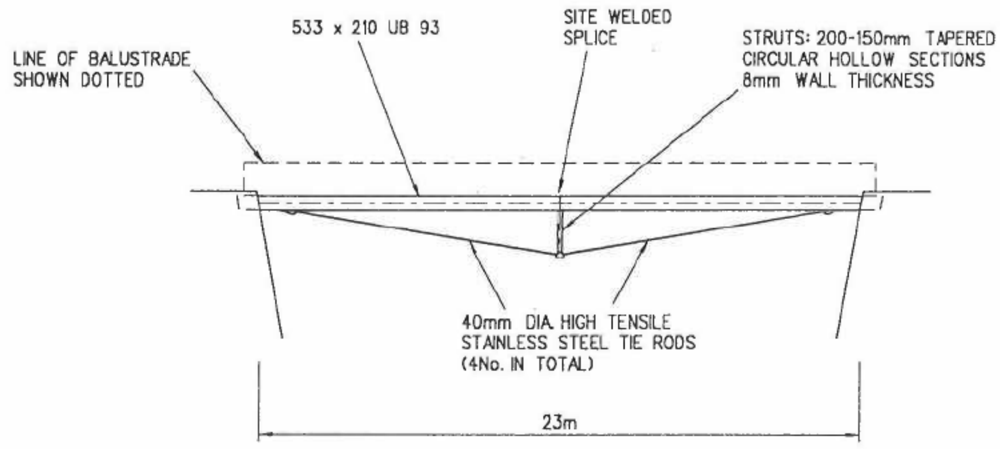
DRAWN	SCALE	CAD FILENAME	DATE	CHECKED	STATUS
[redacted]	1:100	s008.plt	JUNE 1999	[redacted]	PRELIMINARY

TITLE	PROJECT No.	DRAWING No	REVISION
WALKWAY LINK & VISITOR CENTER PLANS & SECTIONS	1510	S008	P1

PLOT DATE 15 JUN 1999



PLAN



ELEVATION

REV	DATE	DESCRIPTION	BY	CHECKED

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PROJECT FORT REGENT REDEVELOPMENT
JERSEY SPORTS VILLAGE

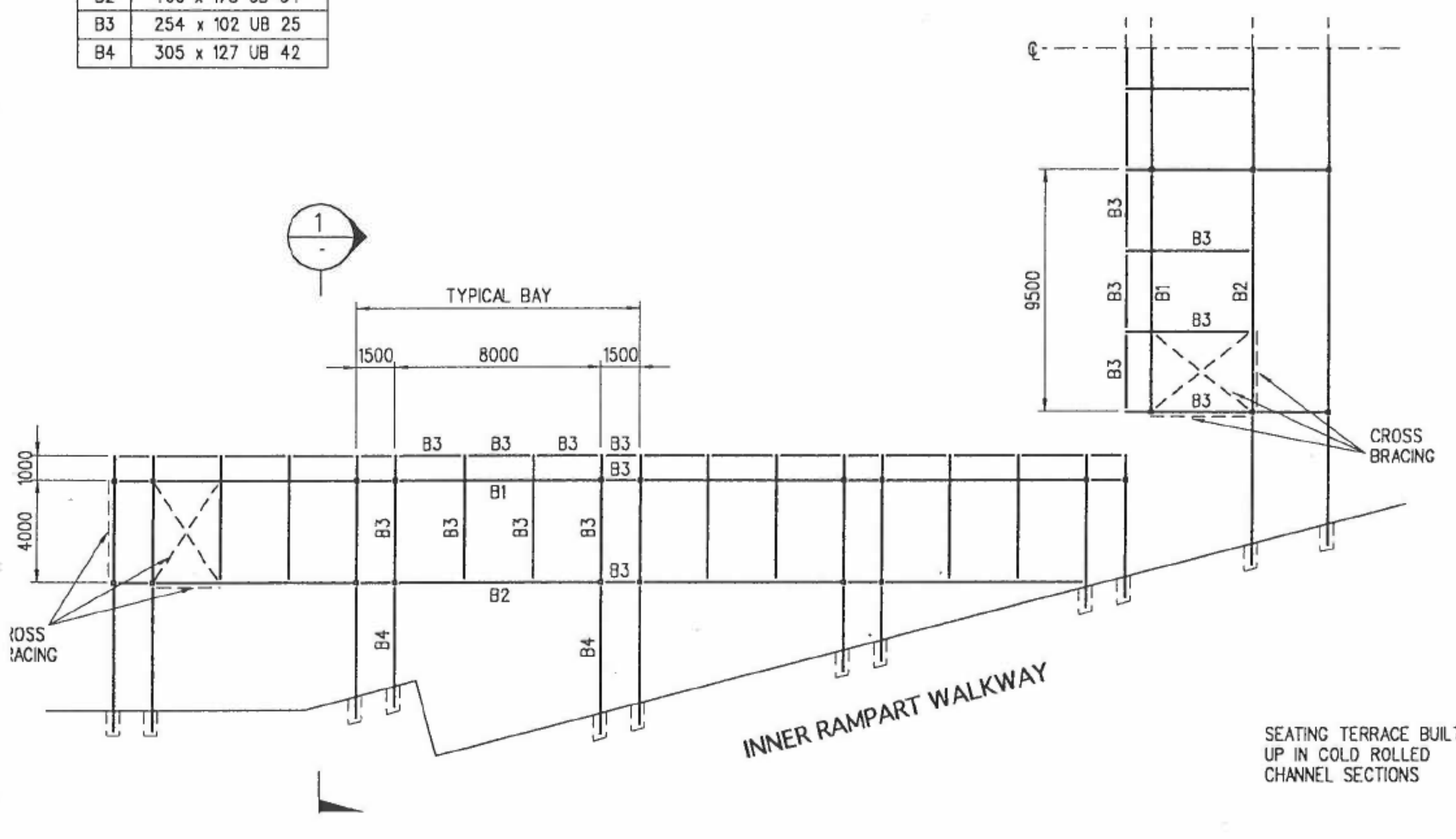
DRAWN	SCALE	CAD FILENAME	DATE	CHECKED	STATUS
[redacted]	1:200	s009.plt	JUNE 1999	[redacted]	PRELIMINARY

TITLE INTERNAL BRIDGE LINK

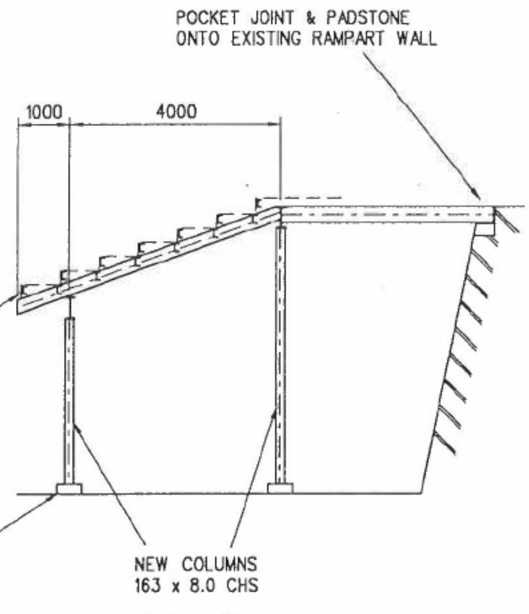
PROJECT No.	DRAWING No	REVISION
1510	S009	P1

PLOT DATE 15 JUN 1999

B1	406 x 178 UB 60
B2	406 x 178 UB 54
B3	254 x 102 UB 25
B4	305 x 127 UB 42



PLAN



SECTION 1 - 1 (1:100)

REV	DATE	DESCRIPTION	BY	CHECKED

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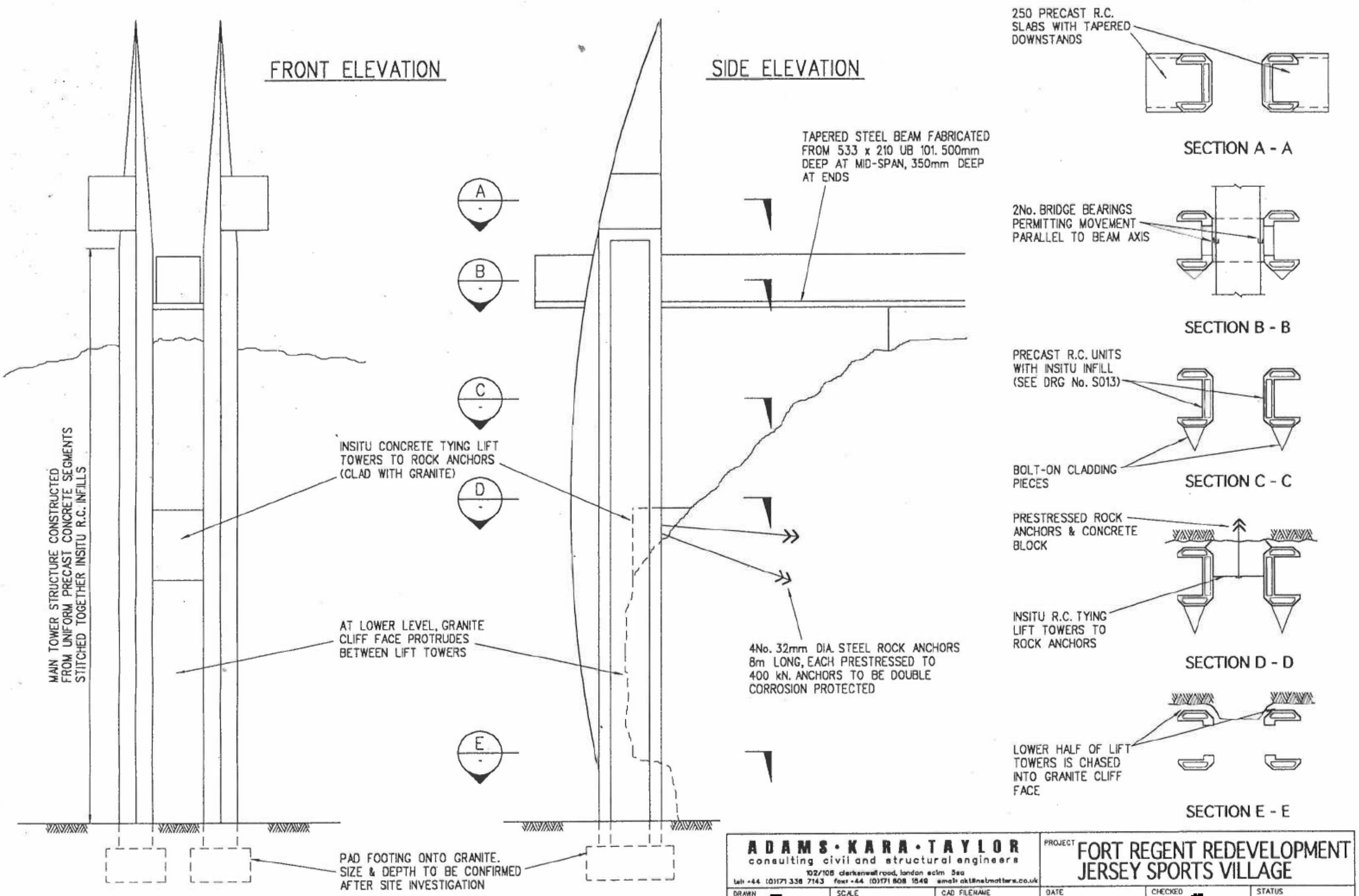
PROJECT FORT REGENT REDEVELOPMENT JERSEY SPORTS VILLAGE

DRAWN	SCALE	CAD FILENAME	DATE	CHECKED	STATUS
[redacted]	1:200	s010.plt	JUNE 1999	[redacted]	PRELIMINARY

TITLE NEW TIERED SEATING G.A. & SECTION

PROJECT No.	DRAWING No	REVISION
1510	S010	P1

PLOT DATE 15 JUN 1999



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PROJECT: FORT REGENT REDEVELOPMENT JERSEY SPORTS VILLAGE

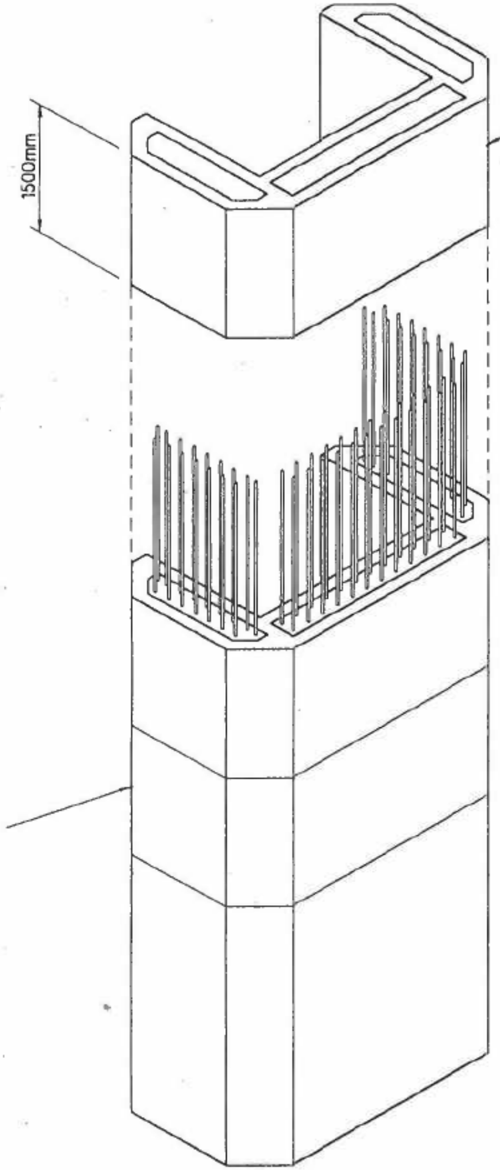
DRAWN	SCALE	CAD FILENAME	DATE	CHECKED	STATUS
[redacted]	1:200	s011.plt	JUNE 1999	[redacted]	PRELIMINARY

TITLE: LIFT TOWER ELEVATIONS & SECTIONS

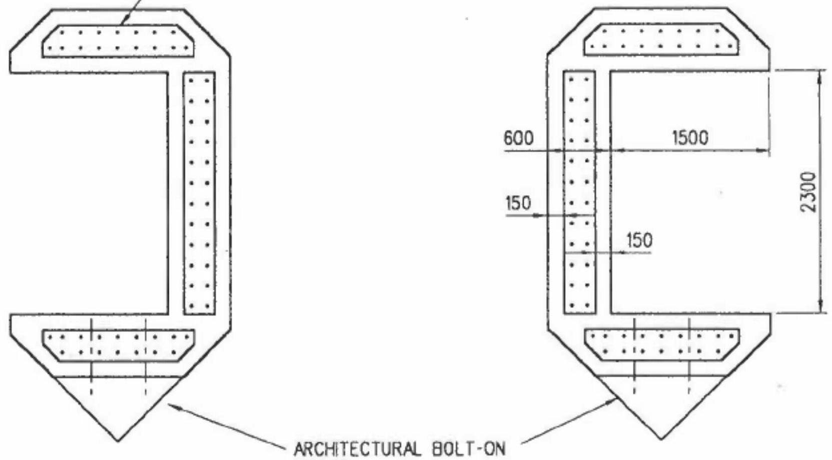
PROJECT No.	DRAWING No	REVISION
1510	S011	P1

REV	DATE	DESCRIPTION	BY	CHECKED

PLOT DATE 15 JUN 1999



TOWER ISOMETRIC



TYPICAL SECTION THROUGH TOWER STRUCTURE

REV	DATE	DESCRIPTION	BY	CHECKED

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PROJECT: FORT REGENT REDEVELOPMENT
JERSEY SPORTS VILLAGE

DRAWN	SCALE	CAD FILENAME	DATE	CHECKED	STATUS
[redacted]	1:50	s012.plt	JUNE 1999	[redacted]	PRELIMINARY

TITLE	PROJECT No.	DRAWING No	REVISION
LIFT TOWER STRUCTURAL CONCEPT	1510	S012	P1

PLOT DATE 15 JUN 1999