



GOVERNMENT OF BERMUDA
Ministry of Public Works

Department of Public Lands and Buildings

P.O. Box HM51364 Hamilton HMEK Bermuda
Phone: (441) 295-5151 Fax: (441) 295-5658

GENERAL NOTES:

1. SURVEY GRID IS BNG2000 IMPERIAL.
2. LEVELS ARE IN FEET ABOVE ORDINANCE DATUM.
3. CONTOUR DATA FROM 2020 LIDAR.
4. DETAIL NEAR HORTICULTURAL HALL ADOPTED FROM 48320103 DWG.
5. ALL OTHER TOPOGRAPHIC DETAIL FROM 2012 TMD.
6. SLAT HOUSE INTERIOR AND EASTERN ENTRANCE FROM LASER SCAN POINT CLOUD.



Location Plan Scale 1" = 250'



THIS PLAN MUST NOT BE ALTERED IN ANY WAY UNLESS AUTHORIZED BY THE SENIOR LAND SURVEYOR. ONLY AUTHENTICATED COPIES OF THIS PLAN SHOULD BE USED. © COPYRIGHT - BERMUDA GOVERNMENT

ISSUED FOR:

AMENDMENTS:	NO:	REVISION	APP	DATE:

SCALE: 1" = 20'

SURVEY PREPARED BY: DATE:

DESIGN PREPARED BY: DATE:

CHECKED BY: DATE:

DRAWING PREPARED BY: DATE:

CHECKED BY: DATE:

APPROVED BY: S. PATTERSON - SENIOR LAND SURVEYOR

PROJECT NUMBER: 30/243/14 TASK 240028

PROJECT NAME:

EXOTIC AND CACTUS HOUSE TOPO BOTANICAL GARDENS SOUTH ROAD PAGET

DRAWING FILE NO: CIVIL 3D 2019
PIMS\SURVEY\PROJECTS\3024314\483201005

SHEET TITLE: TOPOGRAPHIC SURVEY

SHEET NUMBER: 4832/010/05





CACTI HOUSE REDEVELOPMENT PROJECT

**THE MINISTRY OF
PUBLIC WORKS**

P. O. Box HM525
Hamilton HMCK, Bermuda
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**DEPARTMENT OF
WORKS AND ENGINEERING**

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EXCERPT



ENGINEERING SERVICES
25 Commercial Road, Hamilton HM11
 Phone: (441) 295-5654
 Email: info@iepc.com
 www.iepc.com

ISSUED FOR: PERMIT

AMENDMENTS:		BY / APP DATE	
NO	REVISION	OF	DATE
A	FOR PERMIT	1	03-28/24

SCALE: AS SHOWN AT ANS D

SURVEY
 PREPARED BY: _____ DATE: _____

DESIGN
 PREPARED BY: J. DILL DATE: 08/13/24
 CHECKED BY: _____ DATE: _____

DRAWING
 PREPARED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

PROJECT NUMBER:
09010030

PROJECT NAME:

**CACTI HOUSE
REDEVELOPMENT PROJECT
2024**

SHEET TITLE:
PROJECT LOCATION

SHEET NUMBER:	REVISION
L-000	0



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ENGINEERING SERVICES
25 Imperial Road, Pembroke HM 17
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AMENDMENTS:		BY		APP	DATE
NO	REVISION				
A	FOR PERMIT				03-28/24

SCALE: AS SHOWN AT ANS D

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CHECKED BY: _____ DATE: _____

DRAWING
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CHECKED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

PROJECT NUMBER:
09010030

PROJECT NAME:

**CACTI HOUSE
REDEVELOPMENT PROJECT
2024**

SHEET TITLE:
PROJECT AREA OF WORK

SHEET NUMBER: L-001	REVISION: 0
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GENERAL NOTES:

1. ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ANY OTHER WRITTEN INSTRUCTIONS ISSUED.
2. WHERE APPROVAL IS REQUIRED, THIS SHALL BE OF THE DESIGNING ENGINEER AND/OR REPRESENTATIVE.
3. ANY AMBIGUITY OR DISCREPANCY SHALL BE REFERRED FOR CLARIFICATION AT THE TENDERING STAGE AND APPROVAL GAINED FROM THE DESIGNING ENGINEER/REPRESENTATIVE .
2. DIMENSIONS ARE IN PRESENTED MILLIMETERS WITH EQUIVALENT FOOT/INCH VALUE SHOWN IN BRACKETS.
EXAMPLE: 1000mm [3'-3 3/8"]
3. REFER TO THE DRAWING DIMENSIONS FOR SETTING OUT THE WORKS. HOWEVER, ALL EXISTING DIMENSIONS AND LEVELS ARE APPROXIMATE AND SHALL BE CONFIRMED BY THE CONTRACTOR ON SITE.
4. UNLESS NOTED OTHERWISE, ALL LEVELS ARE IN METRES (m)
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STABILITY OF THE STRUCTURE UNTIL ITS COMPLETION AND SHALL ENSURE THAT NO PART OF THE STRUCTURE IS OVERSTRESSED DURING THE WORKS.
6. WHERE STANDARDS ARE REFERRED TO, THEY SHALL BE THE LATEST EDITION.
7. PROPRIETARY ITEMS, PROPOSED BY THE CONTRACTOR, ARE TO BE APPROVED EQUALS, REVIEWED AND APPROVED BY THE DESIGNING ENGINEER PRIOR AND INCLUDED WITHIN SUBMITTED TENDERS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING WORK AREAS.
9. ALL DEMOLITION SHALL BE IN AN ACCEPTABLE MANNER UNDER THE OCCUPATIONAL HEALTH AND SAFETY REGULATIONS 2009. ALL SURPLUS MATERIAL SHALL BE DISPOSED OF OFF SITE IN A LEGAL MANNER.

SITE PROTECTION NOTES

1. THE CONTRACTOR SHALL INSTALL SITE PROTECTION AS APPROVED BY THE PROJECT MANAGER PRIOR TO THE START OF CLEARING, DEMOLITION, GRADING OR OTHER CONSTRUCTION WORK.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL BURIED SERVICES WITH THE RELEVANT AUTHORITIES BEFORE UNDERTAKING EXCAVATION WORK ON SITE. ALL EXISTING PLANTS, SERVICES AND WALKWAY FINISHES ARE TO REMAIN UNLESS NOTED OTHERWISE.
3. THE CONTRACTOR SHALL PROTECT ALL EXISTING TREES, PLANTS AND PLANTING BED SURFACES FROM CONSTRUCTION ACTIVITY. THIS INCLUDES PROTECTION FROM DAMAGE CAUSED BY RUNOFF OR SPILLAGE OF CONSTRUCTION MATERIALS AND OR FROM ADJACENT CONSTRUCTION ACTIVITIES.
4. ALL DEMOLITION AND EXCAVATION WITHIN TREE DRIP LINES AND SITE PROTECTION AREAS SHALL BE ACCOMPLISHED BY HAND OR AIR EXCAVATION TOOLS.
5. THE CONTRACTOR SHALL PROTECT TREE AND PLANT ROOT SYSTEMS FROM DAMAGE CAUSED BY RUNOFF OR SPILLAGE OF CONSTRUCTION MATERIALS AS WELL AS FROM CONSTRUCTION ACTIVITIES.
6. THE CONTRACTOR SHALL PROTECT TREE AND PLANT ROOT SYSTEMS FROM FLOODING, ERODING, OR EXCESSIVE WETTING CAUSED BY CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL NOT DISTURB, OPERATE VEHICLES OR EQUIPMENT, STORE MATERIALS, OR PERMIT FOOT TRAFFIC WITHIN TREE PROTECTION AND PLANT BED AREAS.
8. THE CONTRACTOR SHALL KEEP PLANT BEDS AND TREE PROTECTION AREAS FREE FROM LITTER AND DEBRIS.
9. THE CONTRACTOR SHALL FIELD VERIFY ALL POST LOCATIONS AND PROMPTLY NOTIFY THE PROJECT MANAGER OF ANY DISCREPANCIES OR CONSTRUCTION CONFLICTS WITH EXISTING PLANTS, ROOT SYSTEMS OR PLANT PROTECTION AREAS PRIOR TO START OF CONSTRUCTION WORK. OBTAIN WRITTEN INSTRUCTION FROM THE PROJECT MANAGER PRIOR TO PROCEEDING WITH ANY CONSTRUCTION ACTIVITY WITHIN PLANT PROTECTION AREAS.
10. THE CONTRACTOR SHALL PROTECT EXISTING GRASSES, SOILS AND EARTHWORK FROM DAMAGE CAUSED BY COMPACTION, SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, EROSION, WASH OUT AND OTHER HAZARDS CREATED BY CONSTRUCTION ACTIVITY.

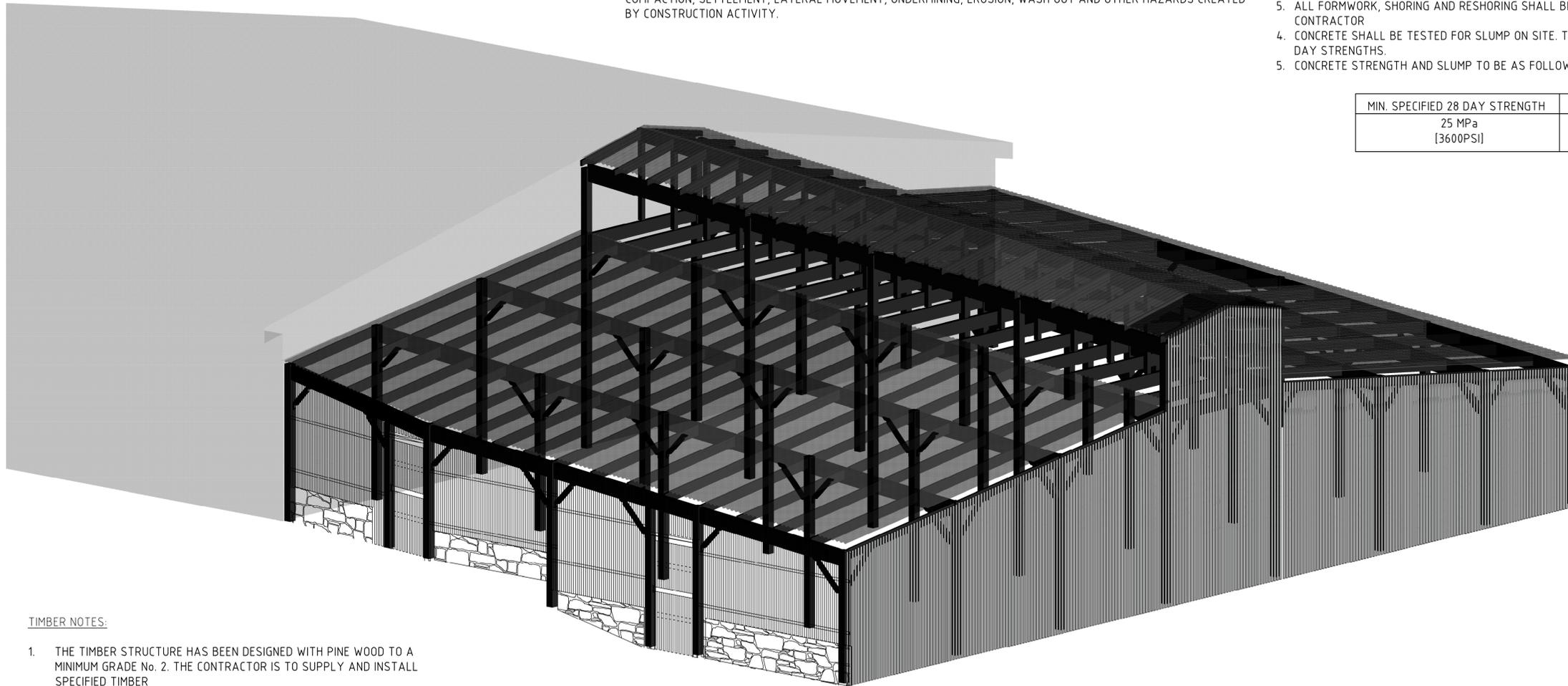
SITE / PLANT DAMAGE & REPAIR NOTES:

1. SHOULD EXISTING PLANTS BE DAMAGED DURING THE CONTRACT, THE CONTRACTOR WILL BE ASKED TO ARRANGE TO PRUNE, REPAIR OR REPLACE AS NECESSARY THOSE AFFECTED BY INADVERTENT ROOT LOSS OR DAMAGE.
2. THE CONTRACTOR SHALL ARRANGE TO REPAIR PLANTS DAMAGED BY CONSTRUCTION OPERATIONS WITHIN 24 HOURS AS DIRECTED BY THE PROJECT MANAGER.
3. THE CONTRACTOR SHALL REPLACE PLANTS DAMAGED BEYOND REPAIR AS DETERMINED BY THE PROJECT MANAGER WITH APPROVED EQUAL OR BETTER MATERIAL.
4. THE CONTRACTOR SHALL REINSTATE ALL GRASS AREAS DAMAGED BY CONSTRUCTION ACTIVITY AND VEHICLES AS DIRECTED BY THE PROJECT MANAGER.

CONCRETE NOTES:

1. CONCRETE SHALL COMPLY WITH THE FOLLOWING SPECIFICATION:
 - MINIMUM CONCRETE STRENGTH AT SERVICE F'c = 25 MPa [3600PSI]
 - MINIMUM CEMENT CONTENT = 440 Kg/m³ [28 lb/ft³]
 - MAXIMUM WATER/CEMENT RATIO = 0.5
2. CONCRETE MIX DESIGNS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
3. NO ADDITIVES TO BE USED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
4. CAST IN ITEMS WITH LESS THAN 25mm COVER TO ATMOSPHERE SHALL BE HOT DIPPED GALVANISED IN ACCORDANCE WITH ASTM A153.
5. ALL FORMWORK, SHORING AND RESHORING SHALL BE THE RESPONSIBILITY OF AND DESIGNED BY THE CONTRACTOR
4. CONCRETE SHALL BE TESTED FOR SLUMP ON SITE. THE TEST CYLINDERS SHALL BE TAKEN FOR 3, 7 AND 28 DAY STRENGTHS.
5. CONCRETE STRENGTH AND SLUMP TO BE AS FOLLOWS

MIN. SPECIFIED 28 DAY STRENGTH	SLUMP
25 MPa [3600PSI]	75mm ± 25mm [3" ± 1"]



ISOMETRIC VIEW OF NEW CACTI HOUSE

1/4" = 1'-0"

TIMBER NOTES:

1. THE TIMBER STRUCTURE HAS BEEN DESIGNED WITH PINE WOOD TO A MINIMUM GRADE No. 2. THE CONTRACTOR IS TO SUPPLY AND INSTALL SPECIFIED TIMBER
2. IF SPECIFIED TIMBER IS NOT AVAILABLE OR AN ALTERNATIVE WOOD IS PREFERRED, THE DESIGNING ENGINEER IS TO BE CONSULTED PRIOR TO PURCHASING, SUPPLY AND INSTALLATION.
3. 14 GAUGE WOOD SCREWS (6.2mm DIAMETER) ARE TO BE USED THROUGHOUT FOR WOOD ON WOOD CONNECTIONS.
4. TIMBER IS TO BE TREATED AND PROTECTED FOR OUTDOORS CONDITIONS.
5. PARKS DEPARTMENT TO BE CONSULTED ON CHOSEN PAINTING SPECIFICATIONS

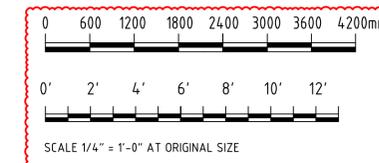
DESIGN NOTES:

1. THE DESIGN OF THE TIMBER STRUCTURE AS SHOWN IN THIS PACKAGE OF DRAWINGS IS BASED ON THE FOLLOWING PARAMETERS:

<u>LOADING</u>	
PERMANENT ROOF LOADING	= 0.1 kN/m ² (2.1 lbs/ft ²)
SERVICE LOADING*	= 0.25 kN/m ² (5.2 lbs/ft ²)
(*HANGING SERVICES SUCH AS CABLING AND MECHANICAL EQUIPMENT)	
LIVE LOADING	= 0.6 kN/m ² (12.5 lbs/ft ²)

ROOFING NOTES:

1. ROOF PANELING HAS BEEN DESIGNED AS PHASE-2 PVC CORRUGATED ROOF PANELS 4.2" x 1-1/16" CONFIGURATION (16 Oz./ft²). IF ALTERNATIVE ROOF CLADDING IS TO BE USED, CORRESPONDING TECHNICAL SPECIFICATIONS ARE TO BE SENT TO MPW ENGINEER FOR REVIEW DURING THE TENDERING PERIOD.
2. THE ROOF STRUCTURE HAS BEEN DESIGNED TO ALLOW HUMAN ACCESS FOR MAINTENANCE AND CLEANING. ADEQUATE AT-HEIGHT-PROTECTION TO BE EMPLOYED BY PERSONNEL WORKING ON THE ROOF.
3. UPPER HUT VERTICALS TO BE COVERED IN MESH TO MEET THE FOLLOWING SPECIFICATIONS:
 - 3.1. MESH DURABILITY: MARINE-GRADE (E.G. COATED, GALVANIZED OR PVC)
 - 3.2. MESH SIZE: SIZED TO PREVENT ACCESS BY SMALL BIRDS LIKE SPARROWS
 - 3.3. MESH OPENING SHAPE: DIAMOND, SQUARE OR RECTANGULAR SHAPES PERMITTED
 - 3.4. MESH COLOR: PROVIDE COLOR OPTIONS FOR CLIENT REVIEW AND SELECTION.



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ISSUED FOR: BUILDING PERMIT APPLICATION

AMENDMENTS:

NO	REVISION	BY	APP	DATE
A	FOR TENDER	CF	-	14/06/24
B	REVISED FOLLOWING DESIGN TEAM COMMENTS	CF	-	04/07/24
C	REVISED FOLLOWING DESIGN TEAM COMMENTS	CF	-	11/07/24
D	ISSUED FOR BUILDING PERMIT APPLICATION	CF	-	12/07/24
E	SCALES CHANGED AT REQUEST OF QS	CF	-	12/08/24

SCALE: AS SHOWN AT ANSI D

SURVEY
PREPARED BY: _____ DATE: _____

DESIGN
PREPARED BY: C.FRASER DATE: 14/06/24
CHECKED BY: _____ DATE: _____

DRAWING
PREPARED BY: C.FRASER DATE: 14/06/24
CHECKED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

PROJECT NUMBER: _____

PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

COPY FOR ESTIMATING

SHEET TITLE:
**GENERAL NOTES
PROPOSED DESIGN**

SHEET NUMBER: **S000** REVISION: **E**

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SCALE: AS SHOWN AT ANSI D

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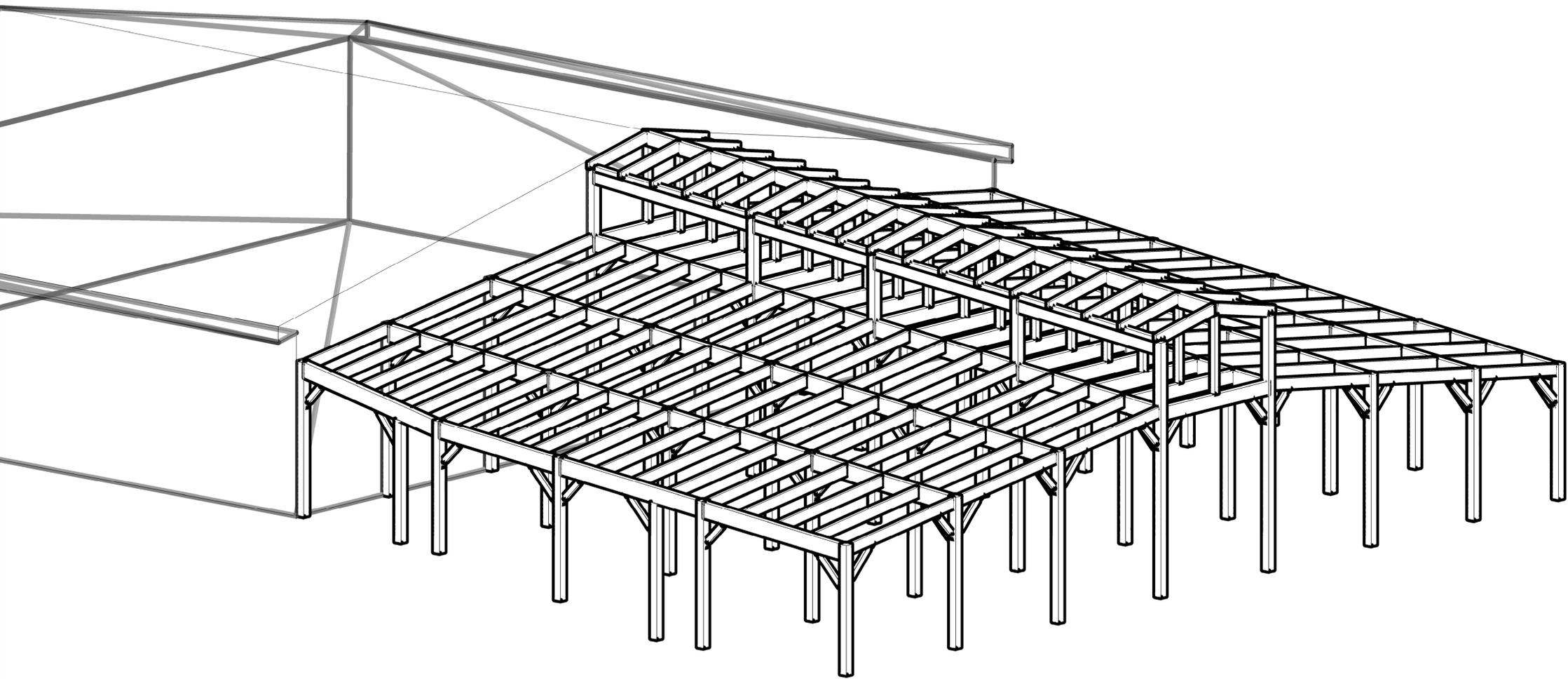
PROJECT NUMBER:
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PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

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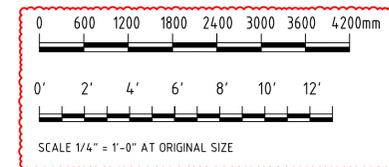
SHEET TITLE:
**3D VIEW
PROPOSED DESIGN**

SHEET NUMBER: **S001** REVISION: **D**



ISOMETRIC VIEW OF NEW CACTI HOUSE
TIMBER STRUCTURE ONLY
ROOF PANELS, PURLINS AND SIDE FENCING HIDDEN FOR CLARITY

1/4" = 1'-0"





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D	SCALES CHANGED AT REQUEST OF QS	CF	-	12/08/24
E	TANK SLABS ADDED	CF	-	30/08/24
F	TANK SLABS ADJUSTED	CF	-	25/03/25

SCALE: AS SHOWN AT ANSI D

SURVEY
PREPARED BY: _____ DATE: _____

DESIGN
PREPARED BY: C.FRASER DATE: 14/06/24
CHECKED BY: _____ DATE: _____

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PREPARED BY: C.FRASER DATE: 14/06/24
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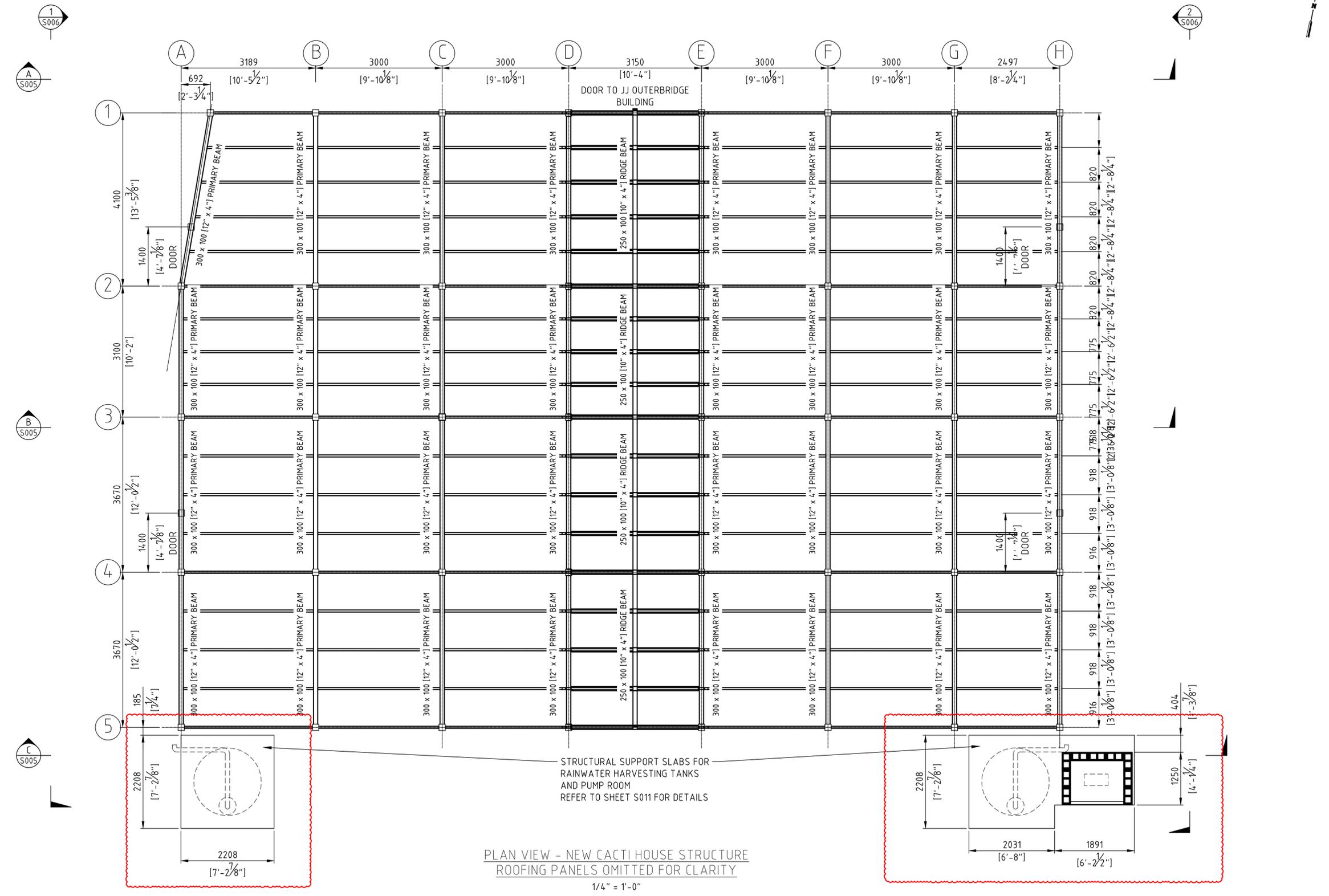
PROJECT NUMBER: _____

PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

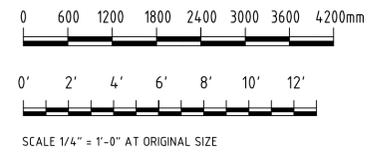
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SHEET TITLE:
**GENERAL ARRANGEMENT
ROOF LAYOUT**

SHEET NUMBER: **S002** REVISION: **F**



PLAN VIEW - NEW CACTI HOUSE STRUCTURE
ROOFING PANELS OMITTED FOR CLARITY
1/4" = 1'-0"





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F	TANK SLABS ADJUSTED	CF	-	25/03/25

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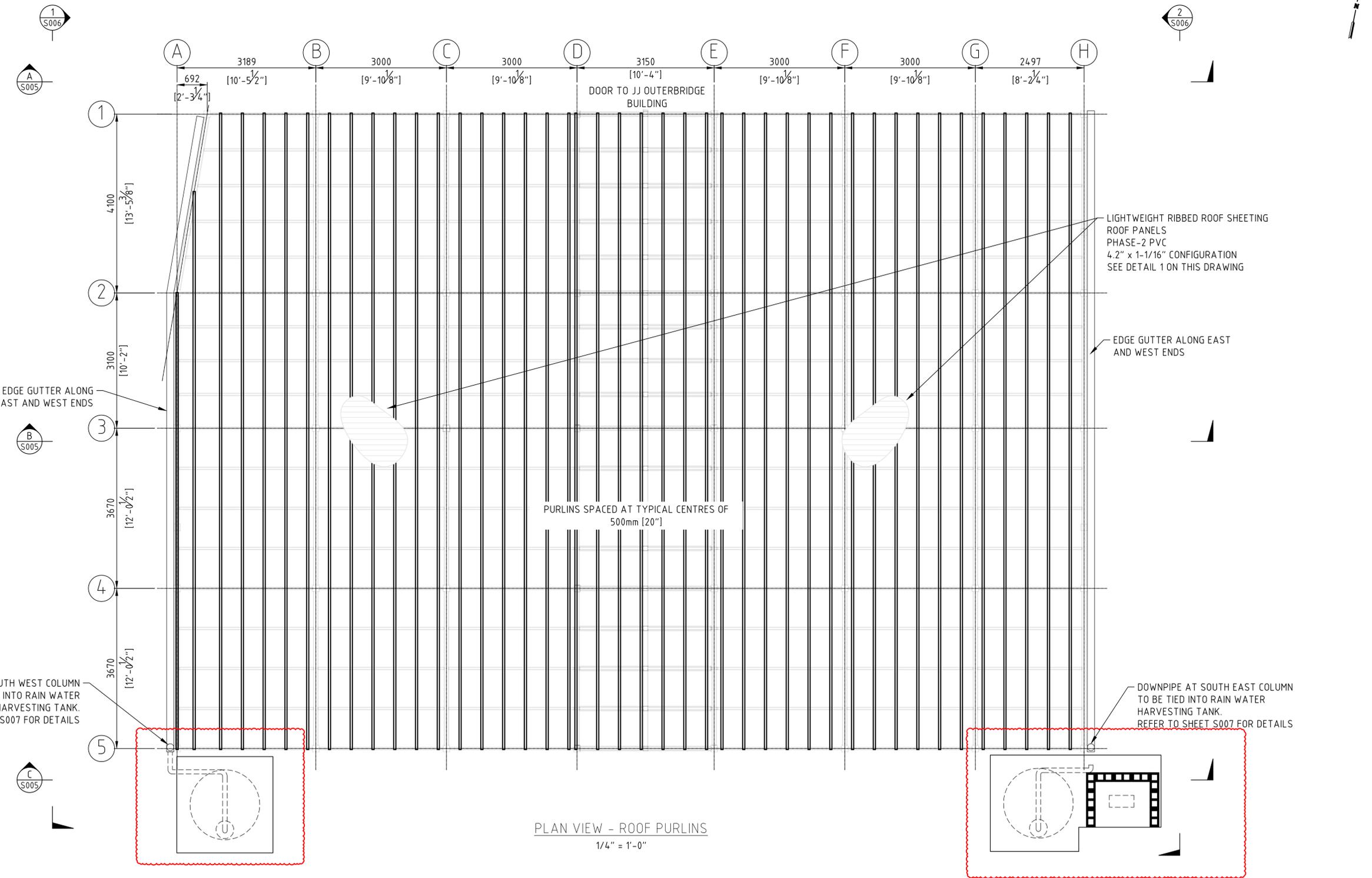
PROJECT NUMBER: _____

PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

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SHEET TITLE:
**GENERAL ARRANGEMENT
ROOF PURLIN LAYOUT**

SHEET NUMBER: **S003** REVISION: **F**



LIGHTWEIGHT RIBBED ROOF SHEETING
ROOF PANELS
PHASE-2 PVC
4.2" x 1-1/16" CONFIGURATION
SEE DETAIL 1 ON THIS DRAWING

DETAIL 1
TYPICAL PURLIN RAIL WITH
SHAPED CLADDING PROFILE
6" = 1'-0"

SECTION D-D
TYPICAL PURLIN RAIL SECTION SIZE
6" = 1'-0"



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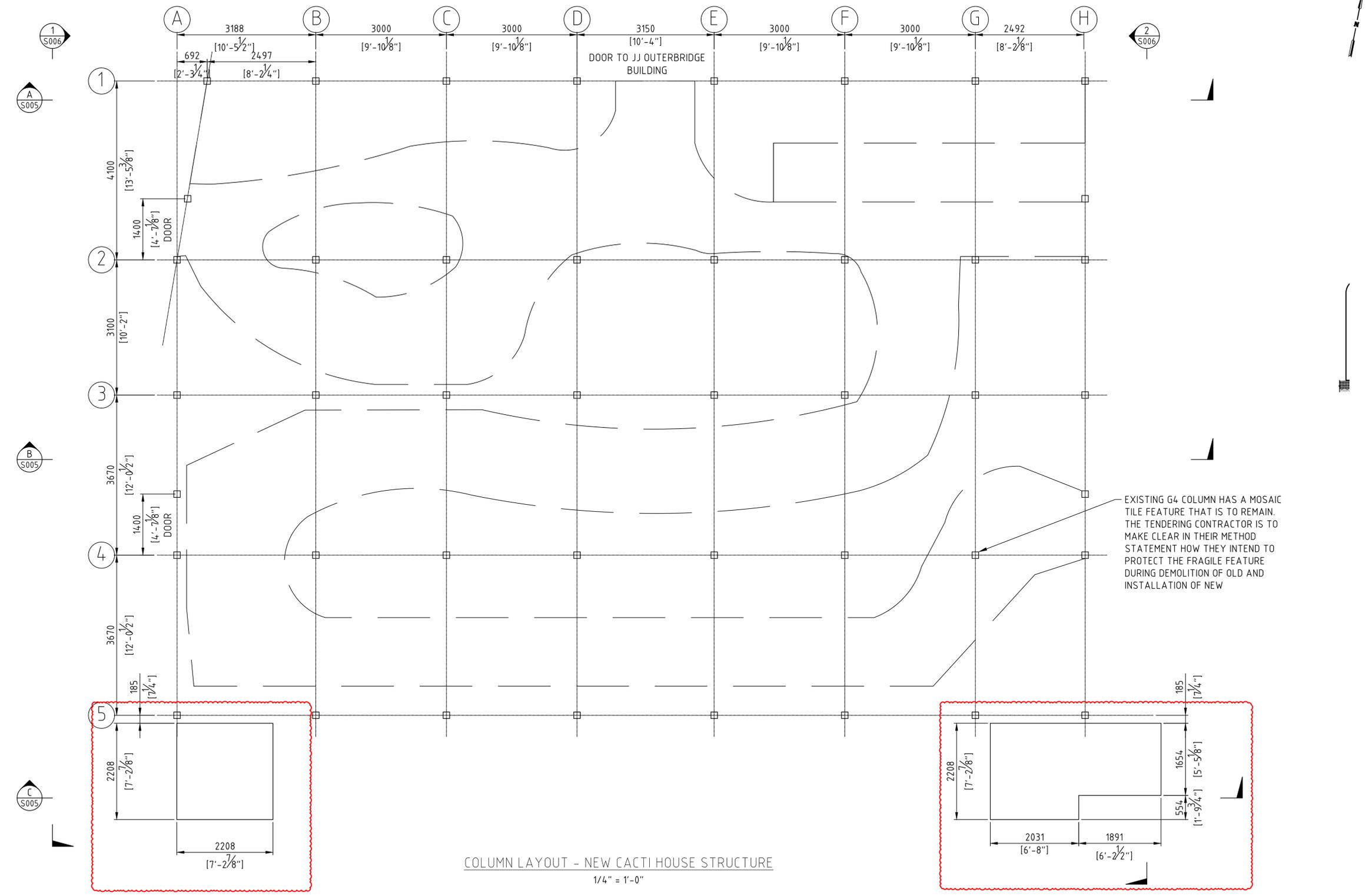
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**BOTANICAL GARDENS
CACTI HOUSE
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2024**

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SHEET TITLE:
**GENERAL ARRANGEMENT
COLUMN LAYOUT**

SHEET NUMBER: **S004** REVISION: **F**

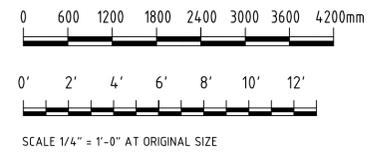


COLUMN LAYOUT - NEW CACTI HOUSE STRUCTURE
1/4" = 1'-0"

APPROXIMATE LAYOUT OF PLANTERS AND
PATHWAYS SHOWN BY DASHED LINETYPE.

ALL TIMBER COLUMNS ARE TO BE
150mm x 150mm [6" X 6"]
REFER TO SHEET S007 FOR FOUNDATION DETAILS

EXISTING G4 COLUMN HAS A MOSAIC
TILE FEATURE THAT IS TO REMAIN.
THE TENDERING CONTRACTOR IS TO
MAKE CLEAR IN THEIR METHOD
STATEMENT HOW THEY INTEND TO
PROTECT THE FRAGILE FEATURE
DURING DEMOLITION OF OLD AND
INSTALLATION OF NEW





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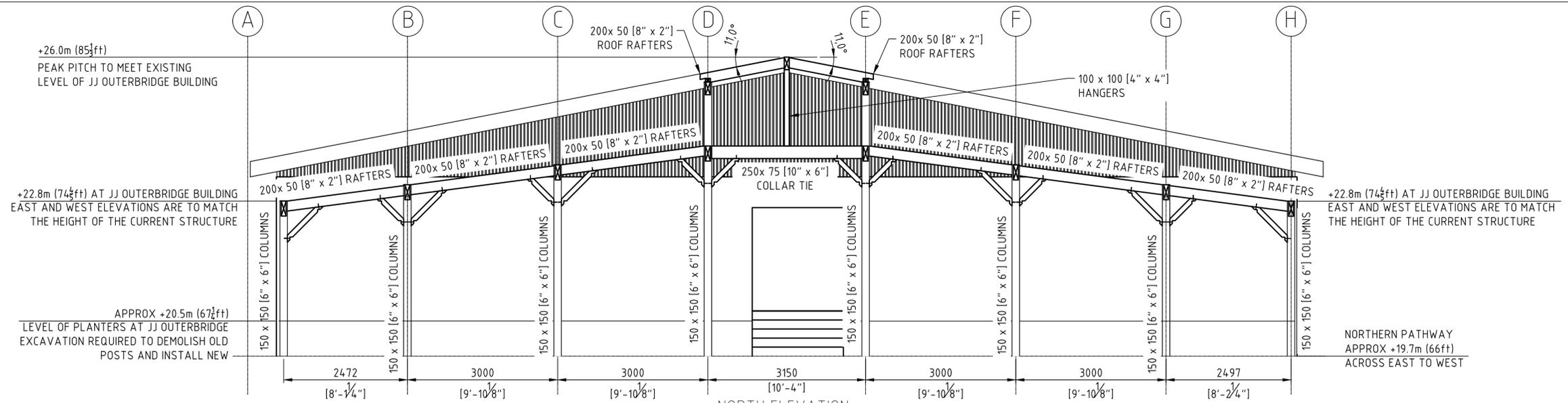
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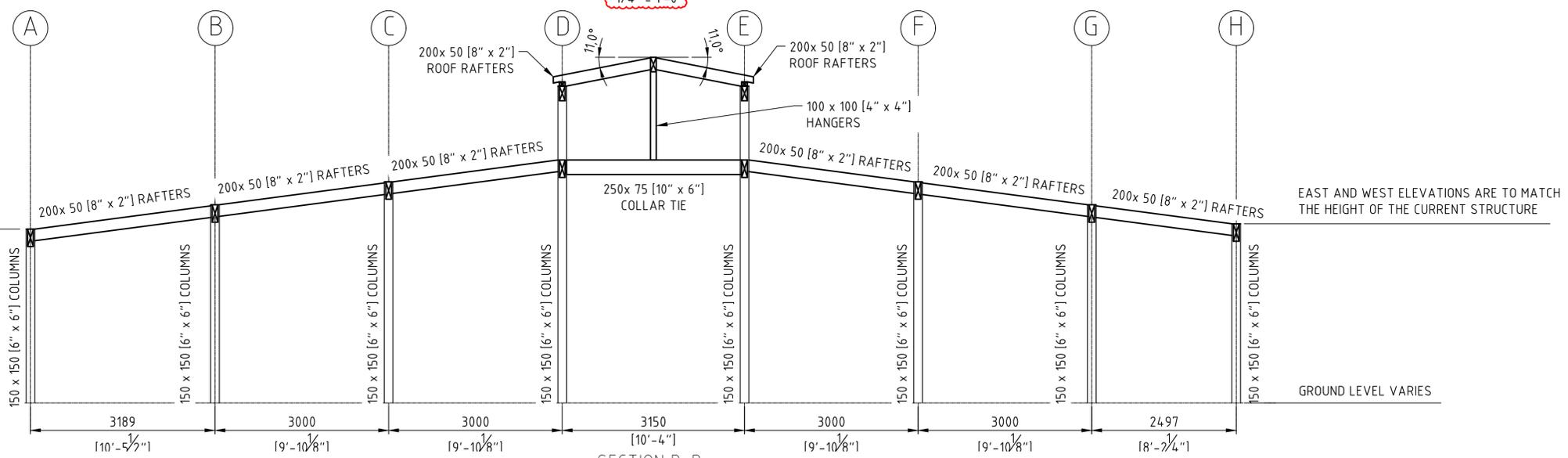
SHEET TITLE:
SECTION VIEWS

SHEET NUMBER: **S005** REVISION: **F**



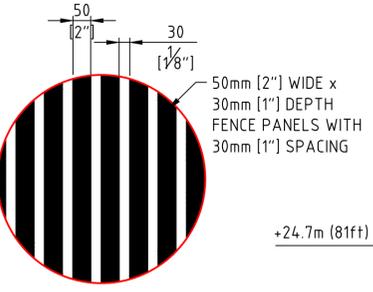
NORTH ELEVATION
ELEVATION A-A ON PLAN DRWGS
LOOKING AT ADJACENT JJ OUTERBRIDGE BUILDING

1/4" = 1'-0"

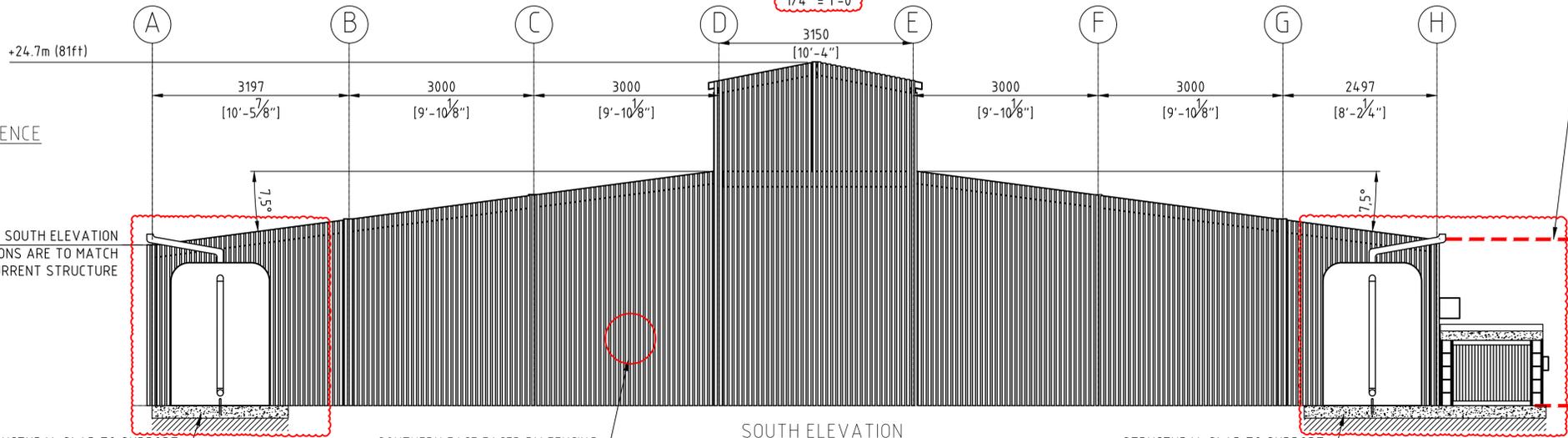


SECTION B-B
TYPICAL SECTION

1/4" = 1'-0"



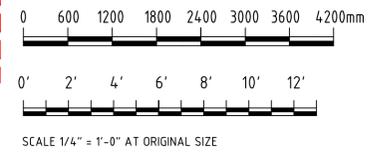
DETAIL 2
SOUTHERN FACE FENCE
1:10



SOUTH ELEVATION
ELEVATION C-C ON PLAN DRWGS

1/4" = 1'-0"

ADJACENT STRUCTURE TO THE SOUTH EAST OF THE CACTI HOUSE IS TO TIE INTO NEW TIMBER STRUCTURE. TEMPORARY PROPPING WILL BE REQUIRED TO SUPPORT THE STRUCTURE DURING THE CONSTRUCTION OF THE NEW CACTI HOUSE. TEMPORARY WORKS ARE TO THE DISCRETION OF THE GENERAL CONTRACTOR AND ARE TO BE CLEARLY DESCRIBED WITHIN THEIR SUBMITTED METHOD STATEMENT





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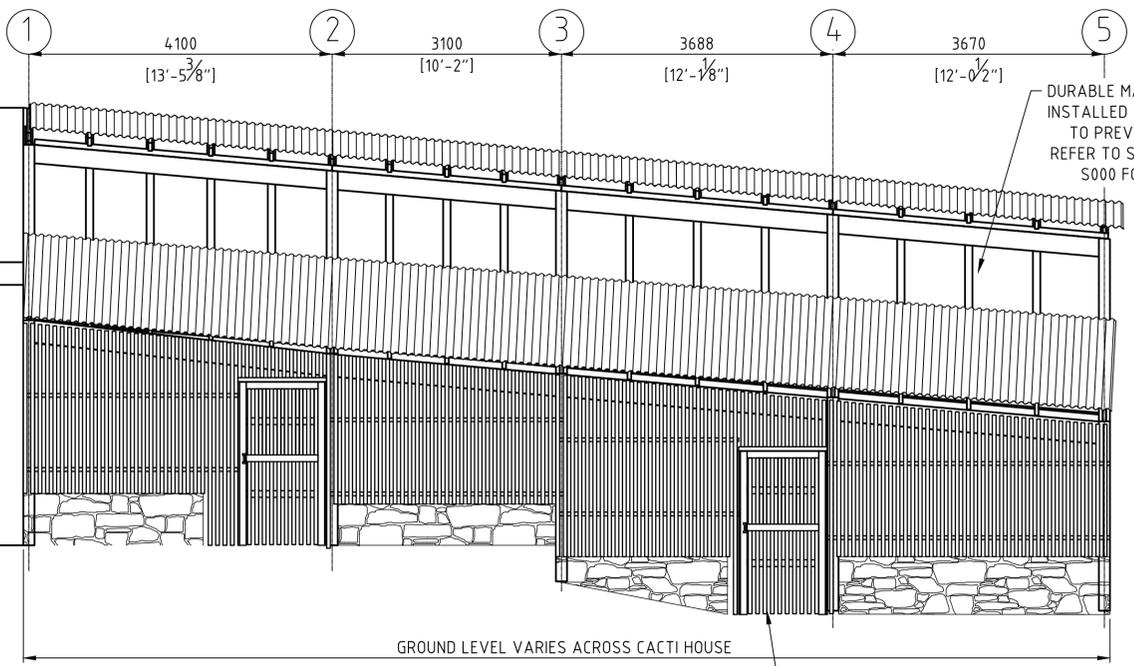
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REFURBISHMENTS
2024**

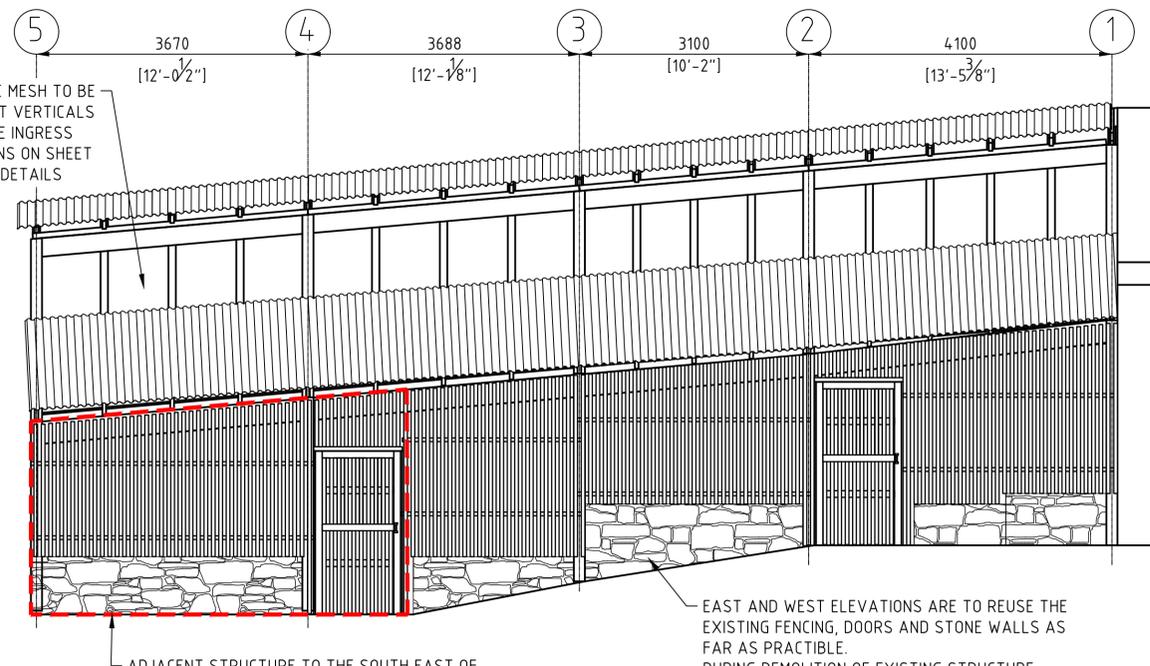
COPY FOR ESTIMATING

SHEET TITLE:
SIDE ELEVATIONS

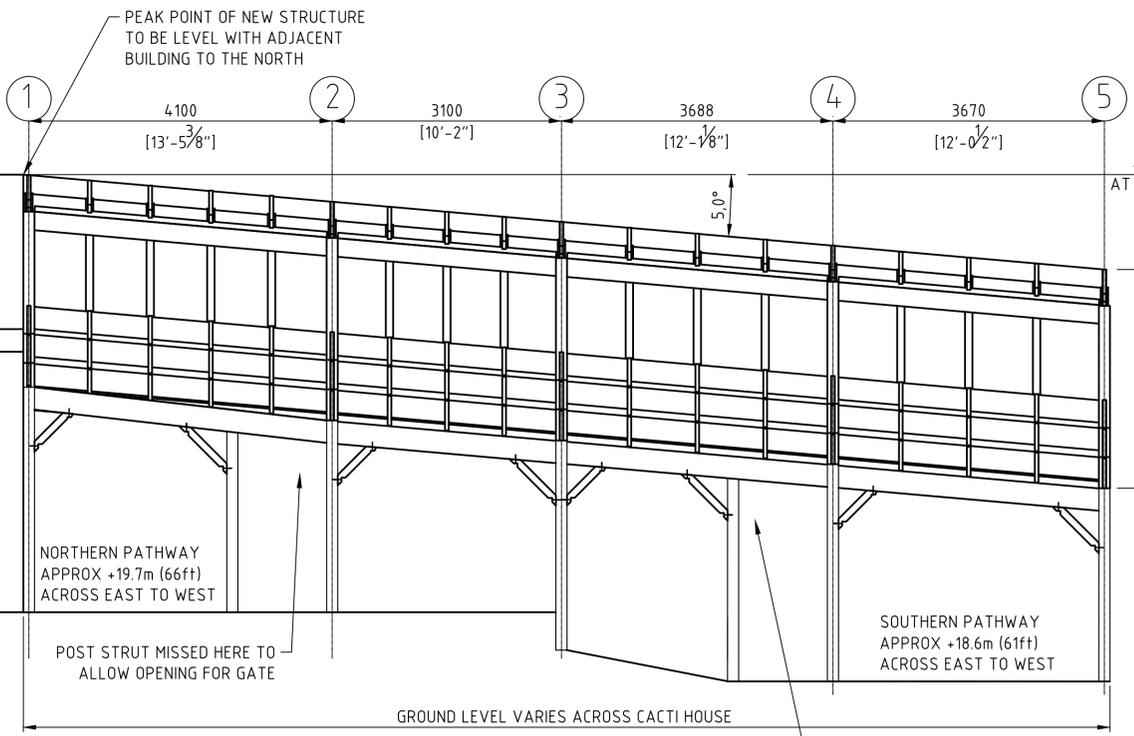
SHEET NUMBER: **S006** REVISION: **E**



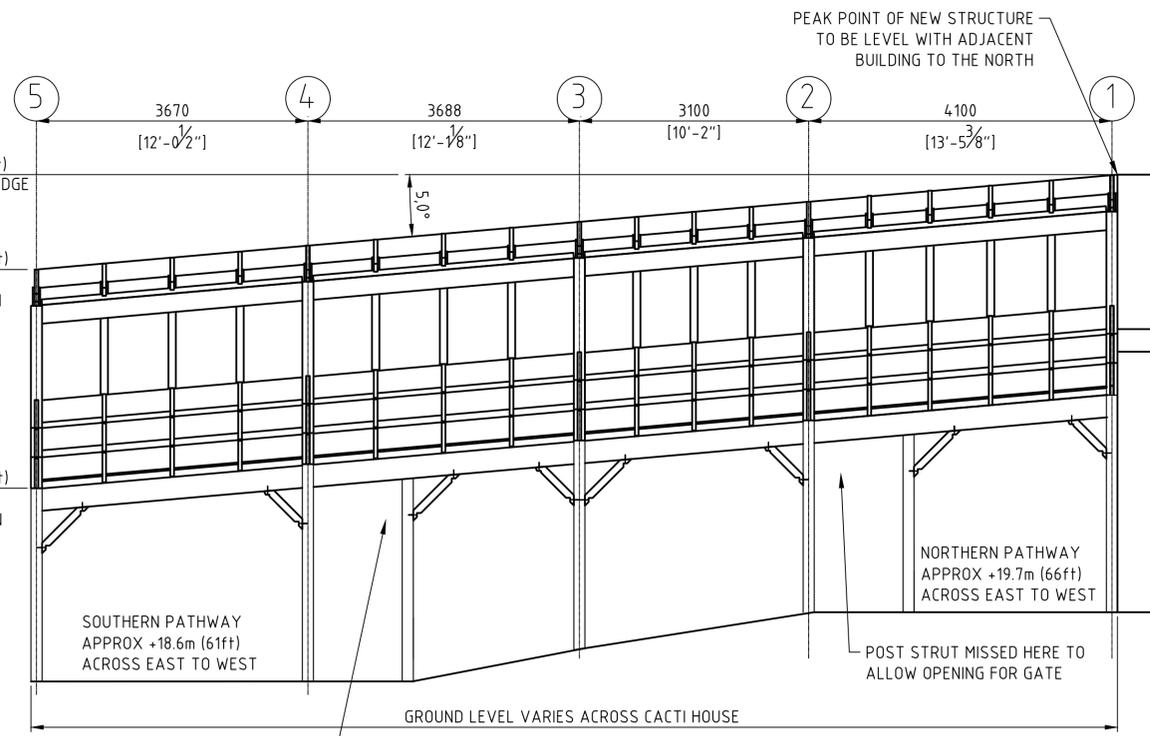
ELEVATION 1-1
WESTERN ELEVATION
1/4" = 1'-0"



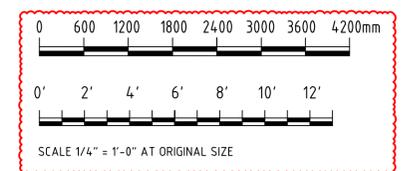
ELEVATION 2-2
EASTERN ELEVATION
1/4" = 1'-0"



ELEVATION 1-1
WESTERN ELEVATION - TIMBER STRUCTURE ONLY
FENCING AND STONE WALLS HIDDEN FOR CLARITY
1/4" = 1'-0"



ELEVATION 2-2
EASTERN ELEVATION - TIMBER STRUCTURE ONLY
FENCING AND STONE WALLS HIDDEN FOR CLARITY
1/4" = 1'-0"





ISSUED FOR: BUILDING PERMIT APPLICATION

AMENDMENTS:

NO	REVISION	BY	APP	DATE
A	FOR TENDER	CF	-	14/06/24
B	REVISED FOLLOWING DESIGN TEAM COMMENTS	CF	-	04/07/24
C	ISSUED FOR BUILDING PERMIT APPLICATION	CF	-	12/07/24
D	SCALES CHANGED AT REQUEST OF QS	CF	-	12/08/24
E	RAINWATER TANK CHANGED	CF	-	30/08/24

SCALE: AS SHOWN AT ANSI D

SURVEY
PREPARED BY: _____ DATE: _____

DESIGN
PREPARED BY: C.FRASER DATE: 14/06/24
CHECKED BY: _____ DATE: _____

DRAWING
PREPARED BY: C.FRASER DATE: 14/06/24
CHECKED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

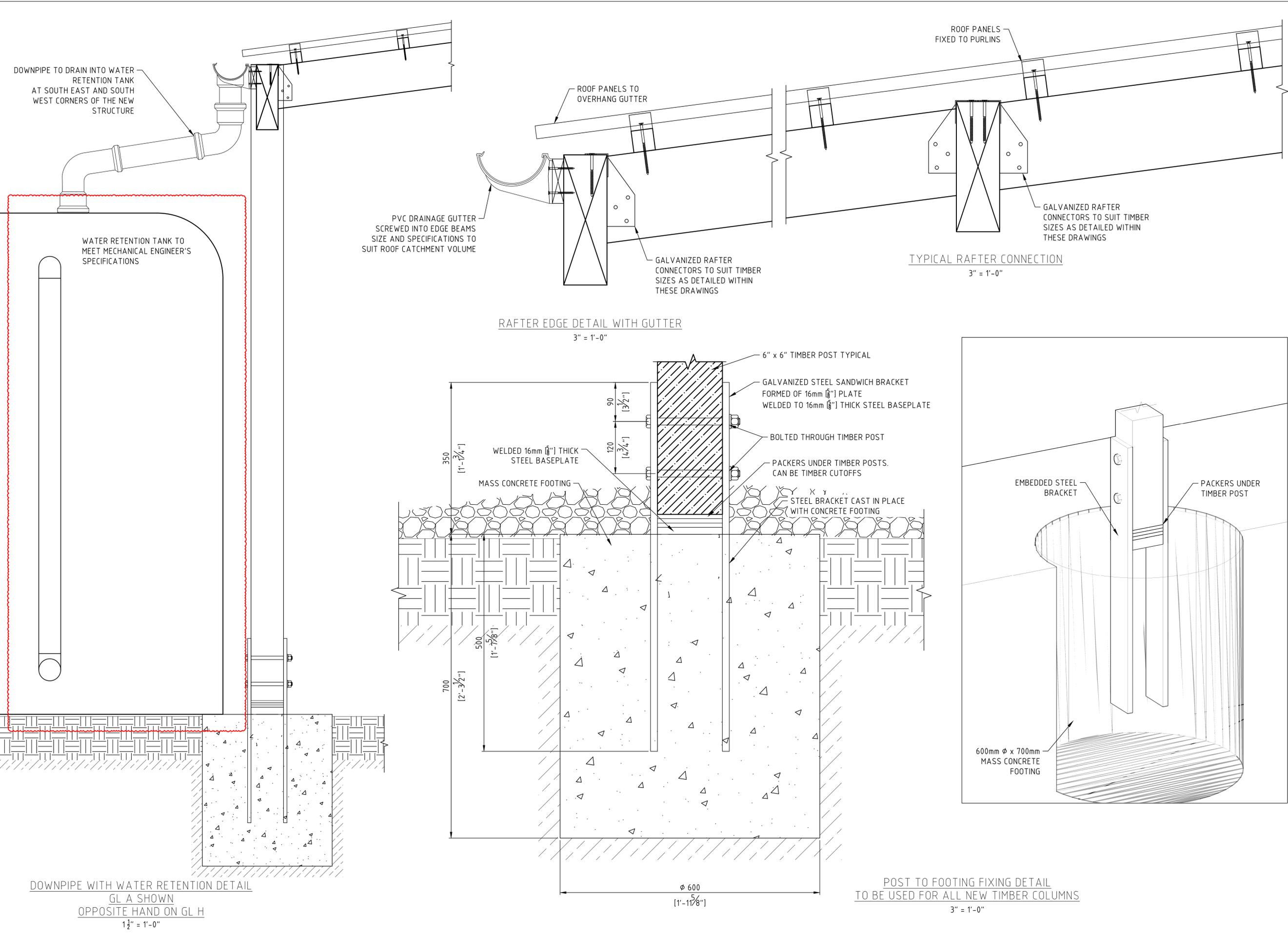
PROJECT NUMBER: _____

PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

COPY FOR ESTIMATING

SHEET TITLE:
DETAILS

SHEET NUMBER: **S007** REVISION: **E**





ISSUED FOR: BUILDING PERMIT APPLICATION

AMENDMENTS:

NO	REVISION	BY	APP	DATE
A	FOR TENDER	CF	-	14/06/24
B	REVISED FOLLOWING DESIGN TEAM COMMENTS	CF	-	04/07/24
C	ISSUED FOR BUILDING PERMIT APPLICATION	CF	-	12/07/24
D	SCALES CHANGED AT REQUEST OF QS	CF	-	12/08/24

SCALE: AS SHOWN AT ANSI D

SURVEY
PREPARED BY: _____ DATE: _____

DESIGN
PREPARED BY: C.FRASER DATE: 14/06/24
CHECKED BY: _____ DATE: _____

DRAWING
PREPARED BY: C.FRASER DATE: 14/06/24
CHECKED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

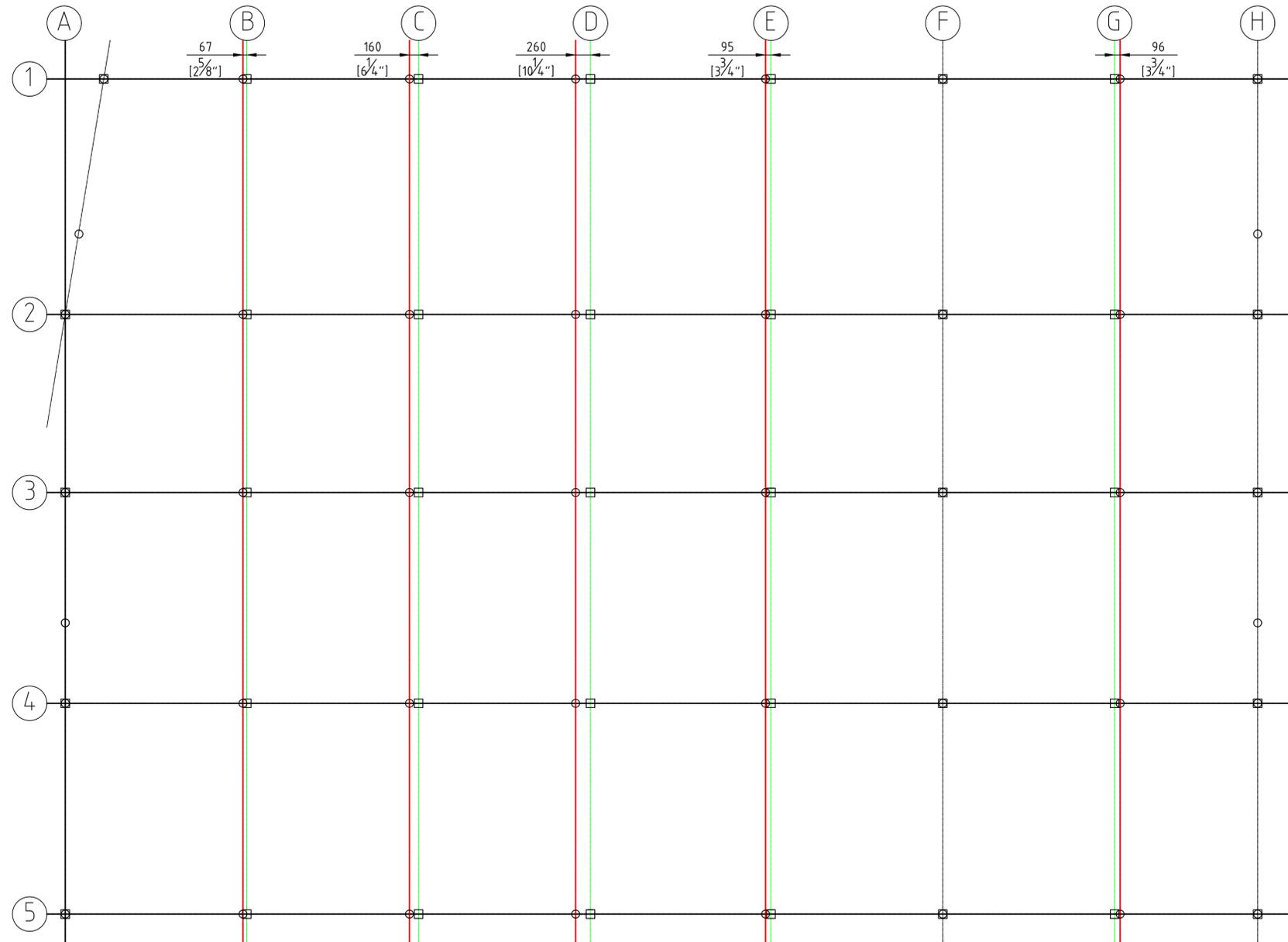
PROJECT NUMBER: _____

PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

COPY FOR ESTIMATING

SHEET TITLE:
**COLUMN LAYOUT
OLD VS NEW LAYOUT**

SHEET NUMBER: **S008** REVISION: **D**

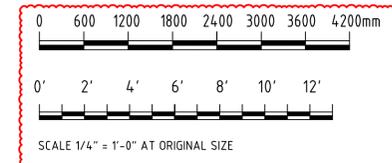


COLUMN LAYOUT - NEW VS OLD

$1/4" = 1'-0"$

THE COLUMN LAYOUT OF THE NEW STRUCTURE IS MARGINALLY DIFFERENT TO THE OLD STRUCTURE TO BETTER ALIGN WITH THE ADJACENT NORTHERN BUILDING AND EVEN OUT COLUMN SPACINGS

RED GRIDLINES SHOW THE OLD COLUMN LAYOUT AND GREEN SHOW THE NEW, WITH DIMENSIONS INCLUDED TO HIGHLIGHT THE CHANGE. WHEN GRIDLINES ARE BLACK, THERE IS NO DIFFERENCE BETWEEN OLD AND NEW





ISSUED FOR: BUILDING PERMIT APPLICATION

AMENDMENTS:

NO	REVISION	BY	APP	DATE
A	FOR TENDER	CF	-	04/07/24
B	ISSUED FOR BUILDING PERMIT APPLICATION	CF	-	12/07/24
C	SCALES CHANGED AT REQUEST OF QS	CF	-	12/08/24

SCALE: AS SHOWN AT ANSI D

SURVEY
PREPARED BY: _____ DATE: _____

DESIGN
PREPARED BY: C.FRASER DATE: 04/07/24
CHECKED BY: _____ DATE: _____

DRAWING
PREPARED BY: C.FRASER DATE: 04/07/24
CHECKED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

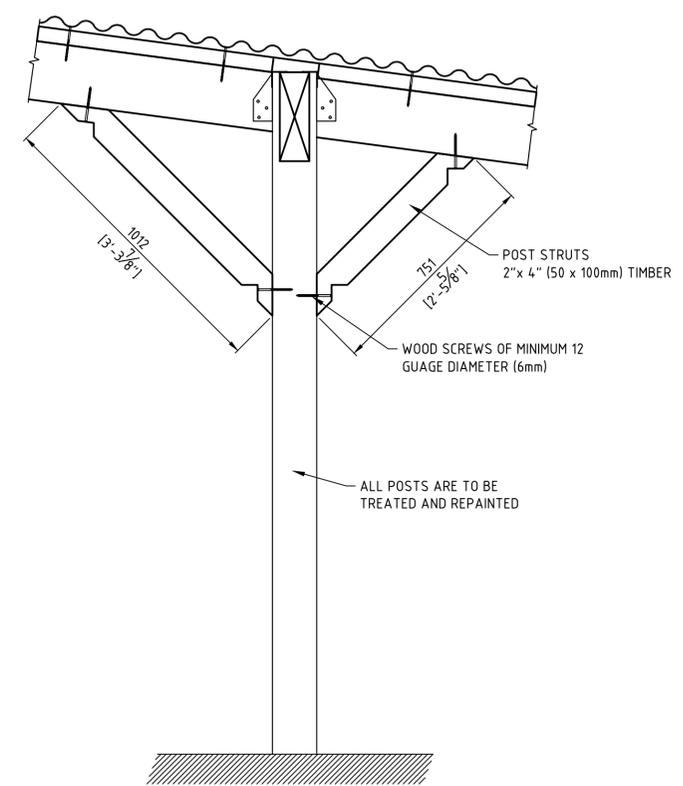
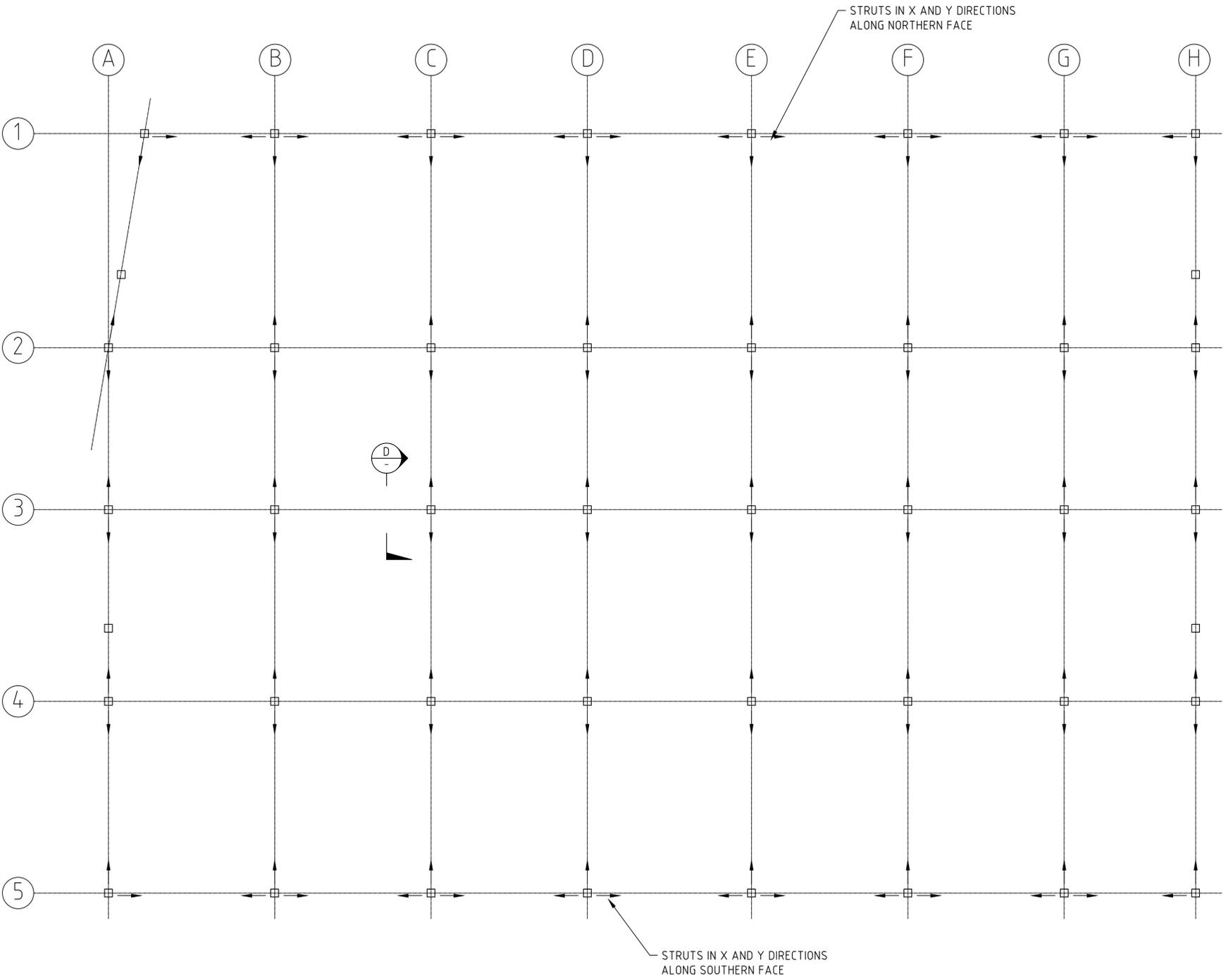
PROJECT NUMBER: _____

PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

COPY FOR ESTIMATING

SHEET TITLE:
**COLUMN STRUT
LAYOUT PLAN**

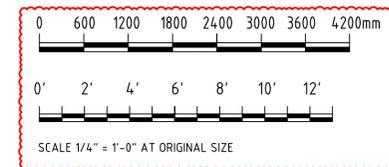
SHEET NUMBER: **S009** REVISION: **C**



TYPICAL COLUMN STRUTS
SECTION D-D

1" = 1'-0"

COLUMNS REQUIRE TIE STRUTS AS SHOWN.
THE PLAN VIEW SHOWS THE DIRECTION STRUT TIES ARE TO BE INSTALLED.





ISSUED FOR: BUILDING PERMIT APPLICATION

AMENDMENTS:

NO	REVISION	BY	APP	DATE
A	FOR TENDER	CF	-	04/07/24
B	ISSUED FOR BUILDING PERMIT APPLICATION	CF	-	12/07/24
C	SCALES CHANGED AT REQUEST OF QS	CF	-	12/08/24

SCALE: AS SHOWN AT ANSI D

SURVEY	
PREPARED BY:	DATE:
DESIGN	
PREPARED BY:	DATE:
C.FRASER	04/07/24
CHECKED BY:	DATE:
DRAWING	
PREPARED BY:	DATE:
C.FRASER	04/07/24
CHECKED BY:	DATE:
APPROVED BY:	DATE:

PROJECT NUMBER:

PROJECT NAME:

**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

COPY FOR ESTIMATING

SHEET TITLE:

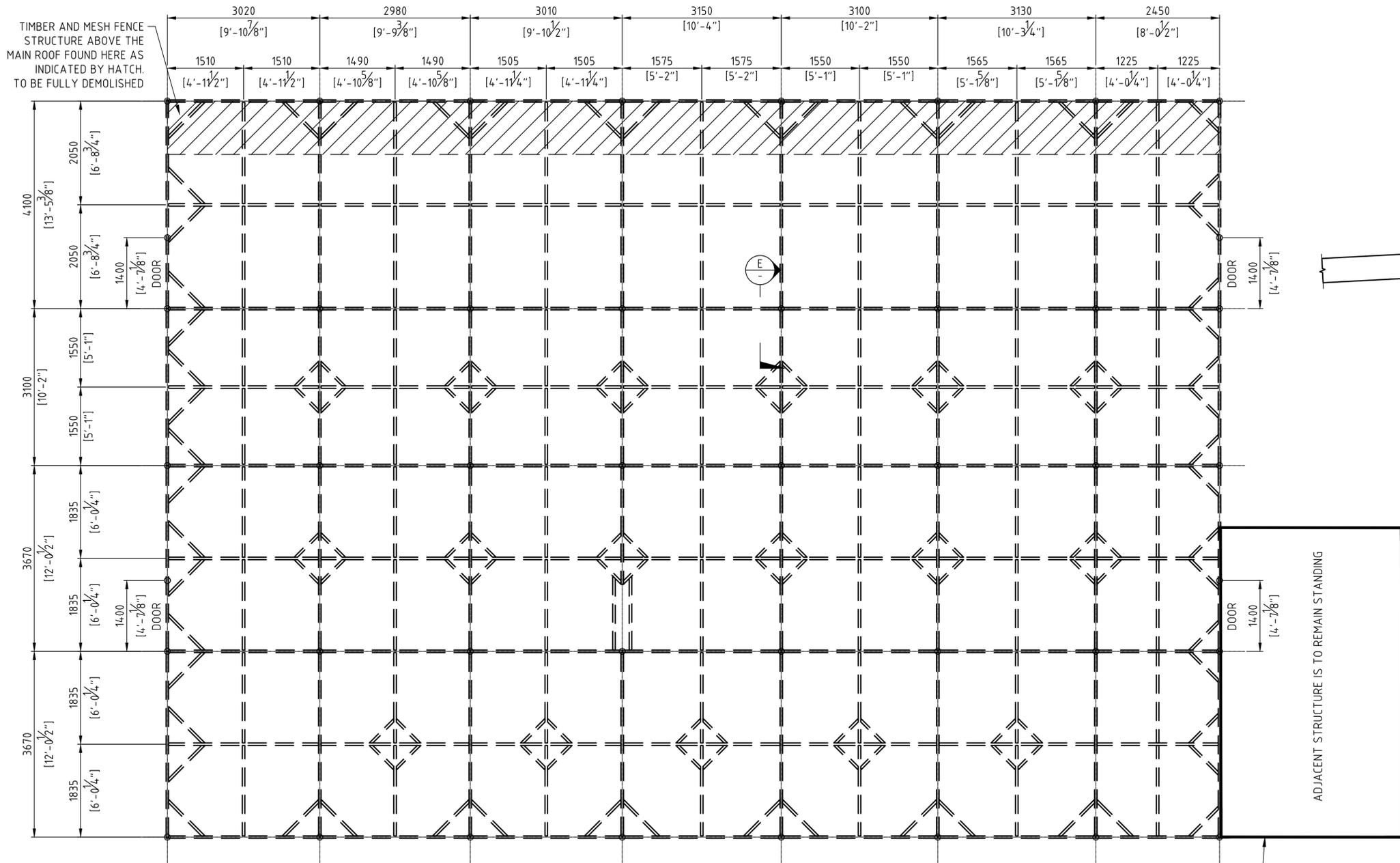
**DEMOLITION PLAN
EXISTING STRUCTURE**

SHEET NUMBER:

S010

REVISION

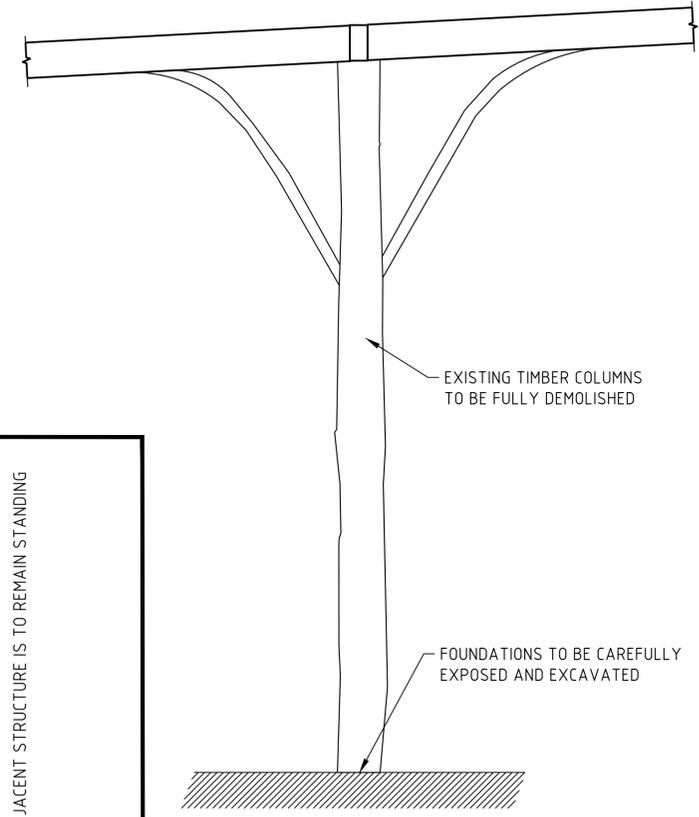
C



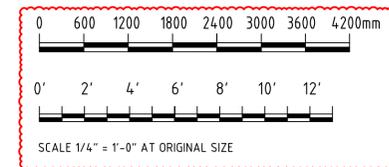
PLAN VIEW
EXISTING STRUCTURE
TO BE FULLY DEMOLISHED

1/4" = 1'-0"

ADJACENT STRUCTURE TO THE SOUTH EAST OF THE CACTI HOUSE IS TO TIE INTO NEW TIMBER STRUCTURE. TEMPORARY PROPPING WILL BE REQUIRED TO SUPPORT THE STRUCTURE DURING THE CONSTRUCTION OF THE NEW CACTI HOUSE. TEMPORARY WORKS ARE TO THE DISCRETION OF THE GENERAL CONTRACTOR AND ARE TO BE CLEARLY DESCRIBED WITHIN THEIR SUBMITTED METHOD STATEMENT



TYPICAL EXISTING COLUMNS
SECTION E-E



DEMOLITION NOTES:

- PLEASE REFER TO SITE PROTECTION NOTES ON SHEET S000 FOR FURTHER DETAILS REGARDING DEMOLITION AND PROTECTION OF SURROUNDING PLANT LIFE
- DEMOLITION OF THE EXISTING STRUCTURE IS TO BE CARRIED OUT BY A COMPETENT CONTRACTOR WITH CARE TAKEN TO PRESERVE THE PLANT LIFE AND THE GENERAL CONTENTS OF THE CACTI HOUSE
- ALL EXISTING TIMBER STRUCTURE AS SHOWN IN HATCHED LINES ON THIS DRWG IS TO BE FULLY REMOVED AND THE COLUMN FOUNDATIONS ARE TO BE EXPOSED AND EXCAVATED
- THE ADJACENT STRUCTURE AT THE SOUTH EAST END OF THE CACTI HOUSE IS TO BE ADEQUATELY PROPPED. THE TEMPORARY WORKS DESIGN IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR
- EAST AND WEST ELEVATIONS ARE TO REUSE THE EXISTING FENCING, DOORS AND STONE WALLS AS FAR AS PRACTICABLE. DURING DEMOLITION OF EXISTING STRUCTURE, FENCING IS TO BE CAREFULLY REMOVED, STORED AND RE-PAINTED FOR REUSE



ISSUED FOR: BUILDING PERMIT APPLICATION

AMENDMENTS:

NO	REVISION	BY	APP	DATE
A	FOR TENDER	CF	-	30/08/24
B	TANK SLABS ADJUSTED	CF	-	25/03/25

SCALE: AS SHOWN AT ANSI D

SURVEY
PREPARED BY: _____ DATE: _____

DESIGN
PREPARED BY: C.FRASER DATE: 04/07/24
CHECKED BY: _____ DATE: _____

DRAWING
PREPARED BY: C.FRASER DATE: 04/07/24
CHECKED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

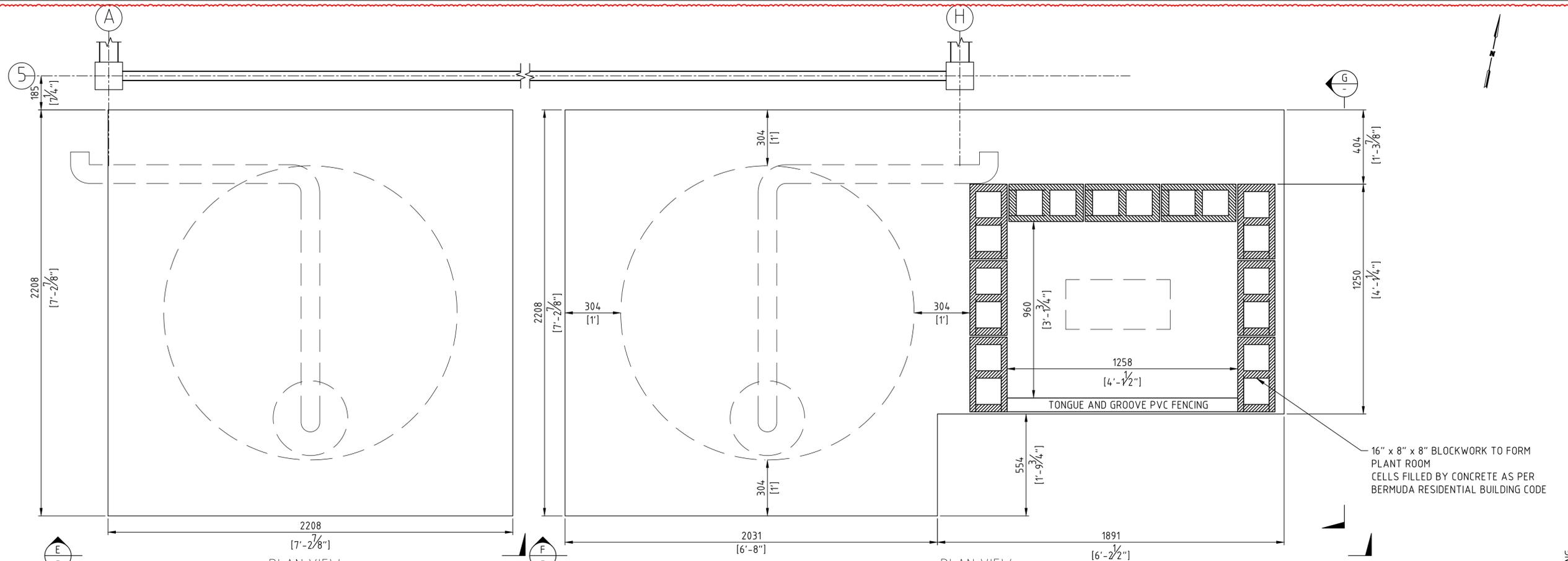
PROJECT NUMBER: _____

PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
REFURBISHMENTS
2024**

COPY FOR ESTIMATING

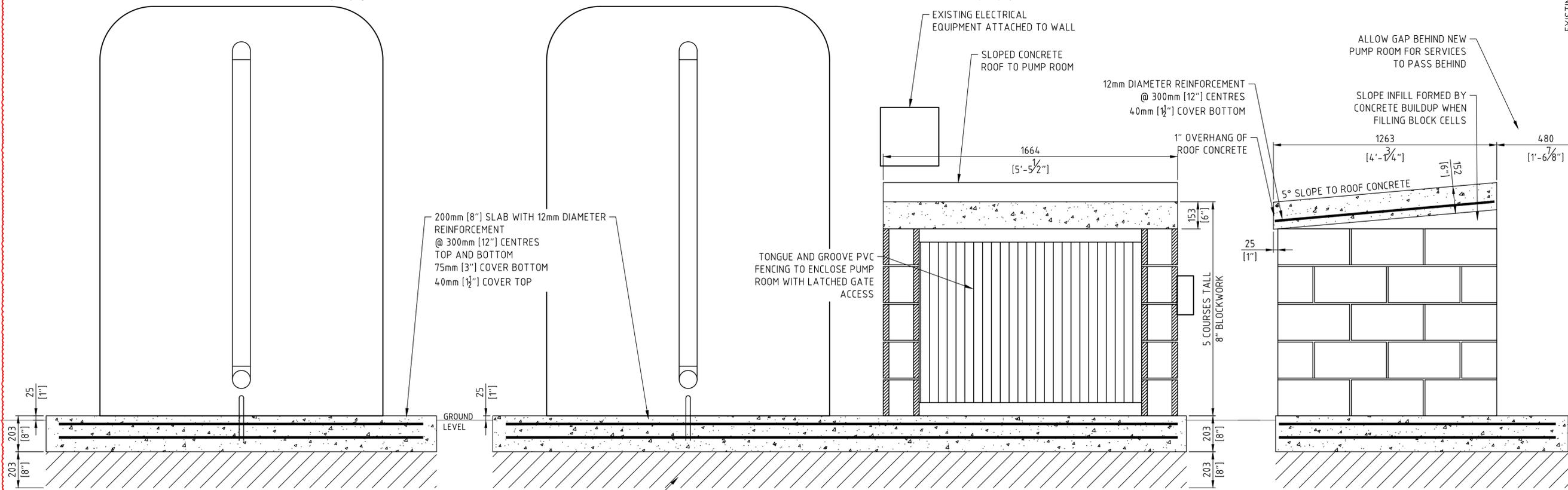
SHEET TITLE:
**TANK AND PUMP SLAB
GENERAL ARRANGEMENT**

SHEET NUMBER: **S011** REVISION: **B**



PLAN VIEW
TANK SLAB WEST
1" = 1'-0"

PLAN VIEW
TANK SLAB EAST
1" = 1'-0"



VIEW E-E
TANK SLAB WEST
1" = 1'-0"

VIEW F-F
TANK SLAB EAST
1" = 1'-0"

VIEW G-G
TANK SLAB EAST
1" = 1'-0"

SOIL BELOW SLAB TO BE WELL COMPACTED AND SOLID. IF GROUND CONDITIONS ARE POOR, THE CONTRACTOR SHOULD EXCAVATE 8" DOWN BELOW THE UNDERSIDE OF THE NEW SLAB AND BUILD BACK UP WITH WELL COMPACTED SAND AND GRAVEL

EXISTING BUILDING

BOTANICAL GARDENS CACTI BUILDING WATER STORAGE SYSTEM

169 SOUTH ROAD, DEVONSHIRE, BM

THE MINISTRY OF
PUBLIC WORKS

P.O. Box HM525
Hamilton HMCX Bermuda
Phone: (441) 295-5151

DEPARTMENT OF
WORKS AND ENGINEERING

Fax: (441) 295-5658

ENGINEER:



ENGINEERING SERVICES

25 Serpentine Road, Pembroke HM 07
Phone: (441) 294-3693
Email: info@iepc.bm
www.iepc.bm

ISSUED FOR: TENDER

AMENDMENTS:

NO	REVISION	BY	APP	DATE
A	FOR TENDER	CF	-	14/06/24

SCALE: AS SHOWN AT ANSI D

SURVEY

PREPARED BY: _____ DATE: _____

DESIGN

PREPARED BY: D.CABRAL DATE: 22/07/24

CHECKED BY: ZJ DATE: 22/07/24

DRAWING

PREPARED BY: D.CABRAL DATE: 22/07/24

CHECKED BY: ZJ DATE: 22/07/24

APPROVED BY: ZJ DATE: 22/07/24

PROJECT NUMBER:

09010030

PROJECT NAME:

**BOTANICAL GARDENS
CACTI HOUSE
MECHANICAL DESIGN
2024**

SHEET TITLE:

COVER PAGE

SHEET NUMBER:

M100

REVISION

A

A. BERMUDA DEPARTMENT OF PLANNING NOTES

1. ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF ALL LOCAL CODES AND AMENDMENTS TO DATE, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - a. BERMUDA BUILDING CODE 2014 (ADOPTED FROM IBC 2012)
 - b. BERMUDA MECHANICAL CODE 2014 (ADOPTED FROM IMC 2012)
 - c. BERMUDA ELECTRICAL CODE 2014 (ADOPTED FROM NEC 2011)
 - d. BERMUDA PLUMBING CODE 2014 (ADOPTED FROM IPC 2012)
 - e. BERMUDA ENERGY CONSERVATION CODE 2014 (ADOPTED FROM IECC 2012)
 - c. BERMUDA FIRE CODE 2014 (ADOPTED FROM NFPA STANDARDS)
2. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF OF ALL APPLICABLE REFERENCE STANDARDS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - a. ANSI
 - b. ASPE
 - c. ASHRAE STANDARD 90.1: ENERGY STANDARD FOR BUILDINGS
3. ALL WORK SHALL BE SUBJECT TO SPECIAL INSPECTIONS AS APPLICABLE:
 - a. WIND RESISTANCE (IBC SECTION 1705.10)
 - b. SPRAYED FIRE-RESISTANT MATERIALS (IBC SECTION 1705.13)
 - c. MASTIC AND INTUMESCENT FIRE RATED COATINGS (IBC SECTION 1705.14)
 - d. FIRE RESISTANT PENETRATION AND JOINTS (IBC SECTION 1705.16)
 - e. ENERGY CODE INSPECTIONS
4. ALL WORK SHALL COMPLY WITH THE GOVERNMENT OF BERMUDA LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED TO:
 - a. BERMUDA PUBLIC HEALTH ACT 1949
 - b. BERMUDA OCCUPATIONAL SAFETY & HEALTH REGULATIONS 2009

B. OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENT (OHSE) REQUIREMENTS

5. THE CONTRACTOR SHALL PROVIDE DIRECT SUPERVISION OVER THEIR WORKFORCE ON SITE, AND ENSURE THEIR WORK CONFORMS TO OHSE POLICIES.
6. THE CONTRACTOR SHALL SUPPLY AND UTILIZE THE APPROPRIATE PERSONAL PROTECTION EQUIPMENT (PPE) FOR ALL WORKS.
7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY AND APPLICABLE PERMITS OR APPROVALS.
8. THE CONTRACTOR SHALL ELIMINATE OR CONTROL ALL SAFETY HAZARDS AND POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROJECT.

C. GENERAL NOTES

1. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE WORK. EXISTING CONDITIONS ARE NOT COMPLETELY DETAILED ON THE DRAWINGS. CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALLOWANCE FOR SUCH REMOVALS AND RELOCATIONS.
2. WORK SHALL BE DONE WHEN AND AS DIRECTED AND SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE SURROUNDING POPULATION. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO AVOID INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES.
3. MATERIALS, DOCUMENTATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH LOCAL CODES, REFERENCE STANDARDS, AND AS SPECIFIED.
4. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIALS, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
5. FIREPROOFING AND INSULATION DISTURBED BY NEW CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
6. SUPPORT ALL PIPING AND/OR EQUIPMENT FROM BUILDING STRUCTURE, FLOORS, AND BURIED IN TRENCH IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OF SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING.
7. SEAL OPENINGS AROUND PIPING THROUGH WALLS AND FOUNDATION SLABS IN AN APPROVED MANNER USING MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL. ALL PENETRATIONS SHALL BE FIRE-PROOFED, AS REQUIRED.
8. CONTRACTOR TO PROVIDE FULLY COORDINATED SHOP DRAWINGS AND SUBMITTALS FOR THE ENGINEER'S REVIEW PRIOR TO PROCUREMENT, FABRICATION, OR INSTALLATION OF NEW WORK.
9. CONTRACTOR SHALL USE EXTREME CAUTION WHEN INSTALLING FIXTURES OR PIPING ON OR IN FINISHED WALLS AND PARTITIONS.
10. PROVIDE ANGLE STOPS ON WATER PIPING AT ALL FIXTURES.
11. CONTRACTOR SHALL VERIFY EXACT LOCATION OF EXISTING PIPING IN FIELD BEFORE ANY INSTALLATION OF NEW WORK.
12. FOR EXACT LOCATION OF PLUMBING FIXTURES, REFER TO ARCHITECTURAL DRAWINGS.

13. ALL PLUMBING WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.

14. ALL NEW PLUMBING FIXTURES SHALL COMPLY WITH WATER CONSERVATION LAWS.
15. ALL FIXTURES SHALL BE AS SPECIFIED BY ARCHITECT, FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR.
16. CONTRACTOR SHALL PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS
17. CONTRACTOR SHALL PROVIDE ACCESS DOORS TO ALL DOMESTIC WATER VALVES AND TRAP PRIMERS.
18. CONTRACTOR SHALL PROVIDE WATER HAMMER ARRESTORS ON ALL QUICK CLOSING FIXTURES.
19. CONTRACTOR TO FIRE PROOF AND SEAL ALL PENETRATIONS THROUGH EXTERIOR WALLS IN AN APPROVED MANNER.

D. DEMOLITION

1. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS BEFORE ANY WORK IS BEGUN.
2. ALL EXITS SHALL BE KEPT READILY ACCESSIBLE AND UNOBSTRUCTED AT ALL TIMES.
3. ALL WASTE AND DEBRIS SHALL BE REMOVED IN APPROVED CONTAINERS ON A DAILY BASIS.
4. ALL EXISTING PLUMBING FIXTURES NO LONGER IN USE SHALL BE REMOVED WITH ASSOCIATED PIPING. PLUG AND CAP AT SOURCE ALL UNUSED PIPING.
5. REMOVE UNUSED WASTE PIPING AND PATCH FLOOR PENETRATION AS REQUIRED.
6. ALL PIPING THROUGH SLAB SHALL BE CUT AND CAPPED BELOW FLOOR. REFER TO ARCHITECTURAL DRAWINGS FOR PATCHING OF SLAB TO MATCH EXISTING.
7. ALL EXISTING BASE BUILDING UTILITIES, RISERS AND ALL SHAFTS SHALL REMAIN UNLESS OTHERWISE NOTED.
8. EXISTING RAIN WATER LINE TO EXISTING TANK SHALL REMAIN.
9. LOCATION OF DRAINS AND PIPING ARE APPROXIMATE. CONTRACTOR WILL VERIFY IN FIELD.
10. REMOVAL OF ALL EXISTING PIPING BEING ABANDONED SHALL COMPLY TO LOCAL AND STATE BUILDING CODE AS TO ELIMINATE THE POSSIBILITY OF FUTURE BREAKS AND UNNECESSARY INTERFERENCES IN HUNG CEILINGS.
11. WHERE EQUIPMENT OR PIPING IS TO BE REMOVED, CONTRACTOR SHALL REMOVE ALL COLLATERAL SUPPORTS, HANGERS AND APPURTENANCES.
12. CARE MUST BE TAKEN WHERE SLAB AND CEILINGS ARE TO BE DEMOLISHED TO PROTECT AND PROVIDE SUPPORT FOR ANY EXISTING EQUIPMENT OF PIPING WHICH IS TO REMAIN. (VERIFY IN FIELD)
13. ALL REMOVED ITEMS THAT ARE NOT BEING REUSED AND ALL EXCESS MATERIAL AND EQUIPMENT NOT DESIRED BY THE OWNER SHALL BE IMMEDIATELY MOVED FROM THE SITE BY THIS CONTRACTOR.
14. THE CONTRACTOR SHALL COORDINATE THE DEMOLITION WORK WITH THE OWNER AND OTHER TRADES.
15. PROTECT ALL EXISTING SOIL, WASTE, VENT AND WATER PIPES THAT ARE TO BE REUSED UPON COMPLETION OF DEMOLITION
16. CONTRACTOR SHALL PATCH AND REPAIR ALL FLOOR AND WALL OPENINGS TO MATCH EXISTING UPON COMPLETION OF PLUMBING DEMOLITION WORK.
17. ALL PLUMBING ROUGH INS WHICH ARE TO BE REMOVED MUST HAVE WATER SUPPLY SHUT OFF PRIOR TO DISCONNECTING AND REMOVING TO PREVENT FLOODING IN THE EVENT THAT PIPES ARE DAMAGED DURING DEMOLITION.
18. THE CONTRACTOR SHALL GIVE AMPLE WRITTEN NOTICE IN ADVANCE TO THE OWNER OF ANY REQUIRED SHUTDOWNS OF BUILDING SERVICES.

E. EQUIPMENT

1. INVESTIGATE PATH THROUGH WHICH EQUIPMENT WILL BE MOVED. ASCERTAIN FROM BUILDING MANAGEMENT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED.
2. ALL EQUIPMENT SHALL BE INSTALLED IN FULL COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. INSTALL EQUIPMENT AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE REQUIRED TO ACCOMPLISH THIS.

F. PIPING

1. EXISTING SANITARY / DOMESTIC PIPING TO BE CHECK & CONFIRM IF CAST IRON / GALVANIZED OR PVC. IF CAST IRON OR GALVANIZED, CHANGE TO PVC / CPVC. PIPING SYSTEMS SHALL BE CLEANED, PRESSURED / VACUUM / LEAK TESTED.

2. WHERE PIPING CONNECTIONS FOR FIXTURES DIFFER FROM THE LINE SIZE PIPING, IT SHALL BE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO FURNISH AND INSTALL THE NECESSARY REDUCER/EXPANDER FITTINGS TO ENABLE CONNECTION BETWEEN THE PIPING SYSTEM AND EQUIPMENT.

3. PROVIDE DIELECTRIC FITTINGS BETWEEN TWO DISSIMILAR METALS.
4. WATER HAMMER ARRESTOR CONFORMED TO ASSE 1010 SHALL BE INSTALLED WHERE QUICK-CLOSING DEVICES ARE UTILIZED.
5. WATER DISTRIBUTION PIPING AND FITTINGS SHALL CONFORM TO NSF 61 AND HAVE A PRESSURE RATING OF 150 PSI MINIMUM.
6. ALL VALVES SHALL BE OF AN APPROVED TYPE AND MATERIAL COMPATIBLE WITH THE SYSTEM PIPING TYPE. ALL VALVES INTENDED TO SUPPLY POTABLE WATER SHALL MEET THE REQUIREMENTS OF NSF 61.
7. PVC PIPING SHALL NOT BE RUN THROUGH FIRE RATED WALLS OR USED IN RETURN AIR PLENUMS.
8. CLEANOUTS SHALL BE PROVIDED AS REQUIRED BY APPLICABLE CODES. CLEANOUTS IN DRAINAGE LINES SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
 - 8.1. AT THE BOTTOM OF EACH FIXTURE TRAP WHICH IS NOT INTEGRAL WITH THE FIXTURE
 - 8.2. AT THE END OF EACH BRANCH DRAINAGE LINE
 - 8.3. AT EACH POINT WHERE DRAINAGE LINES CHANGE DIRECTIONS
 - 8.4. AT THE FOOT OF EACH INSIDE RISING SOIL OR WASTE LINE
 - 8.5. IN EVERY HORIZONTAL LINE AT NOT MORE THAN FIFTY (50) FEET ON CENTER.
9. ALL HOT WATER SUPPLY & RETURN PIPING REQUIRES ¾" WALL ARM-A-FLEX INSULATION.
10. ALL PIPING SANITARY, WASTE, VENT, DOMESTIC HOT OR COLD THAT IS RUN THROUGH EXISTING TRANSFORMER AREAS, TO BE INSTALLED WITH FIREMASTER 3M OR EQUIVALENT (FIRE RATED INSULATION).

G. TESTING & COMMISSIONING

1. CONTRACTOR TO VERIFY OPERATING PRESSURES OF EXISTING DOMESTIC WATER SYSTEM.
2. PRESSURE TEST NEW DOMESTIC WATER PIPING (HOT WATER AND COLD WATER), AND SUBMIT PRESSURE TEST REPORT FOR THE ENGINEER'S RECORD. PRESSURE TEST SHALL BE PERFORMED AT 1.5 TIMES THE WORKING WATER PRESSURE FOR A PERIOD OF 3 HOURS MINIMUM.
3. TEST ALL WASTE, SANITARY AND VENT SYSTEMS WITH A MINIMUM OF TEN (10) FEET HEAD OF WATER. PIPING SHALL BE TIGHT AND LEAK FREE AT ALL POINTS.
4. TEST ALL PIPING SYSTEMS VALVES FOR FULLY LEAK-TIGHT CLOSURE WHEN SUBJECTED TO NORMAL OPERATING PRESSURES.
5. ALL CONCEALED PIPING SHALL BE TESTED BEFORE CLOSING CEILING CONSTRUCTION.
6. TEST EQUIPMENT CONTROLS, INCLUDING HOT WATER HEATER CONTROLLER, LEAK ALARMS, AND VERIFICATION OF REMOTE CONTROL & MONITORING POINTS AT EXISTING BUILDING MANAGEMENT SYSTEM.
7. CONTRACTOR SHALL SUBMIT ALL START-UP, TESTING, AND COMMISSIONING REPORTS FOR THE ENGINEER'S REVIEW.

H. TAGS, CHARTS AND NAMEPLATES

1. CONTRACTOR SHALL PROPERLY IDENTIFY AND LABEL EACH VALVE, CONTROL, MOTOR, FAN AND PIECE OF APPARATUS IDENTIFIED ON THE PLUMBING DRAWINGS.
2. EACH VALVE SHALL HAVE A BRASS TAG WITH IDENTIFYING NUMBER. TAG SHALL BE SECURED TO VALVE STEM WITH A SUFFICIENT LENGTH OF COPPER COATED JACK CHAIN TO ALLOW TAG TO BE EASILY READ. CONTRACTOR SHALL INCLUDE A VALVE IDENTIFICATION CHART IN THEIR SUBMITTAL PACKAGE.
3. ALL NAMEPLATES AND LABELS SHALL IDENTIFY COMPONENTS BY PROPER NOMENCLATURE AND NUMBERED ACCORDING TO THE EQUIPMENT SCHEDULES.

I. SUBMITTALS / SHOP DRAWINGS

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:
 - 1.1. PIPING FIXTURES, SUPPORTS AND TRIM
 - 1.2. VALVES
 - 1.3. PIPE INSULATION
 - 1.4. BACKFLOW PREVENTORS
 - 1.5. ELECTRIC CONTROLS
 - 1.6. WATER HAMMER ARRESTORS
 - 1.7. HANGERS AND SUPPORTS
 - 1.8. TRAP PRIMERS
 - 1.9. ACCESS DOORS AND CLEAN-OUT PLATES

PLUMBING DRAWING LIST	
DWG No.	DESCRIPTION
P-001	PLUMBING COVER PAGE
P-400	PLUMBING SITE PLAN
P-401	PLUMBING BELOW GRADE PLAN & SCHEDULE

SYMBOLS & ABBREVIATIONS	
ABBREVIATIONS	DESCRIPTION
	BALL VALVE
	ACTUATED BALL VALVE
	BACKWATER VALVE
	PUMP
NO.	NO. NUMBER
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
PSIG	PSI GAUGE
(R)	RELOCATE
N	NEW

PLUMBING NOTES

A. BERMUDA DEPARTMENT OF PLANNING NOTES

- ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF ALL LOCAL CODES AND AMENDMENTS TO DATE, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - BERMUDA BUILDING CODE 2014 (ADOPTED FROM IBC 2012)
 - BERMUDA MECHANICAL CODE 2014 (ADOPTED FROM IMC 2012)
 - BERMUDA ELECTRICAL CODE 2014 (ADOPTED FROM NEC 2011)
 - BERMUDA PLUMBING CODE 2014 (ADOPTED FROM IPC 2012)
 - BERMUDA ENERGY CONSERVATION CODE 2014 (ADOPTED FROM IECC 2012)
 - BERMUDA FIRE CODE 2014 (ADOPTED FROM NFPA STANDARDS)
- ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE REFERENCE STANDARDS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - ANSI
 - ASPE
 - ASHRAE STANDARD 90.1: ENERGY STANDARD FOR BUILDINGS
- ALL WORK SHALL BE SUBJECT TO SPECIAL INSPECTIONS AS APPLICABLE:
 - WIND RESISTANCE (IBC SECTION 1705.10)
 - SPRAYED FIRE-RESISTANT MATERIALS (IBC SECTION 1705.13)
 - MASTIC AND INTUMESCENT FIRE RATED COATINGS (IBC SECTION 1705.14)
 - FIRE RESISTANT PENETRATION AND JOINTS (IBC SECTION 1705.16)
 - ENERGY CODE INSPECTIONS
- ALL WORK SHALL COMPLY WITH THE GOVERNMENT OF BERMUDA LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED TO:
 - BERMUDA PUBLIC HEALTH ACT 1949
 - BERMUDA OCCUPATIONAL SAFETY & HEALTH REGULATIONS 2009

B. OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENT (OHSE) REQUIREMENTS

- THE CONTRACTOR SHALL PROVIDE DIRECT SUPERVISION OVER THEIR WORKFORCE ON SITE, AND ENSURE THEIR WORK CONFORMS TO OHSE POLICIES.
- THE CONTRACTOR SHALL SUPPLY AND UTILIZE THE APPROPRIATE PERSONAL PROTECTION EQUIPMENT (PPE) FOR ALL WORKS.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY AND APPLICABLE PERMITS OR APPROVALS.
- THE CONTRACTOR SHALL ELIMINATE OR CONTROL ALL SAFETY HAZARDS AND POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROJECT.

C. GENERAL NOTES

- REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE WORK. EXISTING CONDITIONS ARE NOT COMPLETELY DETAILED ON THE DRAWINGS. CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALLOWANCE FOR SUCH REMOVALS AND RELOCATIONS.
- WORK SHALL BE DONE WHEN AND AS DIRECTED AND SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE SURROUNDING POPULATION. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO AVOID INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES.
- MATERIALS, DOCUMENTATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH LOCAL CODES, REFERENCE STANDARDS, AND AS SPECIFIED.
- DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIALS, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
- FIREPROOFING AND INSULATION DISTURBED BY NEW CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
- SUPPORT ALL PIPING AND/OR EQUIPMENT FROM BUILDING STRUCTURE, FLOORS, AND BURIED IN TRENCH IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OF SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING.
- SEAL OPENINGS AROUND PIPING THROUGH WALLS AND FOUNDATION SLABS IN AN APPROVED MANNER USING MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL. ALL PENETRATIONS SHALL BE FIRE-PROOFED, AS REQUIRED.
- CONTRACTOR TO PROVIDE FULLY COORDINATED SHOP DRAWINGS AND SUBMITTALS FOR THE ENGINEER'S REVIEW PRIOR TO PROCUREMENT, FABRICATION, OR INSTALLATION OF NEW WORK.
- CONTRACTOR SHALL USE EXTREME CAUTION WHEN INSTALLING FIXTURES OR PIPING ON OR IN FINISHED WALLS AND PARTITIONS.
- PROVIDE ANGLE STOPS ON WATER PIPING AT ALL FIXTURES.
- CONTRACTOR SHALL VERIFY EXACT LOCATION OF EXISTING PIPING IN FIELD BEFORE ANY INSTALLATION OF NEW WORK.
- FOR EXACT LOCATION OF PLUMBING FIXTURES, REFER TO ARCHITECTURAL DRAWINGS.
- ALL PLUMBING WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.
- ALL NEW PLUMBING FIXTURES SHALL COMPLY WITH WATER CONSERVATION LAWS.
- ALL FIXTURES SHALL BE AS SPECIFIED BY ARCHITECT, FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR.
- CONTRACTOR SHALL PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS
- CONTRACTOR SHALL PROVIDE ACCESS DOORS TO ALL DOMESTIC WATER VALVES AND TRAP PRIMERS.
- CONTRACTOR SHALL PROVIDE WATER HAMMER ARRESTORS ON ALL QUICK CLOSING FIXTURES.
- CONTRACTOR TO FIRE PROOF AND SEAL ALL PENETRATIONS THROUGH EXTERIOR WALLS IN AN APPROVED MANNER.

D. DEMOLITION

- CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS BEFORE ANY WORK IS BEGUN.
- ALL EXITS SHALL BE KEPT READILY ACCESSIBLE AND UNOBSTRUCTED AT ALL TIMES.
- ALL WASTE AND DEBRIS SHALL BE REMOVED IN APPROVED CONTAINERS ON A DAILY BASIS.
- ALL EXISTING PLUMBING FIXTURES NO LONGER IN USE SHALL BE REMOVED WITH ASSOCIATED PIPING. PLUG AND CAP AT SOURCE ALL UNUSED PIPING.
- REMOVE UNUSED WASTE PIPING AND PATCH FLOOR PENETRATION AS REQUIRED.
- ALL PIPING THROUGH SLAB SHALL BE CUT AND CAPPED BELOW FLOOR. REFER TO ARCHITECTURAL DRAWINGS FOR PATCHING OF SLAB TO MATCH EXISTING.
- ALL EXISTING BASE BUILDING UTILITIES, RISERS AND ALL SHAFTS SHALL REMAIN UNLESS OTHERWISE NOTED.
- EXISTING RAIN WATER LINE TO EXISTING TANK SHALL REMAIN.
- LOCATION OF DRAINS AND PIPING ARE APPROXIMATE. CONTRACTOR WILL VERIFY IN FIELD.
- REMOVAL OF ALL EXISTING PIPING BEING ABANDONED SHALL COMPLY TO LOCAL AND STATE BUILDING CODE AS TO ELIMINATE THE POSSIBILITY OF FUTURE BREAKS AND UNNECESSARY INTERFERENCES IN HUNG CEILINGS.
- WHERE EQUIPMENT OR PIPING IS TO BE REMOVED, CONTRACTOR SHALL REMOVE ALL COLLATERAL SUPPORTS, HANGERS AND APPURTENANCES.
- CARE MUST BE TAKEN WHERE SLAB AND CEILINGS ARE TO BE DEMOLISHED TO PROTECT AND PROVIDE SUPPORT FOR ANY EXISTING EQUIPMENT OF PIPING WHICH IS TO REMAIN. (VERIFY IN FIELD)
- ALL REMOVED ITEMS THAT ARE NOT BEING REUSED AND ALL EXCESS MATERIAL AND EQUIPMENT NOT DESIRED BY THE OWNER SHALL BE IMMEDIATELY MOVED FROM THE SITE BY THIS CONTRACTOR.
- THE CONTRACTOR SHALL COORDINATE THE DEMOLITION WORK WITH THE OWNER AND OTHER TRADES.
- PROTECT ALL EXISTING SOIL, WASTE, VENT AND WATER PIPES THAT ARE TO BE REUSED UPON COMPLETION OF DEMOLITION
- CONTRACTOR SHALL PATCH AND REPAIR ALL FLOOR AND WALL OPENINGS TO MATCH EXISTING UPON COMPLETION OF PLUMBING DEMOLITION WORK.
- ALL PLUMBING ROUGH INS WHICH ARE TO BE REMOVED MUST HAVE WATER SUPPLY SHUT OFF PRIOR TO DISCONNECTING AND REMOVING TO PREVENT FLOODING IN THE EVENT THAT PIPES ARE DAMAGED DURING DEMOLITION.
- THE CONTRACTOR SHALL GIVE AMPLE WRITTEN NOTICE IN ADVANCE TO THE OWNER OF ANY REQUIRED SHUTDOWNS OF BUILDING SERVICES.

E. EQUIPMENT

- INVESTIGATE PATH THROUGH WHICH EQUIPMENT WILL BE MOVED. ASCERTAIN FROM BUILDING MANAGEMENT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED.
- ALL EQUIPMENT SHALL BE INSTALLED IN FULL COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- INSTALL EQUIPMENT AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE REQUIRED TO ACCOMPLISH THIS.

F. PIPING

- PIPING SYSTEMS SHALL BE CLEANED, VACUUM / LEAK TESTED.
- WHERE PIPING CONNECTIONS FOR FIXTURES DIFFER FROM THE LINE SIZE PIPING, IT SHALL BE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO FURNISH AND INSTALL THE NECESSARY REDUCER/EXPANDER FITTINGS TO ENABLE CONNECTION BETWEEN THE PIPING SYSTEM AND EQUIPMENT.
- PROVIDE DIELECTRIC FITTINGS BETWEEN TWO DISSIMILAR METALS.
- WATER HAMMER ARRESTOR CONFORMED TO ASSE 1010 SHALL BE INSTALLED WHERE QUICK-CLOSING DEVICES ARE UTILIZED.
- WATER DISTRIBUTION PIPING AND FITTINGS SHALL CONFORM TO NSF 61 AND HAVE A PRESSURE RATING OF 150 PSI MINIMUM.
- ALL VALVES SHALL BE OF AN APPROVED TYPE AND MATERIAL COMPATIBLE WITH THE SYSTEM PIPING TYPE. ALL VALVES INTENDED TO SUPPLY POTABLE WATER SHALL MEET THE REQUIREMENTS OF NSF 61.
- PVC PIPING SHALL NOT BE RUN THROUGH FIRE RATED WALLS OR USED IN RETURN AIR PLENUMS.
- CLEANOUTS SHALL BE PROVIDED AS REQUIRED BY APPLICABLE CODES. CLEANOUTS IN DRAINAGE LINES SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
 - AT THE BOTTOM OF EACH FIXTURE TRAP WHICH IS NOT INTEGRAL WITH THE FIXTURE
 - AT THE END OF EACH BRANCH DRAINAGE LINE
 - AT EACH POINT WHERE DRAINAGE LINES CHANGE DIRECTIONS
 - AT THE FOOT OF EACH INSIDE RISING SOIL OR WASTE LINE
 - IN EVERY HORIZONTAL LINE AT NOT MORE THAN FIFTY (50) FEET ON CENTER.

G. TESTING & COMMISSIONING

- CONTRACTOR TO VERIFY OPERATING PRESSURES OF EXISTING DOMESTIC WATER SYSTEM.
- GENERAL CONTRACTOR TO RETROACTIVELY COMMISSION EXISTING DOMESTIC WATER BOOSTER SYSTEM AND VERIFY AND ADJUST THE OPERATING PRESSURES OF THE SYSTEM.
- PRESSURE TEST NEW DOMESTIC WATER PIPING (HOT WATER AND COLD WATER), AND SUBMIT PRESSURE TEST REPORT FOR THE ENGINEER'S RECORD.

PRESSURE TEST SHALL BE PERFORMED AT 1.5 TIMES THE WORKING WATER PRESSURE FOR A PERIOD OF 3 HOURS MINIMUM.

- TEST ALL WASTE, SANITARY AND VENT SYSTEMS WITH A MINIMUM OF TEN (10) FEET HEAD OF WATER. PIPING SHALL BE TIGHT AND LEAK FREE AT ALL POINTS.
- TEST ALL PIPING SYSTEMS VALVES FOR FULLY LEAK-TIGHT CLOSURE WHEN SUBJECTED TO NORMAL OPERATING PRESSURES.
- ALL CONCEALED PIPING SHALL BE TESTED BEFORE CLOSING CEILING CONSTRUCTION.
- TEST EQUIPMENT CONTROLS, INCLUDING HOT WATER HEATER CONTROLLER, LEAK ALARMS, AND VERIFICATION OF REMOTE CONTROL & MONITORING POINTS AT EXISTING BUILDING MANAGEMENT SYSTEM.
- CONTRACTOR SHALL SUBMIT ALL START-UP, TESTING, AND COMMISSIONING REPORTS FOR THE ENGINEER'S REVIEW.

H. TAGS, CHARTS AND NAMEPLATES

- CONTRACTOR SHALL PROPERLY IDENTIFY AND LABEL EACH VALVE, CONTROL, MOTOR, FAN AND PIECE OF APPARATUS IDENTIFIED ON THE PLUMBING DRAWINGS.
- EACH VALVE SHALL HAVE A BRASS TAG WITH IDENTIFYING NUMBER. TAG SHALL BE SECURED TO VALVE STEM WITH A SUFFICIENT LENGTH OF COPPER COATED JACK CHAIN TO ALLOW TAG TO BE EASILY READ. CONTRACTOR SHALL INCLUDE A VALVE IDENTIFICATION CHART IN THEIR SUBMITTAL PACKAGE.
- ALL NAMEPLATES AND LABELS SHALL IDENTIFY COMPONENTS BY PROPER NOMENCLATURE AND NUMBERED ACCORDING TO THE EQUIPMENT SCHEDULES.

I. SUBMITTALS / SHOP DRAWINGS

- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:
 - PLUMBING FIXTURES, SUPPORTS AND TRIM
 - VALVES
 - PIPE INSULATION
 - BACKFLOW PREVENTORS
 - ELECTRIC WATER HEATERS AND CONTROLS
 - MIXING VALVES
 - WATER HAMMER ARRESTORS
 - HANGERS AND SUPPORTS
 - TRAP PRIMERS
 - ACCESS DOORS AND CLEAN-OUT PLATES

PLUMBING DRAWING LIST

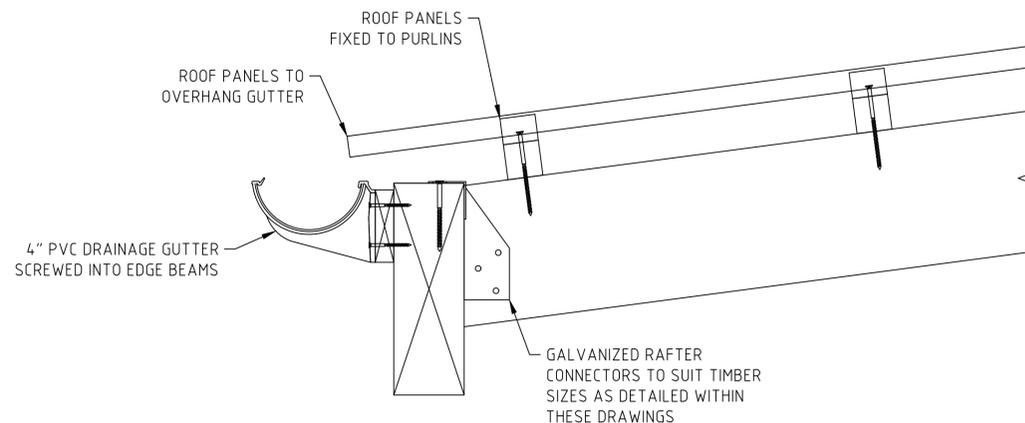
DWG No.	DESCRIPTION
P-001	PLUMBING COVER PAGE
P-400	PLUMBING DRAWINGS

ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPING
HW	HOT WATER PIPING
HWH	HOT WATER HEATER
(N)	NEW
NO.	NO. NUMBER
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
PSIG	PSI GAUGE
(R)	RELOCATE
S	SANITARY PIPING
SH	SHOWER
SK	SINK
V	VENT
VB	VACUUM BREAKER
VTR	VENT THRU ROOF
W	WASTE PIPING
WC	WATER CLOSET

GUTTER DETAIL - NEW CACTI HOUSE PLUMBING LAYOUT

1:60



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ENGINEER:



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SCALE: AS SHOWN AT ANSI D

SURVEY

PREPARED BY: DATE:

DESIGN

PREPARED BY: DATE:
D.CABRAL 22/07/24

CHECKED BY: DATE:
ZJ 22/07/24

DRAWING

PREPARED BY: DATE:
D.CABRAL 14/06/24

CHECKED BY: DATE:
ZJ 22/07/24

APPROVED BY: DATE:
ZJ 22/07/24

PROJECT NUMBER:

09010030

PROJECT NAME:

**BOTANICAL GARDENS
CACTI HOUSE
MECHANICAL DESIGN
2024**

SHEET TITLE:

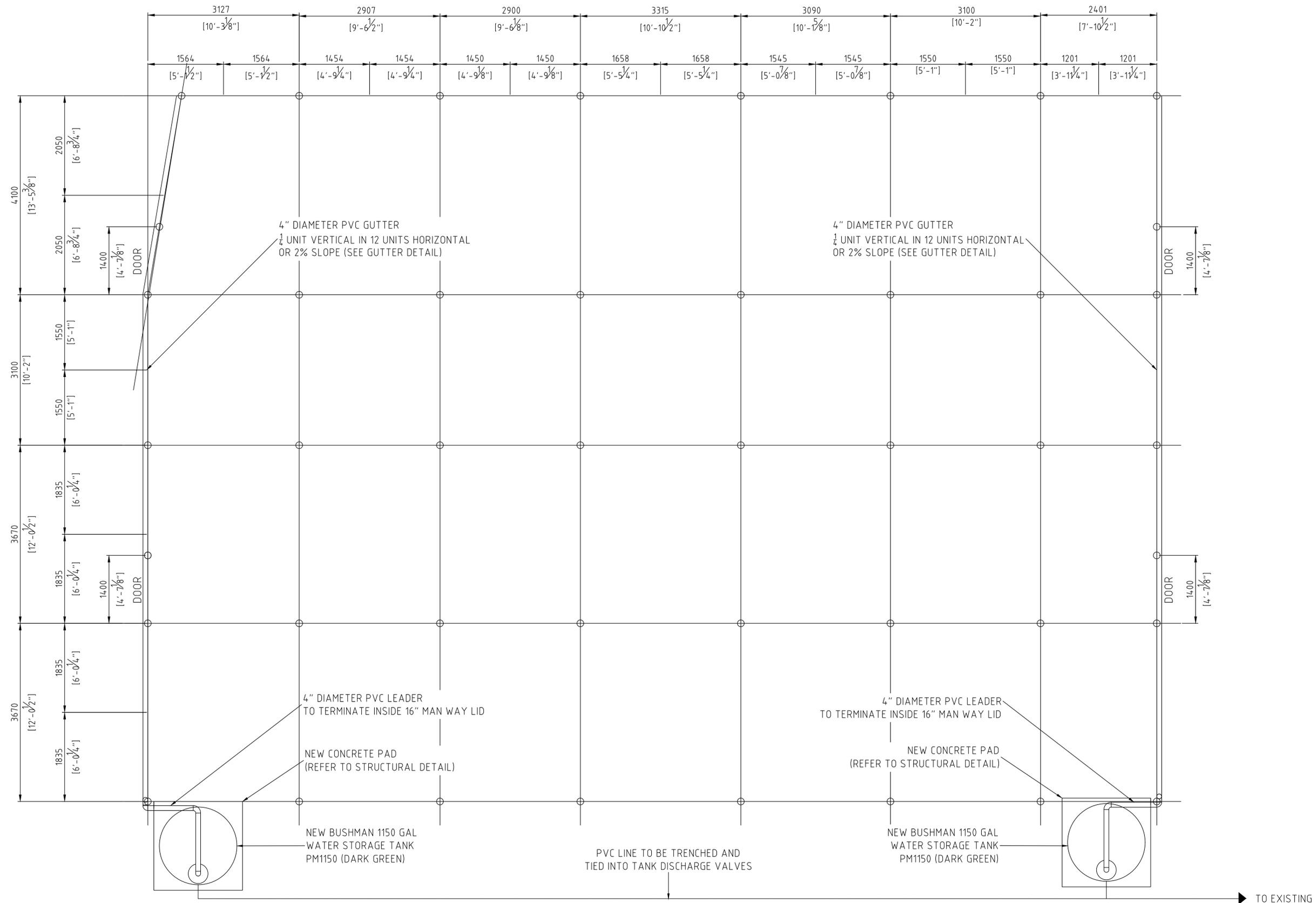
**PLUMBING NOTES &
GUTTER DETAIL**

SHEET NUMBER: REVISION

M200 **A**

NORTH PLAN VIEW - NEW CACTI HOUSE PLUMBING LAYOUT

1:40



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 PREPARED BY: D.CABRAL DATE: 14/06/24
 CHECKED BY: ZJ DATE: 22/07/24

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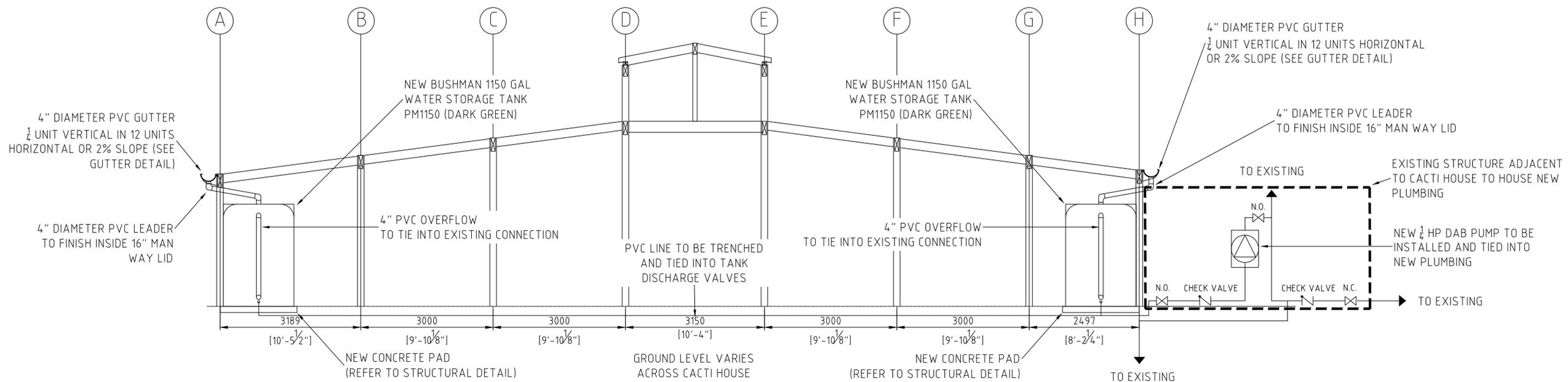
PROJECT NAME:
**BOTANICAL GARDENS
 CACTI HOUSE
 MECHANICAL DESIGN
 2024**

SHEET TITLE:
PLAN VIEWS

SHEET NUMBER: **M400** REVISION: **A**

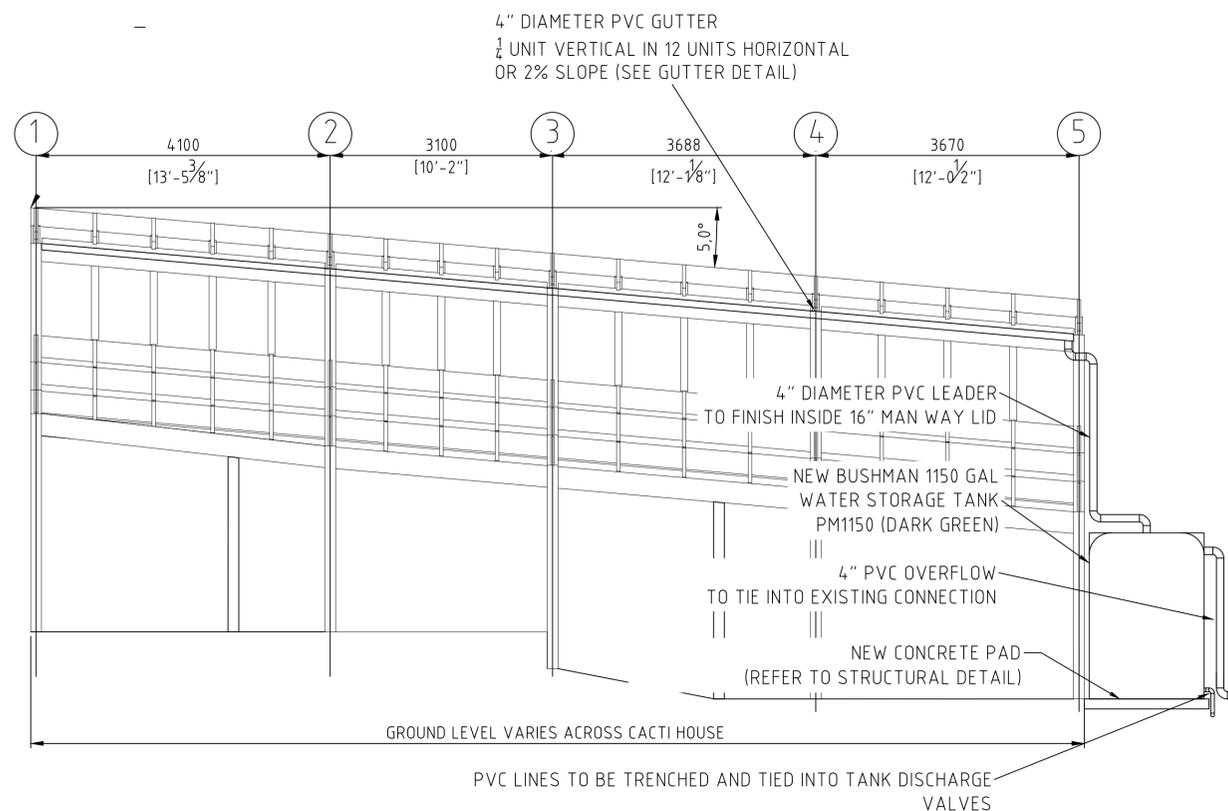
NORTH PLAN VIEW - NEW CACTI HOUSE PLUMBING LAYOUT

1:50



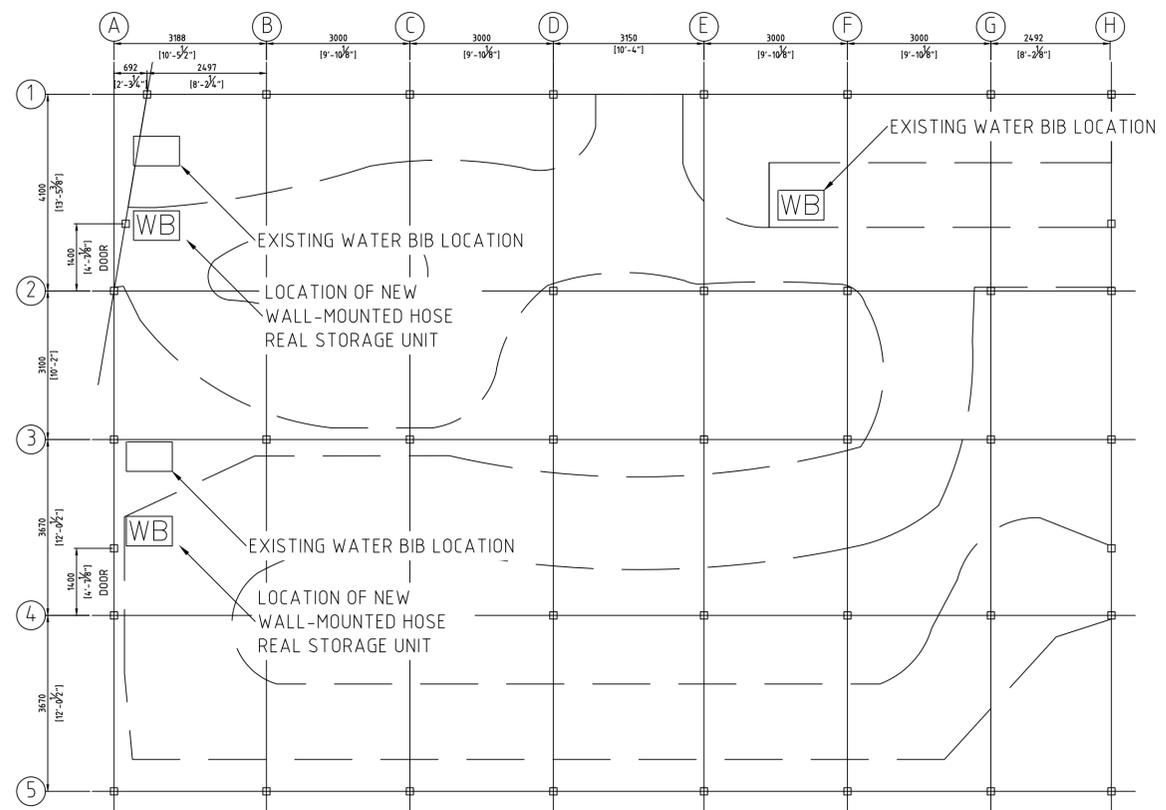
WEST PLAN VIEW - NEW CACTI HOUSE PLUMBING LAYOUT

1:50



INTERIOR PLAN VIEW - NEW CACTI HOUSE PLUMBING LAYOUT

1:75



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CHECKED BY: ZJ DATE: 22/07/24

DRAWING
PREPARED BY: D.CABRAL DATE: 14/06/24
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PROJECT NUMBER:
09010030

PROJECT NAME:
**BOTANICAL GARDENS
CACTI HOUSE
MECHANICAL DESIGN
2024**

SHEET TITLE:
PLAN VIEWS

SHEET NUMBER: **M401** | REVISION: **A**

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PREPARED BY: DATE: -

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PREPARED BY: DATE:

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DRAWING
PREPARED BY: DATE: JAMAR DILL 03/08/24

CHECKED BY: DATE: - 03/08/24

APPROVED BY: DATE: JAMAR DILL 03/08/24

PROJECT NUMBER:
09010030

PROJECT NAME:

**CACTI HOUSE
REDEVELOPMENT PROJECT
2024**

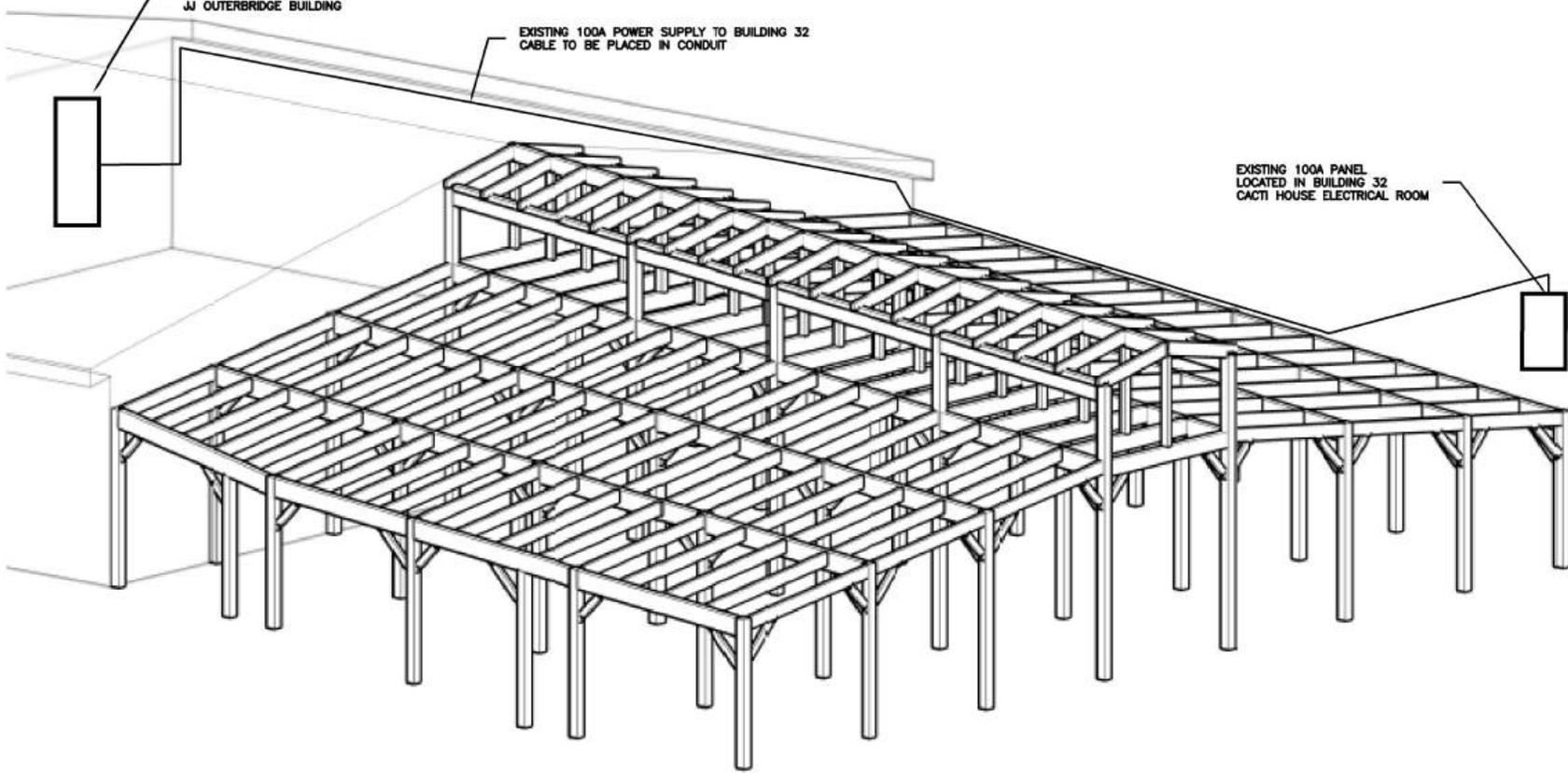
**SHEET TITLE:
EXISTING POWER SUPPLY**

SHEET NUMBER: E-001 **REVISION:** 0

EXISTING 200A PANEL
LOCATED IN BUILDING 33
WJ OUTERBRIDGE BUILDING

EXISTING 100A POWER SUPPLY TO BUILDING 32
CABLE TO BE PLACED IN CONDUIT

EXISTING 100A PANEL
LOCATED IN BUILDING 32
CACTI HOUSE ELECTRICAL ROOM



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PREPARED BY: JAMAR DILL DATE: 03/08/24
CHECKED BY: — DATE: 03/08/24

APPROVED BY: JAMAR DILL DATE: 03/08/24

PROJECT NUMBER:
09010030

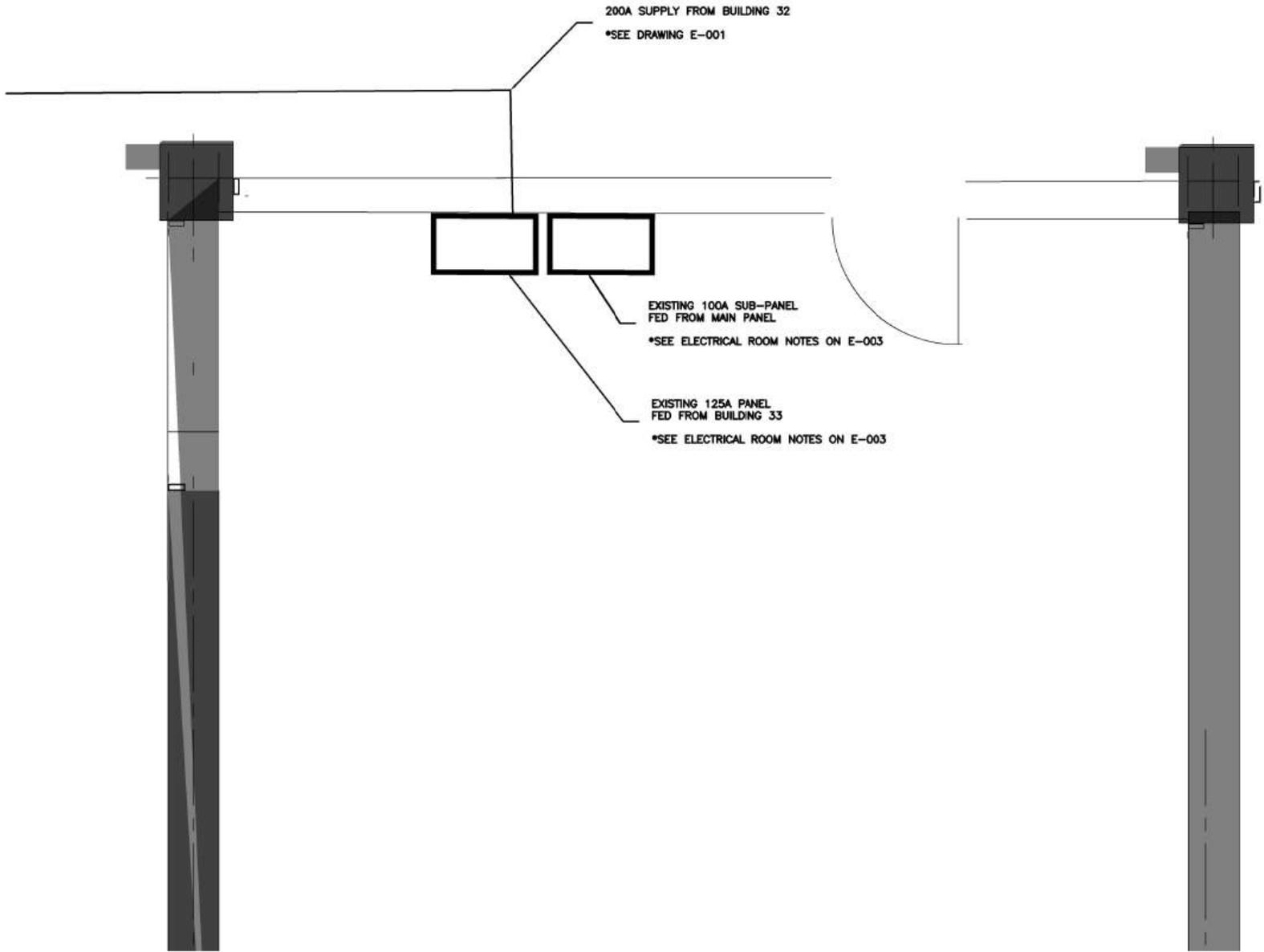
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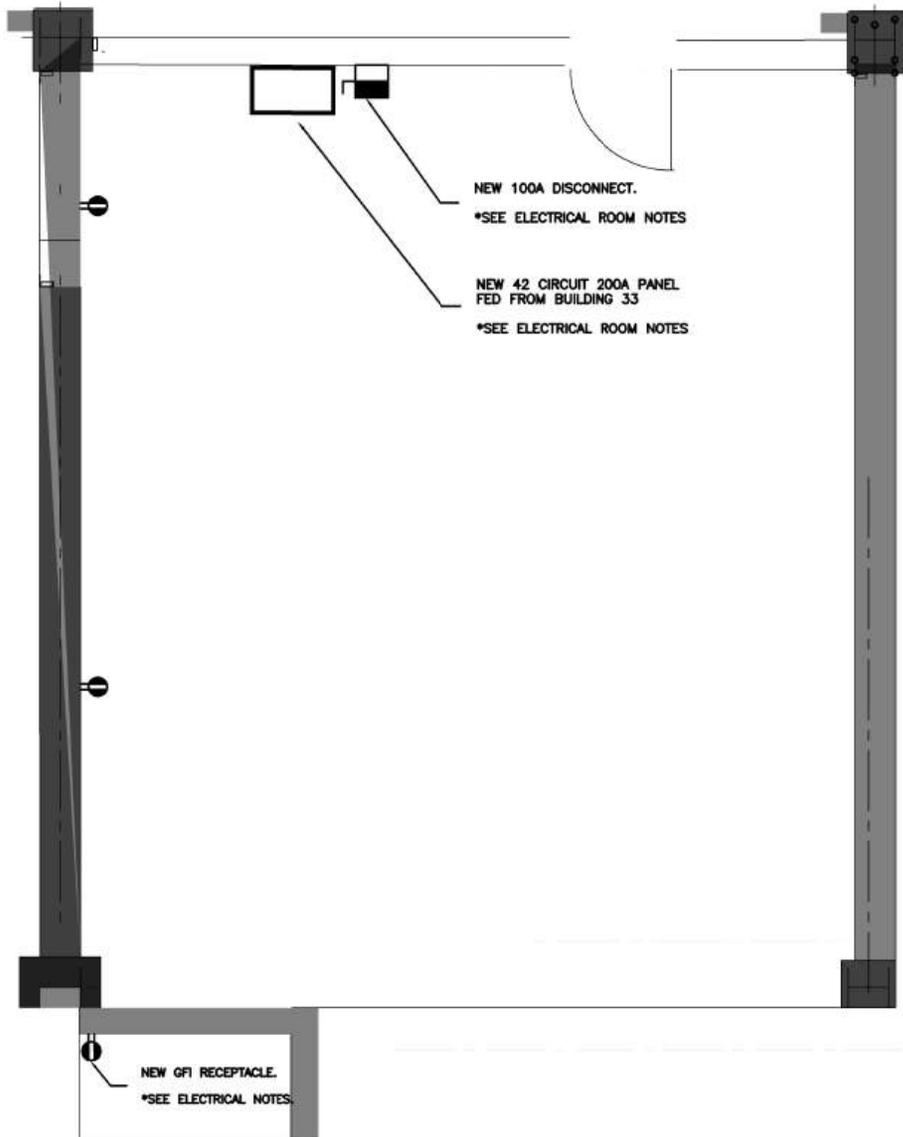
**CACTI HOUSE
REDEVELOPMENT PROJECT
2024**

SHEET TITLE:
CACTI HOUSE ELECTRICAL ROOM

SHEET NUMBER:
L-001

REVISION:
0





ELECTRICAL ROOM NOTES:

1. ELECTRICAL PANEL NOTES:
 - 1.1. ELECTRICAL PANELS SHOWN ABOVE TO BE REPLACED WITH ONE NEW 42 CIRCUIT 200A PANEL.
 - 1.2. NEW 42 CIRCUIT PANEL WILL FEED A 100A DISCONNECT TO BE USED TO SUPPLY TEMPORARY FEED USED FOR AGRICULTURAL EXHIBITION.
2. ELECTRICAL ROOM NOTES:
 - 2.1. NEW POWER SUPPLY TO OUTDOOR PUMP IS REQUIRED. TO BE COORDINATED ON SITE WITH ENGINEER.
 - 2.2. EXISTING RECEPTACLES TO BE REPLACED WITH GFI'S.
 - 2.3. FEED TO NEW PANEL TO BE INSTALLED IN CONDUIT. TO BE COORDINATED ON SITE

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PREPARED BY: DATE: --

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PREPARED BY: DATE: --

CHECKED BY: DATE: --

DRAWING
PREPARED BY: JAMAR DILL DATE: 03/08/24
CHECKED BY: DATE: 03/08/24

APPROVED BY: JAMAR DILL DATE: 03/08/24

PROJECT NUMBER:
09010030

PROJECT NAME:

**CACTI HOUSE
REDEVELOPMENT PROJECT
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SHEET TITLE:
ELECTRICAL ROOM LAYOUT

SHEET NUMBER:
E-003

REVISION:
0

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DRAWING
PREPARED BY: JAMAR DILL DATE: 03/08/24
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APPROVED BY: - DATE: -

PROJECT NUMBER:
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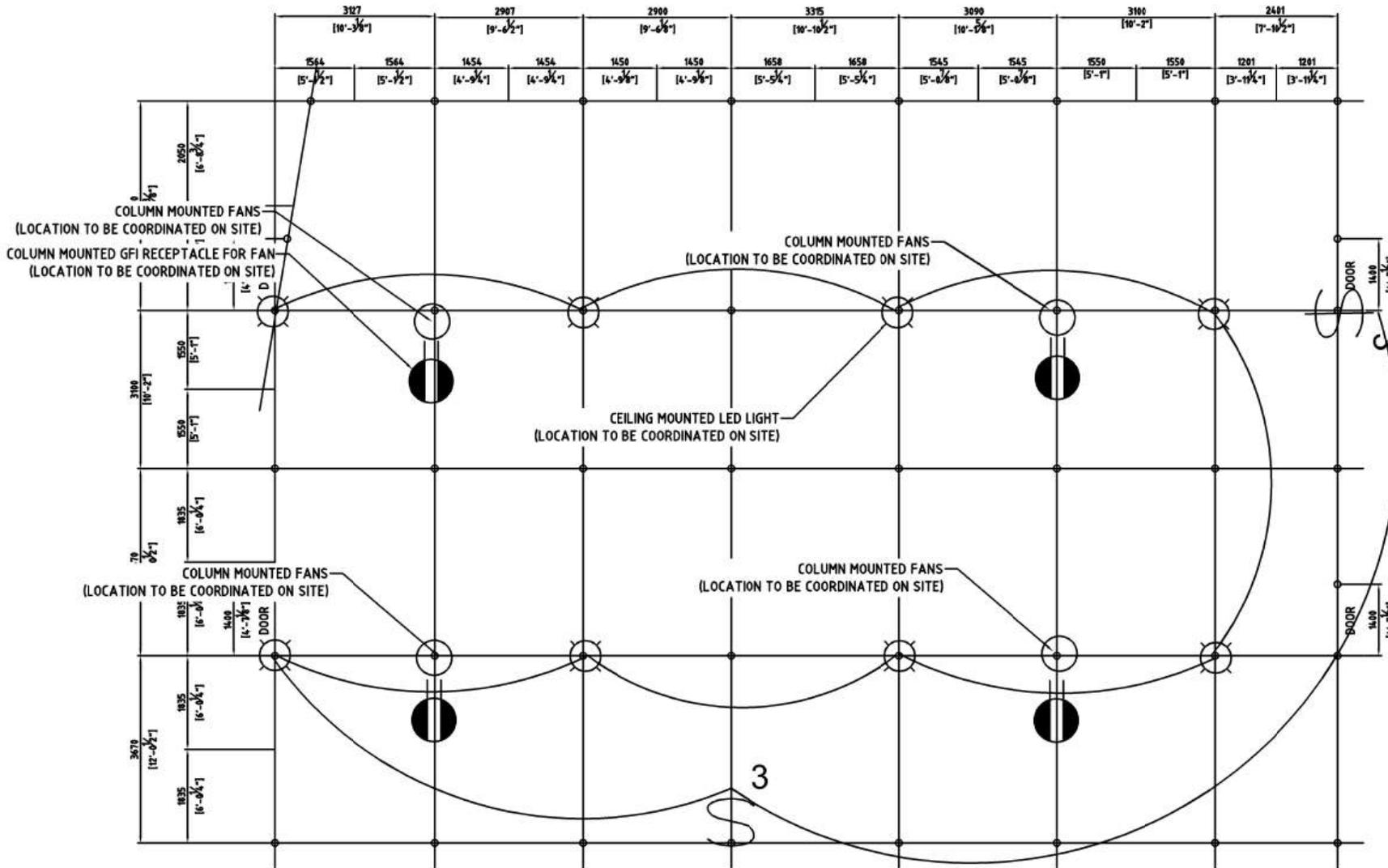
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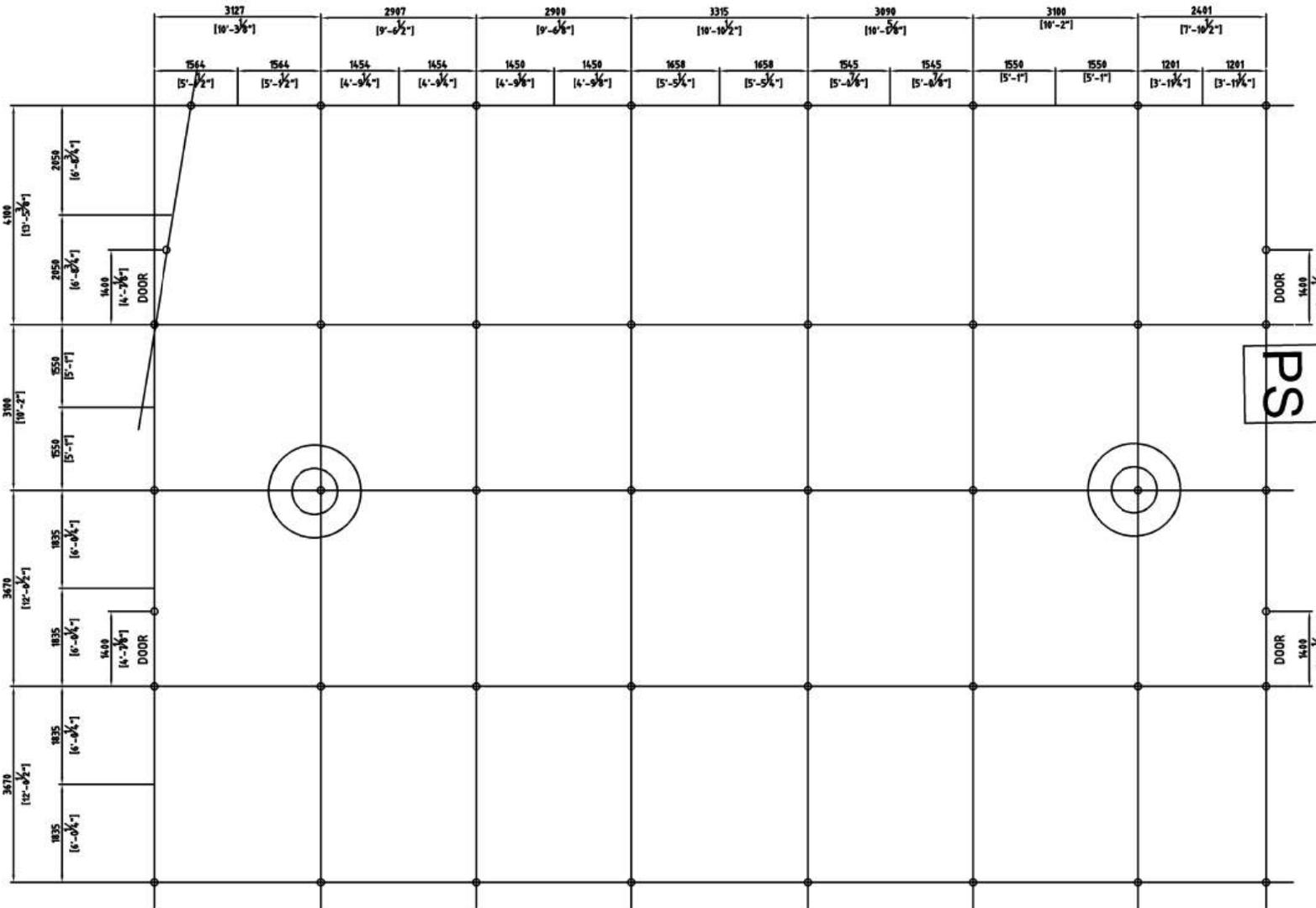
CACTI HOUSE
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SHEET TITLE:
REFLECTED CEILING PLAN

SHEET NUMBER:
E-004

REVISION:
0





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AMENDMENTS:

NO	REVISION	BY	APP DATE
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SCALE: AS SHOWN AT ANS D

SURVEY
PREPARED BY: - DATE: -

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PREPARED BY: - DATE: -

CHECKED BY: - DATE: -

DRAWING
PREPARED BY: JAMAR DILL DATE: 03/08/24
CHECKED BY: - DATE: 03/08/24

APPROVED BY: - DATE: -
JAMAR DILL 03/08/24

PROJECT NUMBER:
09010030

PROJECT NAME:
CACTI HOUSE
REDEVELOPMENT PROJECT
2024

SHEET TITLE:
FIRE ALARM LAYOUT

SHEET NUMBER:
E-005

REVISION
0