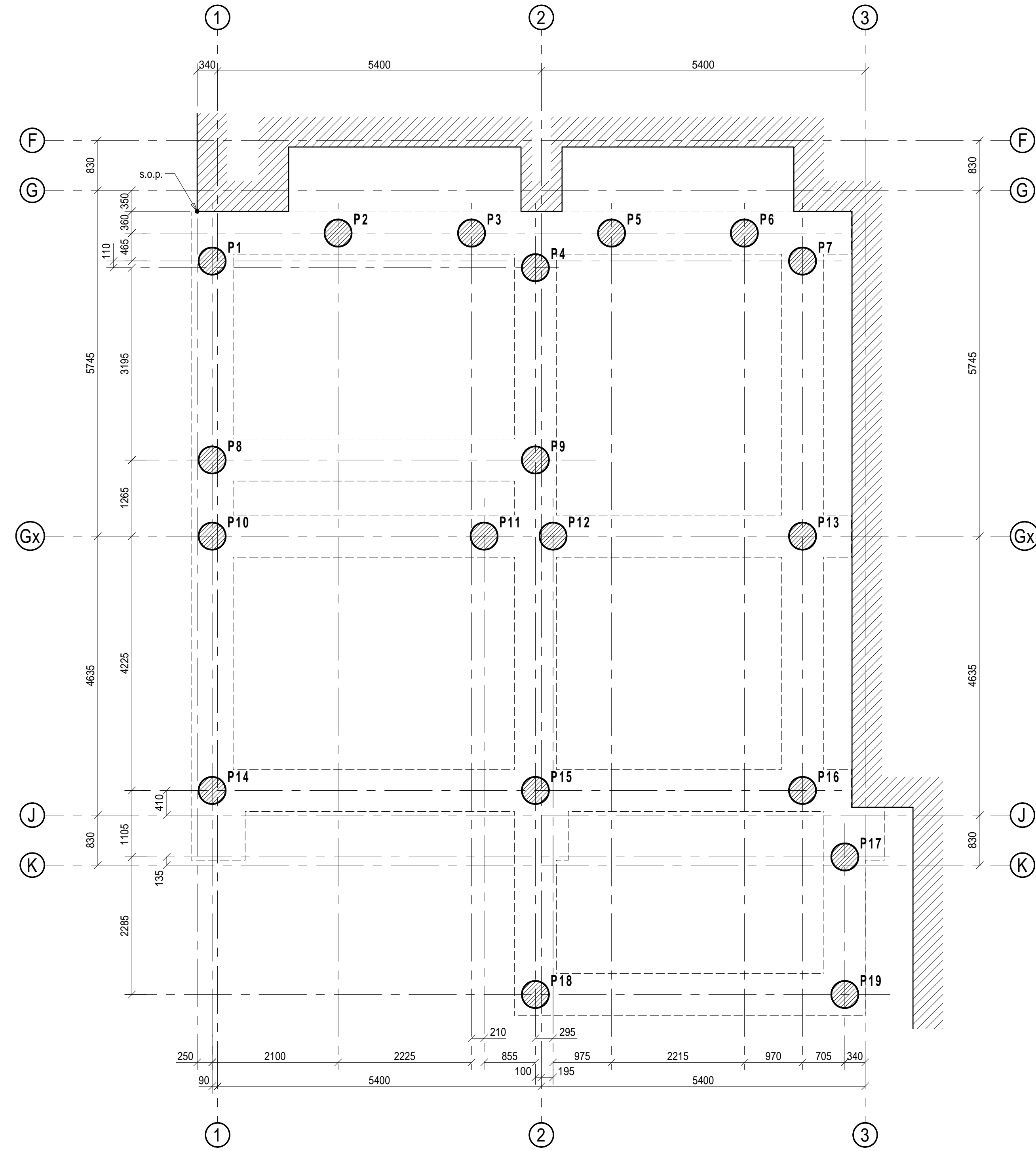


Note : This piling design is 'preliminary' and will be subject to review and re-design based on the results of the borehole investigation currently being carried out on site.

ALL PILES ARE PRESSURE GROUTED CONTINUOUS FLIGHT AUGURED (CFA) PILES

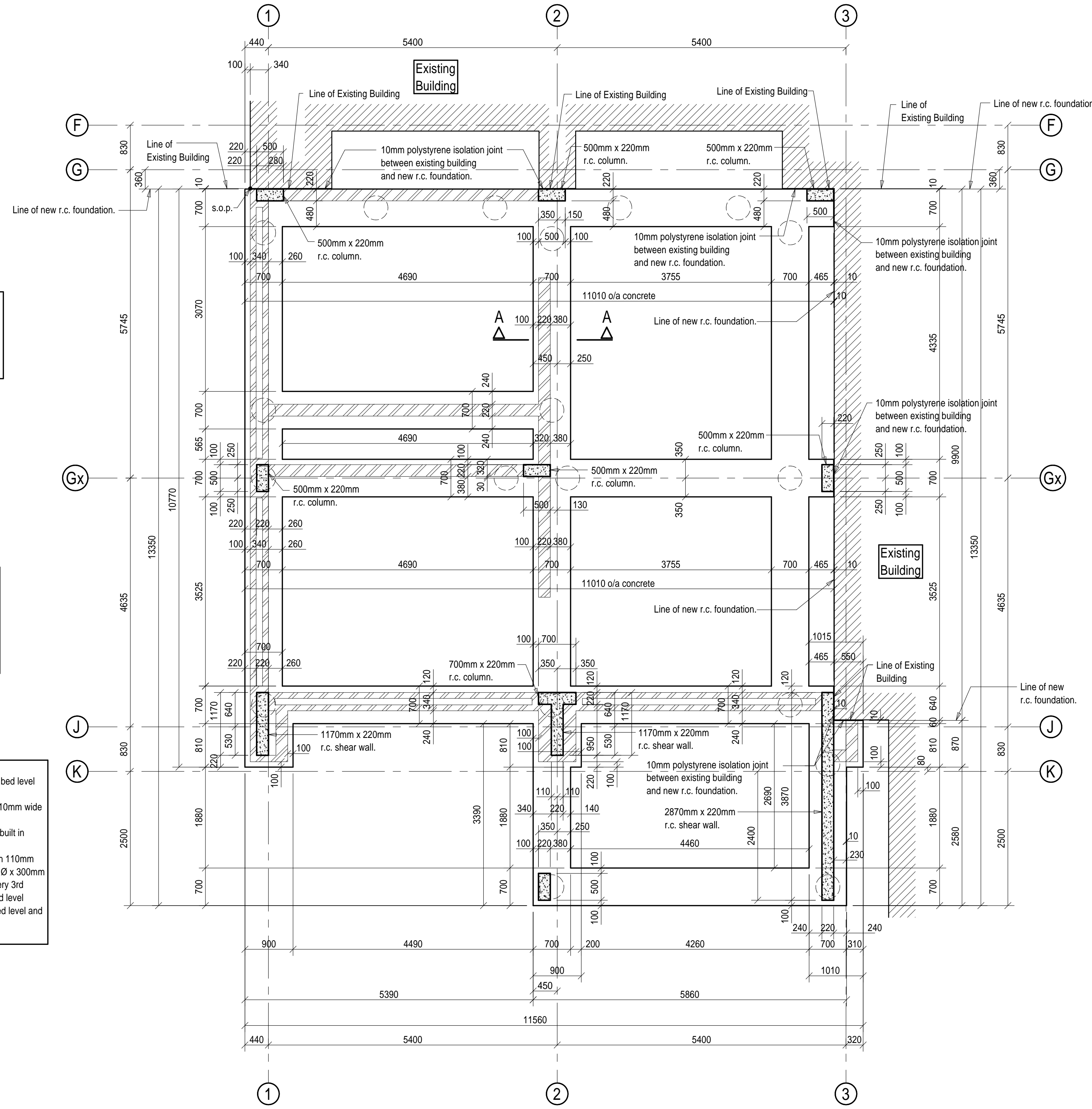


PILING LAYOUT

UNLESS OTHERWISE NOTED ALL R.C. GROUND BEAMS ARE : 800mm deep x 700mm wide with l.o.c. @ +1349,235 lv.

Note - Brickwork Stripping
All brickwork to be 'strapped' tied to r.c. columns, shear walls and other concrete vertical elements with 30mm wide x 1.2mm thk. x 800mm long galvanised steel straps. 100mm of steel strap shot fired to column and 700mm of steel strap built into brick wall every 3rd course. Each brick skin (at every 3rd course) to be tied to r.c. columns, shear walls and other concrete vertical elements.


BRICKWORK NOTES:
- All brickwork (solid brick walls or cavity brick walls) below surface bed level to have brickwork in every course.
- All solid brick walls above surface bed level are 220mm wide or 110mm wide with brickwork built in every 3rd course.
- All parapet walls are 220mm wide or 110mm wide with brickwork built in every course.
- All cavity brick walls above surface bed level are 340mm wide with 110mm wide outer skin brickwork with 120mm central cavity with 3,15mm Ø x 300mm long galvanised butterfly wire ties built vertically into brickwork every 3rd course and horizontally at max. 500mm centres above surface bed level and built vertically into brickwork in every course below surface bed level and horizontally at max. 500mm centres.
- All brickwork to Architect's detail in Class 2 mortar.

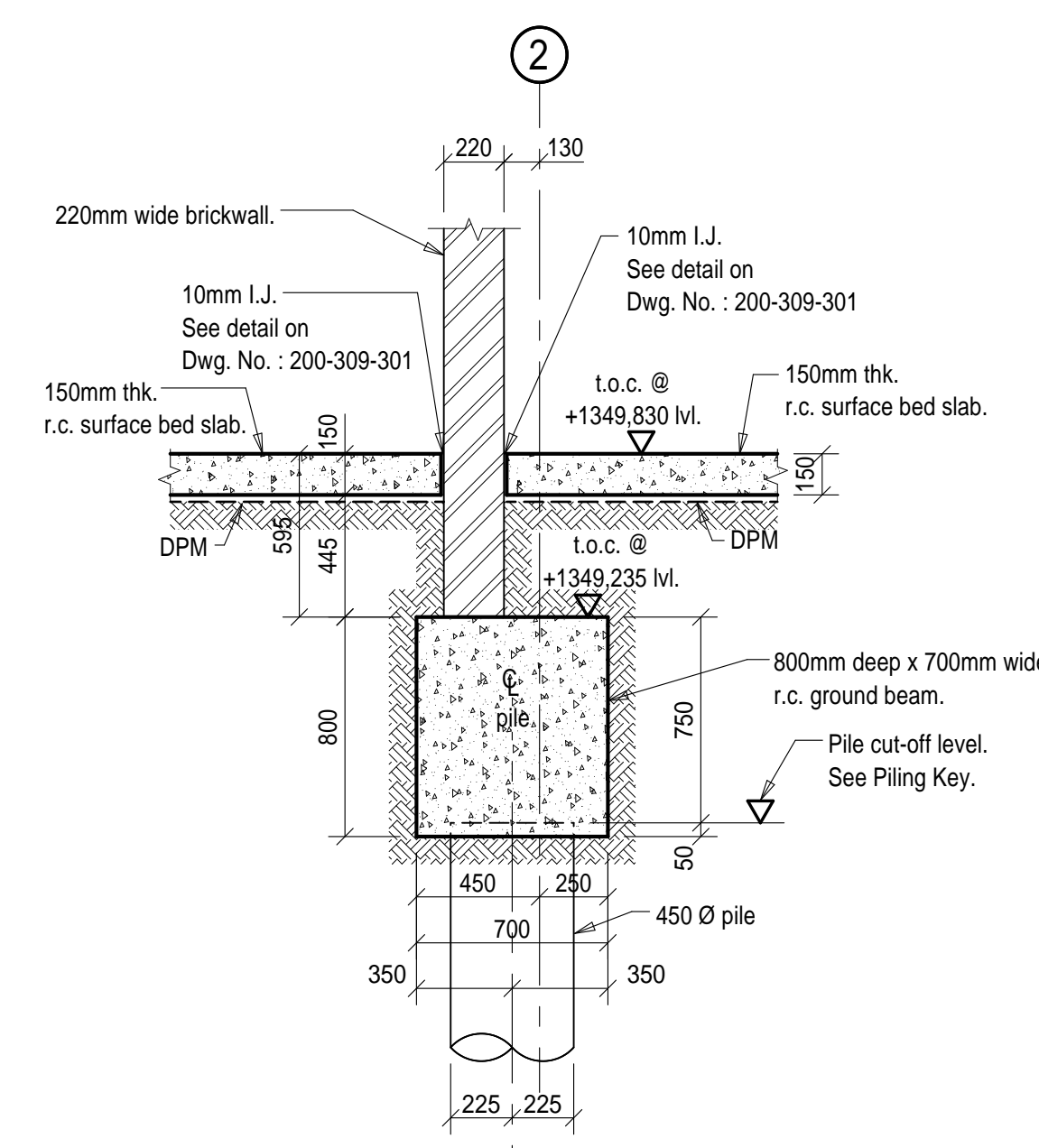


FOUNDATION LAYOUT

PILING NOTES :-

- ALL PILING TO BE CARRIED OUT IN ACCORDANCE WITH SABS 1200F.
- THE RESPONSIBILITY FOR THE DESIGN AND PERFORMANCE OF ALL PILES SHALL LIE WITH THE PILING CONTRACTOR AND THE PILING CONTRACTOR SHALL SUPPLY A PILING GUARANTEE OR A PILING LIABILITY INSURANCE POLICY IN THIS REGARD. THE PILING GUARANTEE OR A PILING LIABILITY INSURANCE POLICY IS TO BE IN PLACE FOR A MINIMUM PERIOD OF 3 YEARS AFTER THE FINAL PILE HAS BEEN INSTALLED. THE PILING CONTRACTOR'S PILE DESIGN ENGINEER MUST SUBMIT A 'CERTIFICATE OF STABILITY' TO THE PRINCIPAL STRUCTURAL ENGINEER ON COMPLETION OF THE PILING CONTRACT.
- THE PILING LIABILITY INSURANCE POLICY SHOULD HAVE INSURANCE COVER FOR THE FOLLOWING SECTIONS :-
a) PUBLIC LIABILITY COVER.
b) GENERAL CONSTRUCTION LIABILITY COVER.
c) FOUNDATION FAILURE INDEMNITY COVER.
d) PRODUCTS AND DEFECTIVE WORKMANSHIP LIABILITY COVER.
e) THE CERTIFICATE OF INSURANCE IS TO BE SUBMITTED TO THE PRINCIPAL STRUCTURAL ENGINEER FOR APPROVAL.
f) THE LIMIT OF INDEMNITY AND THE REQUIRED INSURANCE COVER AMOUNTS WILL BE AS STIPULATED IN THE PILING TENDER DOCUMENT OR AS ADVISED BY THE APPOINTED QUANTITY SURVEYOR.
- CONCRETE STRENGTH FOR ALL PILES AT 28 DAYS IS 30 MPa. CONCRETE CUBE TESTS TO BE CARRIED OUT ON PILE GROUT FOR EVERY 20 PILES INSTALLED. 6 CUBES TO BE TAKEN AFTER EVERY 10 PILES INSTALLED (3 CUBES TO BE TESTED AT 7 DAYS AND 3 CUBES TO BE TESTED AT 28 DAYS). RESULTS OF THE CUBE TESTS TO BE SUBMITTED TO THE PRINCIPAL STRUCTURAL ENGINEER FOR APPROVAL.
- PILE TYPE IS 0450mm PRESSURE GROUTED CONTINUOUS FLIGHT AUGER (CFA) PILE WITH A SERVICE LOAD OF 790 kN.
- PILE CUT-OFF LEVEL TO BE 50mm ABOVE SOFFIT OF THE GROUND BEAM OR AS INDICATED ON THE PILING LAYOUTS WITH 500mm PILE REBAR PROJECTION.
- PILE INTEGRITY TESTING IS TO BE CARRIED OUT ON ALL PILES BY AN INDEPENDENT GEOTECHNICAL ENGINEER. NO 'IN-HOUSE' INTEGRITY TESTING BY THE PILING CONTRACTOR WILL BE ACCEPTED.
- ALL PILE SETTING OUT IS TO BE CARRIED OUT BY THE PILING CONTRACTOR AND VERIFIED BY THE MAIN CONTRACTOR WHOM ASSUMES FULL RESPONSIBILITY FOR THE PILE SETTING OUT. ALL PILE POSITIONS ARE TO BE SET OUT BY THE PILING CONTRACTOR'S REGISTERED ENGINEERING SURVEYOR.
- THE FINAL PILING DESIGN IS TO BE SUBMITTED BY THE PILING CONTRACTOR TO THE APPOINTED GEOTECHNICAL ENGINEER FOR APPROVAL. THE COST FOR THIS APPROVAL PROCESS IS TO BE PROVIDED FOR BY THE PILING CONTRACTOR. THE PILING CONTRACTOR CAN ONLY COMMENCE WITH PILING, PENDING THE APPROVAL OF THE FINAL PILING DESIGN FROM THE APPOINTED GEOTECHNICAL ENGINEER AND THE APPROVAL FROM THE PRINCIPAL STRUCTURAL ENGINEER.
- THE MAXIMUM PERMISSIBLE DEVIATION OF THE PILE POSITIONS SHALL BE 50mm.
- ALL PILES ARE TO BE NEATLY TRIMMED TO PILE CUT-OFF LEVEL. THE TOP SURFACE OF ALL TRIMMED PILES IS TO BE FINISHED LEVEL AND SMOOTH. AN APPROVED NON-SHRINK LEVELING CONCRETE GROUT MUST BE ALLOWED FOR THE BY CONTRACTOR TO ACHIEVE THE LEVEL AND SMOOTH FINISH REQUIREMENT NOTED ABOVE.
- TWO COPIES OF AN AS-BUILT LOCATION DRAWING SIGNED BY THE PILING CONTRACTOR SHOWING THE PRECISE POSITION OF EVERY PILE SHALL BE SUPPLIED TO THE PRINCIPAL STRUCTURAL ENGINEER. ANY PILE OUTSIDE THE TOLERANCE LIMITS SPECIFIED SHALL BE CLEARLY HIGHLIGHTED ON THE AS-BUILT LAYOUT.

PILING KEY				
PILE TYPE	PILE NUMBER	PILING PLATFORM LEVEL	PILE 'CUT OFF' LEVEL	TOTAL
 0450mm PRESSURE GROUTED CONTINUOUS FLIGHT AUGER (CFA) PILE WITH A SERVICE LOAD OF 790 kN. (19 No. Of)	P1 - P19	+1349,530 lv	+1348,485 lv	19 PILES



SECTION A - A

NOTES

- ALL LEVELS AND DIMENSIONS TO BE CHECKED ON SITE.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS.
- ALL CONCRETE WORK TO COMPLY WITH SABS 1200G.
- CONCRETE CLASS :-
a) PILECAPS & GROUND BEAMS = 25 MPa
b) STRIP FOOTINGS & BASES = 25 MPa
c) COLUMNS, SHEAR & LIFT WALLS = 30 MPa
d) SLABS, BEAMS & STAIRCASES = 25 MPa
e) RETAINING WALLS = 25 MPa
f) SURFACE BEDS = 30 MPa
g) BLINDING = 10 MPa
- COVER TO REINFORCEMENT :- AS INDICATED ON DRAWING
- ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
- ALL REINFORCING FIXING TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
- SIX CUBES TO BE TAKEN PER POUR. THREE TO BE TESTED AT SEVEN DAYS, THE REMAINDER AT TWENTY EIGHT DAYS. THE RESULTS TO BE FORWARDED TO THE ENGINEER.
- CONTRACTOR TO CONSTRUCT A BLINDING LAYER IF SOIL CONDITIONS RESULT IN REINFORCEMENT COVER NOT BEING MAINTAINED.
- ALL STRUCTURAL CONCRETE TO BE CURED FOR A MINIMUM OF FIVE DAYS.
- BRICKWORK SHOWN HATCHED ARE LOAD BEARING. ALL LOAD BEARING BRICKWORK TO BE 1400p NFX. TOP OF ALL BRICKWORK TO RECEIVE 2 LAYERS OF 3 PLY MALTHOID ON SMOOTH RENDURED SURFACE.
- ALL SINGLE SKIN BRICKWORK TO BE STOPPED 2 COURSES BELOW SOFFIT OF SLAB AND COMPLETED AFTER PROPS HAVE BEEN REMOVED.
- ALL CONCRETE PLASTER AND BRICKWORK PLASTER INTER-FACES TO RECEIVE V-JOINTS.
- THE ENGINEER REQUIRES 24HRS NOTICE FOR ALL INSPECTIONS.

REV	DESCRIPTION	BY	DATE
T1	FOR TENDER PURPOSES	S.A.	24/06/2020

Professional person: M.NAIR P.Tech/Eng registration: 200670211

PROJECT MANAGER / PRINCIPAL AGENT



PROJECT
UMALUSI OFFICES
ADDITIONS AND ALTERATIONS

DETAILS
NEW ABLUTIONS BUILDING
PILING & FOUNDATION
STRUCTURAL LAYOUT & DETAILS

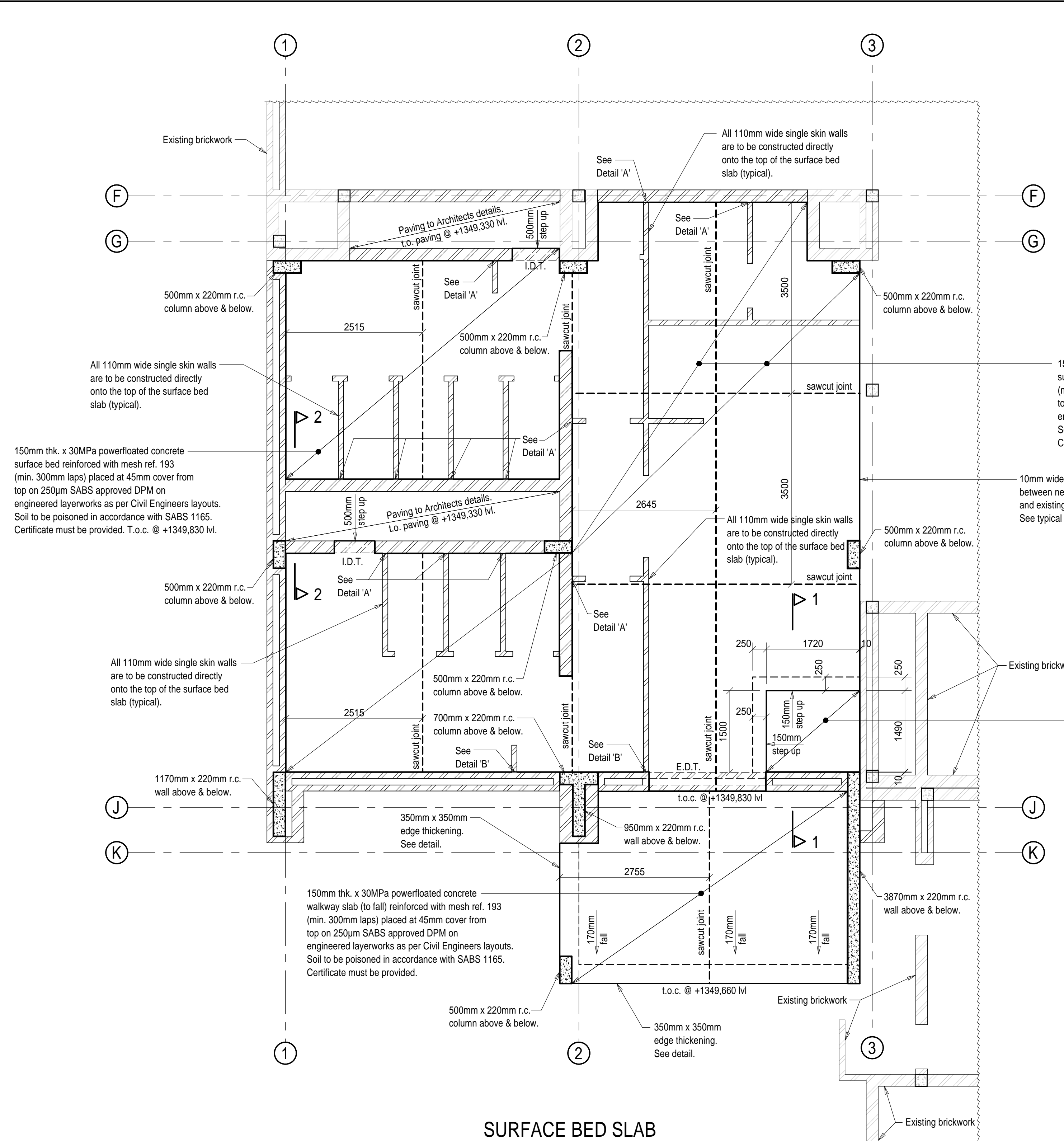


SUITE 106, ESSEBIEVIEW BUILDING, STRATFORDMORE PARK,
360 MIDDELDRE ROAD, DURBAN, 4001
e-mail : admin@mapafrica.co.za
FAX (031) 3092929 TEL. (031) 3095831

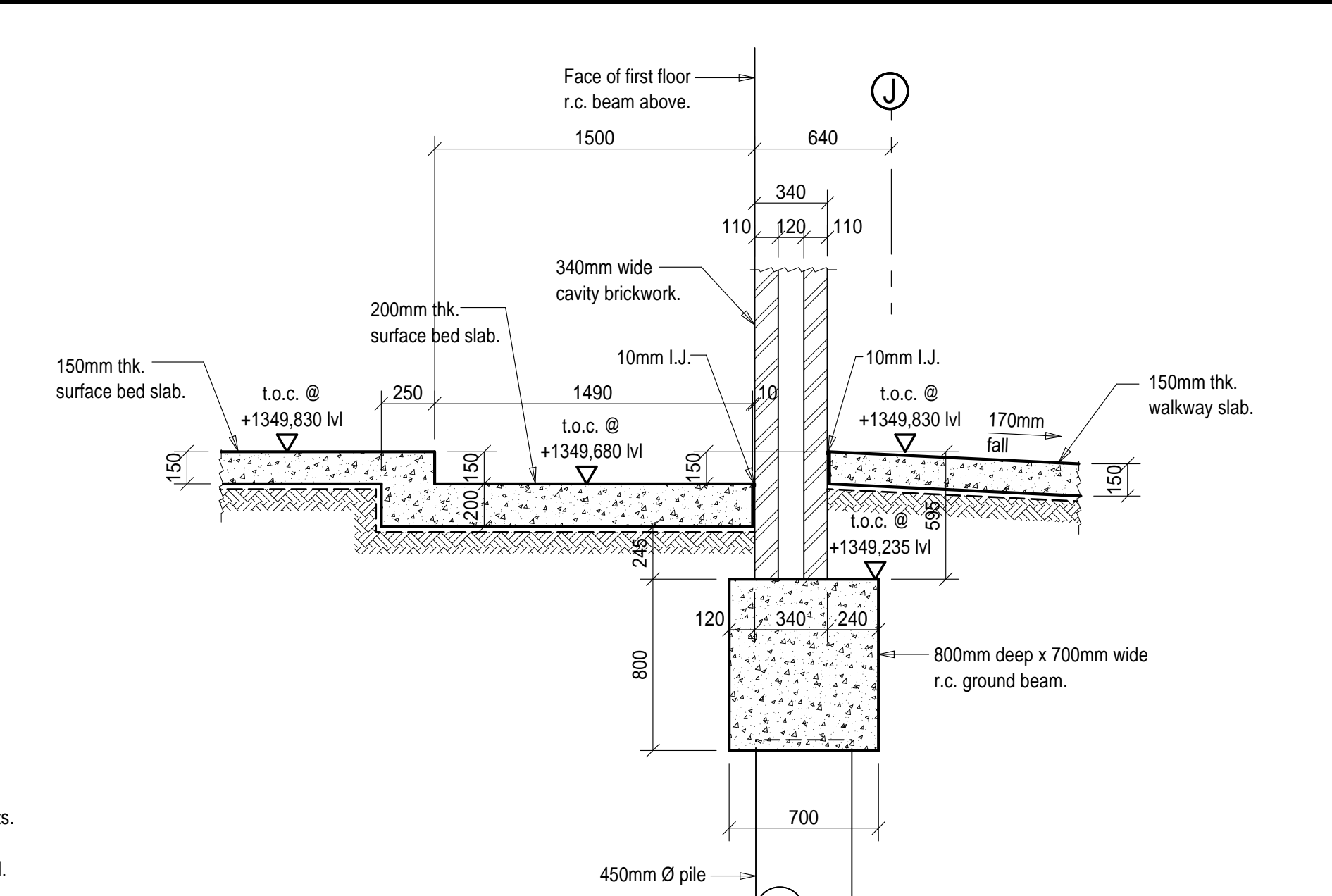
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APPROVED	M.N.	PL	DATE 29/01/2020

DRAWING No: 200-309 / 300 REV T1

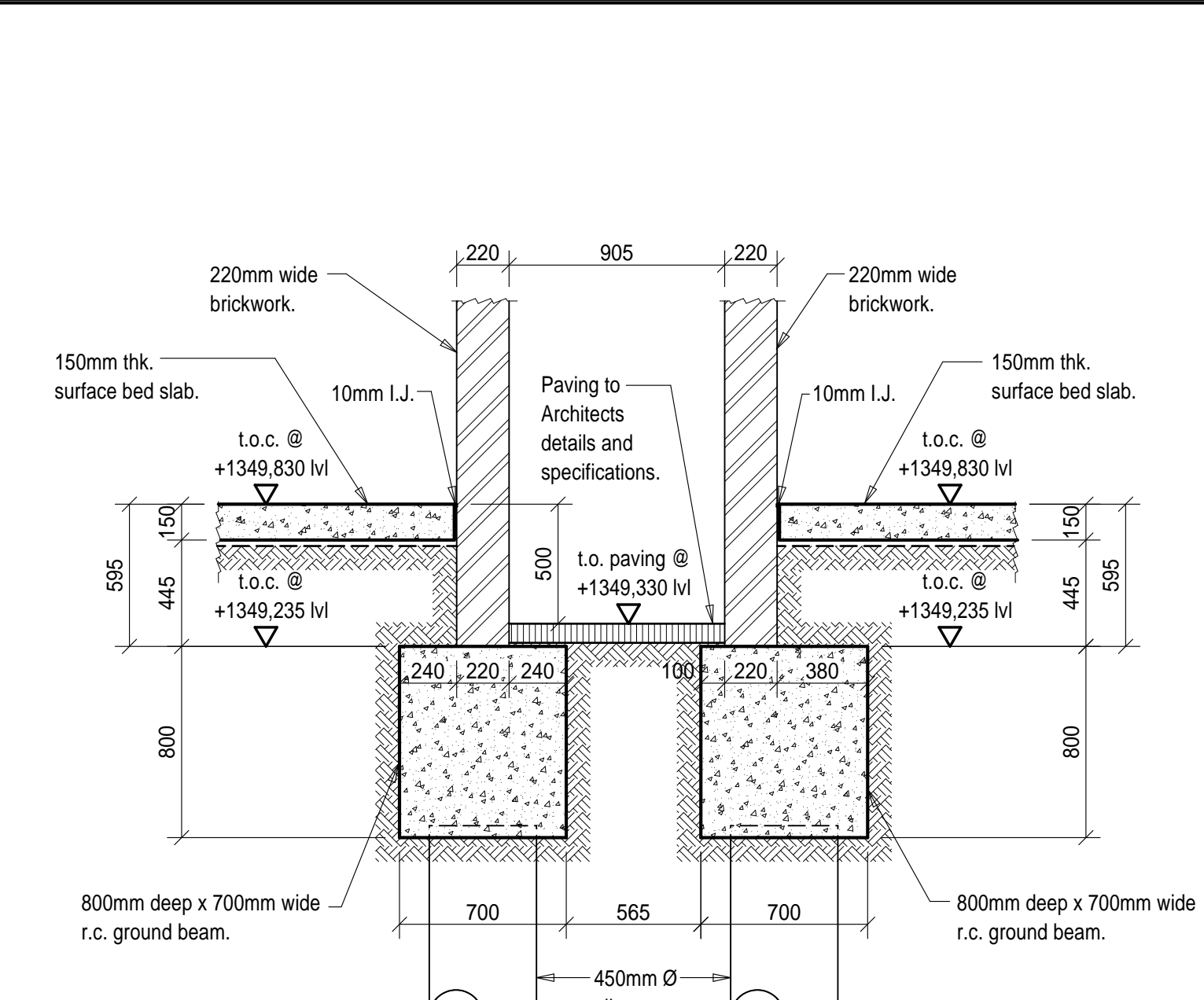
FOR TENDER PURPOSES



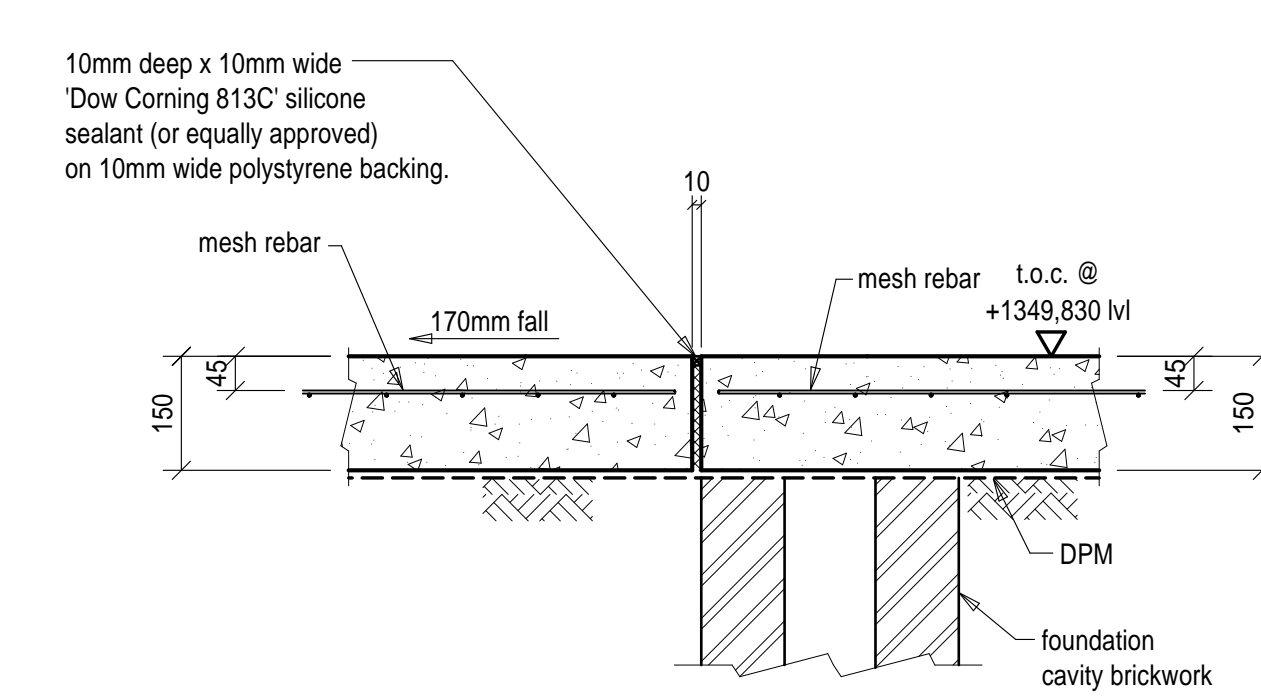
SURFACE BED SLAB



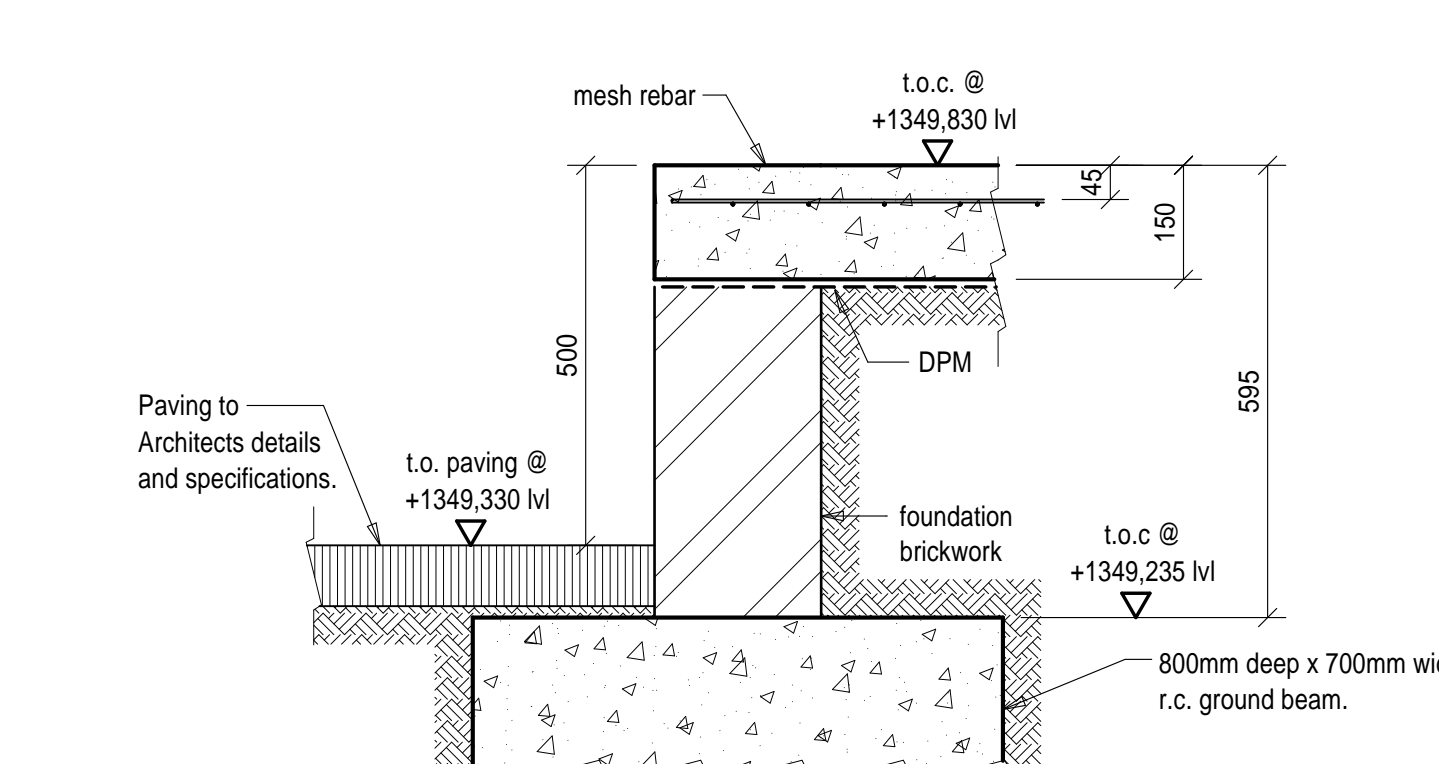
SECTION 1-1



SECTION 2-2



EXTERNAL DOOR THRESHOLD (E.D.T.)



INTERNAL DOOR THRESHOLD (I.D.T.)

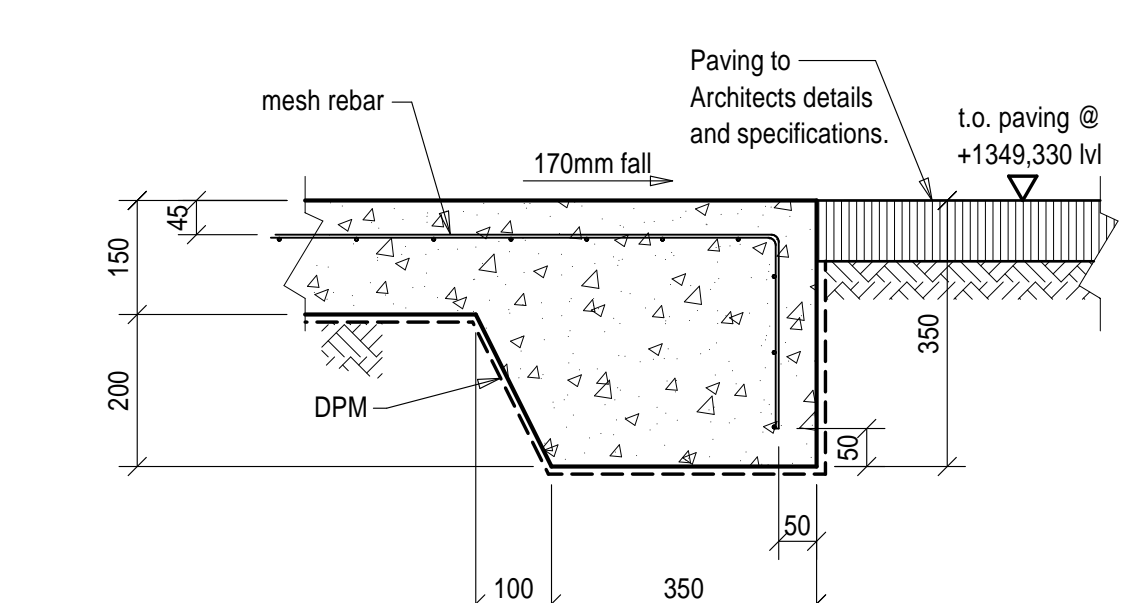
REINFORCING SCHEDULE : STOOLS FOR TOP MESH SUPPORT

MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM-BER	MARK	S	C	BENDING					
									A	B	C	D	E/r	
STOOLS FOR 200mm THK SURFACE BED	1	10	R10	1150	10	01	83	350	90	350				
R	8	10	12	16	20	25	32	40	TOT					
Y		7							7					
TOT		7							7					

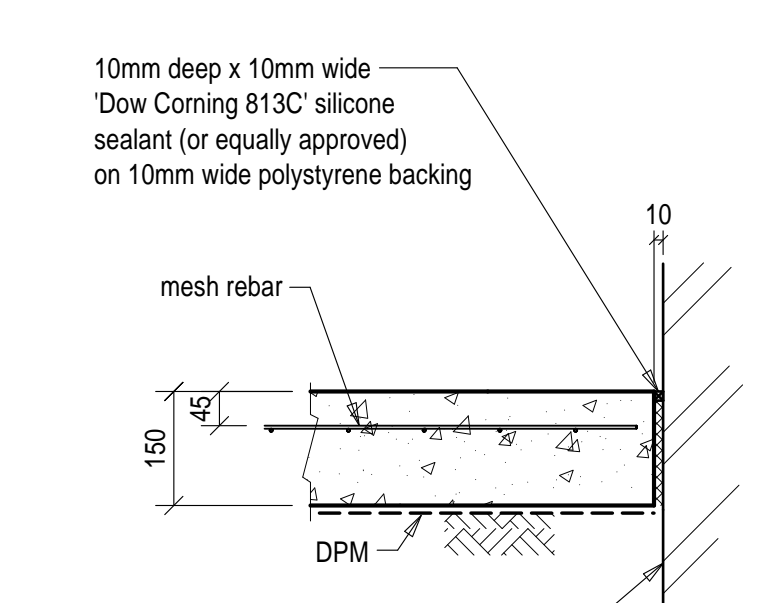
10mm isolation joint between all load bearing brickwork / r.c. columns and r.c. surface bed.
See Typical Isolation Joint Detail (I.J.)

Note : Brickwork Strapping
All brickwork to be strapped to r.c. columns, shear walls and other concrete vertical elements with 30mm wide x 1.2mm thk. x 900mm long galvanised steel straps. 100mm of steel strap shot fired to column and 700mm of steel strap built into brick wall every 3rd course. Each brick skin (at every 3rd course) to be tied to r.c. columns, shear walls and other concrete vertical elements.

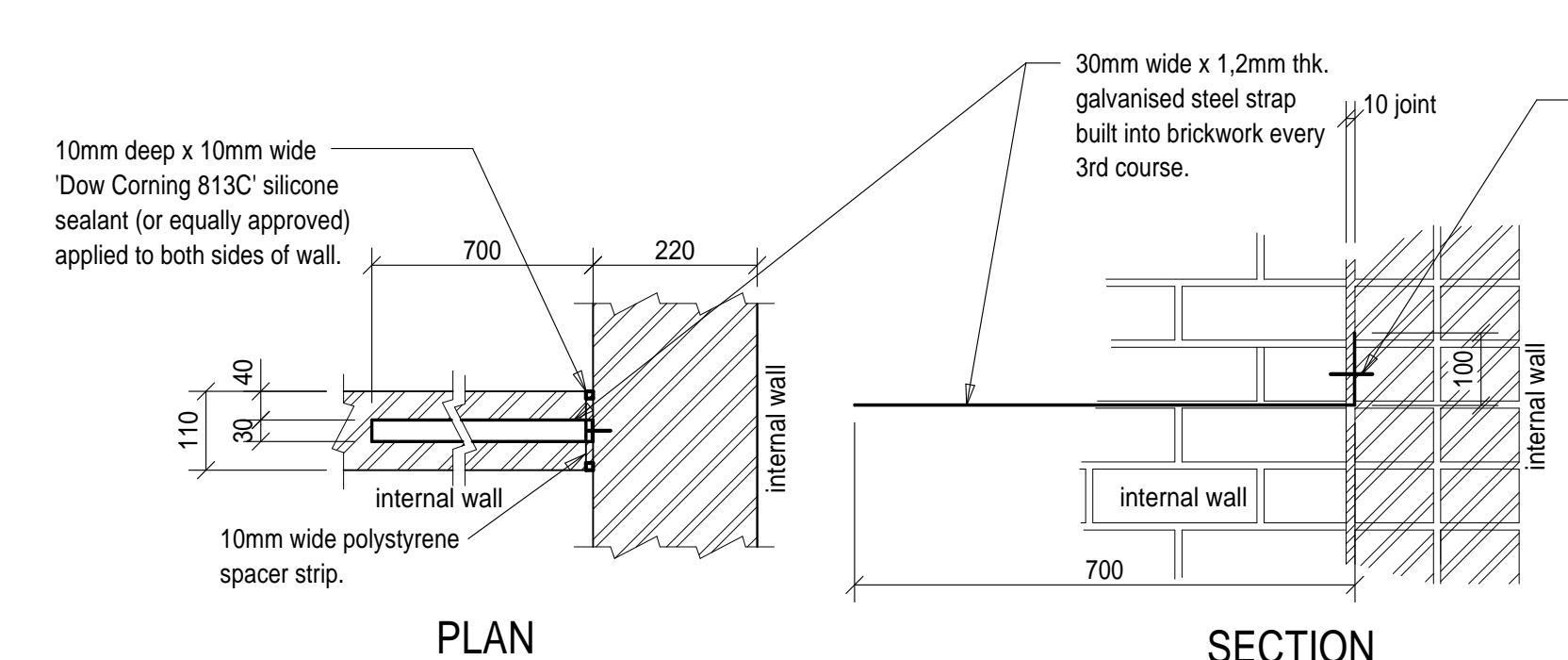
BRICKWORK NOTES
- All brickwork (solid brick walls or cavity brick walls) below surface bed level to have brickforce in every course.
- All solid brick walls above surface bed level are 220mm wide or 110mm wide with brickforce built in every 3rd course.
- All ansel walls are 220mm wide or 110mm wide with brickforce built in every course.
- All cavity brick walls above surface bed level are 340mm wide with 110mm wide outer skin brickwork with 120mm central cavity with 3, 15mm Ø x 300mm long galvanised butterfly wire ties built vertically into brickwork every 3rd course and horizontally at max. 500mm centres above surface bed level and built vertically into brickwork in every course below surface bed level and horizontally at max. 500mm centres.
- All brickwork to Architects detail in Class 2 mortar.



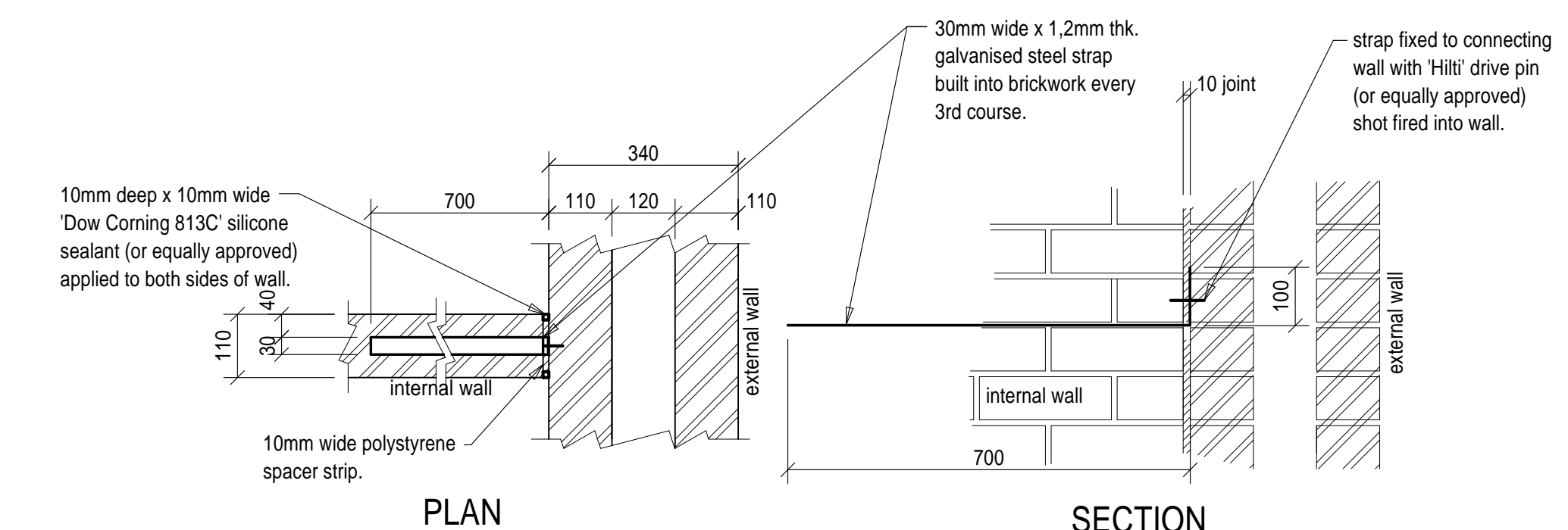
350mm x 350mm EDGE THICKENING DETAIL



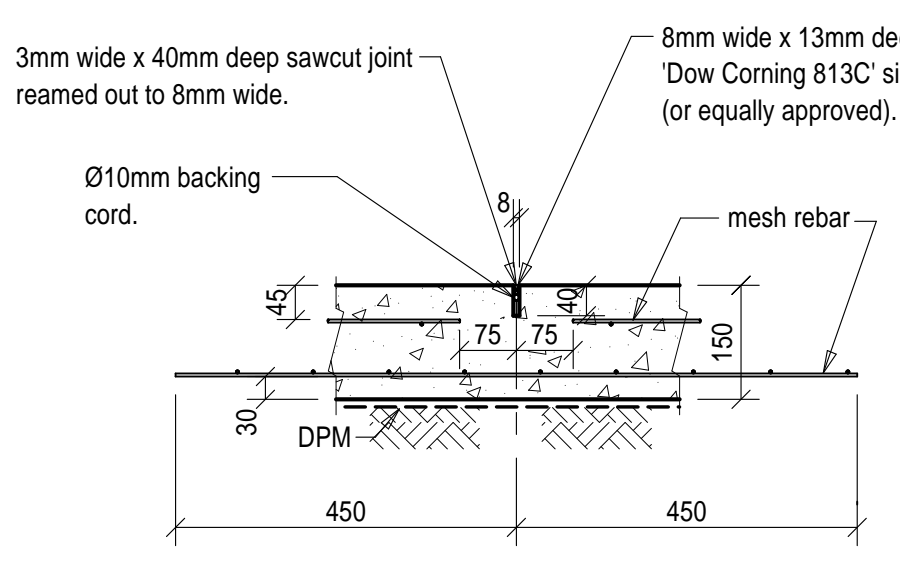
TYPICAL ISOLATION JOINT DETAIL (I.J.)



DETAIL 'A'
110mm INTERNAL WALL TO 220mm INTERNAL WALL CONNECTION DETAIL



DETAIL 'B'
110mm INTERNAL WALL TO 340mm EXTERNAL CAVITY WALL CONNECTION DETAIL



TYPICAL SAW-CUT JOINT DETAIL

- NOTES**
- ALL LEVELS AND DIMENSIONS TO BE CHECKED ON SITE.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS.
 - ALL CONCRETE WORK TO COMPLY WITH SABS 1200G.
 - CONCRETE CLASS :-
a) PILECAPS & GROUND BEAMS = 25 MPa
b) STRIP FOOTINGS & BASES = 25 MPa
c) COLUMNS, SHEAR & LIFT WALLS = 30 MPa
d) SLABS, BEAMS & STAIRCASES = 25 MPa
e) RETAINING WALLS = 25 MPa
f) SURFACE BEDS = 30 MPa
g) BLINDING = 10 MPa
 - COVER TO REINFORCEMENT :- AS INDICATED ON DRAWING
 - ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
 - ALL REINFORCING FIXING TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
 - SIX CUBES TO BE TAKEN PER POUR, THREE TO BE TESTED AT SEVEN DAYS, THE REMAINDER AT TWENTY EIGHT DAYS, THE RESULTS TO BE FORWARDED TO THE ENGINEER.
 - CONTRACTOR TO CONSTRUCT A BLINDING LAYER IF SOIL CONDITIONS RESULT IN REINFORCEMENT COVER NOT BEING MAINTAINED.
 - ALL STRUCTURAL CONCRETE TO BE CURED FOR A MINIMUM OF FIVE DAYS.
 - BRICKWORK SHOWN HATCHED ARE LOAD BEARING. ALL LOAD BEARING BRICKWORK TO BE 1400Pa NFX. TOP OF ALL BRICKWORK TO RECEIVE 2 LAYERS OF 3 PLY MALTHOID ON SMOOTH RENDERED SURFACE.
 - ALL SINGLE SKIN BRICKWORK TO BE STOPPED 2 COURSES BELOW SOFFIT OF SLAB AND COMPLETED AFTER PROPS HAVE BEEN REMOVED.
 - ALL CONCRETE PLASTER AND BRICKWORK PLASTER INTER-FACES TO RECEIVE V-JOINTS.
 - THE ENGINEER REQUIRES 24HRS NOTICE FOR ALL INSPECTIONS.

REV	DESCRIPTION	BY	DATE
T1	FOR TENDER PURPOSES	S.A.	24/06/2020

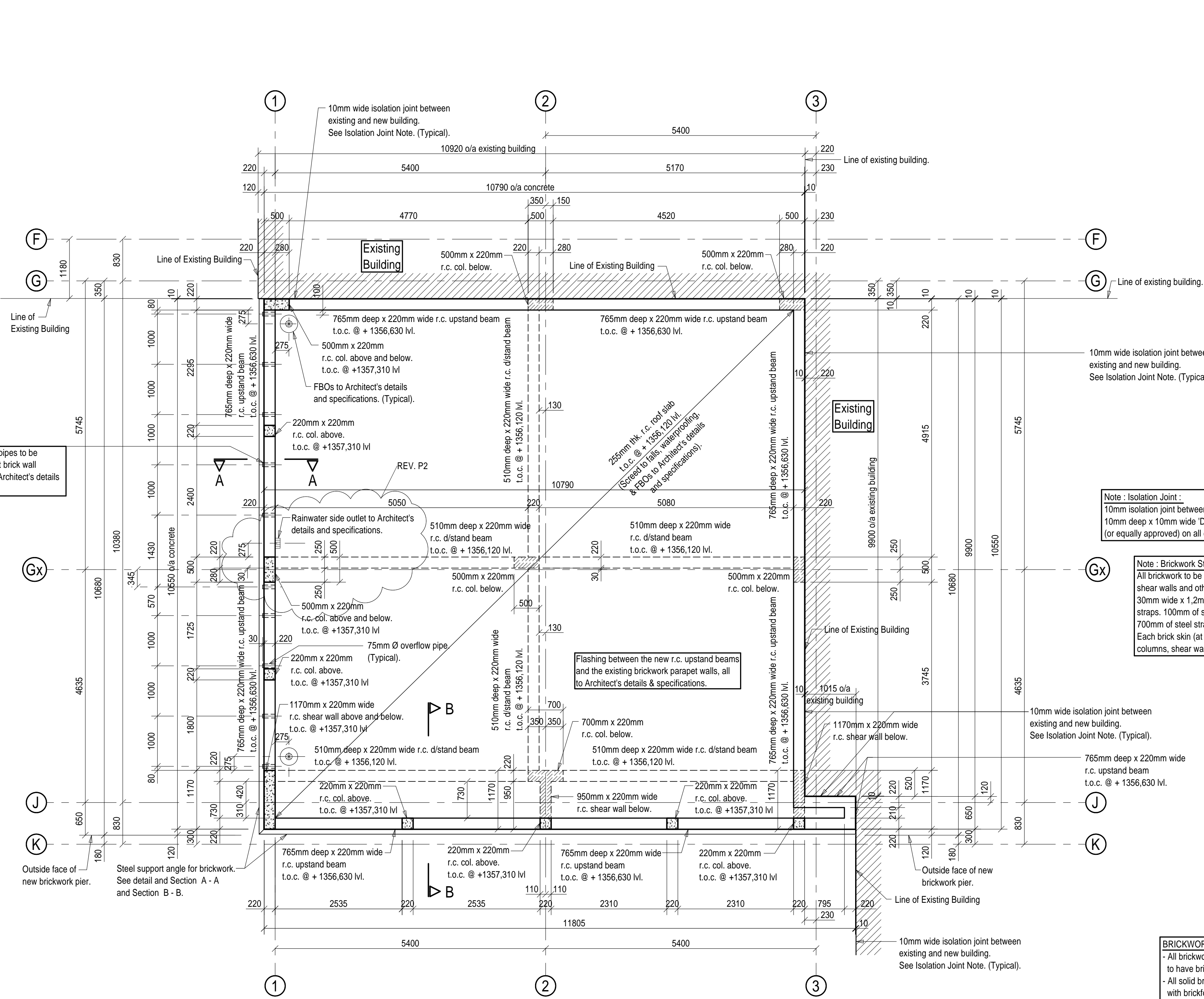
professional person: M.NAIR P.Tech/Eng registration: 200670211
PROJECT MANAGER / PRINCIPAL AGENT
LDM
Solutions For The Built Environment

CLIENT
UMALUSI

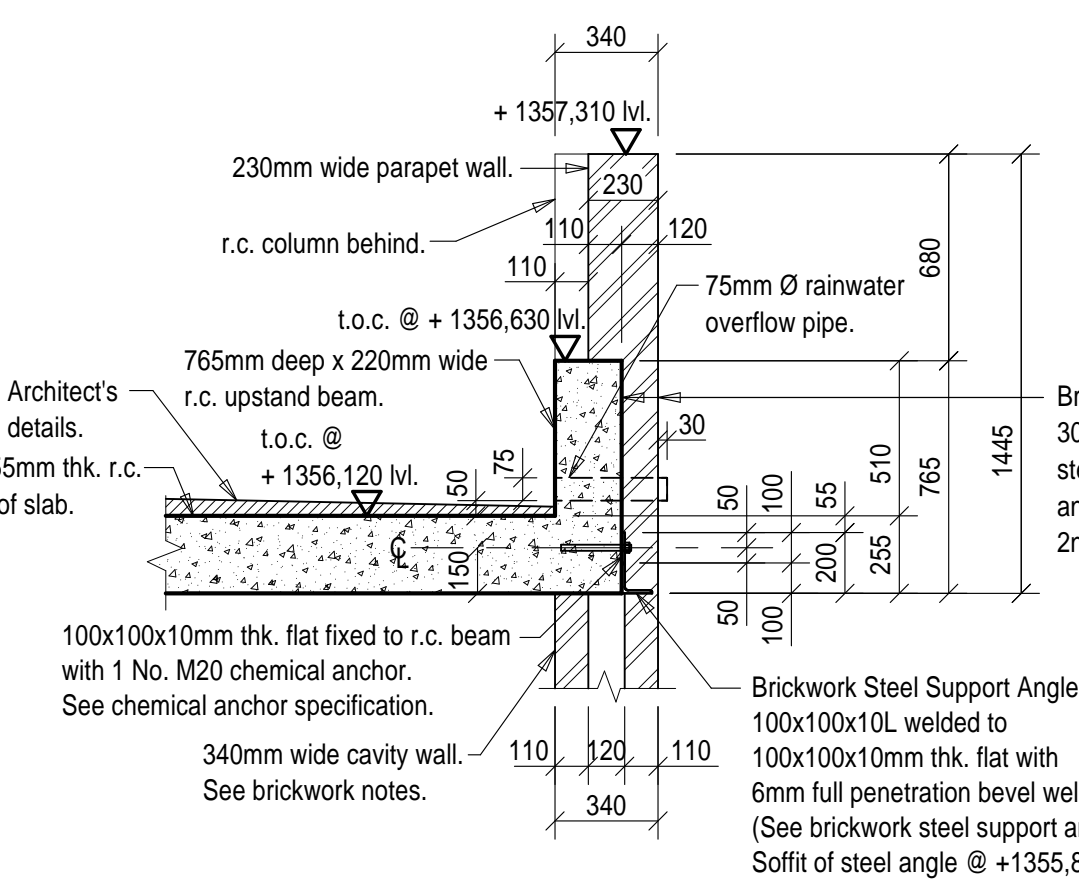
PROJECT
UMALUSI OFFICES
ADDITIONS AND ALTERATIONS
DETAILS
NEW ABULUTIONS BUILDING
GROUND FLOOR
SURFACE BED SLAB
STRUCTURAL LAYOUT & DETAILS

MAP AFRICA
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366 RESERVE ROAD, DURBAN, 4001
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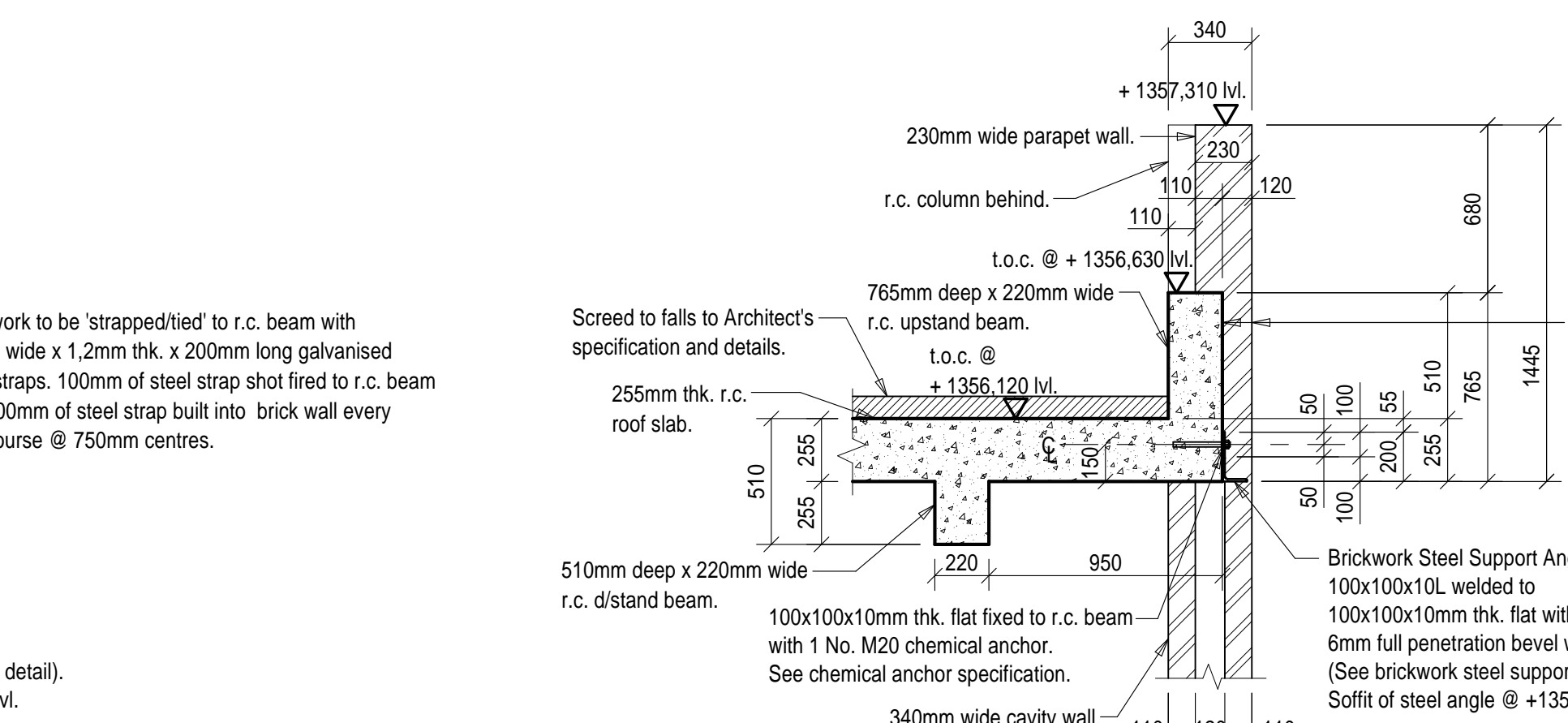
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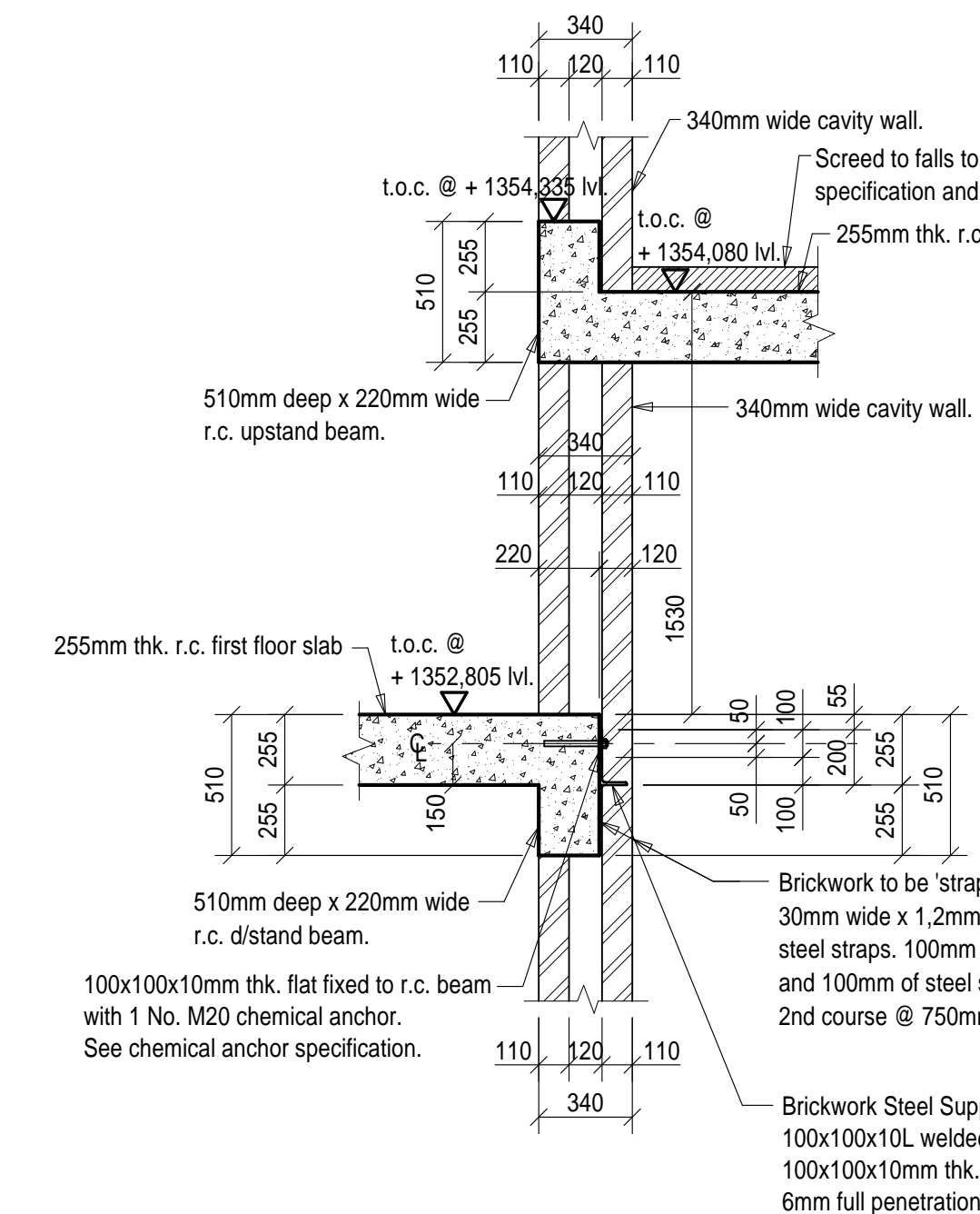
ROOF SLAB PLAN



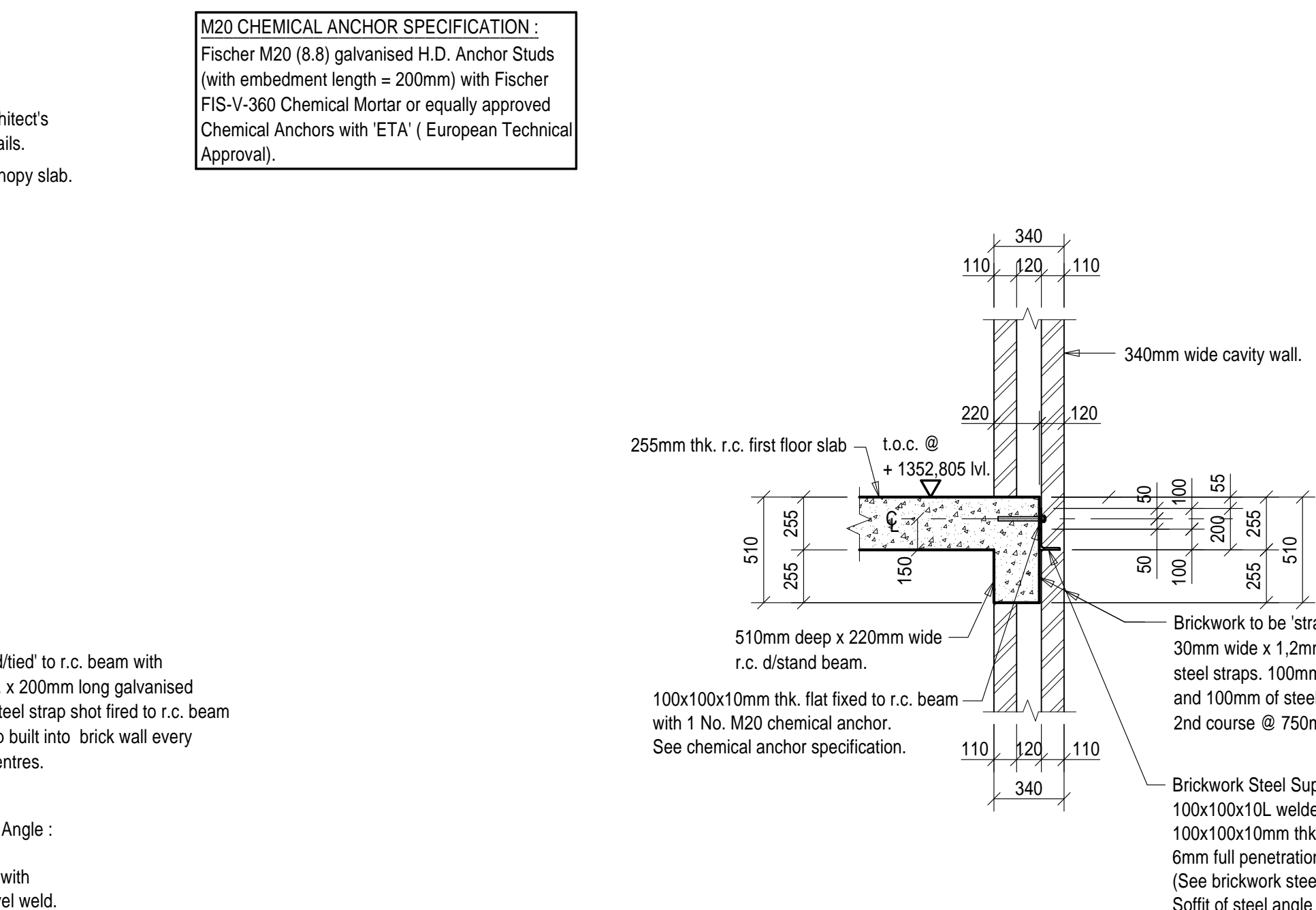
SECTION A - A



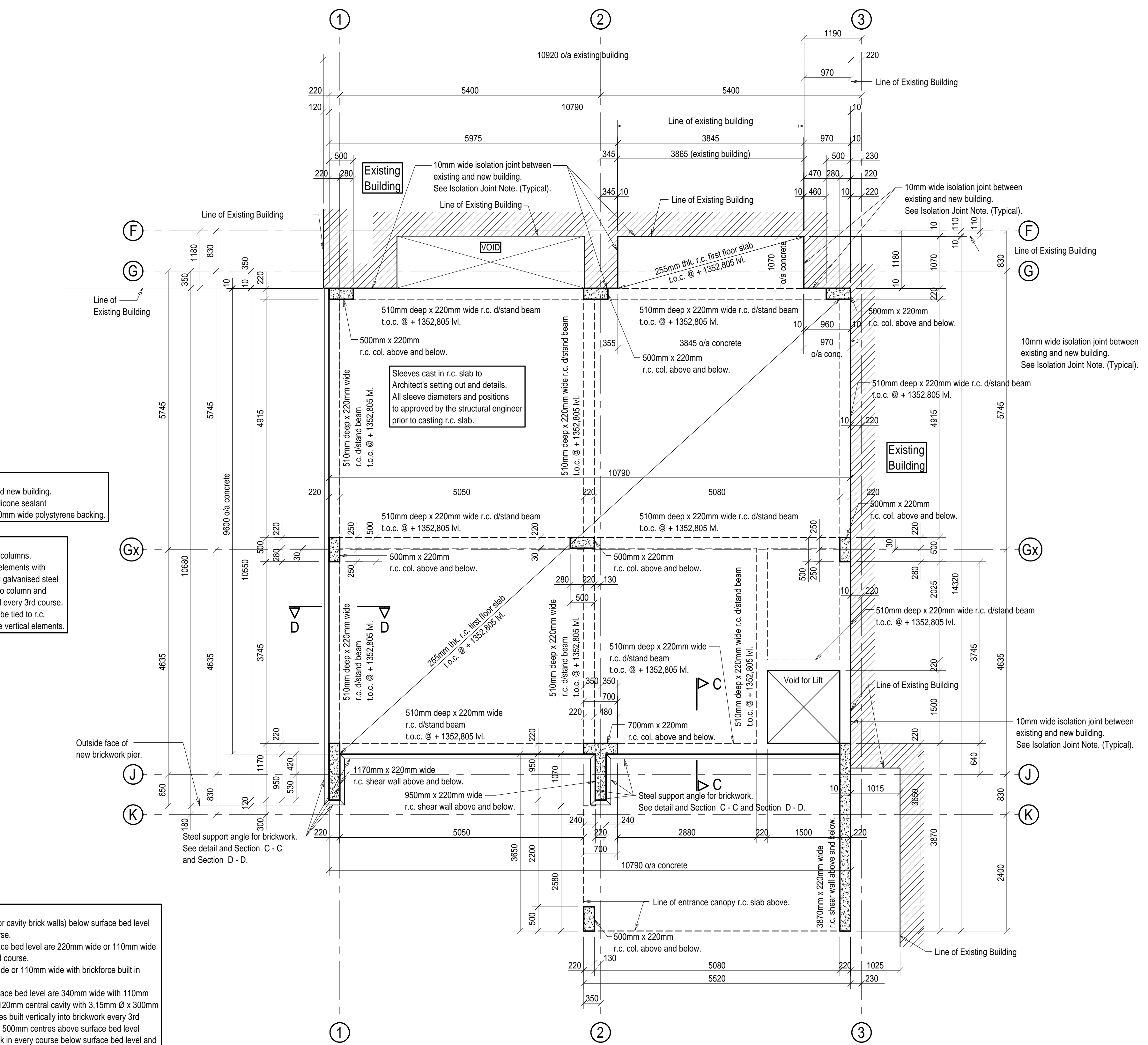
SECTION B - B



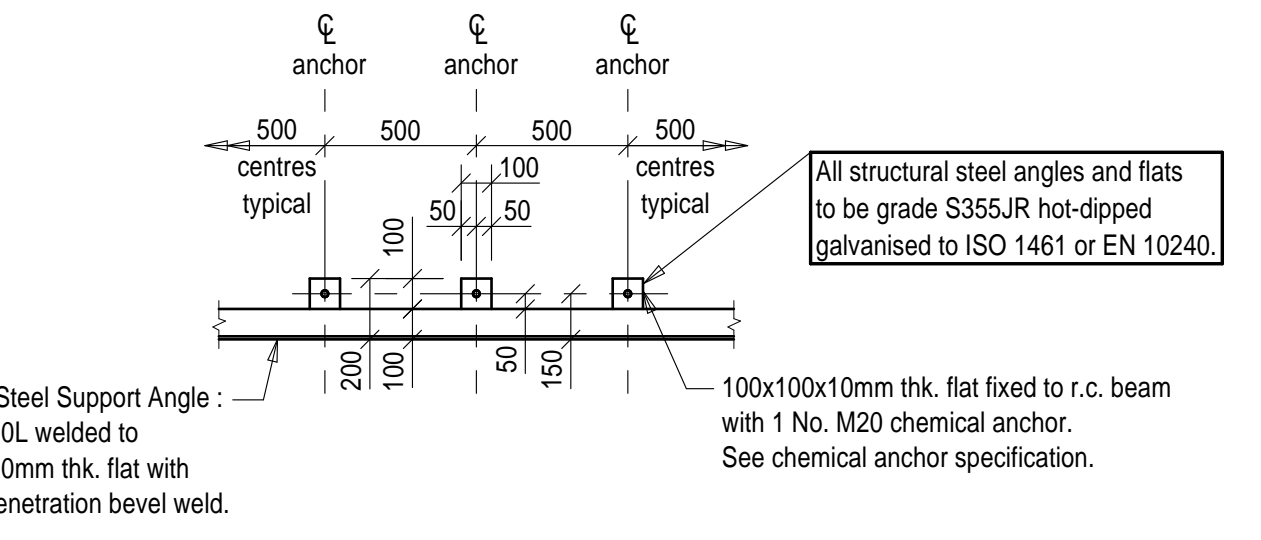
SECTION C - C



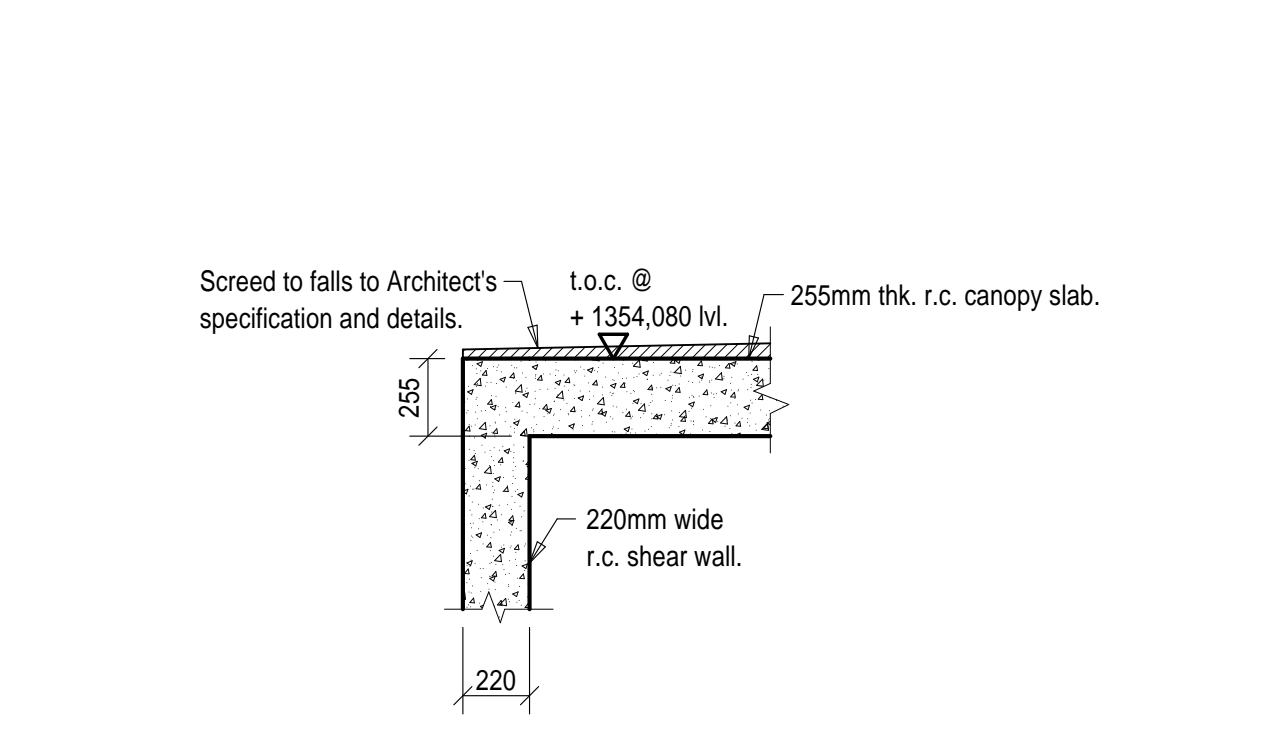
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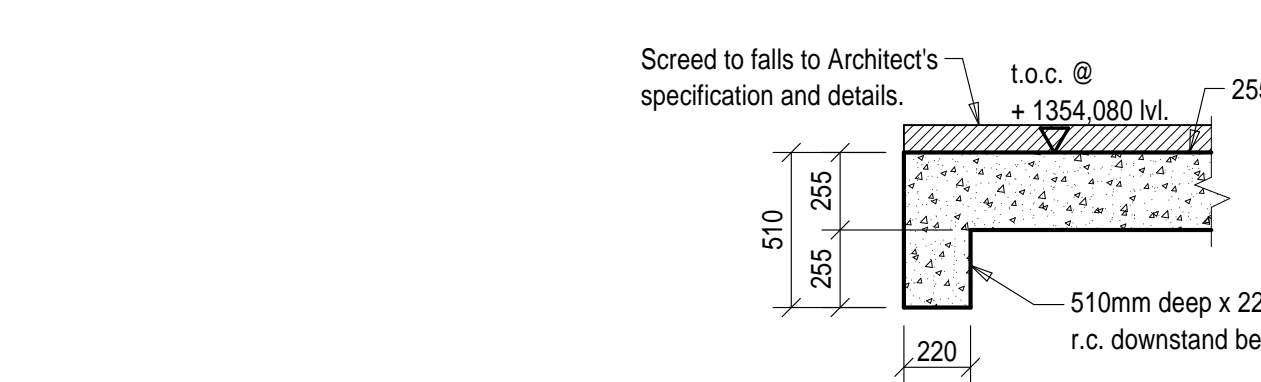
FIRST FLOOR SLAB PLAN



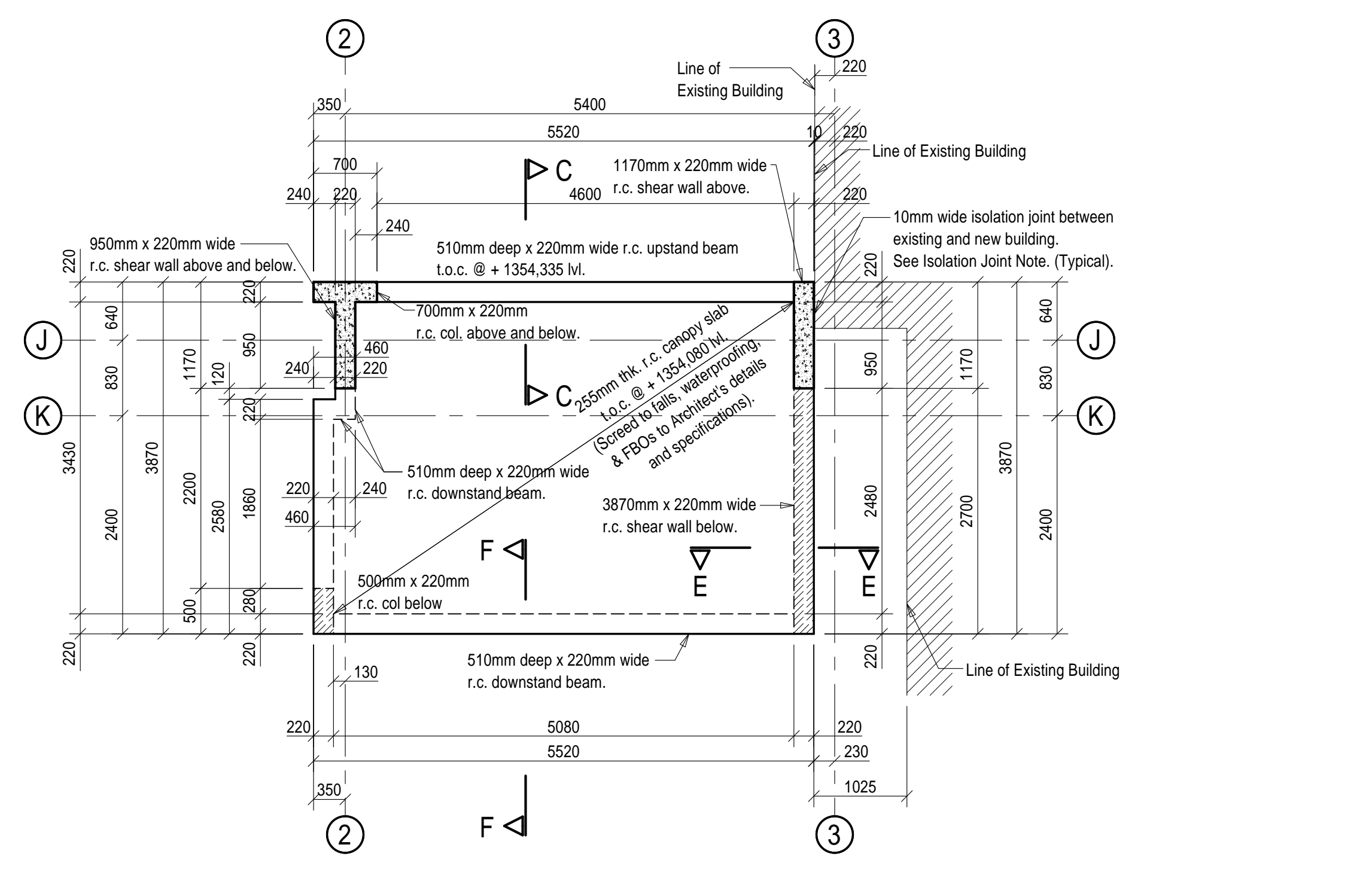
TYPICAL BRICKWORK STEEL SUPPORT ANGLE DETAIL



SECTION E - E



SECTION F - F



ENTRANCE CANOPY SLAB PLAN

Note: Isolation Joint:
10mm isolation joint between existing building and new building.
10mm deep x 10mm wide Dow Corning 813C silicone sealant (or equally approved) on all exposed edges on 10mm wide polystyrene backing.

Note: Brickwork Strapping:
All brickwork to be 'strapped' to r.c. columns, shear walls and other concrete vertical elements with 30mm wide x 1.2mm thk. x 800mm long galvanised steel straps. 100mm of steel strap shot fired to column and 700mm of steel strap built into brick wall every 3rd course. Each brick skin (at every 3rd course) to be tied to r.c. columns, shear walls and other concrete vertical elements.

BRICKWORK NOTES:
- All brickwork (solid brick walls or cavity brick walls) below surface bed level to have brickfice in every course.
- All solid brick walls above surface bed level are 220mm wide or 110mm wide with brickfice built in every 3rd course.
- All parapet walls are 220mm wide or 110mm wide with brickfice built in every course.
- All cavity brick walls above surface bed level are 340mm wide with 110mm wide outer skin brickwork with 120mm central cavity with 3.15mm Ø x 300mm long galvanised butterfly wire ties built vertically into brickwork every 3rd course and horizontally at max. 500mm centres above surface bed level and built vertically into brickwork in every course below surface bed level and horizontally at max. 500mm centres.
- All brickwork to Architect's detail in Class 2 mortar.

M20 CHEMICAL ANCHOR SPECIFICATION:
Fischer M20 (8.8) galvanised H.D. Anchor Studs (with embedment length = 200mm) with Fischer FIS-V-360 Chemical Mortar or equally approved Chemical Anchors with ETA (European Technical Approval).

M20 CHEMICAL ANCHOR SPECIFICATION:
Fischer M20 (8.8) galvanised H.D. Anchor Studs (with embedment length = 200mm) with Fischer FIS-V-360 Chemical Mortar or equally approved Chemical Anchors with ETA (European Technical Approval).

- NOTES**
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 - THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS.
 - ALL CONCRETE WORK TO COMPLY WITH SABS 1000.
 - CONCRETE CLASS :-
a) PILECAPS & GROUND BEAMS = 25 MPa
b) STRIP FOOTINGS & BASES = 25 MPa
c) COLUMNS, SHEAR & LIFT WALLS = 30 MPa
d) SLABS, BEAMS & STAIRCASES = 25 MPa
e) RETAINING WALLS = 25 MPa
f) SURFACE BEDS = 30 MPa
g) BLINDING = 10 MPa
 - COVER TO REINFORCEMENT :- AS INDICATED ON DRAWING
 - ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
 - ALL REINFORCING FIXING TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
 - SIX CUBES TO BE TAKEN PER POUR. THREE TO BE TESTED AT SEVEN DAYS, THE REMAINDER AT TWENTY EIGHT DAYS. THE RESULTS TO BE FORWARDED TO THE ENGINEER.
 - CONTRACTOR TO CONSTRUCT A BLINDING LAYER IF SOIL CONDITIONS RESULT IN REINFORCEMENT COVER NOT BEING MAINTAINED.
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 - BRICKWORK SHOWN HATCHED ARE LOAD BEARING. ALL LOAD BEARING BRICKWORK TO BE 1400p NFX. TOP OF ALL BRICKWORK TO RECEIVE 2 LAYERS OF 3 PLY MALTHOID ON SMOOTH RENDURED SURFACE.
 - ALL SINGLE SKIN BRICKWORK TO BE STOPPED 2 COURSES BELOW SOFFIT OF SLAB AND COMPLETED AFTER PROPS HAVE BEEN REMOVED.
 - ALL CONCRETE PLASTER AND BRICKWORK PLASTER INTER-FACES TO RECEIVE V-JOINTS.
 - THE ENGINEER REQUIRES 24HRS NOTICE FOR ALL INSPECTIONS.

REV	DESCRIPTION	BY	DATE
T1	FOR TENDER PURPOSES	S.A.	24/06/2020

Professional person: M.NAIR P.Tech/Eng registration: 200670211
PROJECT MANAGER / PRINCIPAL AGENT
LDM
Solutions For The Built Environment

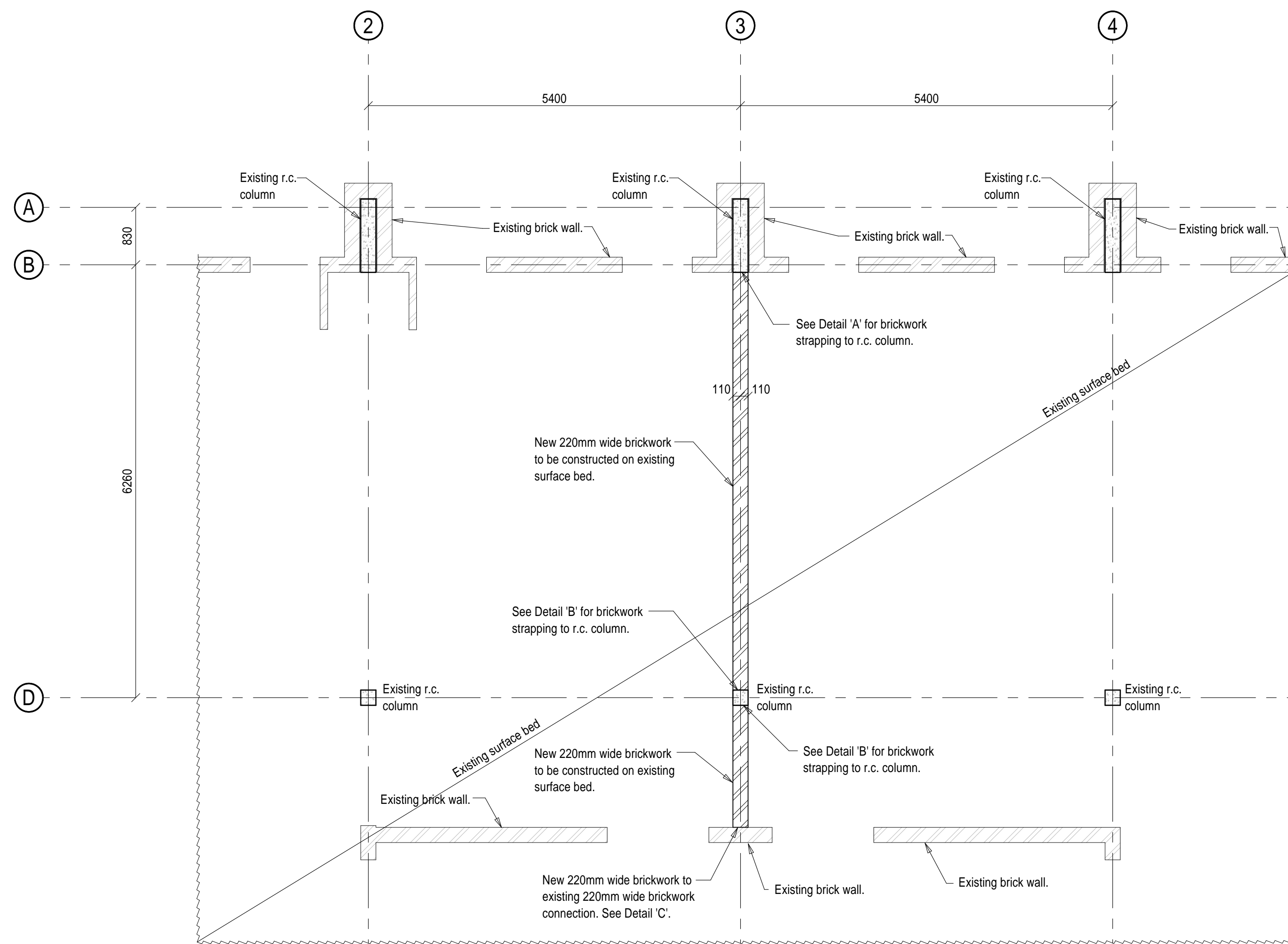
CLIENT
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PROJECT
UMALUSI OFFICES
ADDITIONS AND ALTERATIONS
DETAILS
NEW ABLUTIONS BUILDING
ROOF SLAB,
ENTRANCE CANOPY SLAB &
FIRST FLOOR SLAB
STRUCTURAL LAYOUT & DETAILS

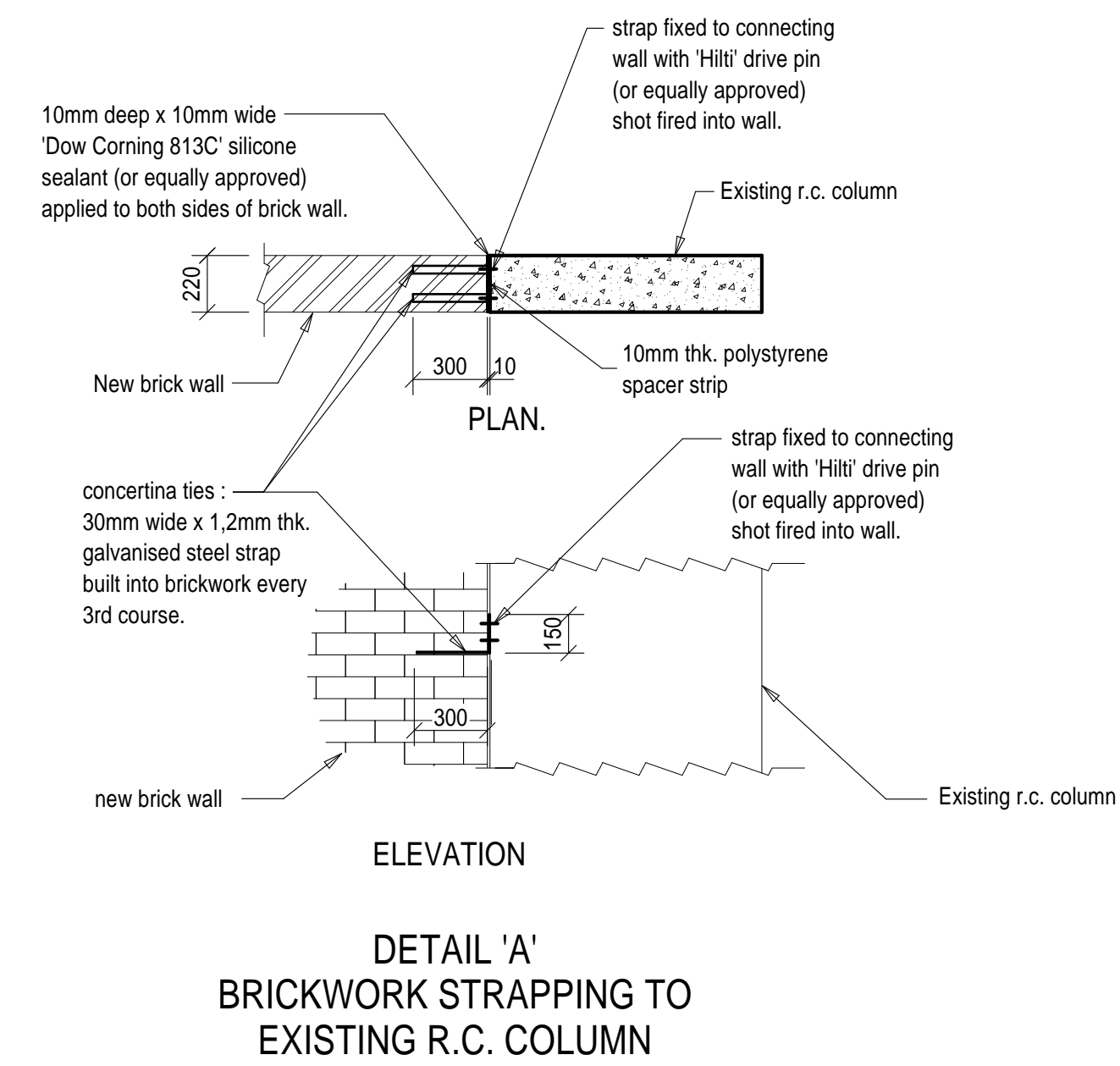
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DRAWN: K.L.
APPROVED: M.N. PL. DATE: 27/01/2020
DRAWING No: 200-309 / 302 REV: T1

MAP AFRICA CONSULTING ENGINEERS
SUITE 106, ESEBVIEW BUILDING, STRATHMORE PARK,
306 MIDDEGAVE ROAD, DURBAN, 4001
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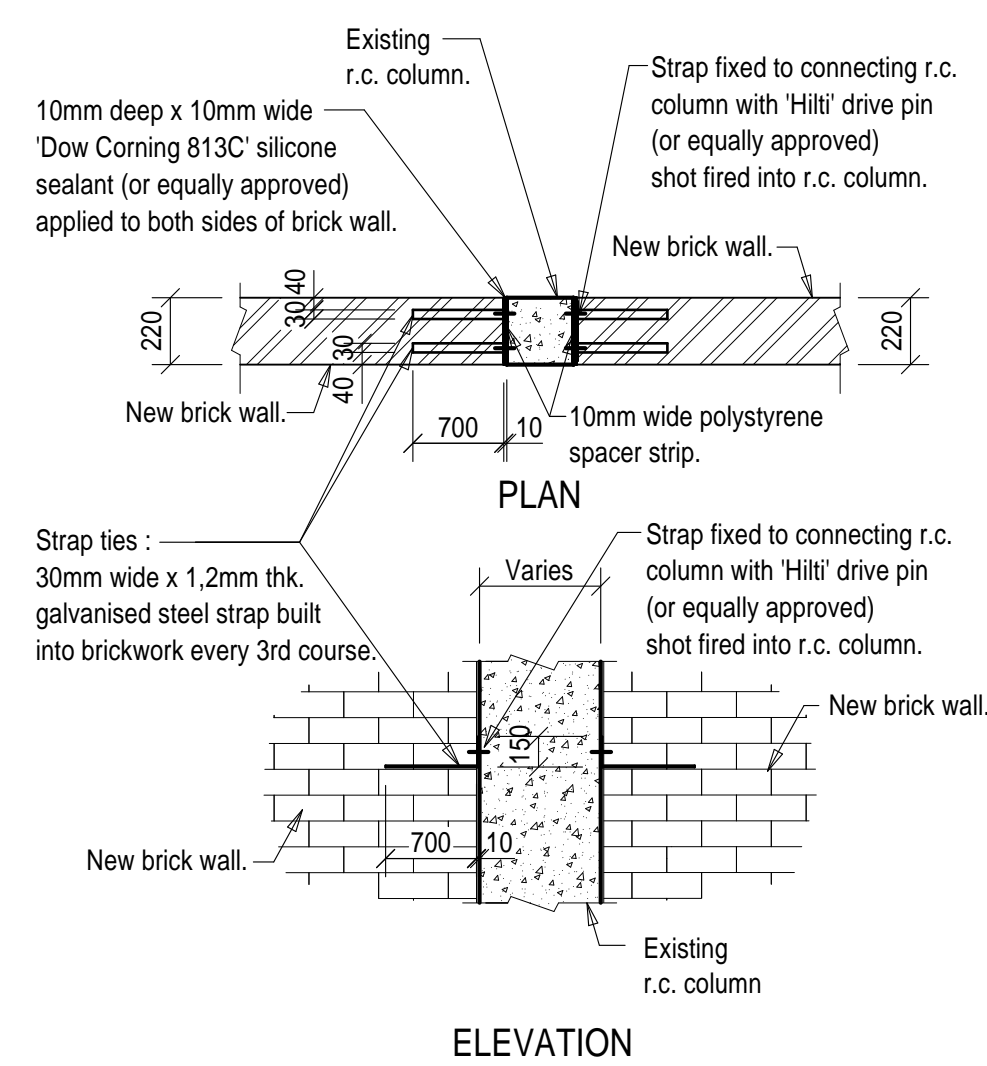
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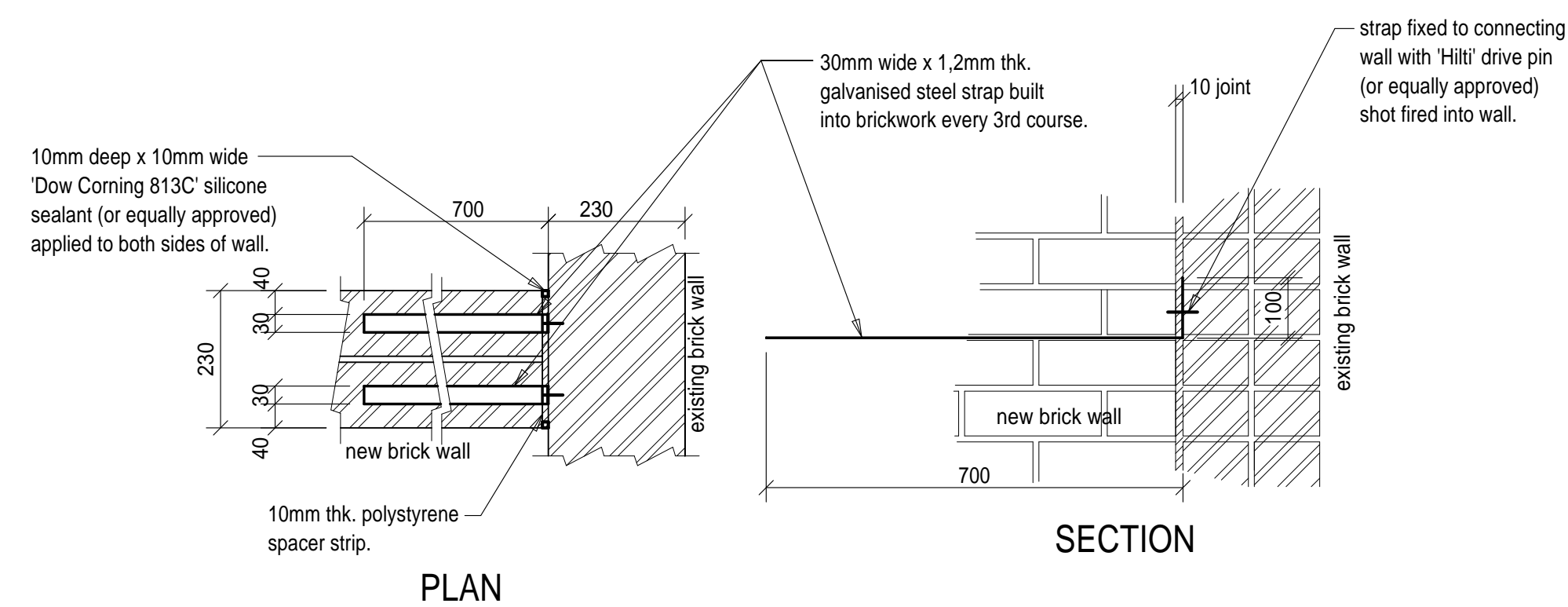
PART PLAN SHOWING NEW BRICK WALL
CAST ON EXISTING GROUND FLOOR SURFACE BED



DETAIL 'A'
BRICKWORK STRAPPING TO
EXISTING R.C. COLUMN



DETAIL 'B'
BRICKWORK STRAPPING TO
EXISTING R.C. COLUMN



DETAIL 'C'
NEW 230mm WALL TO EXISTING
230mm WALL CONNECTION DETAIL

NOTES

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- ALL REINFORCING FIXING TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
- SIX CUBES TO BE TAKEN PER POUR. THREE TO BE TESTED AT SEVEN DAYS, THE REMAINDER AT TWENTY EIGHT DAYS. THE RESULTS TO BE FORWARDED TO THE ENGINEER.
- CONTRACTOR TO CONSTRUCT A BLINDING LAYER IF SOIL CONDITIONS RESULT IN REINFORCEMENT COVER NOT BEING MAINTAINED.
- ALL STRUCTURAL CONCRETE TO BE CURED FOR A MINIMUM OF FIVE DAYS.
- BRICKWORK SHOWN HATCHED ARE LOAD BEARING. ALL LOAD BEARING BRICKWORK TO BE 14MPa NF3. TOP OF ALL BRICKWORK TO RECEIVE 2 LAYERS OF 3 PLY MALTHOID ON SMOOTH RENDERED SURFACE.
- ALL SINGLE SKIN BRICKWORK TO BE STOPPED 2 COURSES BELOW SOFFIT OF SLAB AND COMPLETED AFTER PROPS HAVE BEEN REMOVED.
- ALL CONCRETE PLASTER AND BRICKWORK PLASTER INTER-FACES TO RECEIVE V-JOINTS.
- THE ENGINEER REQUIRES 24HRS NOTICE FOR ALL INSPECTIONS.

REV	DESCRIPTION	BY	DATE
T1	FOR TENDER PURPOSES	S.A.	24/06/2020

professional person M.NAIR PrTechEng registration 200670211

PROJECT MANAGER | PRINCIPAL AGENT



CLIENT



PROJECT

UMALUSI OFFICES
ADDITIONS AND ALTERATIONS

DETAILS

EXISTING MAIN BUILDING
NEW BRICK WALL CAST ON
EXISTING GROUND FLOOR SURFACE BED
STRUCTURAL LAYOUT & DETAILS



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APPROVED	M.N.	PL	DATE 20/01/2020

FOR TENDER PURPOSES

DRAWING No. 200-309 / 303 REV T1

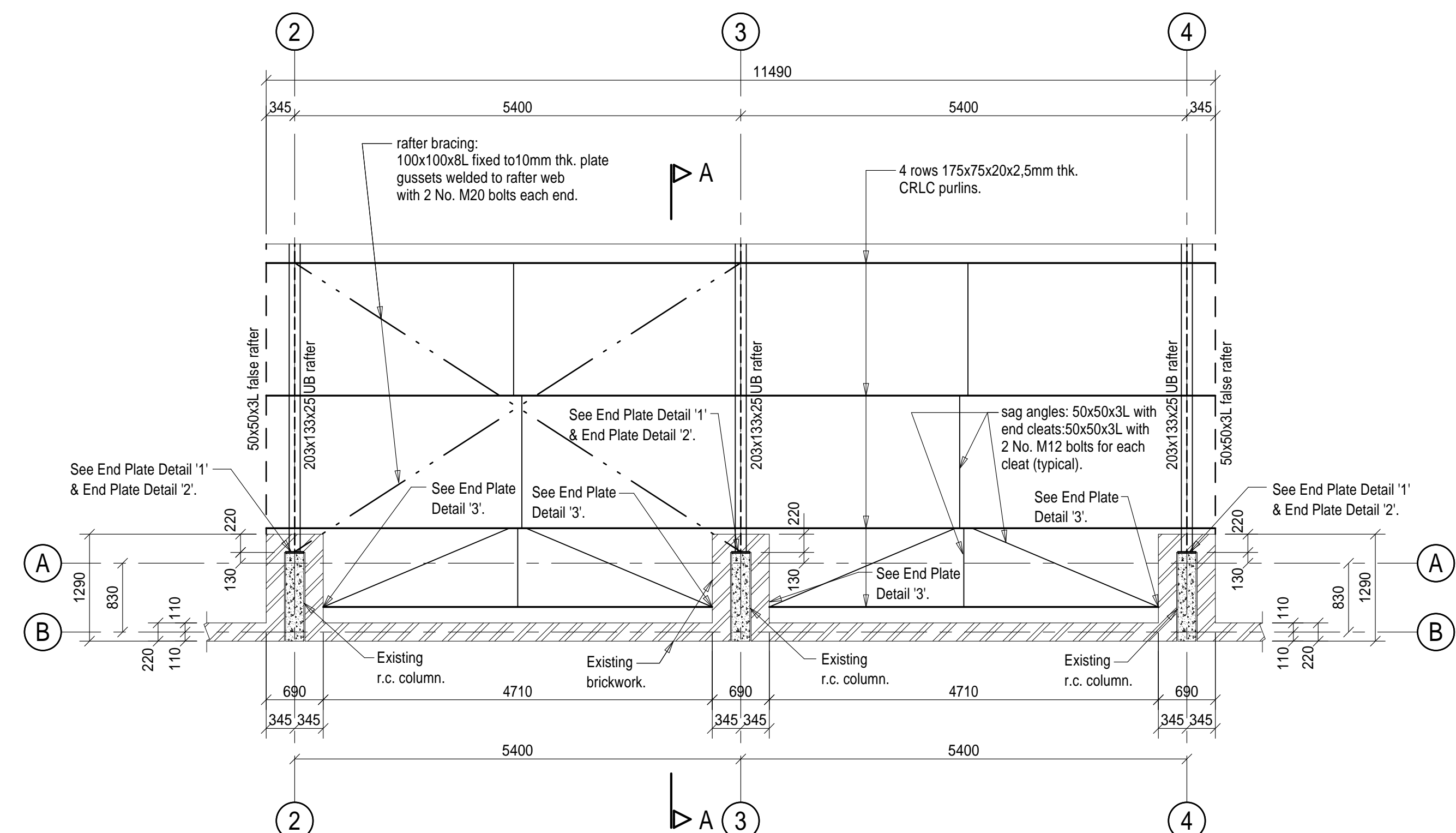
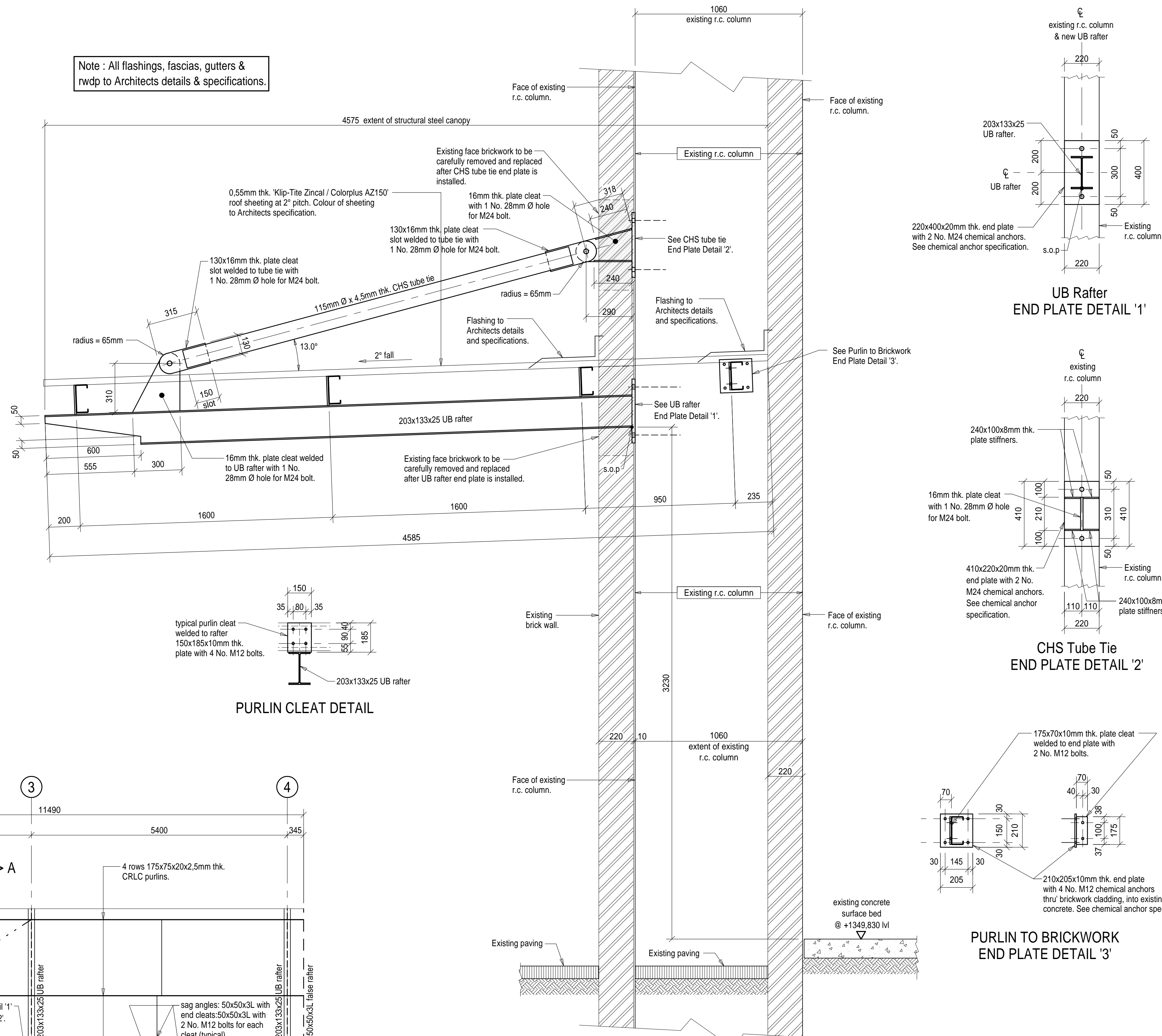
STRUCTURAL STEEL NOTES :

1. ALL WORK IN ACCORDANCE WITH SANS 1200 H.
2. ALL WELDS TO BE MIN. 6mm CONTINUOUS FILLET WELDS (U.O.N.)
3. ALL STRUCTURAL STEELWORK TO BE GRADE S355JR (UNLESS OTHERWISE NOTED).
4. ALL PURLINS AND GIRTS TO BE COMMERCIAL GRADE AND TO BE GALVANISED IN ACCORDANCE WITH SANS 4998 / ISO 4998:1996 FOR 'STRUCTURAL QUALITY'.
5. ALL BOLTS TO BE GRADE 8.8 BOLTS AND TO BE HOT DIPPED GALVANISED TO SANS 121:2011 (ISO 1461:2009(E)).
6. ALL COMMERCIAL QUALITY H.D. BOLTS, PURLINS AND GIRTS TO HAVE A MIN. GRADE STRESS OF 200 MPa.
7. ALL STRUCTURAL STEELWORK, H.D. BOLTS, NUTS AND WASHERS TO BE HOT DIPPED GALVANISED TO SANS 121:2011 (ISO 1461:2009 (E)). ALL STRUCTURAL STEEL TUBES ARE TO BE HOT-DIPPED GALVANISED TO SANS 32 / EN 10240.
8. GALVANISING CERTIFICATE FOR ALL STEELWORK IS TO BE SUBMITTED TO THE ENGINEER ON COMPLETION.
9. IF THE GALVANISING IS DAMAGED OR SCRATCHED DURING THE INSTALLATION PROCESS, IT MUST BE 'TOUCHED UP' WITH 'PLASCON PLASCOZINC POLY GALV PRIMER' OR EQUALLY APPROVED.
10. 2 SETS OF FABRICATION SHOP DRAWINGS (HARDCOPIES) ARE TO BE DELIVERED TO THE ENGINEER'S OFFICES FOR REVIEW AND APPROVAL BEFORE COMMENCING WITH ANY FABRICATION. NOTE : EMAIL SUBMISSION OF ELECTRONIC (PDF) COPIES OF SHOP DRAWINGS WILL NOT BE ACCEPTED.
11. CERTIFICATES CONFIRMING THE GRADE STRESS OF ALL STEELWORK, PURLINS, GIRTS, H.D BOLTS AND BOLTS SPECIFIED IS TO BE SUBMITTED TO THE ENGINEER ON COMPLETION.
12. THE STRUCTURAL STEELWORK CONTRACTOR IS TO VERIFY ALL SETTING OUT DIMENSIONS ON SITE PRIOR TO FABRICATION.

M24 CHEMICAL ANCHOR SPECIFICATION :
Fischer M24 (8.8) galvanised H.D. Anchor Studs (with embedment length = 350mm) with Fischer FIS-V-360 Chemical Mortar or equally approved Chemical Anchors with 'ETA' (European Technical Approval).

M12 CHEMICAL ANCHOR SPECIFICATION :
Fischer M12 (8.8) galvanised H.D. Anchor Studs (with embedment length = 220mm) with Fischer FIS-V-360 Chemical Mortar or equally approved Chemical Anchors with 'ETA' (European Technical Approval).

Note : All flashings, fascias, gutters & rwdp to Architects details & specifications.



NOTES

1. ALL LEVELS AND DIMENSIONS TO BE CHECKED ON SITE.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS.
3. ALL CONCRETE WORK TO COMPLY WITH SABS 1200G.
4. CONCRETE CLASS :-
a) PILECAPS & GROUND BEAMS = 25 MPa
b) STRIP FOOTINGS & BASES = 25 MPa
c) COLUMNS, SHEAR & LIFT WALLS = 30 MPa
d) SLABS, BEAMS & STAIRCASES = 25 MPa
e) RETAINING WALLS = 25 MPa
f) SURFACE BEDS = 30 MPa
g) BLINDING = 10 MPa
5. COVER TO REINFORCEMENT :- AS INDICATED ON DRAWING
6. ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
7. ALL REINFORCING FIXING TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
8. SIX CUBES TO BE TAKEN PER POUR. THREE TO BE TESTED AT SEVEN DAYS, THE REMAINDER AT TWENTY EIGHT DAYS. THE RESULTS TO BE FORWARDED TO THE ENGINEER.
9. CONTRACTOR TO CONSTRUCT A BLINDING LAYER IF SOIL CONDITIONS RESULT IN REINFORCEMENT COVER NOT BEING MAINTAINED.
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14. THE ENGINEER REQUIRES 24HRS NOTICE FOR ALL INSPECTIONS.

REV	DESCRIPTION	BY	DATE
T1	FOR TENDER PURPOSES	S.A.	24/06/2020

professional person M.NAIR PrTechEng registration 200670211

PROJECT MANAGER / PRINCIPAL AGENT



CLIENT



PROJECT

UMALUSI OFFICES
ADDITIONS AND ALTERATIONS

DETAILS

EXISTING MAIN BUILDING
NEW STRUCTURAL STEEL CANOPY
STRUCTURAL DETAILS

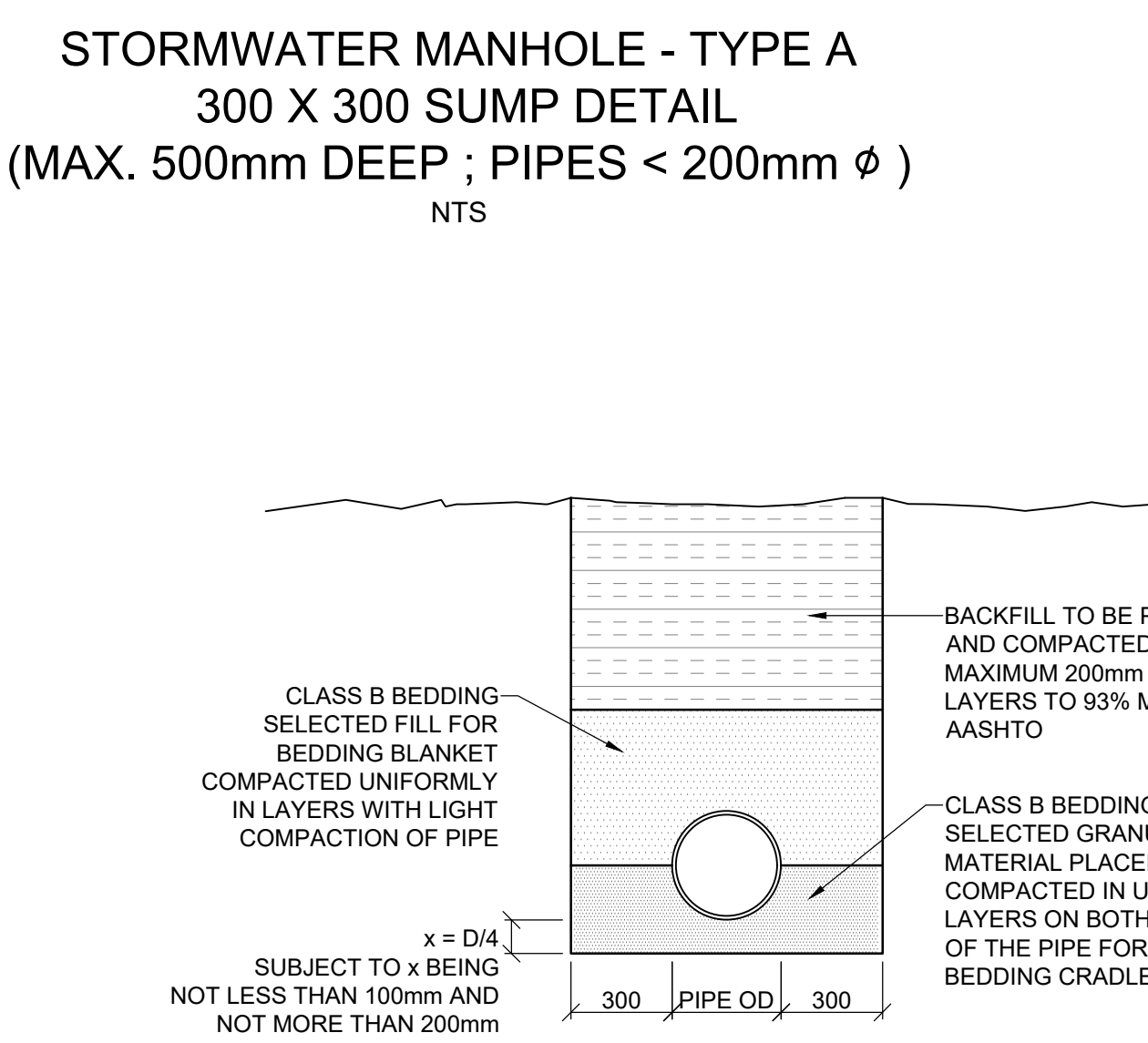
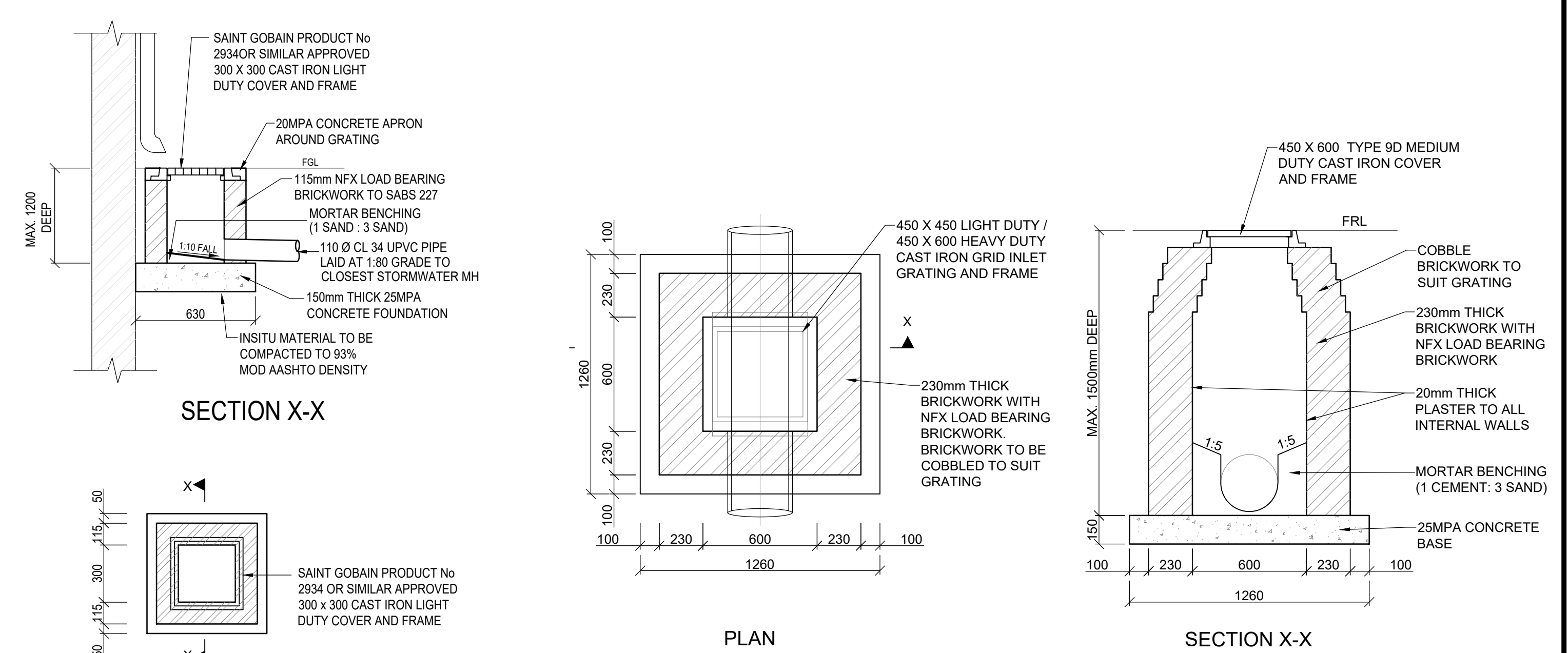
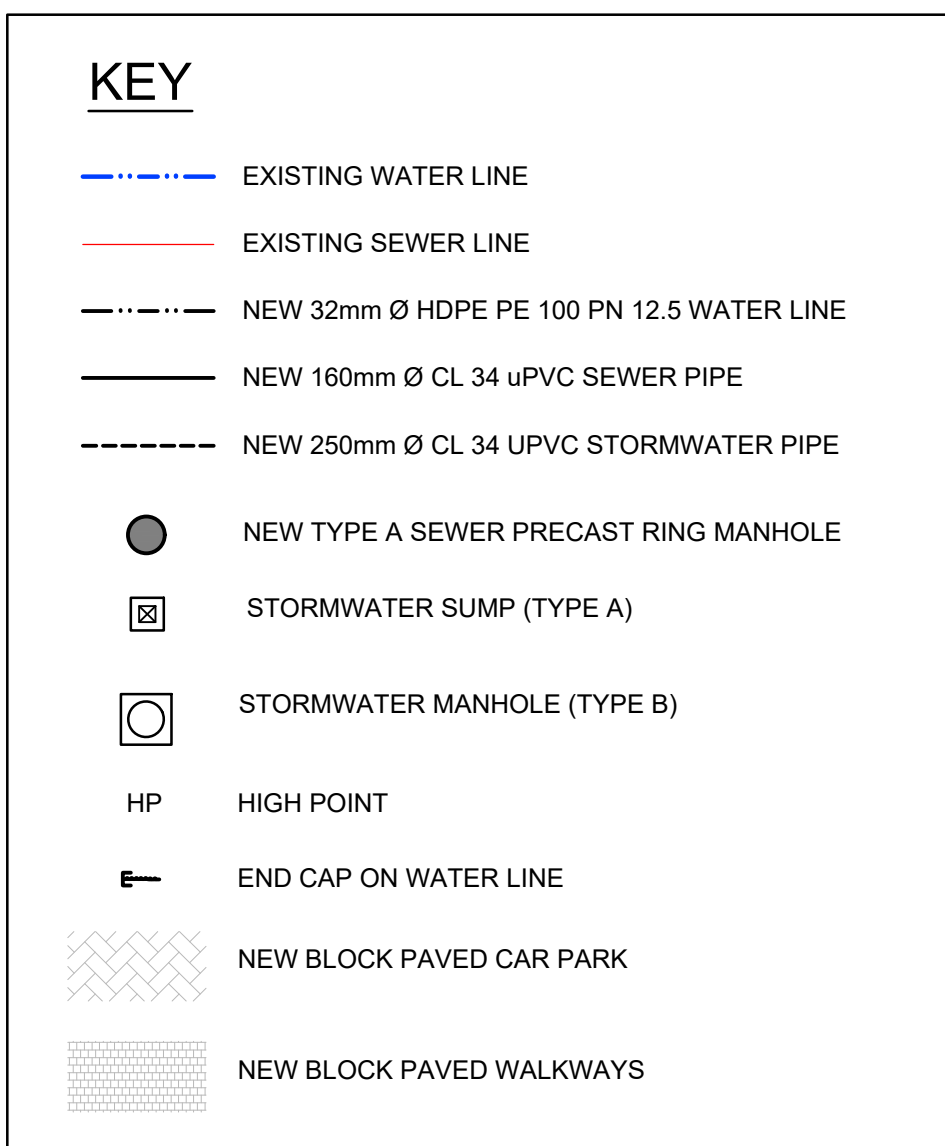
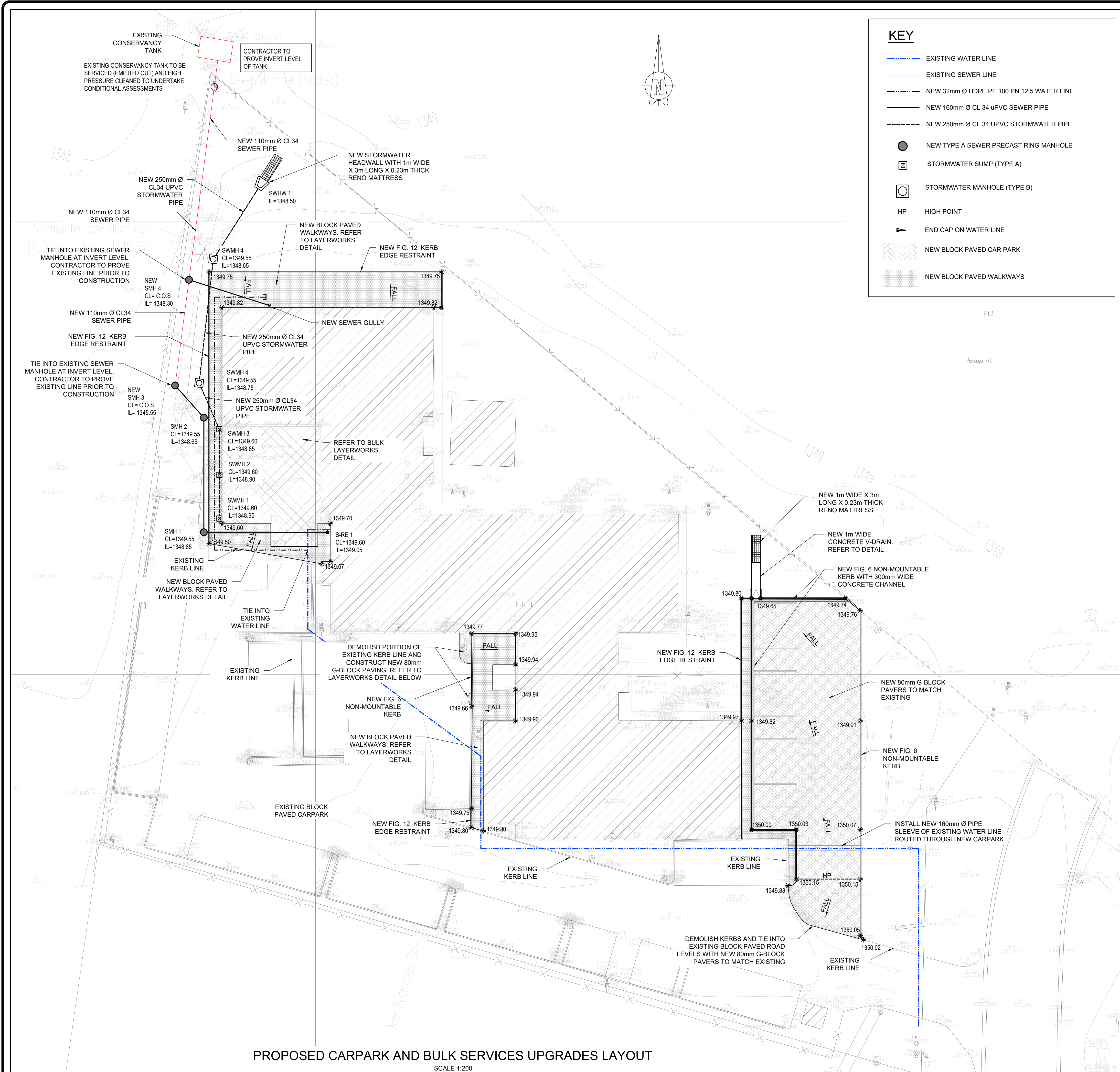


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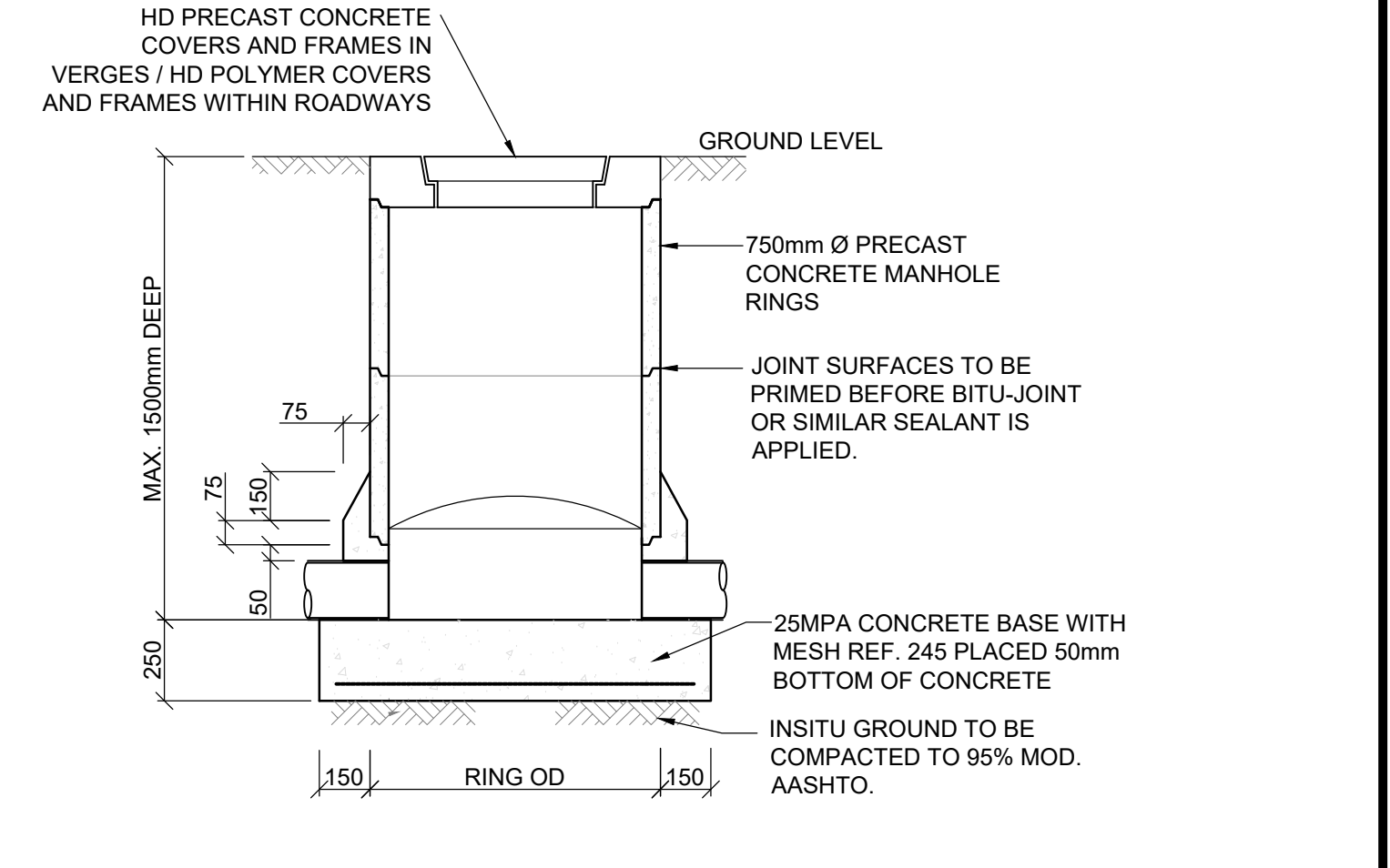
FOR TENDER PURPOSES

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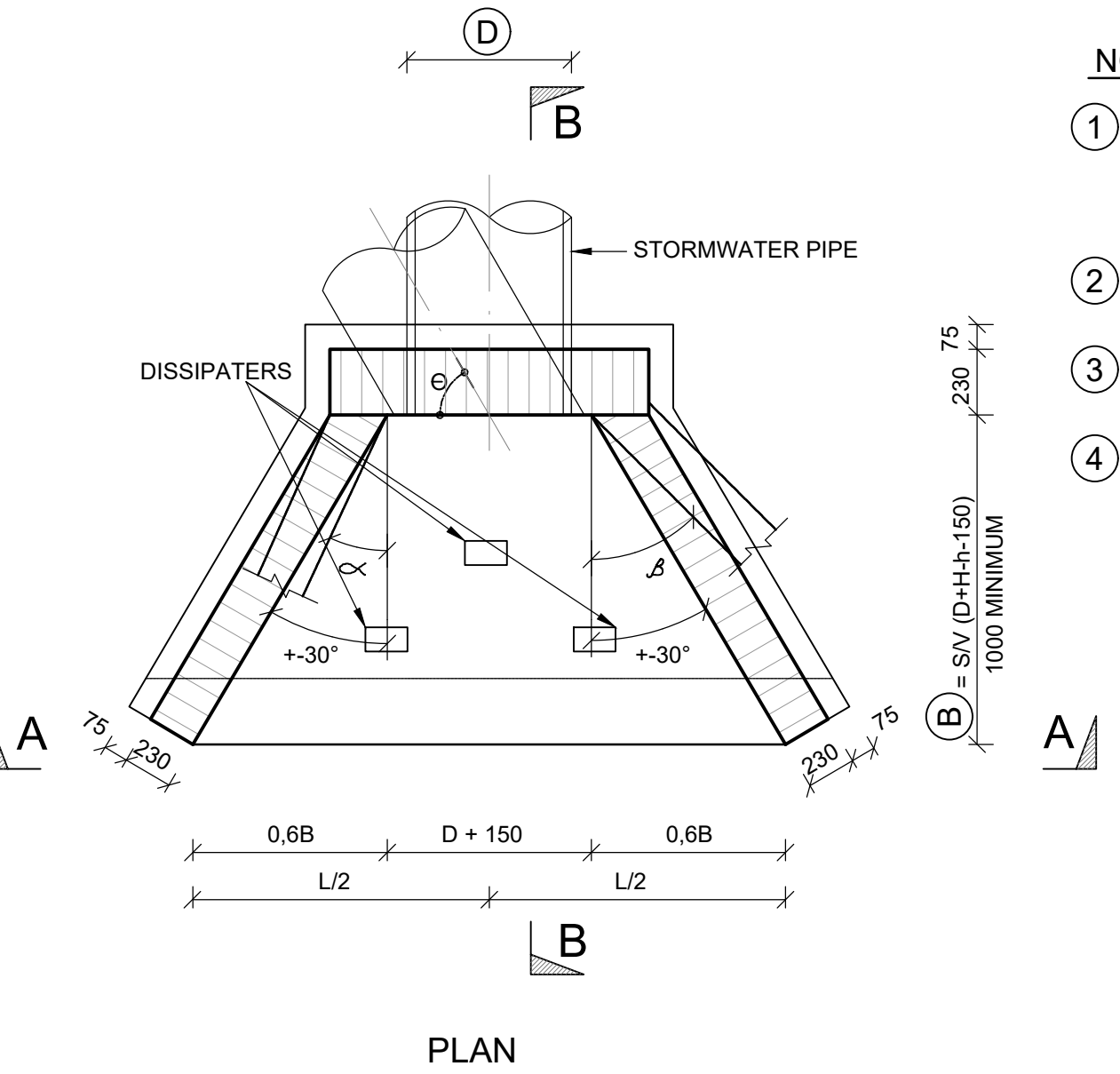


STORMWATER MANHOLE - TYPE B
450mm X 600mm MANHOLE DETAIL
(MAX. 1500mm DEEP ; PIPES < 450mm Ø)
SCALE 1:20

TYPICAL PIPE BEDDING DETAIL
SCALE 1:20



SEWER MANHOLE - TYPE A
(0.0m TO 1.5m DEEP)
N.T.S



STORMWATER HEADWALL DETAILS
SCALE 1:20

- NOTES**
1. $\theta = 60^\circ$ MIN ; 90° MAX.
 $\alpha \leq 0.2^\circ$ - 5° (30° MAX.)
 $\Delta = 75^\circ$ - 0.2°
D = NOMINAL PIPE DIAMETER
 2. APRON SLAB IN 20 MIX CONCRETE
 3. ALL EXPOSED CORNERS 10 x 10 CHAMFERED
 4. HEADWALL AND WINGWALL :
230 BRICKWORK PLASTERED WITH 12 THICK 1:3 CEMENT/SAND MORTAR WITH WOOD FLOAT FINISH

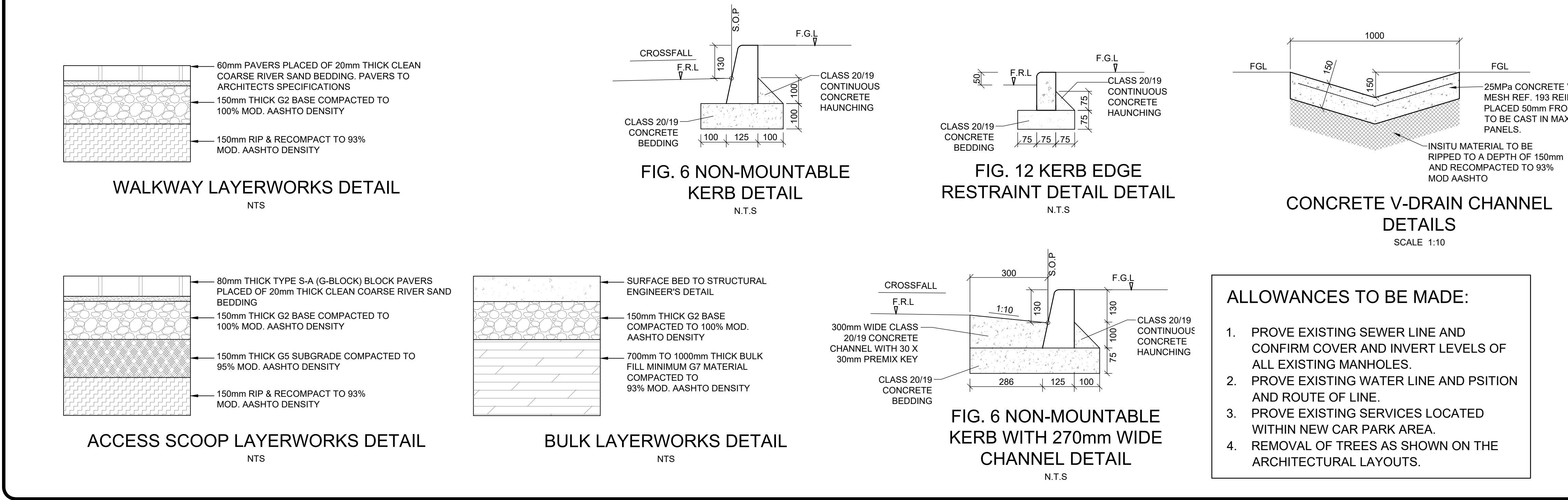
OUTLET/INLET DIMENSIONS IN mm FOR :
 $\theta = 90^\circ$; $t = 1:1.5$; $h = 300\text{mm}$ & $H = 600\text{mm}$

NOM.PEPE DIA (D)	W	B	L
225	725	1000	1580
300	800	1000	1650
375	875	1000	1720
450	950	1000	1800
600	1100	1200	2150
750	1250	1250	2300

(L) = VIS = GRADIENT TO SUIT FILL OR NATURAL GROUND SLOPE (1:1.5 MAX.)
 (h) = HEIGHT TO SUIT GRADIENT (** 300 MIN.)
 (H) = 300 MIN ; 900 MAX.

EROSION PROTECTION MEASURES AS SPECIFIED BY THE ENGINEER, WHERE GRASS IS SPECIFIED, SCARIFY AND HYDROSEED WITH THE FOLLOWING MIX OF GRASS SEED UNLESS ANOTHER MIX HAS BEEN SPECIFIED:

- CLORIS GYANA (10g/ha)
- CYNDON DACTYLON (15g/ha)
- ERAGROSTIS TEF (5g/ha)



- ALLOWANCES TO BE MADE:**
1. PROVE EXISTING SEWER LINE AND CONFIRM COVER AND INVERT LEVELS OF ALL EXISTING MANHOLES.
 2. PROVE EXISTING WATER LINE AND POSITION AND ROUTE OF LINE.
 3. PROVE EXISTING SERVICES LOCATED WITHIN NEW CAR PARK AREA.
 4. REMOVAL OF TREES AS SHOWN ON THE ARCHITECTURAL LAYOUTS.

NOTES

GENERAL

1. ALL CIVIL WORKS SETTING OUT TO BE UNDERTAKEN BY A REGISTERED PROFESSIONAL SURVEYOR.
2. ALL BUILDING WORKS SETTING OUT TO BE UNDERTAKEN IN ACCORDANCE WITH ARCHITECT'S DETAILS.
3. PROVE ALL SERVICES PRIOR TO CONSTRUCTION.
4. ALL WORK AREAS TO BE REINSTATED (PREMIX, CONCRETE, ETC.)
5. MUNICIPALITY TO EXECUTE ALL CONNECTIONS INTO MUNICIPAL LINES.
6. SUPPLY AND INSTALLATION TO COMPLY WITH SANS 1200.
7. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE.
8. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL AND STRUCTURAL ENGINEERS DRAWINGS.
9. ALL WORK IS TO BE EXECUTED IN ACCORDANCE WITH SANS 1200.

STORMWATER

1. STORMWATER PIPES CONSIST OF 250mm NOMINAL DIAMETER - HD CL 34 UPVC PIPES
2. ALL UPVC PIPES TO COMPLY WITH SANS 966 STANDARDS
3. ALL JOINTS TO BE 'SPIGOT AND SOCKET' TYPE.
4. ALL STORMWATER PIPES TO BE LAID ON CLASS B BEDDING.

WATER

1. BEDDING TO SUIT FLEXIBLE PIPES.
2. PIPES TO BE INSTALLED WITH ALL COUPLINGS AND TO BE TESTED AND DISINFECTED.
3. MINIMUM COVER TO PIPES TO BE 800MM.

SLEEVES

1. ALL SLEEVES UNDER ROADWAYS AND PARKING AREAS TO BE CONCRETE ENCASED 150mm ALL ROUND WITH 25MPa CONCRETE AT 28 DAYS STRENGTH.

MATERIAL COMPLIANCE TESTING

1. RESULTS OF COMPACTION AND CBR TESTS ON INSITU SUB-BASE MATERIAL AND FILLED SUB-BASE MATERIAL MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE THE UPPER LAYERWORKS ARE IMPORTED TO THE SITE AND PLACED.

FREQUENCY OF TESTS

1. CBR TESTS 1 PER 500m²
2. COMPACTION TESTS 1 PER 200m² NOTE : COMPACTION TESTS WILL ALSO BE REQUIRED FOR EACH OF THE VARYING UPPER LAYERWORKS I.E G7, G5 AND G2 THAT IS IMPORTED AND COMPACTION IN PLACE.

SEWER

1. ALL SEWER PIPES ARE 160mm NOMINAL DIAMETER CLASS 34 HEAVY DUTY UPVC PIPES.
2. ALL SEWER PIPES TO BE LAID ON CLASS B BEDDING.
3. ALL SEWER PIPES TO COMPLY WITH SANS 1601 STANDARDS.

SCALE (mm)
0 10 20

REV	DESCRIPTION	BY	DATE
T1	FOR TENDER PURPOSES	S.A	24/06/2020

Professional person: S. SIRUPUTH Registration: 201470135
PROJECT MANAGER / PRINCIPAL AGENT

LDM
Solutions For The Built Environment

CLIENT
UMALUSI

PROJECT
UMALUSI OFFICES ADDITIONS AND ALTERATIONS

DETAILS
PROPOSED NEW PARKING AND BULK SERVICES LAYOUT

MAP AFRICA
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DRAWN: K.G. DATE: 2020.01.27
APPROVED: S.S. PL
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