

General Notes

- G1. All Works to be in accordance with the Contract / Specification, the latest issue of SANS 10400 and SANS 1200 unless noted otherwise.
- G2. Geotechnical and Structural drawings are to be read in conjunction with any relevant Architectural, Civil, Mechanical, Electrical or Other drawings. Any errors or discrepancies are to be reported to the Engineer immediately.
- G3. The Contractor is to keep a full set of drawings on site. Drawings are not to be scaled; only figured dimensions are to be used. Large scale details are to be used, where available.
- G4. The Contractor is solely responsible for correctly setting out the site, with particular reference to the site boundaries and building lines.
- G5. All setting out to the Architect's details.
- G6. Piles, pile caps, columns, beams, etc. are central on grid lines unless shown otherwise.
- G7. The Contractor is to check all dimensions and levels prior to commencing work on site, and any errors or discrepancies are to be reported to the Engineer immediately.
- G8. The Engineer to be given 48hr (minimum) notice to all inspections. No inspections, no Stability / Completion Certificate.

Pile Notes

- P1. Piles are to be set out from the building grid. Setting out of the building grid is to be the Architect's details.
- P2. Initial setting out of the pile positions and checking thereof after installation shall be carried out by a registered Land Surveyor.
- P3. The Pile design is based on skin friction in accordance with geotechnical information presented in DRENNAN MAUD cc Report Ref. P22649.
- P4. All piles to be grout-injected continuous-flight auger (CFA) piles (to mitigate sidewall collapse) unless indicated otherwise.
- P5. Pile capacities are based on the compressive strength of the pile cross-sectional area as follows:
- Contiguous Piles in tension: 6 MPa
 - Foundation Piles in compression: 5 MPa
- P6. Consequently, all concrete to have a minimum compressive strength as follows at 28day:
- Contiguous Piles: 35 MPa
 - Foundation Piles: 25 MPa
- P7. The grout mix design is to be submitted to Engineer for approval prior to commencement of piling. Only Engineer-approved grout mixtures and admixtures to may be used.
- P8. Piles to be reinforced in accordance with the Specification. (Refer Drawings No. S01 and S03.)
- P9. Concrete cover to main reinforcement:
- Pile Ø < 400mm: 50 mm
 - Pile Ø > 400mm: 75 mm
- P10. Indicated pile lengths are to be taken from existing ground level (EGL) and include 1.0m trim to pile trim level.
- P11. Details of the earthworks are to be confirmed prior to commencement of piling. (Where piles are installed in areas of fill, the downdrag forces are to be taken into account when calculating final pile lengths.)
- P12. The pile design assumes that:
- pile groups are symmetric about both axes.
 - individual piles are restrained in both directions.
- P13. Tolerances shall be Degree of Accuracy II (SANS 1200F), except that piles shall not be more than 50mm from the designed position.
- P14. Deviations of the final from the initial surveyed pile positions are to be reported to the Engineer prior to pile cap construction.
- P15. All pile designs are for pricing purposes only and must be re-measurable.
- P16. If any pile is damaged during installation such that its usefulness as a pile is impaired, it shall be replaced or strengthened by the installation of a new pile or piles, all as directed by the Engineer. The cost of all remedial measures in this regard shall be borne by the Contractor.
- P17. 100% of the piles shall be integrity tested and the pile test reports shall be submitted to the Engineer for approval prior to commencement of construction of the pile caps.
- P18. If any pile fails during integrity testing, it shall be replaced or strengthened by the installation of a new pile or piles, all as directed by the Engineer. The cost of all remedial measures in this regard shall be borne by the Contractor.
- P19. A detailed record of the piling shall be kept in accordance with SANS 1200: F Clause 5.9.
- P20. The Contractor shall produce the specified standards of workmanship necessary to implement the design in the actual conditions encountered so that the piles and pile caps carry the design loads in the specified manner.
- P21. In the event of failure of any pile, the Contractor shall make good the same at his own expense and shall indemnify the Employer against any loss or damage to any structure and any injury to any person caused by such failure.

Construction Monitoring Notes

- Y1. Following completion of the capping beam and prior to commencement of excavation of the CPW, a registered Land Surveyor is to set out bench marks at the capping beam at 5.0m centres.
- Y2. During excavation to Ground Floor level, the capping beam bench marks are to be surveyed daily and the cumulative results of the survey are to be forwarded to the Engineer for the purpose of construction monitoring.
- Y3. Following completion of installation of the soil nails, construction of the Waler Beam, Anchor Testing, and excavation of the CPW to Basement Parking level; the Surveyor is to set out 1 bench mark every 6No. piles at the mid-span of the piles exposed between the Ground Floor and Basement Parking levels.
- Y4. During excavation to Foundation Level, the capping beam and pile bench marks are to be surveyed daily and the cumulative results of the survey are to be forwarded to the Engineer for the purpose of construction monitoring.
- Y5. Following completion of the Basement Parking level layerworks, the capping beam and pile bench marks are to be surveyed 3No. days weekly.
- Y6. Following completion of the Ground Floor slab, the capping beam and pile bench marks are to be surveyed weekly.
- Y7. Following completion of the First Floor slab, surveying may be suspended.
- Y8. The system shall be deemed to have failed if horizontal movement at the capping beam exceeds 35mm, or 5mm midspan of the piles exposed between the waler beams and excavation base.
- Y9. Any vertical movement is to be reported to the Engineer immediately.
- Y10. Any cracks in the capping beam or piles during excavation are to be reported to the Engineer immediately.

Shotcrete Notes

- U1. Gunting shall be carried out on the trimmed slope. Excavations to be cut to indicated batter and trimmed to a degree of Accuracy 1 (tolerance = 50mm).
- U2. Surface run-off into the excavation is to be intercepted and conveyed away from the works.
- U3. Sprayed concrete shall be placed in accordance with AC 1-506R-85. Only trained operators shall be used for gunting operations.
- U4. No sprayed concrete is to be applied without prior approval from the Engineer.
- U5. The surface to which sprayed concrete is to be applied shall first be cleared of any foreign material.
- U6. All shotcrete to have a minimum compressive strength of 35MPa at 28day.
- U7. The minimum specified layer thickness shall be controlled by depth pins attached to the reinforcement.
- U8. Mesh reinforcement is to be centrally placed and lapped by 200mm.
- U9. The mesh reinforcement is to be pulled tight into depressions where necessary.
- U10. 50mm (minimum) cover to reinforcement.
- U11. Mesh reinforcement to be galvanised in permanent applications.
- U12. The positions of all construction joints not shown on the drawings are to be discussed with and approved by the Engineer. Construction joints shall be formed at 45° to the face. Precautions to be taken to prevent weak and unsightly edges at construction joints. (If necessary, temporary timber strips to be used to shutter a strong, neat construction joint.) Prior to placing the adjoining sprayed concrete the edges are to be cleaned and thoroughly wetted.
- U13. Where sprayed concrete is to be applied over a previous layer, the previous layer shall first reach its initial set and then be cleaned of any loose material.
- U14. There shall be no hollow areas and a broomed surface finish.
- U15. The use of a sprayed surface-curing compound is not permitted. The sprayed concrete shall be kept moist continuously for three days by spraying with a fine mist of water at intervals not exceeding 4hr.
- U16. All groundwater to be drained from the toe of the excavation.

Soil Nail Notes

- N1. Soil nails to be DYWI R32-320 or DYWI R32-210 (or equal approved) cased, self-drilling anchors (SDA) with a factored working load as indicated.
- N2. Corrosion protection to comprise hot-dip galvanising to SANS 763/ISO 1461 (minimum 85µm) and 2No. coats of Carboguard 193 (or equal approved).
- N3. The Contractor is to supply the bar Delivery Note and both the bar and plate Mill reports to the Engineer for approval prior to the commencement of soil nail installation.
- N4. Grout mix design to COLTO 7500:7507:Cii to be submitted to the Engineer for approval prior to commencement of the Works.
- N5. All grout to have a minimum compressive strength of 35MPa at 28day. Grout cubes to be taken at a minimum of 3 cubes per batch to confirm that 23MPa is achieved in 7day, and that 30MPa is achieved prior to pull-out tests.
- N6. All soil nails shall be fully grouted to the collar of the hole. The Contractor shall ensure that the grout cover to the anchors is continuous and completely fills the socket. The Contractor shall provide the Engineer with a grouting method statement prior to commencement of the Works.
- N7. During drilling; the diameter, orientation, length, and spacing of the drill hole and soil nail is to be regularly checked. (Bars to be central on Face Plates.)
- N8. The hole is to be drilled slightly beyond the design length and pressure-grouted from the base up.
- N9. During drilling, the Contractor is to complete an Anchor Quality Control sheet. The grout take/quantity/pressure is to be recorded. Unexpected conditions are to be documented.
- N10. Should caving occur, drilling is to be stopped and an alternative method employed. Bentonite MAY NOT be used.
- N11. 100% of the soil nails shall be tested. The soil nail/grout strength is generally accepted based on the successful testing of the soil nail.
- N12. The Contractor is to supply the jacking equipment calibration certificates. Calibration of the pressure gauges and load cells is to be performed (45day maximum) prior to soil nail testing.
- N13. During testing, the base plate is to be positioned such that it is not jacking against the grout; that is, the composite soil nail pull-out is to be tested and not the bar/grout pull-out.
- N14. A dial gauge is to be placed independent of the soil nail to measure movement. A second pressure gauge is to be kept on site for periodic checking.
- N15. All soil nails to undergo pull-out tests to 125% of their working load (WL).
- N16. All soil nails to be locked off at 90% of their WL. A greased-sleeve/free-length is required to transfer the active soil nail load to the passive wedge.
- N17. A jack chair is to be placed on bar soil nails to permit access to the nut during transfer of the lock-off load.
- N18. The ends of each soil nail are to be fitted with a Face Plate, Beveled Washer, and Hexagon Nut all with sufficient capacity to resist the loads to which they will be subject and galvanised to SANS 763/ISO 1461.
- N19. The Contractor is to record and supply the results of the pull-out tests to the Engineer prior to commencement of excavation of the CPW.

Foundation Notes

- O1. No foundation is to be cast on fill material, rubble or fill material containing rubble, or insitu soils containing organic material.
- O2. Foundation levels indicated are approximate. Final founding level to be determined on site by the Engineer.
- O3. The softlt of all foundations to be level. Steps formed in accordance with SANS 10400 to be approved by the Engineer.
- O4. All excavations to be kept free of water at all times.
- O5. In wet conditions, blinding concrete to be placed below all foundations and ground beams and shall be a minimum of 50mm thick.
- O6. All foundations to be inspected by the Engineer prior to reinforcement fixing.

Reinforcement Notes

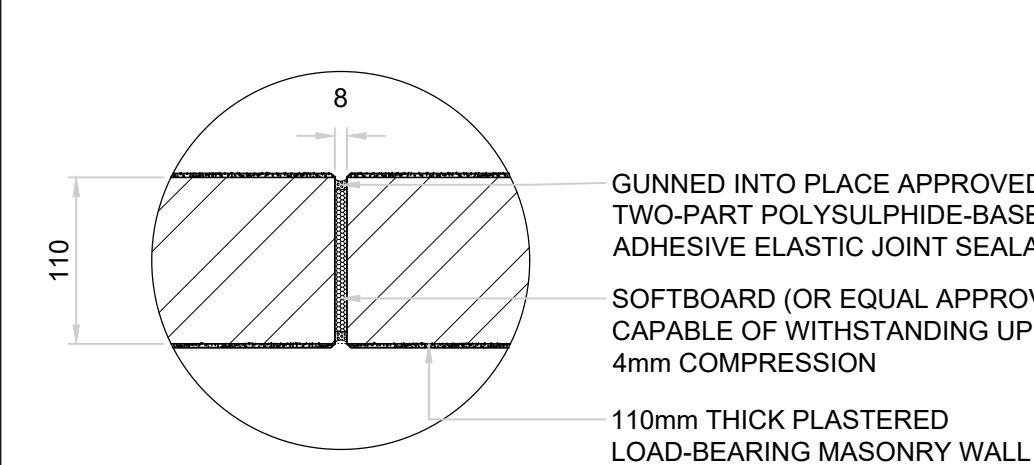
- R1. Steel stress and bending of all reinforcement in accordance with SANS 920.
- R2. Fixing of reinforcement to comply with the tolerances specified in SANS 1200-GB.
- R3. No heating, bending, or cutting of reinforcement without prior approval of the Engineer.
- R4. The Contractor is to inspect fixed reinforcement to ensure concrete cover is as specified on the relevant drawings prior to notifying the Engineer of the required inspection.

Concrete Notes

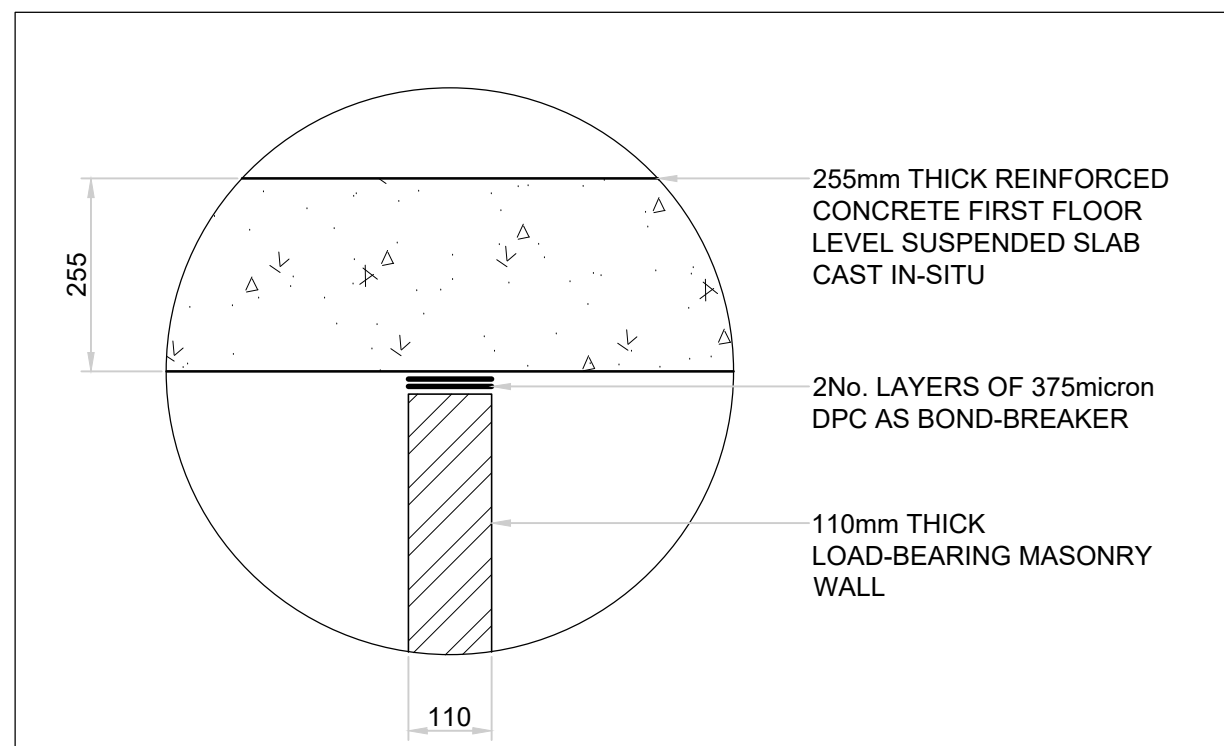
- C1. Concrete mix design to SANS 10100. Design loads from SANS 10160 and Client's specification.
- C2. Concrete mix designs to be submitted to Engineer for approval prior to commencement of work. Only Engineer-approved admixtures to be used.
- C3. All concrete to have a minimum compressive strength at 28 days as follows:
- Blinding: 15 MPa / 25mm
 - Foundations: 25 MPa / 25mm
 - Columns: 30 MPa / 19mm
 - Suspended Slabs & Beams: 30 MPa / 19mm
- C4. Concrete cover to main reinforcement:
- Foundations: 50 mm
 - Columns: 30 mm
 - Suspended Slabs & Beams: 30 mm
- C5. All concrete work, including formwork stripping times and propping, to SANS 1200-GB.
- C6. All sharp edges to concrete to have 25mm chamfers.
- C7. Formwork classification:
- Concealed surfaces: Rough
 - Exposed surfaces (unless otherwise shown): Smooth (off-shutter)
 - Exposed surfaces (where specified by architect): Smooth-special to SANS 2001-CC1: 4.3.1.8 Table 1. Degree of accuracy I Table 11.
- C8. Exposed surfaces to Grade II tolerances.
- C9. Uniform surface finishes as follows:
- Suspended Slabs: Power-floated
- C10. All services and sleeves to be positioned prior to concrete pour. No in situ concrete to be cast without prior approval from the Engineer.
- C11. The positions of all construction joints not shown on the drawings are to be discussed with and approved by the Engineer.
- C12. Concrete stripping times: (normal weather)
- Beam sides, walls, unloaded columns: 2 day
 - Slabs with props left under: 4 day
 - Beam soffits with props left under: 7 day
 - Slab props: 10 day
 - Beam props: 14 day
- C13. Concrete stripping times: (cold weather)
- Beam sides, walls, unloaded columns: 4 day
 - Slabs with props left under: 7 day
 - Beam soffits with props left under: 12 day
 - Slab props: 12 day
 - Beam props: 28 day
- C14. Staging during construction of multi-storey structures:
- Ground Floor Pour:basement-ground 100 % propping
 - First Floor Pour: ground-first 100 % propping
 - basement-ground 75 % propping

Masonry Notes

- M1. All masonry materials, components, workmanship and testing shall comply with SANS 10164; "The Structural Use of Masonry".
- M2. All building work to be carried out in accordance with the South African National Standard for the Application of the National Building Regulations, Part K: Walls (SANS 10400-K: 2011).
- M3. The minimum thickness of all masonry walls is as follows. No hollow-units permitted.
- External Walls: 220 mm
 - Internal Walls: 110 mm
- M4. The maximum length of all internal walls at Ground Floor level shall be 7.0m. Ground Floor masonry panels in excess of 7.0m length shall incorporate control joints (at 7.0m centres) 10-12mm in width similar in detail to that shown at DETAIL 1.
- M5. The minimum crushing strength of all structural masonry shall be 14MPa and the maximum water absorption 12%.
- M6. Clay bricks to be soaked in a water bath prior to use.
- M7. The minimum crushing strength of structural mortar shall be as for Class 1 mortar (1:4 cement:sand, but not less than 10MPa) as per SANS 10164 Part 1.
- M8. All vertical and horizontal joints between bricks to be filled solid with mortar.
- M9. Vertical and horizontal chasing will be permitted only with the approval of the Structural Engineer and is to be limited to 35mm in depth. Where chasing exceeds 35mm in depth; following conduit installation, the recess is to be doweled with Y6/Y8 bars and caulked with a high-strength, non-shrink grout. (Detail to be advised.)
- M10. Masonry walls to be tied to concrete columns with 1.2x30x800 galvanised hoop iron straps shot fixed (with 2 HILTI shot studs each) or cast into concrete columns every 3rd/ course. Refer DETAIL 3.
- M11. All masonry to be reinforced with an approved brickforce every fourth course, and every course over openings for 3No. courses minimum.
- M12. All brickforce, masonry anchors and straps, and wall ties shall be hot-dip galvanised.
- M13. Wall ties to be of the modified PWD type or the vertical twistier type as per SANS 10164 Part 1 Figure 1, positioned every 3rd/ course vertically and at 500mm c/c horizontally.
- M14. Masonry layout in accordance with the Architectural layouts.
- M15. Control joints in masonry to be provided at the positions indicated on the Architectural layouts; however, the maximum spacing thereof is limited to 7.0m c/c for all walls.
- M16. Wall joints to be repeated in all tied finishes.
- M17. All external joints to be sealed with a gunned-in-place, approved, two-part, polysulphide-based, adhesive, elastic joint sealer.
- M18. 12mm vertical joint to be formed at intersection of masonry walls with concrete columns.
- M19. Full depth V-joints to be made in plaster at intersection of masonry with concrete.
- M20. Lintels over openings to have a minimum 230mm bearing at each end.
- M21. Slip-joints comprising 2No. layers 375micron DPC to be formed on top of all masonry supporting a concrete slab. Refer DETAIL 2.
- M22. Non-load bearing masonry may not be built within 20mm of the soffits of concrete beams and slabs unless indicated otherwise.
- M23. The maximum spacing of control joints in masonry balustrades is limited to 6.0m c/c.
- M24. All masonry planters to be drained by 25 weepholes at 1.0m c/c installed above finished paving levels.



DETAIL 1:
PLAN ON TYPICAL ARTICULATION JOINT IN WALL
SCALE 1:5



DETAIL 2:
SECTION THROUGH TYPICAL SLIP-JOINT IN WALL
SCALE 1:10

Steel Notes

- S1. Contractor to check all dimensions on site prior to fabrication. Any discrepancies to be reported to the Engineer immediately.
- S2. No steelwork is to be fabricated prior to the Engineer's approval of shop drawings.
- S3. Steelwork grades shall be as follows:
- Hot rolled sections: Grade S355JR to EN10025-2
 - Hot rolled angles 50x50 and under and cold rolled open sections: Grade "CQ" (Commercial Quality steel to SANS 10162)
 - Hot formed hollow sections: Grade 355W to SANS 657-1 All hot and cold rolled steelwork to be hot dip galvanised to SANS 121 and treated with a suitable degreasing agent.
- S4. Where exposed at First Floor level, all hot rolled steelwork to be coated in accordance with the Architect's specification.
- S5. The ends of all tubular and hollow sections are to be sealed with nominal thickness plates and continuous fillet welds unless shown otherwise.
- S6. All gusset and end plates to be 10mm unless shown otherwise.
- S7. Unless shown otherwise, purlins and girts shall be continuous over at least two spans.
- S8. All welds to be full strength U.O.N.
- S9. Welding shall be performed by a certified welder in accordance with the requirements laid down in the latest issue of SANS 10044.
- S10. Welds shall be 6mm continuous fillet welds with E70XX Electrodes unless shown otherwise.
- S11. Unless shown otherwise, all bolts shall be M12 Grade 4.8 to SABS 135.
- S12. Exposed ends of holding-down bolts shall be protected from damage during and after placement of concrete.
- S13. The Contractor shall provide and leave in place until permanent bracing elements are constructed, such temporary bracing as is necessary to stabilise the structure during erection.

Excavation Safety Notes

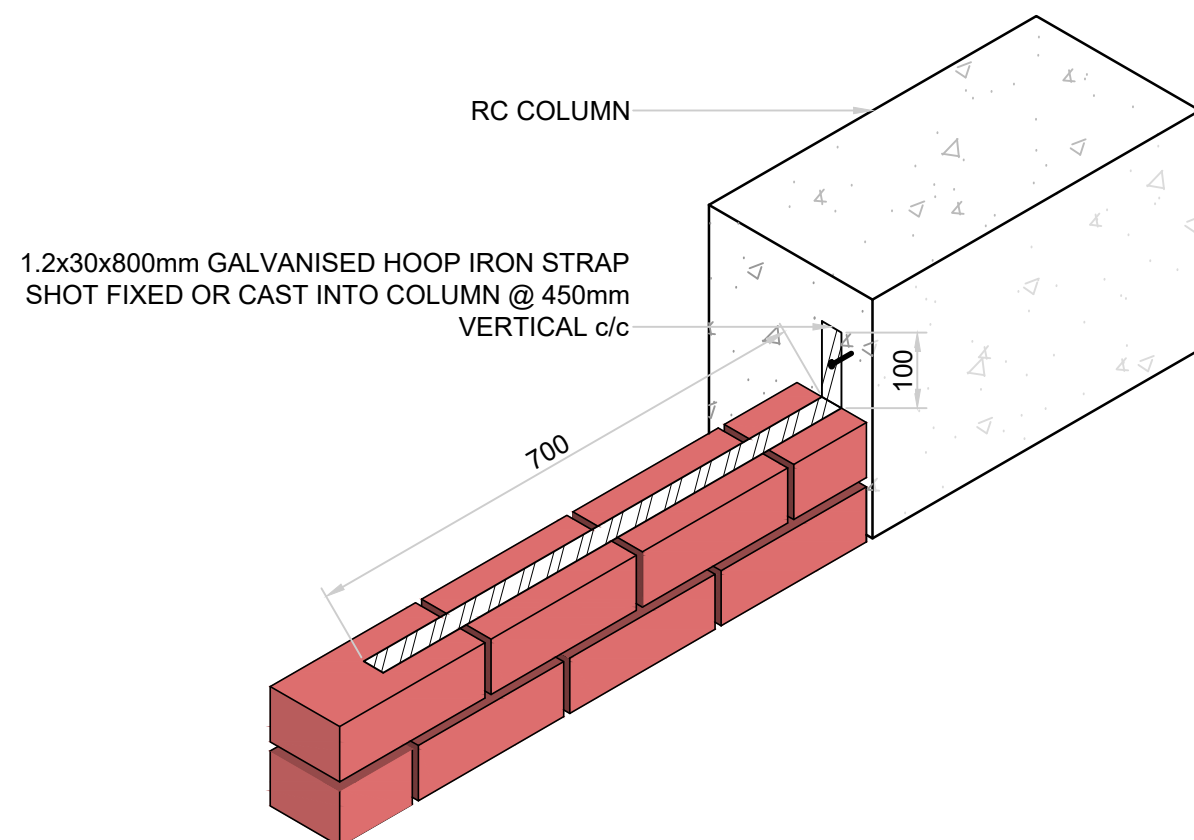
- E1. On-site safety is the responsibility of the Contractor.
- E2. Indicated lines of existing services are approximate. All existing services to be located and protected by the Contractor prior to commencement of excavation.
- E3. Battering back, shoring, and making safe of the excavations is the sole responsibility of the Contractor. With reference to the report on the geotechnical investigation, temporary batters may not exceed 1:1.75 (or 30° from the horizontal) given the very loose to loose in-situ soils on site.
- E4. All excavations exceeding 1.5m in depth are to be suitably shored during construction such that adjacent structures are not undermined and the excavation is safe for access by personnel and equipment, in accordance with the latest edition of the Construction Regulations.
- E5. All excavations to be kept free of water at all times. On-site stormwater management is the responsibility of the Contractor during construction.
- E6. Fill to be rolled at the end of each day's work to ensure grade is such that water does not pond in the vicinity of the wall.

Table: Classification of Damage to Masonry Walls

Damage Category	Classification	Crack Width	Description	Summary of Crack Repair Methodology
Minor	Aesthetic	0	< 0.25mm	Negligible
		1	< 1 mm	Very Slight
		2	< 5 mm	Slight
Significant	Serviceability	3	5 - 15 mm	Moderate
		4	15 - 25 mm	Severe
	Stability	5	> 25 mm	Very Severe

Source: National Home Builders Regulatory Council (NHBRG) Home Building Manual: Part 1 (1999)

- NOTES:
- The first 100mm in hoop-iron straps shall be either fixed to concrete by means of a 3.0mm Ø (minimum) drive pin or cast into concrete at vertical c/c that do not exceed 450mm.
 - The drive pin shall be located as close to the bend in the strap as is practicable.
 - Cores in masonry units shall be filled with infill concrete.



ISOMETRIC DETAIL 3:
TYPICAL ON STRAP CONNECTION
SCALE 1:10

Rev.	Date	Drawn	Description
01	13-11-2024	S.J.G	CONSTRUCTION

HEALTH DEPARTMENT SIGNATURES

DEPUTY DIRECTOR GENERAL: _____

HEAD OFFICE PROGRAMME / SERVICE: _____

DISTRICT MANAGER: _____

CEO MANAGER OF THE FACILITY: _____

DOH PROJECT MANAGER: _____

IMPLEMENTING AGENT PROJECT MANAGER: _____

PROFESSIONAL SERVICE PROVIDER: _____

Name: **S. Boyce (Pr. Eng. 20160768)**

Signature: _____ Date: _____

Consultant: **DRENNAN MAUD (PTY) LTD**

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health Department: Health PROVINCE OF KWAZULU-NATAL

KWAZULU-NATAL PROVINCE PUBLIC WORKS REPUBLIC OF SOUTH AFRICA

SOUTHERN REGION

Project: **DEPARTMENT OF HEALTH PORT SHEPSTONE HOSPITAL NEW PSYCHIATRIC WARD**

Drawing description: _____

GENERAL NOTES

Drawn: S.J.B. Date: June 2024

Scales: As shown

Consultant Drawing number: **31519-S20**

Drawing number: **WIMS 044 044 / S / 20 / C0**

Stamped by Health Plans Approval Committee