



CALL FOR BIDS

BID NO: ECDC /INFRA/23/112023

BID SUBJECT: REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK

Consisting Of:

- The Tender (Returnable) - This Document**
- The Bills of Quantities - This Document**
- Drawings**
- Specification Document**
- Construction Health and Safety Specification**

BIDDER NAME:

CSD No:

CRS No.:

CLOSING DATE:	19 January 2024
CLOSING TIME:	12h00

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SECTION A: ABBREVIATIONS AND ACRONYMS	
CIDB	Construction Industry Development Board
DTI	Department of Trade and Industry
ECDC	Eastern Cape Development Corporation
EME	Exempt Micro Enterprise
IRBA	Independent Regulatory Board of Auditors
PCCA	Prevention and Combating of Corrupt Activities Act 12 of 2004
PFMA	Public Finance Management Act (Act 1 of 1999)
PPPFA	Preferential Procurement Policy Framework Act (Act 5 of 2000)
QSE	Qualifying Small Enterprise
SABS	South African Bureau of Standards
SANAS	South African National Accreditation System
SARS	South African Revenue Service
SASAE	South African Standard on Assurance Engagements
SCM	Supply Chain Management
SMME	Small, Medium and Micro Enterprises
ToR	Terms of Reference
CSD	National Treasury Central Supplier Database for South African Government
B: DEFINITIONS	
Acceptable tender	Means any tender which, in all respects, complies with the specifications and conditions of tender as set out in the tender document.
Accreditation Body	Means the South African National Accreditation System or any other entity appointed by the Minister from time to time whose function it is to: Accrediting verification agencies Developing, maintaining, and enforcing of Verification Standards.
Affordable	Means (in terms of a PPP-Agreement) that the financial commitments to be incurred can be met by funds: Designated within ECDC's existing budget for the function to which the agreement relates; and Destined for ECDC in accordance with the relevant Treasury's future budgetary projections.
All applicable taxes	Includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.
Bid	Means a written offer or proposal to supply goods and/or provide services, submitted in response to the ECDC's invitation to quote or submit proposals which includes advertised competitive bids, written price quotations or proposals.
Bid Specification	A specification that lays down the characteristics of goods to be procured or their related processes and production methods, or the characteristics of services to be procured or their related operating methods, including the applicable administrative provisions, and a detailed requirement relating to conformity assessment procedures that an entity prescribes and shall include TOR for specialised services.

Black People	Means 'African', 'Indian' and 'Coloured' people who are citizens of the Republic of South Africa by birth; or are citizens of the Republic of South Africa by naturalisation before the commencement date of the Constitution of South Africa Act (1993); or became citizens of the Republic of South Africa after the commencement of the of the Constitution of South Africa Act(1993), but who for the Apartheid policy that has been in place to that date, would have been entitled to acquire citizenship by naturalisation prior to that date.
Specific goal	<p>2.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table in SBD 6.1 as may be supported by proof/ documentation stated in the conditions of this tender:</p> <p>2.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—</p> <ul style="list-style-type: none"> (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system: or (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system, then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.
Close Family Member	Shall mean: - member of the same household, parent (including adoptive parent), parent-in-law, son (including adoptive son), son-in-law, daughter (including adoptive daughter), daughter-in-law, step-parent, step-son, step-daughter, brother, sister, grandparent, grandchild, uncle, aunt, nephew, niece, the spouse or unmarried partner with relation to any of the person's above.
Code of Ethics	Refer to the ECDC Code of Ethics for Management and Staff as may be amended from time to time.
Comparative Price	Means the price after the factors of a non-firm price and all the unconditional discounts that can be utilised have been taken into consideration.
Consortium or Joint Venture	Means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill, and knowledge in an activity for the execution of a contract.
Contract	Means the agreement that results from the acceptance of a bid by ECDC.
Designated Sector	Means a sector, sub-sector or industry that has been designated by the DTI in line with national development and industrial policies for local production, where on local produced goods or locally manufactured goods meet the stipulated minimum threshold for local production and content.
Duly Sign	Means a document that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief

	Executive, or senior member / person with management responsibility (close corporation, partnership or individual).
Exempt Micro Enterprise (EME)	Means an enterprise with a specified total annual revenue as per Department of Trade and Industry Codes of Good Practice on Broad Based Black Economic Empowerment
Family Member	Means a husband or wife, any partner in a customary union according to indigenous law or any partner in a relationship where the parties live together in a manner resembling a marital partnership or a customary union; and any person related to either one or both persons referred above within the second degree through a marriage, a customary union, or a relationship or the third degree of consanguinity.
Firm Price	Means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract.
Fronting	Means a deliberate circumvention or attempted circumvention of the B-BBEE Act and the Codes. Fronting commonly involves reliance on data or claims of compliance based on misrepresentation of facts, whether made by the party claiming compliance or by any other person.
Functionality	Means the measurement according to predetermined norms, as set out in the tender documents, of a service or commodity that is designed to be practical or useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of the tenderer.
Imported Content	Means that portion of the tender price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the bidder or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour or intellectual property costs), plus freight and other direct importation costs, such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African port of entry.
In the service of the state	Means: an employee of any municipality who has a performance contract with the municipality and is employed on a permanent, temporary, or short-term basis. an employee or public servant of any national or provincial government as defined in terms of Public Services Act. a member who – is a councillor of any municipal council as defined in the Local Government Municipal Structures Act (Act No 117 of 1998); is a politician serving in any provincial legislature; or is a politician serving in the National Assembly or the National Council of Provinces, a member of the board of directors of any municipal entity, an employee and a member of a government owned entity as defined in the Public Finance Management Act (Act No 1 of 1999);

	and / or such other meaning ascribed to it by National Legislation from time to time.
Local content	Means a portion of the tender price, which is not included in the imported content, provided that local manufacture does take place.
Non-firm prices	Means all prices other than "firm" prices
Person	Includes a juristic person.
Price Quotation	An estimate describing the product, stating its price, time of shipment, and specifies the terms of the sale and terms of the payment.
Property	Includes all movable and immovable property and intellectual property belonging to ECDC.
Public Private partnership	Means a commercial transaction between ECDC and a private party in terms of which: the private party either performs a function o.b.o. ECDC for a specified or indefinite period or acquires the use of state property for its own commercial purposes for a specified or indefinite period. the private party receives a benefit for performing the function or by utilizing state property, either by way of: compensation from a revenue fund charges or fees collected by the private party from users or customers of a service provider to them; or a combination of such compensation and such charges or fees.
Qualifying Small Entity	Means an enterprise with a specified total annual revenue as per Department of Trade and Industry Codes of Good Practice on Broad Based Black Economic Empowerment
Rand value	Means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties.
Related enterprise	Means an entity controlled by a measured entity whether directly or indirectly controlled by the natural persons who have direct or indirect control over that measured entity or the immediate family of those natural persons.
Service Level Agreement	Shall have the same meaning assigned as "Contract".
Shareholder	Means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.
State	Means: any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the PFMA any municipality or municipal entity national Assembly or the national Council of Provinces; or parliament.
Stipulated minimum threshold	Means that portion of local production and content as determined by the DTI.
Sub-Contract	Means the primary contractor's assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract.

Tender	The same meaning is assigned as 'Bid" above.
Threshold	Shall mean the financial limits on the value of goods or services to be procured as set and prescribed in this policy which shall determine the manner in which these goods and services will be procured.
Total revenue	Means the total income of an entity from its operations as determined under South African Generally Accepted Accounting Practice.
Trust	Means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person.
Trustee	Means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.
Value for Money	Means that the item (public-private partnership agreement) results in a net benefit to EDCD defined in terms of cost, price, quality, quantity, or risk transfer, or a combination thereof.

Part T1: Tendering Procedures

TENDER NOTICE AND INVITATION TO BID**1. Invitation to Bid**

Eastern Cape Development Corporation (ECDC) wishes to engage with a suitable contractor with a CIDB Grading of 8GB or Higher for the Repairs and refurbishment of Site 3 in Dimbaza Industrial Park

The project is situated in Dimbaza, Eastern Cape, South Africa.

Site 3 Dimbaza: -32.829368, 27.200992

A Detailed scope of services is described in Scope of Work Section below.

2. Eligibility to Bid

- a) Bidders should meet the Mandatory Requirements in in order be evaluated T2.1
- b) **It is estimated that bidders should have a CIDB grading of 8GB or Higher.**
- c) Only those tenderers who are registered with the CIDB prior to submissions of bid with a contractor grading equal in accordance with the sum tendered, or a value determined in accordance with Regulation **25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for the above-mentioned grading classes of construction work, are eligible to have their tenders evaluated.**

3. Payment of Bid Document

No payment is due to obtain tender documents.

4. Collection /Availability of Documents

Documents will be available for downloading from the ECDC website at www.ecdc.co.za.

5. Queries on Bid Document

Queries relating to the issue of these documents may be addressed to Ms N Norexe,
E- Mail at tenders@ecdc.co.za and cc nnorexe@ecdc.co.za

6. Estimated Timeline

Activity	Date	Time
1.	Placing of Advert Daily Dispatch, Treasury, Load on ECDC Website for 30 Days. 1 December 2023	n/a
2.	Compulsory Briefing Meeting A compulsory briefing session will be held at Site 3 Dimbaza Industrial Park, Siwani Street, Dimbaza on the 12 December 2023 at 11h00AM.	
3.	Last day of questions 5 days before closing date	16H00
4.	Final date of submission of bids 19 January 2023	12h00
5.	Bid Validity 120 days	

6.1. Briefing Session and Site Location

A compulsory briefing meeting to be held at Dimbaza Industrial Park, Siwani Street, Dimbaza on the 12 December 2023 at 11h00AM.

For any enquiries relating to this Bid please email the procurement department at tenders@ecdc.co.za, attention N Norexe.

Communication with the Bidders and any clarity on Queries Bid will be posted on the website at www.ecdc.co.za and will also be communicated to the bidders via email where the Bidder has indicated to ECDC that they are interested in submitting a bid.

Bidders must visit the site to ensure that their proper assessment of the site is done and that the Bill of Quantities is priced correctly.

Bidders must acquaint themselves of the current site conditions, works complexity and associated safety risks.

ECDC will only consider bidders that have attended the briefing meeting.

Telephonic, emailed, telexed, facsimile, and late tenders will not be accepted.

Tenders may only be submitted on the tender documentation that is issued.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the **Tender Data**.

T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Construction Procurement (January 2019) as published in Government Gazette No 42622, Board Notice 423 of 2019 on the 8th of August 2019 (See www.cidb.org.za).

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

Clause number	Tender Data
A.1.1	The employer is Eastern Cape Development Cooperation (ECDC)
A.1.2	<p>The Tender Documents issued by the Employer comprise the following documents:</p> <p>THE TENDER</p> <p>Part T1: Tendering procedures T1.1 - Tender notice and invitation to tender T1.2 - Tender data</p> <p>Part T2: Returnable documents T2.1 - List of returnable documents 2.2 - Returnable schedules</p> <p>THE CONTRACT</p> <p>Part C1: Agreements and Contract data C1.1 - Form of offer and acceptance C1.2 - Contract data C1.3 - Performance Bond C1.4 - Adjudicator's contract</p> <p>Part C2: Pricing data C2.1 - Pricing Instructions C2.2 - Bill of Quantities</p> <p>Part C3: Scope of work C3 - Scope of work</p> <p>Part C4 : Site information C4 - Site information</p>

A.1.4	<p>During Tender stage all communication shall be through the Procurement Department for attention: Name: Ms. N Norexe, Address: ECDC Head Office at ECDC House Ocean Terrace Park Moore Street Quigney, East London</p> <p>Tel: 043 704 5600 E-mail: tenderes@ecdc.co.za cc nnorexe@ecdc.co.za</p>
A.2.1	<p>Only those tenderers who are registered with the CIDB or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with CIDB Regulations are eligible to have their tenders evaluated.</p> <p>Joint ventures are eligible to submit tenders provided that:</p> <ol style="list-style-type: none"> 1. every member of the joint venture is registered with the CIDB, 2. the lead partner has a contractor grading designation in the GB (General Building Works (GB)) class of construction work; not lower than one level below the required grading designation in the class of works construction works under considerations and possess the required recognition status. 3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a GB class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.
A.2.1	<p>Not Applicable for this Bid</p> <p>The following tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to have their tenders evaluated:</p> <ol style="list-style-type: none"> a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for an 8GB class of construction work; and b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above and who satisfy the following criteria **
A.2.2	<p>Not Applicable for this Bid</p> <p>The employer will compensate the tender as follows</p>

A.2.7	<p>The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender.</p> <p>Paragraph Below is Not Applicable. Bidder to refer to Tender Notice</p> <p>Tenderers must sign the attendance list in the name of the tendering entity. Addenda will be issued to, and tenders will be received only from those tendering entities appearing on the attendance list.</p>
A.2.12	<p>Not Applicable for this Bid</p> <p>Main tender offers are not required to be submitted together with alternative tenders.</p>
A.2.12	<p>No alternative tender offers will be considered.</p>
A.2.12	<p>Not Applicable for this Bid</p> <p>If a tenderer wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements, the details of which may be obtained from the Employer's Agent.</p> <p>Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal.</p> <p>Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements.</p> <p>The modified Pricing Data must include an amount equal to 5% of the amount tendered for the alternative offer to cover the Employer's costs in confirming the acceptability of the detailed design.</p>
A.2.13. 3	<p>One original duly signed (by authorised representative) and completed bid document (hardcopy) MUST be submitted inclusive of the terms and conditions of this bid document with any attachments/annexures /returnable required for this Bid.</p> <p>A PDF soft copy of the duly signed and completed original bid (e.g., PDF format in Flash drive/disc) should be submitted with the Original duly signed and completed hardcopy bid document however non-submission of a soft copy will not result in the Bid being disqualified.</p> <p>ECDC will not be responsible if your bid is not submitted on time. All bid documents are to be completed in permanent black ink.</p> <p>No alterations of the Bid Document will be allowed.</p> <p>No correction fluid will be allowed. Corrections should be initialled.</p>

A.2.13.5	Valid originally firmly bound signed complete tender document (by authorized representative) must be placed in the Bid Box on or before the final date and time of submission.
A.2.15.1	<p>The employer's details and address for delivery of tender offers and identification details that are to be shown on each tender offer package are:</p> <p>a) Location of tender box:</p> <p>Bid Reference Number: ECDC/INFRA/23/112023</p> <p>Project Name: REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK</p> <p>Delivered at Physical Address: ECDC Head Office at ECDC House, Ocean Terrace Park, Moore Street, Quigney, East London.</p> <p>Bids/Tender offers must be submitted on or before the final date and time of submission of bids as indicated in the Tender Notice and invitation to Tender.</p> <p>It is the Bidders responsibility to ensure that all the documents are received on time. The bid box is open on weekdays between 08h00 and 16h30</p>
A.2.13.6 A.3.5	<p>Not Applicable for this Bid</p> <p>A two-envelope procedure is required.</p>
A.2.13.9	Telephonic, email, telegraphic, telex, email, or facsimile tender offers will not be accepted.
A.2.15	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.
A.2.16	The tender offer validity period is 120 days.
A.2.18	<p>The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the Labour-Intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.</p> <p>Tenders to submit the associated names being part of the returnable documents failure to submit can result in the tender being eliminated.</p>
A.2.19	<p>Access shall be provided for the following inspections, tests, and analysis:</p> <p>The site is available for viewing the location of the works.</p>
A.2.20	The tenderer is required to submit with his tender a letter of intent from an approved insurer undertaking to provide the Performance Bond to the format included in Contract Data/Contract of this procurement document.
A.2.22	<p>Not Applicable for this Bid</p> <p>Return all retained tender documents within 28 days after the expiry of the validity period.</p>

A.2.23	<p>The tenderer is required to submit with his tender:</p> <p>1) Tax Compliance</p> <p>Bidders must ensure compliance with their tax obligations.</p> <p>In Bids where Consortia/Joint venture/Sub-Contractors are involved; each party must submit a separate proof of Tax Compliance Status.</p> <p>The bidders' Tax status will be verified on the CSD prior to the bid award and where the preferred bidders is not compliant, 7 working days will be granted for remedy, failing which the bidder will be disqualified.</p>
A.3.1.1	<p>The Employer will respond to requests for clarification received up to 5 working days before the tender closing time.</p>
A.3.4	<p>Opening of the Bids</p> <p>There will be NO PUBLIC OPENING of the Bids received; however, the list of bids received may be published on the ECDC website and will be sent to the Bidders that have submitted bids via email.</p> <p>There will be no discussions with any Bidder/Interested Party that Submitted Proposals/ Bids until evaluations have been complete. Any subsequent discussions shall be at the discretion of ECDC.</p>
A.3.11.1	<p>The financial offer will be reduced to a comparative basis.</p>
A.3.11.2	<p>Not Applicable for this Bid</p> <p>The procedure for the evaluation of responsive tenders is Method 1.</p>

A.3.11.3 Evaluation Criteria

This bid is subject to the Preferential Procurement Policy Framework Act and the Preferential Procurement Regulations 2022 as applicable to provincial government business enterprises as listed under schedule 3(D) of the Public Finance Management Act and the ECDC Procurement Policy as amended from time to time.

The procedure for evaluation of tenders is as follows:

<p>Stage 1</p>	<p>Service Providers are to meet all the Mandatory Requirements to be evaluated further. Failure to submit the Mandatory Requirements as required will result in the bid being disqualified.</p> <p>Involves a valuation of local production and content (goods) only. At this stage Bidders must meet the minimum threshold for local production and content as determined by the DTI for local content before they will be evaluated in terms of preferential procurement points.</p> <p>Bidders to complete the Declaration for Local Production and Content for Designated Sectors and Local Content Declaration: Summary Schedule (Annex C)</p>
<p>Stage 2</p>	<p>Functionality: Involves an evaluation of Functionality only – At this stage Bidders must score a minimum score of 70% (49/70) for functionality (services) to be evaluated for Stage 3 (Preferential procurement points).</p>
<p>Stage 3</p>	<p>Preferential Procurement points: Price: Points will be calculated for price on the relevant prices in accordance with the preference point system, 90/10.</p>

Functionality Criteria	Maximum number of points
Completed Similar Projects	30
Experience and Qualifications of the Key Personnel	30
Assessment of Financial Capability	10
Maximum possible score for functionality (M₃)	70

A.3.11.3	<p>The evaluation criteria and maximum score in respect of each of the criteria are as follows: (Details on Functionality Evaluation are on T2.1)</p> <p>Functionality shall be scored by not less than three evaluators in accordance with the Functionality Criteria Evaluation below.</p> <p>The minimum percentage to be achieved for functionality is 70% (or 49/70 points).</p>
A.3.13	<p>Tender offers will only be accepted if:</p> <ul style="list-style-type: none"> a) the tenderer is Tax Compliant <ul style="list-style-type: none"> ✓ tenderers must ensure compliance with their tax obligations. ✓ in Bids where Consortia/Joint venture/Sub-Contractors are involved; each party must submit a separate proof of Tax Compliance Status. ✓ the tenderer Tax status will be verified on the CSD prior to the bid award and where the preferred bidder is not compliant, 7 working days will be granted for remedy, failing which the bidder will be disqualified. b) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation. c) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement. d) the tenderer has not: <ul style="list-style-type: none"> i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect. e) the tenderer is able, in the opinion of the employer, to perform the contract free of conflicts. f) the employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2003, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely. g) the tenderer can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise, and the personnel, to perform the contract. h) the tenderer has the legal capacity to enter the contract. i) the tenderer is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing; j) the tenderer complies with the legal requirements, if any, stated in the tender data; and
A.3.17	<p>The number of paper copies of the signed contract to be provided by the employer is one (1).</p>

Part T2: Returnable documents

T2.1 - List of returnable documents

T2.2 - Returnable schedules

1. Evaluation Criteria

This bid is subject to the CIDB and Preferential Procurement Policy Framework Act and the Preferential Procurement Regulations 2022 as applicable to provincial government business enterprises as listed under schedule 3(d) of the Public Finance Management Act and the ECDC Procurement Policy as amended from time to time.

The procedure for evaluation of tenders is as follows:

Stage 1	<p>Service Providers are to meet all the Mandatory Requirements in order to be evaluated further. Failure to submit the Mandatory Requirements as required will result in the bid being disqualified.</p> <p>Involves a valuation of local production and content (goods) only. At this stage Bidders must meet the minimum threshold for local production and content as determined by the DTI for local content before they will be evaluated in terms of preferential procurement points.</p> <p>Bidders to complete the Declaration for Local Production and Content for Designated Sectors and Local Content Declaration: Summary Schedule (Annex C)</p>
Stage 2	<p>Functionality: Involves an evaluation of Functionality only – At this stage Bidders must score a minimum score of 70% (49/70) for functionality (services) in order to be evaluated for Stage 3 (Preferential procurement points).</p>
Stage 3	<p>Preferential Procurement points: Price: Points will be calculated for price on the relevant prices in accordance with the preference point system, 90/10.</p>

1.1. MANDATORY LIST OF TENDER RETURNABLES

Service Providers are to meet all the Mandatory Tender Requirements in order to be evaluated further for Stage 1. Failure to submit the Mandatory Requirements as required will result in this bid being disqualified.

Description	Disqualification if not submitted with Bid Document or Bidder is found to be Non- Compliant at the Time of Bid Close	Mandatory Requirement for Award
<p>1. Bidders must be registered on the National Treasury Central Supplier Database (CSD). The following information will be verified on the National Treasury Central Supplier Database:</p> <ul style="list-style-type: none"> • Business Registration including details of directorship and membership, - The bidders' Business Registration Status will be verified on the CSD prior to the bid award and where the preferred bidder's status is under deregistration, 7 working days will be granted for remedy, failing which the bidder will be disqualified. • ID Number, • Government Employee • Tender Defaulting and Restriction Status. Should the Tender be a restricted supplier or a defaulting supplier they will be disqualified. <p><u>Onus on the Service Provider</u> Onus is on the Service Provider to make sure that all these are active and compliant on the CSD at the time of bid closing and tender award. ECDC will verify if the Service Provider has been registered on CSD. Service Provider to submit CSD Number as required in the Cover Page. It is the responsibility of the Service Provider to ensure that the correct CSD Number is provided.</p>	<p>Yes</p>	<p>Yes</p>

	<p>If Service Provider is not registered on CSD by the time of closing of the bid, they will not be considered for evaluation.</p> <p><u>Directors in the Service of State</u></p> <p>Where a person within the Bidding Entity is an Employee of the State, Bidder should</p> <ol style="list-style-type: none"> a. submit a signed letter on a letter head from their Accounting Officer/Accounting Authority (AO/AA of the Government Institution where they are employed) stating that they are not prohibited from conducting business with the State in terms of Section 8 of the Public Administration Management Act, 2012 (Act No.11 of 2014- "The PFMA") b. submit a signed letter on a letter head from their AO/AA granting permission to perform other remunerative work outside of their employment where the PAMA does not apply to such an employee. <p>ECDC reserves the right to verify such information from their AO/AA.</p> <p><u>JV's and Consortium</u></p> <p>Where the Bidder is a JV/Consortium, each firm must be registered on the CSD.</p>		
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2.	<p>Tax Compliance Requirements:</p> <ul style="list-style-type: none"> Bidders must ensure compliance with their tax obligations. The bidders' Tax status will be verified on the CSD prior to the bid award and where the preferred bidders is not compliant, 7 working days will be granted for remedy, failing which the bidder will be disqualified. In Bids where Consortia/Joint venture/sub-contractors are involved, each party must submit a separate proof of Tax Compliance Status Certificate/SARS Pin Number/CSD Number. 	No	Yes
3.	<p>CIDB Requirements:</p> <p>Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a 8GB (General Building) or higher class of construction work, are eligible to have their tenders evaluated.</p> <p>Joint ventures are eligible to submit tenders provided that:</p> <ol style="list-style-type: none"> every member of the joint venture is registered with the CIDB; the lead partner has a contractor grading designation in the GB (General Building) class of construction work; not lower than one level below the required grading designation in the class of works construction works under considerations and possess the required recognition status. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a GB class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations. <p>ECDC will verify whether the Bidders have an active and valid CIDB registration as required above</p>	Yes	Yes
4.	<p>Annexure C – Supplier Information (Completed and Signed by the Delegated Authority) Attach Delegation of Authority</p>	Yes	Yes

5.	Annexure L– C.1.1 Form of Offer and Acceptance Offer; (Completed and Signed by the Delegated Authority) Attach Delegation of Authority.	Yes	Yes
6.	Annexure E - (SBD 4): Bidders disclosure. (Completed and Signed by the Delegated Authority) Attach Delegation of Authority.	Yes	Yes
7.	Annexure H: Compulsory Declaration (Completed and Signed by the Delegated Authority) Attach Delegation of Authority.	Yes	Yes
8	<p>Declaration with regards to Company /Firm Location</p> <p>Attach a proof of address to claim points for the Eastern Cape base locality as the specific goal as advised in the tender / quotation qualifies the company/firm for the PPR of 2022 preference points claim.</p> <p>Failure to submit the declaration and proof of address for each JV / Consortium member may result in awarding of 0 (zero) points preference points under Eastern Cape Locality.</p> <p>This information will be verified from the FICA documents (Physical Address, Utility Bill, Telephone, Tax Clearance, lease agreement submitted by the bidder).</p> <p>Failure to submit the declaration and proof of address may result in awarding of 0 (zero) points preference points under Eastern Cape locality.</p>	Yes	No
9	<p>Annexure I – (SBD 6.1.): Preferential Points Claim (Signed and Completed).</p> <p>CSD report will be used to confirm other specific goals listed in Table 1 of the SBD 6.1 document.</p> <p>Failure to submit the preference points claim and proof of address may result in awarding of 0 (zero) points preference points under Eastern Cape locality.</p>		

10	<p>Duly signed Letter of Authority MUST be submitted authorising the individual to sign on behalf of the bidder if:</p> <p>a) If there are more than one Owner/ Director / Shareholder / Member / Trustee etc. OR</p> <p>b) If there is only one Director / Shareholder / Member / Trustee / Owner etc. and they are not the one completing the bid document.</p> <p>Note: The Letter of Authority MUST be signed by all directors of the Bidder (or a signed Board Resolution authorising the signatory will be accepted).</p>	Yes	Yes
11.	ANNEXURE J (which includes Annex C) : Declaration of Local Content (SBD 6.2) (Completed and Signed by the Delegated Authority) Attach Delegation of Authority	Yes	Yes
12.	Annex D – Local Content Declaration (Summary Schedule) (Completed and Signed by the Delegated Authority) Attach Delegation of Authority	Yes	Yes
13.	<p>Financial Details of Bidder</p> <p>Attach Bank Account Confirmation Letter and Bank Account Code Report letter from Financial Institution where the bank account is held.</p>	No	No
14.	Priced Bills of Quantities completed in black ink.	Yes	Yes
The following will be applicable to Joint Ventures/Consortium			
Consortium/Joint Venture Agreement to enter in a Consortium / Joint Venture signed by all Consortium Members who are Duly Authorized.		Yes	Yes
Resolution of the Board of Directors to enter into a Consortium or Joint Venture from each member firm of the Consortium/Joint Venture for this Bid.		Yes	Yes
<p>Letter of Authority of Signatory (individual) authorizing the Signatory to sign on behalf of the Consortium/JV.</p> <p>The Letter of Authority should be from each member firm and must be signed by all directors of each member firm (or Board Resolution will be accepted).</p>		Yes	Yes
It must be noted that the scoring of joint ventures/consortia on a proportional basis applies to bids for both the acquisition of goods and services and income generating contracts.		Yes	Yes

KINDLY NOTE THAT, FAILURE TO SUBMIT THE REQUIRED MANDATORY DOCUMENTATION WITH THE BID WILL RESULT IN YOUR BID BEING DISQUALIFIED WITHOUT FURTHER CONSIDERATION.

Bidders shall take note of the following conditions:

1. The successful bidder will be required to submit a Letter of Good Standing from the Compensation Commission within 14 days after award and before the contract can be signed.
2. Performance Guarantee to be submitted within 14 days after award.
3. The Bid Validity period is 120 days.
4. An approved and project specific Health and Safety file within 14 days upon appointment.
5. A Proposed Project Execution Plan & Program to proceed with works with occupied buildings within 14 days upon appointment.
6. Submission of a Construction Works Insurance for all works upon appointment.
7. No correction fluid to be used and all errors to be initialled.

Queries relating to the issue of these documents may be addressed in writing to:

Ms N Norexe

tenders@ecdc.co.za or nnorexe@ecdc.co.za

1.2. STAGE 1: EVALUATION OF LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS AND LOCAL CONTENT DECLARATION

This Standard Bidding Document (SBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the ECDC Supply Chain Management Policy, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

- 1.1 ECDC Supply Chain Management policy makes provision for the promotion of local production and content.
- 1.2 ECDC Supply Management Policy prescribes that in the case of designated sectors, tenders must be advertised with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.
- 1.3 Where necessary, for tenders referred to in paragraph 1.2 above, a three stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage functionality with a minimum threshold of 70% and third stage of price and specific goals.
- 1.4 A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5 The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:
LC = $[1 - \frac{x}{y}] * 100$
Where
- 1.6 A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation.

x is the imported content in Rand 27

y is the bid price in Rand excluding value added tax (VAT) Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp at no cost.

2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid: Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in table 1 below.

Bidder that fails to meet the minimum stipulated threshold for local production and content will be unacceptable and will not proceed to stage 2.

.....

SIGNATURE(S) OF BIDDERS(S)

DATE:

ADDRESS:

.....

.....

WITNESSES:

1.

2.

1.3. STAGE 2 - FUNCTIONALITY

Involves an evaluation of Functionality only – At this stage Bidders must score a minimum score of **70%** for functionality (services) to be evaluated for stage 3 (Preferential procurement points).

Bidder to note the following for Functionality Evaluation:

- a) Adequate proof supporting the points claimed must be provided. (e.g., documents, agreements, qualifications, previous experience, certifications, etc.)
- b) Failure to submit relevant information with supporting document and adequate proof may result in ECDC not being able to allocate points for the Evaluation Criteria outlined below.

Table 1: Functionality Evaluation Criteria – Stage 2

EXPERIENCE (Read with Schedule T.2.2.2(a) requirements)	Allocated Points
<p>(Bidder to submit a reference letter for each project completed.)</p> <p>5 or more acceptable reference letters</p> <p>4 or less than 5 acceptable reference letters</p> <p>3 or less than 4 reference letters</p> <p>2 or less than 3 acceptable reference letters</p> <p>Less than 2 acceptable reference letters</p> <p><u>Document to be submitted for points allocation</u> The Bidder must demonstrate that they have the relevant experience in alterations and renovations of general residential building works submitting completed T.2.2.2 (a) reference forms or reference letters and/or completion certificates of completed Building Works (Read with Schedule T.2.2.2(a) requirements) Reference letter/ Completion Certificate should indicate the following.</p> <ul style="list-style-type: none"> • Signature of the client or Client's Letter head or Client Stamp • Company name, contact person, contact details (telephone number and email address) • Value of the project • Description Works carried out • Works have been completed on time /within the stipulated contract period • Good or better quality of workmanship • Assessment of the quality of work performed 	<p></p> <p style="text-align: right;">30</p> <p style="text-align: right;">20</p> <p style="text-align: right;">15</p> <p style="text-align: right;">10</p> <p style="text-align: right;">0</p>
<p>EXPERTISE (CV's & Certified Copies of Qualifications of Key Personnel to be included in Returnable)</p> <p>Construction Manager with relevant tertiary qualifications from a Built Environment Faculty (National Diploma or Higher)</p> <p>10 years or more experience on building contracts</p> <p>5 years but less than 10 years' experience on building contracts</p> <p>3 years but less than 5 years on building contracts</p> <p>Less than 3 years' experience on building projects</p>	<p></p> <p style="text-align: right;">15</p> <p style="text-align: right;">10</p> <p style="text-align: right;">5</p> <p style="text-align: right;">0</p>

<p>Construction Supervisor with relevant Built Environment qualifications (N6 or higher)</p> <p>10 years or more experience on building projects</p> <p>5 years but less than 10 years' experience on building projects</p> <p>3 years but less than 5 years on building projects</p> <p>Less than 3 years' experience on building projects</p> <p>Safety Officer with valid SACPCMP registration as a Construction Health and Safety Officer</p> <p>5 years or more experience on building projects</p> <p>3 years but less than 5 years' experience on building projects</p> <p>1 years but less than 3 years' experience on building projects</p> <p>Less than 1 years' experience on building projects</p>	<p>10</p> <p>5</p> <p>3</p> <p>0</p> <p>5</p> <p>3</p> <p>2</p> <p>0</p>
<p><u>BANK RATING/LETTER OF INTENT FROM FINANCIAL INSTITUTION</u></p> <p>Submission of a letter of intent from a financial institution or Bank Rating of Code B or Code A</p> <p>Submission of a Bank Rating of Code C or Code D</p> <p>No letter or Bank Rating submitted from a financial institution.</p>	<p>10</p> <p>5</p> <p>0</p>
<p>TOTAL MAXIMUM ACHIEVEABLE POINTS</p> <p>MINIMUM POINTS REQUIRED</p>	<p>70</p> <p>49</p>

- a) Only bids that have achieved the minimum qualifying score for functionality will be evaluated further in terms of preferential procurement points (Stage 3).
- b) All bids that fail to achieve the minimum score will be disqualified.
- c) The minimum qualifying score (in a percentage) for functionality shall be calculated as follows:

$$P_s = \frac{S_o}{M_s} \times 100 \quad \text{Where:}$$

P_s = percentage scored for functionality by bid under consideration

S_o = Total score for bid under consideration

M_s = Maximum possible score

The percentages of each panel member shall be added and divided by the number of panel members to establish the average percentage obtained by each bidder for functionality.

1.4. Stage 3 – Preference Procurement Point - Evaluation Criteria

Preference points for this bid shall be awarded for price and the specific goal. The maximum points for this bid are allocated as follows:

CRITERIA	POINTS
Price	90
Specific Goal	10
TOTAL POINTS	100

- a) Points awarded for price based will be based on the 90/10 Preference point systems
- b) The points scored by the tenderer/bidder for Price will be added to the points scored for ECDC specific goal to obtain the bidder’s total points scored out of 100 points.
- c) In the event that two or more bids have scored equal total points, the successful bid will be the one scoring the highest number of preference points for ECDC specific goal.
- d) However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for specific goal, the successful bid must be the one scoring the highest score for functionality.
- e) Should two or more bidders/tenderers be equal in all respects, the award shall be decided by the drawing of lots.
- f) The bidder obtaining the highest number of total points will be awarded the contract.
- g) Points scored will be rounded off to the nearest 2 decimal places.

h) Price

- (i) The lowest acceptable bid will score 90 points for price.
- (ii) The following formula will be used to calculate the points out of 90 for price in respect of the bid/tender.
- (iii) Preference points for price shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts.

DETAILS	90/10 PREFERENCE POINT SYSTEM
Rand value (competitive bids or quotations) all applicable taxes included.	<ul style="list-style-type: none"> • Equal and above R50 million, inclusive of all applicable taxes.
Formulae	$P_s = 8 \times \frac{P_t - P_{min} \times 0.1}{P_{min}}$ <p> P_s = Points scored for comparative price of bid / offer under consideration P_t = Comparative price of bid / offer under consideration P_{min} = Comparative price of lowest acceptable bid / offer </p>

Annex A

Standard Conditions of Tender

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Construction Procurement (January 2019) as published in Government Gazette No 42622, Board Notice 423 of 2019 on the 8th of August 2019 (See www.cidb.org.za).

A.1 General

A.1.1 Actions

A.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in A.2 and A.3, timeously and with integrity, and behave equitably, honestly, and transparently, comply with all legal obligations and not engage in anticompetitive practices.

A.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.

2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance, or loyalty which would in any way affect any decisions taken.

A.1.1.3 The employer shall not seek, and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

A.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

A.1.3 Interpretation

A.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

A.1.3.2 These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender.

A.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:

i) someone in a position of trust has competing professional or personal interests which make it difficult.

to fulfil his or her duties impartially.

ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or

iii) in compatibility or contradictory interests exist between an employee and the tenderer who employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration.

c) **corrupt practice** means the offering, giving, receiving, or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process.

d) **fraudulent practice** means the misrepresentation of the facts to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels.

A.1.4 Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied, and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

A.1.5 Cancellation and Re-Invitation of Tenders

A.1.5.1 An employer may, prior to the award of the tender, cancel a tender if-

- a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation.
- b) funds are no longer available to cover the total envisaged expenditure; or
- c) no acceptable tenders are received.
- d) there is a material irregularity in the tender process.

A.1.5.2 The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised

A.1.5.3 An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

A.1.6 Procurement procedures

A.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to A.3.13, be concluded with the tenderer who in terms of A.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

A.1.6.2 Competitive negotiation procedure

A.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of A.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of A.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

A.1.6.2.2 All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the tender data shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of A.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

A.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to revise their tender offer based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

A.1.6.2.4 The contract shall be awarded in accordance with the provisions of A.3.11 and A.3.13 after tenderers have been requested to submit their best and final offer.

A.2 Tenderer's obligations

A.2.1 Eligibility

A.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

A.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

A.2.2 Cost of tendering

A.2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer comply with requirements.

A.2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

A.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

A.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

A.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

A.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

A.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

A.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the tender data.

A.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

A.2.10 Pricing the tender offer

A.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable fourteen (14) days before the closing time stated in the tender data.

A.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

A.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

A.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

A.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

A.2.12 Alternative tender offers

A.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

A.2.12.2 Accept that an alternative tender offer must be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

A.2.12.3 An alternative tender offer must only be considered if the main tender offer is the winning tender.

A.2.13 Submitting a tender offer

Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

A.2.13.1 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

A.2.13.2 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

A.2.13.3 Sign (Signature by authorized personnel) the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

A.2.13.4 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

A.2.13.5 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

A.2.13.6 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.

A.2.13.7 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

A.2.13.8 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

A.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and, in the form, required, may be regarded by the employer as non-responsive.

A.2.15 Closing time

A.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

A.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

A.2.16 Tender offer validity

A.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

A.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

A.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).

A.2.16.4 Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

A.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: *Sub-clause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.*

A.2.18 Provide other material

A.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment.

Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

A.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

A.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

A.2.20 Submit securities, bonds and policies

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

A.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

A.2.22 Return of other tender documents

If so, instructed by the employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the tender data.

A.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

A.3 The employer's undertakings

A.3.1 Respond to requests from the tenderer

A.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.

A.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements.
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

A.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

A.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

A.3.4 Opening of tender submissions N/A

A.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

A.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points ECDC specific goal and time for completion for the main tender offer only.

A.3.4.3 Make available the record outlined in A.3.4.2 to all interested persons upon request.

A.3.5 Two-envelope system

A.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

A.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when

the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

A.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

A.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

A.3.8 Test for responsiveness

A.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

- a) complies with the requirements of these Conditions of Tender,
- b) has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender documents.

A.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

A.3.9 Arithmetical errors, omissions and discrepancies

A.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

A.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with A.3.11 for:

- a) the gross misplacement of the decimal point in any unit rate.
- b) omissions made in completing the pricing schedule or bills of quantities; or
- c) arithmetic errors in:
 - (i) line-item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
 - (ii) the summation of the prices.

A.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

A.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

- a) If bills of quantities or pricing schedules apply and there is an error in the line-item total resulting from the product of the unit rate and the quantity, the line item total shall govern, and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line-item total as quoted shall govern, and the unit rate shall be corrected.
- b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

A.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

A.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	Qualitative interpretation of goal
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received.
- b) Determine whether or not tender offers are complete.
- c) Determine whether or not tender offers are responsive.
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification.
- f) Determine acceptability of preferred tenderer
- g) Prepare a tender evaluation report.
- h) Confirm the recommendation contained in the tender evaluation report.

A.3.11.1 General

The employer must appoint an evaluation panel of not less than three persons conversant with the proposed scope of works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

A.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

A.3.13 Acceptance of tender offer

Accept the tender offer; if in the opinion of the employer, it does not present any risk and only

if the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement;
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract.
- c) has the legal capacity to enter into the contract.
- d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing;
- e) complies with the legal requirements, if any, stated in the tender data; and
- f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

A.3.14 Prepare contract documents

A.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

- a) addenda issued during the tender period,
- b) inclusion of some of the returnable documents and other revisions agreed between the employer and the successful tenderer.

A.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

A.3.15 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

A.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the CIDB Register of Projects.

A.3.17 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

A.3.18 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

ANNEXURE B

ADDITIONAL CONDITIONS OF TENDER OF ECDC

Where the CIDB standard condition of tender does not address the following, clauses on the ECDC standard conditions of tender, the ECDC Standard condition of tender will be additional.

1.1 Alteration or withdrawal of Proposals

Bidders may withdraw their proposal by written notification on or before the date Specified for the evaluation of Bids.

1.2 Alternative Bid

Alternative Bids will not be accepted.

1.3 Costs for preparation of Proposals/presentations

The costs incurred by Bidders in respect of the attendance of any briefing or presentation meetings if necessary or costs incurred in preparing any proposal will be borne by the Bidder and the ECDC shall in no way be liable to reimburse such costs incurred.

1.4 Ownership of Proposals and presentations

The ECDC shall on receipt of any proposal relating to this request and submitted in accordance with the procedure set out herein, shall become the owner thereof and the ECDC shall not be obliged to return any proposal.

1.5 Tax Clearance Certificate requirement

It is a condition of all bids inclusive of foreign bidders / individuals) that the South African taxes of the successful bidder must be in order.

The bidders' Tax status will be verified on the CSD prior to the bid award and where the preferred bidder is not compliant, **7 working days** will be granted for remedy, failing which the bidder will be disqualified.

In Bids where Consortia/Joint venture/Sub-Contractors are involved, each party will be verified separately for proof of Tax Compliance Status.

In bids where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate. Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za

1.6 Confidentiality

The entire process of calling for Bids was initiated by the ECDC in terms of its procurement policy and is confidential. All deliberations in respect of the acceptability or otherwise of the

proposals shall be conducted in closed sessions and members of the Evaluation and Procurement Committee and prospective service providers are bound to treat all discussions as highly confidential.

The service provider shall not divulge directly or indirectly to any other person than a person employed by ECDC, make copies or extracts of any of the information obtained during this assignment, while they may have access to ECDC's trade secrets, confidential information which may include, specifications, plans, drawings, pattern, samples, written instructions, notes, memoranda, technical information, know-how or process or method or any other records of whatsoever nature without the written consent of ECDC and shall surrender all these items to ECDC on termination of the assignment or on demand of ECDC.

The service provider shall not be entitled to make use of the information whether for its own benefit or that of others, to make available or derive any profit from any of the information or knowledge specifically related to the business or affairs of ECDC.

Any document shall remain the property of ECDC and shall be returned (all copies) to ECDC on completion of the contract if so required by ECDC.

1.7 Inventions Patent and Copy-Rights

The service provider cedes, assigns and transfers to ECDC all rights, title and interest in and to any and all copyright in all works and inventions which relates to the business of ECDC (which includes, but is not limited to, methodologies and products) which arises within the course and scope of this services will be assigned to ECDC.

The Service Provider shall Provide ECDC the sole and exclusive right to alter and adapt the work.

The service provider shall indemnify ECDC against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by ECDC.

1.8 Ethics

Any attempt by an interested Bidder to obtain confidential information, or enter into unlawful agreements with competitors or influence the various ECDC Procurement Committee's or the ECDC during the process of examining, evaluating and comparing Bids/Proposals or Proposals will lead to the rejection of its bid/quotation/proposal in its entirety.

The Bidder must declare any business or other interests it has with the ECDC or any employee of the ECDC, as per the declaration of interest form annexed hereto marked in Section D; failing which the Bidder shall be automatically disqualified from further participation in the Bid or call for proposals. The disqualification will be applicable at any stage of the bidding and / or engagement process.

1.9 Competition

Bidders and their respective officers, employees and agents are prohibited from engaging in

any collusive action with respect to the bidding process which serves to limit competition amongst bidders.

In general, the attention of bidders is drawn to Section 4(1) (b) (iii) of the Competition Act 1998 (Act No. 89 of 1998) (the Competition Act) that prohibits collusive bidding.

An agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder/s is / are or a contractor(s) was / were involved in collusive bidding.

If bidders have reason to believe that competition issues may arise from any submission of a response to this bid invitation they may make, they are encouraged to discuss their position with the competition authorities before submitting response.

Any correspondence or process of any kind between bidders and the competition authorities must be documented in the responses to this invitation to bid.

In this regard bidders are required to complete the Certificate of Independence Bid Determination, failing which the Bidder shall be automatically disqualified from further participation in the Bid or call for proposals. The disqualification will be applicable at any stage of the bidding and / or engagement process.

If a bidder (s) or contractor (s), based on reasonable grounds or evidence obtained by ECDC, has /have engaged in the restrictive practice referred to above, ECDC may refer the matter to the Competition Commission for investigation and possible imposition of an administrative penalty as contemplated in Section 59 of the Competition Act 89 of 1998.

If a bidder(s) or contractor(s) has / have been found guilty by the Competition Commission of the restrictive practice referred to above, ECDC may in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such an item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) for conducting business with the public sector for a period of not exceeding 10 (ten) years and / or claim damages from the bidder(s) / contractor(s) concerned.

1.10 Cancellation of Bid Process

The ECDC shall be entitled, within its sole and entire discretion, to cancel this Bid/Call for Proposals and/or Quotations at any time and shall notify the interested service providers accordingly. The ECDC shall in no way be liable for any damages whatsoever, including, without limitation, damages for loss of profit, in any way connected with the cancellation of this bid. The publication of the bid does not commit the ECDC to appoint any of the qualifying Bidders.

1.11 Interviews

In terms of the bid evaluation process short listed bidders may be interviewed. This will entail the bidder being invited to a venue as determined by the bid committee. All transport and accommodation costs incurred by the bidder will be for the bidder's account and will not be reimbursed in any way. Failure to attend a scheduled interview

will lead to immediate disqualification from the bid process. The ECDC reserves the right to appoint a bidder without conducting interviews.

1.12 Contract award

The successful bidder will be notified of the bid award in writing by the Procurement Department.

The acceptance of any proposal shall only be confirmed with the conclusion of a final written signed service level agreement or any other appropriate agreement between the ECDC and the successful Bidder, in terms of which the rights and duties of the parties are recorded, which agreement shall regulate the relationship between the ECDC and the Successful Bidder.

As a guideline regarding the content of the service level agreement, the bidder is referred to the **JBCC Series 2000 Principal Building Agreement Edition 6.2 prepared by the Joint Building Contracts Committee, May 2018**

Until such time that an appropriate agreement has been concluded in writing between the ECDC and the successful Bidder, no rights shall be conferred nor shall any legitimate expectations be conferred to the successful Bidder to carry out the works or services provided for in this Bid.

The ECDC, the Accounting Officer and the Bid Committee (as the case may be) does not bind itself to accept either the lowest (price), highest (points) or any other bid and reserves the right to accept the bid which it deems to be in the best interest of the Institution even if it implies a waiver by the ECDC, the Accounting Officer, or the Bid Committee, (as the case may be) of certain requirements which the ECDC, the Accounting Officer, the Bid Committee, (as the case may be) considers to be of minor importance and not complied with by the bidder.

The ECDC will not entertain any request of feedback before the final awarding of the contract.

1.13 Supplier Due Diligence

ECDC reserves the right to conduct supplier due diligence prior to final award or at any time during the contract period. This may include site visits and requests for additional information.

1.14 Disclaimer

This Bid document has been prepared for the purpose of providing information to interested Bidders. The provision of any additional information about the organization to Bidders, are disclosed and will be made available to enable the prospective Bidders to submit comprehensive proposals.

Interested Bidders are accordingly required to conduct their own due diligence in respect of the ECDC and its business operations and the nature and scope of the services required.



HOTLINE DETAIL Ethics & Fraud Hotline

HOTLINE DETAILS	
Hotline Name:	ECDC Ethics & Fraud Hotline
Contact Number:	0800 116 665
WhatsApp Number:	0860 004 004
Dedicated Email Address:	ecdc@behonest.co.za aidc@behost.co.za
SMS Number:	48691
Free Post	BNT165, Advance Call Pty (Ltd), Brooklyn Square, 0075
Website Link	www.behonest.co.za
Chat	www.behonest.co.za

Whilst all due care has been taken in connection with the preparation of this bid, ECDC makes no representations or warranties that the content of the bid or any information communicated to or provided to Bidder(s) during the bidding process is, or will be, accurate, current or complete. ECDC, and its employees and advisors will not be liable with respect to any information communicated which may not be accurate, current or complete.

If Bidder(s) finds or reasonably believes it has found any discrepancy, ambiguity, error or inconsistency in this bid or any other information provided by ECDC (other than minor clerical matters), the Bidder(s) must promptly notify ECDC in writing of such discrepancy, ambiguity, error or inconsistency in order to give ECDC an opportunity to consider what corrective action is necessary (if any).

Any actual discrepancy, ambiguity, error or inconsistency in the bid or any other information provided by ECDC will, if possible, be corrected and provided to all Bidder(s) without attribution to the Bidder(s) who provided the written notice.

All persons (including Bidder(s)) obtaining or receiving the bid and any other information in connection with the Bid or the Tendering process must keep the contents of the Bid and other such information confidential, and not disclose or use the information except as required for the purpose of developing a proposal in response to this Bid. All persons (including Bidder(s)) obtaining or receiving the bid and any other information in connection with the Bid or the Tendering process must keep the contents of the Bid and other such information confidential, and not disclose or use the information except as required for the purpose of developing a proposal in response to this Bid.

T2.2. - Returnable schedules

T2.2.1 – Declarations

T2.2.2 – Functionality Evaluation Schedules

ANNEXURE C: SUPPLIER INFORMATION/COMPANY ENTERPRISE QUESTIONNAIRE

Note: Mandatory Requirement. Failure to complete and Sign this document will result in the bid being nonresponsive.

Important Note: The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.

Legal Name of Bidder: (Same as CSD)	
Trading Name of Bidder: (Same as CSD)	
Registration Number (Same as CSD)	
Physical Address	
Postal Address	
Contact Person (of the JV if the Bidder is a JV)	
Title/Position in the Firm	
Mobile Number (of the JV if the Bidder is a JV)	
Bidder Telephone Number (of the JV if the Bidder is a JV)	
Facsimile Number	
Email Address of Contact Person (of the JV if the Bidder is a JV)	
Email Address of Bidder (of the JV if the Bidder is a JV)	
VAT Registration Number (Same as CSD)	

Central Supplier Database Number		MAAA	
CIDB Registration Number (CRS Number)			
Are the Accredited Representative in South Africa for the Goods/Services/Works Offered?	<input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes enclose Proof)	Are you a foreign based supplier for the Goods/Services/Works Offered?	<input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, answer the questionnaire Below)
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS			
Is the Entity a resident of the Republic of South Africa (RSA)		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does the Entity have a branch in the RSA?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does the Entity have a permanent establishment in the RSA?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does the Entity have any source of income in the RSA		<input type="checkbox"/> Yes	<input type="checkbox"/> No
If the answer is "No" to all of the above, then it is not a requirement to register for a Tax Compliance Status system pin code from the South African Revenue (SARS) and if not register			
<u>VERY IMPORTANT</u>			
Where a person within the Bidding Entity is an Employee of the State, Bidder should			
a. submit a signed letter on a letter head from their Accounting Officer/Accounting Authority (AO/AA of the Government Institution where they are employed) stating that they are not prohibited from conducting business with the State in terms of Section 8 of the Public Administration Management Act, 2012 (Act No.11 of 2014- "The PFMA")			
b. submit a signed letter on a letter from their AO/AA granting permission to perform other remunerative work outside of their employment where the PAMA does not apply to such an employee			
ECDC reserves the right to verify such information from their AO/AA			

SERVICE PROVIDER ACKNOWLEDGEMENT OF REQUEST AND TERMS AND CONDITIONS:

I.....(NAME) HEREBY ACCEPT THE TERMS OF THIS REQUEST FOR BID AND ACKNOWLEDGE THAT I AM APPROPRIATELY DELEGATED TO RESPOND ON BEHALF OF (ATTACH DELEGATION OF AUTHORITY)

.....

(NAME OF BIDDER).

Print Name

Date

Designation

Signature

Annexure D: Location

1	Where is the Bidder's mainoffice?	
	Other offices:	

Annexure G: BIDDER'S DISCLOSURE (SBD4)

Note: Mandatory Requirement. Failure to complete and Sign this document will result in the bid being non responsive.

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise, employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

2.2. Do you or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:
.....
.....
.....
.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

.....
.....
.....
.....

¹ the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

3 DECLARATION

I, the undersigned, (name)in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.
I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6

OFFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature Date

.....
Position Name of bidder

SIGNATURE OF BIDDER OF DELEGATED AUTHORITY		DATE	
---------------------------------------------------	--	-------------	--

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

ANNEXURE H: STATEMENT OF CONSENT TO DATA PROCESSING

In terms of the provisions of the Protection of Personal Information Act, 2013 (Act No. 4 of 2013)

1. I, _____ (full names of the **client/applicant**),

Identity number _____ (**"the applicant"**)

do hereby grant my consent to the Eastern Cape Development Corporation ("the ECDC") and its appointed processor to process my personal data for the purpose of any or all of the undermentioned actions, being the legitimate reasons for processing and/or using my personal data.

2. I accept that my personal information will only be utilized for the purposes it was collected, that the information will only be retained for as long as is necessary and required by law, and that I have the right to view such information at any time, as well as requested correction or deletion of my personal information held by the ECDC.
3. I am aware that I may withdraw my consent at any time by using the relevant Data Subject Consent Withdrawal Form.
4. I herewith consent to the ECDC official / staff member / employee or agent collecting and having access to my personal information.
5. I expressly consent to the ECDC official / staff member / employee or agent to collect and process this information for the purpose of **considering my application for funding / leasing / employment alternatively for considering our bid document.**
6. I expressly consent to the ECDC or its official / staff member / employee or agent having access to my personal information contained in my application for lease, employment, funding, my bid document or any other administrative document required by the ECDC for processing.
7. I expressly consent to the ECDC or its official / staff member / employee or agent using my personal information to communicate with me in person / via telephone / email / video call / fax / WhatsApp / any form of social media.
8. I expressly consent that the ECDC or its official / staff member / employee or agent may discuss any of my personal information with any of its officials / staff members / employees or agents that may at any stage of my application be involved in considering same and forward any such information to any ECDC relevant committee or forum.
9. I expressly consent to the ECDC or its official / staff member / employee or agent **handing over any outstanding accounts to debt collection third parties (applicable to properties/development finance and business support unit).**
10. I expressly consent to the ECDC or its official / staff member / employee or agent handing over my personal information for purposes of verification of my credit profile or record, references or any purpose required in terms of the law.

SIGNATURE of the DELEGATED AUTHORITY		DATE	
---------------------------------------------	--	-------------	--

SBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 **Principle applicable for this tender /quotation is:**

a) The value of this bid is estimated to exceed R50 000 000 (all applicable taxes included) and therefore the applicable preference point system for this tender is the 90/10 preference point system.

1.3 Points for this tender shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

1.4 The maximum points for this tender are allocated as follows:

	POINTS
PRICE	90
SPECIFIC GOALS	
51% and above black owned enterprise	5
Eastern Cape Based Supplier	2
51 % and above woman owned enterprises.	2
51 % and above youth owned enterprises	1
Total points for Price and SPECIFIC GOALS	100

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this

tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

- 1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

“**tender**” means a written offer in the form determined by an organ of state in response to an invitation to

- (a) provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) “**price**” means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) “**rand value**” means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) “**tender for income-generating contracts**” means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) “**the Act**” means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

2.3. POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

$$\begin{array}{ccc}
 \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\
 \\
 \mathbf{Ps} = \mathbf{80} \left(1 - \frac{\mathbf{Pt} - \mathbf{P}_{min}}{\mathbf{P}_{min}} \right) & \mathbf{or} & \mathbf{Ps} = \mathbf{90} \left(1 - \frac{\mathbf{Pt} - \mathbf{P}_{min}}{\mathbf{P}_{min}} \right)
 \end{array}$$

Where

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmin = Price of lowest acceptable tender

2.4. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

2.4.1. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ \mathbf{\frac{P_s}{max} = 80 \left(1 + \frac{P_t - P}{P_{max}} \right)} & \mathbf{or} & \mathbf{P_s = 90 \left(1 + \frac{P_t - P_{max}}{P_{max}} \right)} \end{array}$$

Where:

- P_s = Points scored for price of tender under consideration
- P_t = Price of tender under consideration
- P_{max} = Price of highest acceptable tender

3. POINTS AWARDED FOR SPECIFIC GOALS

3.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

3.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(c) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(d) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
SPECIFIC GOALS				
51% and above black owned enterprises	5			
Eastern Cape Based Supplier	2			
51 % and above woman owned enterprises.	2			
51 % and above youth owned enterprises	1			

DECLARATION WITH REGARD TO COMPANY/FIRM

3.3. Name of company/firm.....

3.4. Company registration number:
.....

- 3.5. TYPE OF COMPANY/ FIRM
- Partnership/Joint Venture / Consortium
 - One-person business/sole propriety
 - Close corporation
 - Public Company
 - Personal Liability Company
 - (Pty) Limited
 - Non-Profit Company
 - State Owned
- Company[TICK APPLICABLE BOX]

3.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have —
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:.....

DATE:

ADDRESS:

.....

.....

.....

ANNEXURE L: SBD 6.2 – Declaration Certificate For Local Production And Content for Designated Sector Note: Mandatory Requirement. Failure to complete and Sign this document will result in the bid being non responsive.

This Standard Bidding Document (SBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the ECDC Supply Chain Management Policy, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

1.1 ECDC Supply Chain Management policy makes provision for the promotion of local production and content.

1.2 ECDC Supply Management Policy prescribes that in the case of designated sectors, tenders must be advertised with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3 Where necessary, for tenders referred to in paragraph 1.2 above, a three stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage functionality with a minimum threshold of 70% and third stage of price and specific goals.

1.4 A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.5 The local content (LC) as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = \frac{x}{y} \times 100$$

Where

x imported content

y bid price excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid as indicated in paragraph 4.1 below.

The SABS approved technical specification number SATS 1268:2011 is accessible on <http://www.thedti/industrialdevelopment/ip.jsp> at no cost

1.6 A bid will be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration : Summary Schedule) are not submitted as part of the bid documentation;

2. Definitions

- 2.1 “bid”** includes advertised competitive bids, written price quotations or proposals
- 2.2 bid price”** price offered by the bidder, excluding value added tax (VAT);
- 2.3 “contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.4 “designated sector”** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production,
- 2.5** where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.6 “duly sign”** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual).
- 2.7 “imported content”** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and
- 2.8** which costs are inclusive of the costs abroad, plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;
- 2.9 “Local content”** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;
- 2.10 “Stipulated minimum threshold”** means that portion of local production and content as determined by the Department of Trade and Industry; and
- 2.11 “sub-contract”** means the primary contractor's assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract in the execution part of a project in terms of the contract

The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011 for this bid is/are as follows

Table 1

Designated Sector /Sub-sector/ Industries	Minimum threshold for local content
Steel Products and Components for Construction	100%

**3. Does any portion of the services, works or goods offered have any imported content?
(Tick Applicable Box)**

YES	NO
-----	----

3.1. If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za.

Indicate the rate(s) of exchange against the appropriate currency in the table below:

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

4. Where , after the award of a Bid, challenges are experienced in the meeting the stipulated minimum threshold for local content, the DTI must be informed accordingly in order for the DTI to verify and consultation with the AO/AA provide directive in this regard.

**LOCAL CONTENT DECLARATION BY THE CHIEF FINANCIAL OFFICER OR OTHER
LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF
EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY
(CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)**

IN RESPECT OF BID No. ECDC/INFRA/23/112023

ISSUED BY: (Procurement Authority / Name of Institution):
.....

NB

The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thdti.gov.za/industrial_development/ip.jsp

Bidders should first complete Declaration D After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C.

Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph C below.

Declaration D and E should be kept by the Bidder for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names), do hereby declare, in my

capacity as

of (name of bidder entity), the following:

The facts contained herein are within my own personal knowledge.

I have satisfied myself that

- the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011 and

The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 and information contained in Declaration D and E which has been consolidated in Declaration C above :

Bid price, excluding VAT (y)	R
Imported content (x)	R
Stipulated minimum threshold for Local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E

(d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2017 promulgated under the Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

NAME: _____

SIGNATURE: _____ **DATE:** _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

The below listed declarations are attached in the next three pages that follow;

- **Declaration C SATS 1286.2011**
 - Local Content Declaration – Summary Schedule

- **Declaration D SATS 1286.2011**
 - Imported Content Declaration – Supporting Schedule to declaration C

- **Declaration E SATS 1286.2011**
 - Local Content Declaration _- Supporting Schedule to declaration C

- Bidders should first complete annexure D, after completing annexure D, bidders should complete annexure E and then consolidate the information on annexure C.
- Annexure C should be submitted with the with the bid documentation on the closing date in order to substantiate the declaration made on annexure J.
- The successful bidder is required to continuously update annexures C, D and E with the actual for the duration of the contract.
- Bidders should obtain copies of certificates of trading the subject materials from manufactures/suppliers and attach them in the bid document in order to substantiate annexure J above.

Templates of Declarations C, D and E follow:

Annex C

Local Content Declaration - Summary Schedule

(C1) Tender No.	ECDC/INFRA/23/112023		
(C2) Tender description:	Repairs & Refurbishment of Site 3 in Dimbaza Industrial Park		
(C3) Designated product(s)	Steel Products		
(C4) Tender Authority:	Eastern Cape Development Corporation		
(C5) Tendering Entity name:			
(C6) Tender Exchange Rate:	USF		EU
(C7) Specified local content %			

Note: VAT to be excluded from all calculations

GBP

Calculation of local content

Tender item No's (BoQ reference)	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)
	STEEL PRODUCTS						
10/53	Type 193 fabric reinforcement in concrete						100,00%
11/53	Type 245 fabric reinforcement in concrete						100,00%
12/53	Type 311 fabric reinforcement in concrete						100,00%
1/64	0,55 IBR roof covering						100,00%
2/64	Cladding fixed vertically						100,00%
3/64	0,8mm Thick ridge/hip capping						100,00%
4/64	Barge flashing 462mm girth						100,00%
5/64	Apex flashing 660mm girth						100,00%
6/64	Headwall/sidewall flashing						100,00%
7/64	Counter flashing						100,00%
8/64	Broad flute closers						100,00%
9/64	Flashing around 150mm diameter pipe						100,00%
18/65	3mm Thick galvanised steel girth 2070mm box gutter						100,00%
23/65	250mm Galvanised steel downpipe						100,00%
27/65	150mm Galvanised steel downpipe						100,00%
1/87	100 x 50mm (10,1kg/m) Cold formed parallel channel						100,00%
2/87	120 x 55mm (12,5kg/m) Cold formed parallel channel						100,00%
3/87	175 x 65 x 20 x 2mm (5,18kg/m) lipped channel						100,00%
5/87	50 x 50 x 6mm (4,47kg/m) Angle section bracing						100,00%
6/87	High tensile bolts						100,00%
7/87	203 x 133 x 25mm (25.3kg/m) I section						100,00%
10/87	203 x 133 x 25mm (25.3kg/m) I section						100,00%
60/97	Mutual Austen Safes Strong room door						100,00%
61/97	Eskom transformer door size 1765 x 2185mm high						100,00%
62/97	Substation transformer door 2000 x 2400mm high						100,00%
63/97	Xpanda roller shutter door size 1600 x 2000mm high						100,00%
64/97	Xpanda roller shutter door size 2000 x 2000mm high						100,00%
65/97	Xpanda roller shutter door size 1300 x 2000mm high						100,00%

Tender summary

Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C16)	(C17)	(C18)	(C19)
349 m2			
432 m2			
28 m2			
9155 m2			
239 m2			
592 m			
237 m			
69 m			
140 m			
140 m			
2165 m			
15 No.			
250 m			
126 m			
57 m			
1,52 t			
0,63 t			
2,04 t			
0,36 t			
0,50 t			
3,43 t			
4,63 t			
3 No.			
4 No.			
2 No.			
3 No.			
7 No.			
5 No.			

Continues on next page

Annex C

Tender item No's <i>(C8)</i>	List of items <i>(C9)</i>	Tender price - each (excl VAT) <i>(C10)</i>	Exempted imported value <i>(C11)</i>	Tender value net of exempted imported content <i>(C12)</i>	Imported value <i>(C13)</i>	Local value <i>(C14)</i>	Local content % (per item) <i>(C15)</i>	Tender Qty <i>(C16)</i>	Total tender value <i>(C17)</i>	Total exempted imported content <i>(C18)</i>	Total Imported content <i>(C19)</i>
66/97	Xpanda roller shutter door size 2500 x 3000mm high						100,00%	1 No.			
67/98	Xpanda roller shutter door size 2700 x 3000mm high						100,00%	1 No.			
68/98	Xpanda roller shutter door size 3000 x 3000mm high						100,00%	2 No.			
69/98	Xpanda roller shutter door size 3000 x 4500mm high						100,00%	4 No.			
70/98	Xpanda roller shutter door size 2092 x 2467mm high						100,00%	1 No.			
71/98	Xpanda roller shutter door size 5653 x 3000mm high						100,00%	4 No.			
72/98	Xpanda roller shutter door size 2000 x 2713mm high						100,00%	2 No.			
73/98	Xpanda roller shutter door size 3000 x 4500mm high						100,00%	1 No.			
74/98	Xpanda roller shutter door size 4500 x 5000mm high						100,00%	2 No.			
75/98	Xpanda roller shutter door size 5100 x 4800mm high						100,00%	2 No.			
76/98	Xpanda roller shutter door size 4000 x 4545mm high						100,00%	1 No.			
77/98	Xpanda roller shutter door size 1200 x 1600mm high						100,00%	2 No.			
3/174	Zincalu super wire weldmesh panels						100,00%	566 m			
5/174	Serrated top rail, hot dip galvanised						100,00%	566 m			
6/174	Zincalu super wire weldmesh underdig						100,00%	559 m			
7/174	Double leaf swing vehicle gate size 6000 x 2400mm						100,00%	1 No.			
8/174	Single swing pedestrian gate size 1400 x 2400mm						100,00%	1 No.			
9/175	Vehicle sliding gate size 9000 x 2400mm high						100,00%	1 No.			

Signature of Tenderer from Annex B

Date: _____

(C20) Total tender value R _____

(C21) Total Exempt imported content R _____

(C22) Total Tender value net of exempt imported content R _____

(C23) Total Imported content R _____

(C24) Total local content R _____

(C25) Average local content % of tender _____

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1) Tender No.	ECDC/INFRA/23/112023	Note: VAT to be excluded from all calculations
(E2) Tender description:	Repairs & Refurbishment of Site 3 in Dimbaza Industrial Park	
(E3) Designated products:	As before (Annex C)	
(E4) Tender Authority:	ECDC	
(E5) Tendering Entity name:		

Local Products (Goods, Services and Works)	Description of items purchased (E6)	Local suppliers (E7)	Value (E8)
	STEEL PRODUCTS		
	Type 193 fabric reinforcement in concrete		
	Type 245 fabric reinforcement in concrete		
	Type 311 fabric reinforcement in concrete		
	0,55 IBR roof covering		
	Cladding fixed vertically		
	0,8mm Thick ridge/hip capping		
	Barge flashing 462mm girth		
	Apex flashing 660mm girth		
	Headwall/sidewall flashing		
	Counter flashing		
	Broad flute closers		
	Flashing around 150mm diameter pipe		
	3mm Thick galvanised steel girth 2070mm box gutter		
	250mm Galvanised steel downpipe		
	150mm Galvanised steel downpipe		
	100 x 50mm (10,1kg/m) Cold formed parallel channel		
	120 x 55mm (12,5kg/m) Cold formed parallel channel		
	175 x 65 x 20 x 2mm (5,18kg/m) lipped channel		
	50 x 50 x 6mm (4,47kg/m) Angle section bracing		
	High tensile bolts		
	203 x 133 x 25mm (25.3kg/m) I section		
	203 x 133 x 25mm (25.3kg/m) I section		
	Mutual Austen Safes Strong room door		
	Eskom transformer door size 1765 x 2185mm high		
	Substation transformer door 2000 x 2400mm high		
	Xpanda roller shutter door size 1600 x 2000mm high		
	Xpanda roller shutter door size 2000 x 2000mm high		
	Xpanda roller shutter door size 1300 x 2000mm high		
	Xpanda roller shutter door size 2500 x 3000mm high		
	Xpanda roller shutter door size 2700 x 3000mm high		
	Xpanda roller shutter door size 3000 x 3000mm high		
	Xpanda roller shutter door size 3000 x 4500mm high		
	Xpanda roller shutter door size 2092 x 2467mm high		
	Xpanda roller shutter door size 5653 x 3000mm high		
	Xpanda roller shutter door size 2000 x 2713mm high		
	Xpanda roller shutter door size 3000 x 4500mm high		
	Xpanda roller shutter door size 4500 x 5000mm high		
	Xpanda roller shutter door size 5100 x 4800mm high		
	Xpanda roller shutter door size 4000 x 4545mm high		
	Xpanda roller shutter door size 1200 x 1600mm high		
	Zincalu super wire weldmesh panels		
	Serrated top rail, hot dip galvanised		
	Zincalu super wire weldmesh underdig		
	Double leaf swing vehicle gate size 6000 x 2400mm		
	Single swing pedestrian gate size 1400 x 2400mm		

Annex E

Local Products (Goods, Services and Works)	Description of items purchased (E6)	Local suppliers (E7)	Value (E8)
	Vehicular sliding gate size 9000 x 2400mm high		
(E9) Total local products (Goods, Services and Works)			

(E10) **Manpower costs** (Tenderer's manpower cost)

(E11) **Factory overheads** (Rental, depreciation & amortisation, utility costs, consumables, etc.)

(E12) **Administration overheads and mark-up** (Marketing, insurance, financing, interest, etc.)

(E13) Total local content

This total must correspond with Annex C - C24

Signature of Tenderer from Annex B

Date: _____

T2.2 .2- Functionality Evaluation Schedules

T2.2.2a: SIMILAR PROJECTS COMPLETED SUCCESSFULLY WITH REFERENCE LETTERS

Note: Mandatory Returnable Schedule. Failure to submit as required will result in the bid being nonresponsive.

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Bidders are required to provide a schedule of similar work in complexity that was successfully completed with contactable references as per the attached forms below.

OR

Submit a reference letter that indicates the following

Signature of the Client

On Clients Letter Head or Client Stamp

Company Name, contact person, contact details (telephone number and email etc) Value

of the Project

Scope of works carried out

Works have been completed on time/within stipulated contract period Good

or better workmanship



Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Sir/Madam,

We are in the process of evaluating _____ for the above project.

Tenderers Company Name

They have listed you as a reference. Please evaluate the contractor's performance on the criteria listed below by ticking the appropriate boxes. This form to be submitted with the bid. If you have any questions, please do not hesitate to contact us.

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD	VALUE OF WORK

1. KNOWLEDGEABLE IN THE FIELD IN WHICH THIS BID RELATES TO

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

2. TIME PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

3. FINANCIAL PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

4. COMMENTS:

Project Manager/Principal Agent: _____ **Place company stamp below:**

Tel: _____

E-mail Address _____

Signature: _____ Date: _____



Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Sir/Madam,

We are in the process of evaluating _____ for the above project.

Tenderers Company Name

They have listed you as a reference. Please evaluate the contractor's performance on the criteria listed below by ticking the appropriate boxes. This form to be submitted with the bid. If you have any questions, please do not hesitate to contact us.

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD	VALUE OF WORK

1. KNOWLEDGEABLE IN THE FIELD IN WHICH THIS QUOTATION RELATES TO

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

2. TIME PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

3. FINANCIAL PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

4. COMMENTS:

Project Manager/Principal Agent: _____ Place company stamp below:

Tel: _____

E-mail Address: _____

Signature: _____ Date: _____



Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Sir/Madam,

We are in the process of evaluating _____ for the above project.

Tenderers Company Name

They have listed you as a reference. Please evaluate the contractor's performance on the criteria listed below by ticking the appropriate boxes. This form to be submitted with the bid. If you have any questions, please do not hesitate to contact us.

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD	VALUE OF WORK

1. KNOWLEDGEABLE IN THE FIELD IN WHICH THIS QUOTATION RELATES TO

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

2. TIME PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

3. FINANCIAL PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

4. COMMENTS:

Project Manager/Principal Agent: _____ **Place company stamp here:**

Tel: _____

E-mail Address: _____

Signature: _____ Date: _____



Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Sir/Madam,

We are in the process of evaluating _____ for the above project.

Tenderers Company Name

They have listed you as a reference. Please evaluate the contractor's performance on the criteria listed below by ticking the appropriate boxes. This form to be submitted with the bid. If you have any questions, please do not hesitate to contact us.

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD	VALUE OF WORK

1. KNOWLEDGEABLE IN THE FIELD IN WHICH THIS QUOTATION RELATES TO

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

2. TIME PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

3. FINANCIAL PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

4. COMMENTS:

Project Manager/Principal Agent: _____ **Place company stamp here:**

Tel: _____

E-mail Address: _____

Signature: _____ Date: _____



Reference No 5

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Sir/Madam,

We are in the process of evaluating _____ for the above project.

Tenderers Company Name

They have listed you as a reference. Please evaluate the contractor's performance on the criteria listed below by ticking the appropriate boxes. This form to be submitted with the bid. If you have any questions, please do not hesitate to contact us.

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD	VALUE OF WORK

k) KNOWLEDGEABLE IN THE FIELD IN WHICH THIS QUOTATION RELATES TO

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

l) TIME PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

m) FINANCIAL PERFORMANCE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
5	4	3	2	1

n) COMMENTS:

Project Manager/Principal Agent: _____ Place company stamp here:

Tel: _____

E-mail Address: _____

Signature: _____ Date: _____

T2.2.2 b – Construction Method Statement

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Work Organization Program and Scheduling

Bidder to provide a Detailed Gantt Chart (Works Breakdown Structure Program) Showing:

- **Summary tasks**
- **Indicating a Critical Path**
- **Time-lines within the project period**

Work organization program and scheduling to be attached here

T2.2.2 c – Key Personnel Qualifications

(Construction Manager)

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Attach documents & Certified Copies of Qualifications here

**T2.2.2 e – Key Personnel Qualifications
(Construction Supervisor)**

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Attach documents & Certified Copies of Qualifications here

T2.2.2 e – Key Personnel Qualifications

(Construction Health and Safety Officer)

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Attach documents & Certified Copies of Qualifications here

T2.2.2 e – Key Personnel Qualifications

(Artisan)

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Attach documents & Certified Copies of Qualifications here

T2.2.2 f – Key Personnel Qualifications

(Skilled Staff)

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Attach documents & Certified Copies of Qualifications here

T2.2.2 g – Key Personnel Experience

(Semi-Skilled Support Staff)

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Attach documents & Certified Copies of Qualifications here

T2.2.2 h – Company Experience

(1) Practical Completion Certificate (completed projects)

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Supply and Installation of related projects with similar scope of works and complexity will be considered forevaluation purposes.

Projects with no-related scope of works will score no points for functionality.

Attach document here

T2.2.2 i – Contactable References

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Provide a schedule of contactable references

Attach document here

T2.2.2 i – Contactable References

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Provide a Bank Reference Letter and Bank Rating Certificate

Attach document here

T2.2.2 j – Scope of Works and Detailed Specifications

Note: Mandatory Returnable Schedule. Failure to submit as required will result in the bid being non-responsive.

Project title:	REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
Bid No:	ECDC/INFRA/23/112023

Tenderer herewith confirms by signing below that he has read and understand the full scope of works and associated detailed specifications of this contract.

The client will not entertain any additional amount claimed due to a lack of understanding the full spectrum of the works.

Company Name:

.....
.....

Tenderer

Name:.....Signature.....Date.....

Company Authorised/

Accountable Person

Name:.....Signature.....Date.....

Company Stamp:

THE CONTRACT

Part C1: Agreements and Contract data

C1.1 - Form of Offer and Acceptance

C1.2 - Contract Data

C1.3 - Form of Guarantee

C1.1 - Form of offer and acceptance

Annexure L:

C.1.1 FORM OF OFFER AND ACCEPTANCE OFFER

Note:

Mandatory Requirement. Failure to complete and Sign this document will result in the bid being nonresponsive.

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

PROJECT: REPAIRS AND REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK

Bid No : ECDC/INFRA/23/112023

The Tenderer, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Tenderer, deemed to be duly authorized, signing this part of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS:

R..... (in figures)

.....
.....
.....

Rand (in words)

This offer may be accepted by the Employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the Tender data, whereupon the tenderer becomes the party named as the Service Provider in the conditions of Contract identified in the Contract Data.

THIS OFFER IS MADE BY THE FOLLOWING LEGAL ENTITY: (cross out block which is not applicable)

Company or close corporation:

.....
..... And:
whose registration number is:

.....
.....
And: whose income tax reference number
is:.....

Trading under the name and style of:

<p>AND WHO IS:</p> <p>Represented herein, and who is duly authorized to do so, by:</p> <p>Mr/Mrs/Ms:</p> <p>.....</p> <p>.....</p> <p>In his/her capacity as:</p> <p>.....</p> <p>.....</p>	<p>Note:</p> <p>A resolution/power of attorney, signed by all the directors/ members/ partners of the legal entity must accompany this offer, authorizing the representative to make this offer.</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

SIGNED FOR THE TENDERER:

Name of Representative	Signature	Date

SIGNED BY WITNESS:

Name of Representative	Signature	Date

The tenderer elects as its *domicillium citandi et executandi* in the Republic of South Africa, where any and all legal notices may be served, as (physical address)

.....
.....
.....
.....

Other contact details of the tenderer are:

Telephone no

:.....
.....

Cellular phone no

:.....
.....

Fax no

:.....
.....

Postal address

:.....
.....

Banker

:.....
.....

Branch

:.....
.....

ACCEPTANCE

By signing this part of this form of offer and acceptance, ECDC accepts the bidder's offer. Acceptance of the bidder's offer shall form an agreement between the ECDC and the bidder upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract are contained in the contract to be concluded.

- Agreements and Contract Data, (which includes this Agreement)
- Pricing data
- Scope of work.
- Site information and drawings and documents or parts thereof, which may be incorporated by reference into the volumes above.

Deviations from and amendments to the documents listed in the bid data and any addenda thereto as listed in the bid schedules as well as any changes to the terms of the offer agreed by the bidder and ECDC during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless agreed by both parties.

The bidder shall within two weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the ECDC's Legal Department to arrange documentation to be provided in terms of the conditions of contract identified in the contract. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the bidder receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the bidder within five working days of the date of such receipt notifies the employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

Signed for the ECDC:

Name of representative	Capacity	Date
.....		
Address	Signature	

Witnessed by:

Name of witness	Signature	Date

Schedule of deviations

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid becomes the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender document and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here.
4. Any change or addition to the tender document arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1	Subject	
	Details	
2	Subject	
	Details	
3	Subject	
	Details	

By the duly authorised representative signing this agreement, the Employer and the Bidder agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the bid data and addenda thereto as listed in the bid schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Bidder and the employer during this process of acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the bid documents and the receipt by the Bidder of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

Signed for the ECDC

Name of Representative	Capacity	Signature

Signed by Bidder:

Name of Representative	Capacity	Signature

C1.2 - Contract data

C.1.2 Contract Data

The Conditions of Contract are the ***JBCC Series 2000 Principal Building Agreement (Edition 6.2, May 2018)***, published by the Joint Building Contracts Committee Inc. Copies of these documents may be obtained from the **Association of South African Quantity Surveyors (011) 315 4140, the Master Builders Association (011)205 9000, the South African Association of Consulting Engineers (011) 463 2022 or the South African Institute of Architects (011) 486 0684.**

Each item of data given below is cross-referenced to the clause in the JBCC Principal Agreement to which it mainly applies.

Part 1: Data provided by the Employer

JBCC Clause	Data	
A 1.0 [1.1]	Works :	
	Project Name :	REPAIRS & REFURBISHMENT OF SITE 3 IN DIMBAZA INDUSTRIAL PARK
	Reference Number:	ECDC/23/112023
	Works Description :	Repairs and refurbishment of site 3 buildings and siteworks.
A 2.0 [1.1]	Site :	
	Erf/ Stand Number	2937
	Township/ Suburb	Dimbaza
	Site Address	Coordinates: -32.829368, 27.200992
	Local Authority	BUFFALO CITY MUNICIPALITY
A 3.0 [1.1]	Employer :	
	Official Name of Organ of State /Public Sector Body	Eastern Cape Development Corporation (ECDC)
	Business registration number	Co.Act 2 of 1997
	VAT/GST number	446 018 0955
	Country	South Africa
	Employer's representative Name	Mr. Graham Cowley
	Telephone number	043 704 5787
	E-mail	Gcowley@ecdc.co.za
	Mobile number	TBA
	Postal address	P.O Box 11197, Southernwood, 5213
	Physical address	ECDC, Ocean Terrace Park, Moore Street, Quigney, East London, 5201

A 4.0 [1.1]	Principal Agent :		
	Name	Pinoy Pride Architecture (Pty) Ltd	
	Legal entity of above	2020/685376/07	
	Practice number	PP09210483	
	Country	South Africa	
	Contract Person	Allan Mauricio Deang	
	Telephone number	084 055 4233	
	Mobile Number	084 055 4233	
	E-mail	Allan.pinoypride@gmail.com	
	Postal address	28 Candleberry Drive, Nahoon Valley Park, East London, 5241	
	Physical address	28 Candleberry Drive, Nahoon Valley Park, East London, 5241	
A 5.0 [1.1]	Agent (1) :	Discipline :	Quantity Surveyor
	Name	MMDP Quantity Surveyors & Project Managers	
	Legal entity of above	MMDP Quantity Surveyors & Project Managers	
	Practice number	151 655 99	
	Country	South Africa	
	Contract Person	Frikkie Bezuidenhout	
	Telephone number	043 721 0667	
	Mobile Number	083 295 0678	
	E-mail	frikkie@mmdp.co.za	
	Postal address	PO Box 8370, Nahoon, East London, 5210	
	Physical address	40 Drake Road, Nahoon, East London, 5241	
A 6.0 [1.1]	Agent (2) :	Discipline :	Civil Engineer
	Name	Lukhozi Consulting Engineers (Pty) Ltd	
	Legal entity of above	Lukhozi Consulting Engineers (Pty) Ltd	
	Practice number	2000/006344/07	
	Country	South Africa	
	Contract Person	Louis Coetzer	
	Telephone number	043 721 1321	
	Mobile Number	082 894 0816	
	E-mail	l.coetzer@lukhozi.co.za	
	Postal address	Kwa Lukhozi, Quartzite Drive, The Quarry, Selborne, East London, 5201	
	Physical address	Kwa Lukhozi, Quartzite Drive, The Quarry, Selborne, East London, 5201	

A 7.0 [1.1]	Agent (3) :	Discipline :	Structural Engineer
	Name	Lukhozi Consulting Engineers (Pty) Ltd	
	Legal entity of above	Lukhozi Consulting Engineers (Pty) Ltd	
	Practice number	2000/006344/07	
	Country	South Africa	
	Contract Person	Louis Coetzer	
	Telephone number	043 721 1321	
	Mobile Number	082 894 0816	
	E-mail	l.coetzer@lukhozi.co.za	
	Postal address	Kwa Lukhozi, Quartzite Drive, The Quarry, Selborne, East London, 5201	
	Physical address	Kwa Lukhozi, Quartzite Drive, The Quarry, Selborne, East London, 5201	
A 8.0 [1.1]	Agent (4) :	Discipline :	Mechanical Engineer
	Name	RNA Consulting Engineers	
	Legal entity of above	RNA Consulting Engineers (Pty) Ltd	
	Practice number		
	Country	South Africa	
	Contract Person	Travis Warne	
	Telephone number	043 742 0041	
	Mobile Number	083 381 8985	
	E-mail	travisw@rnaconsulteng.co.za	
	Postal address	Postnet Suite: #136, Private Bag X3, Beacon Bay, East London	
	Physical address	11 Bonza Bay Road, Beacon Bay, East London, 5241	
A 9.0 [1.1]	Agent (5) :	Discipline :	Electrical Engineer
	Name	RNA Consulting Engineers	
	Legal entity of above	RNA Consulting Engineers (Pty) Ltd	
	Practice number		
	Country	South Africa	
	Contract Person	Ntobeko Nzuza	
	Telephone number	043 742 0041	
	Mobile Number	072 437 6531	
	E-mail	toby@rnaconsulteng.co.za	
	Postal address	Postnet Suite: #136, Private Bag X3, Beacon Bay, East London	
	Physical address	11 Bonza Bay Road, Beacon Bay, East London, 5241	

A 10.0 [1.1]	Agent (6) :	Discipline :	Health & Safety Agent
	Name	Gatsheni Sizwe (Pty) Ltd	
	Legal entity of above	Gatsheni Sizwe (Pty) Ltd	
	Practice number	Pr CHS 23820	
	Country	South Africa	
	Contract Person	Clive Ndlovu	
	Telephone number	082 431 1765	
	Mobile Number	074 648 5254	
	E-mail	info@gatshenis.co.za	
	Postal address	2638 Thembisa, Dimbaza, 5671	
	Physical address	2638 Thembisa, Dimbaza, 5671	

PART B - CONTRACT INFORMATION

JBCC Clause	Data			
B 1.0 [1.1]	Definitions :			
	Bills of quantities: System/Method of measurement	The Bills of Quantities were drawn up in accordance with the measurement system stated in Part C2: Pricing Data		
B 2.0 [2.1]	Law, regulations and notices :			
	Law applicable to the works, state country [2.1]	The governing law is the law of the Republic of South Africa The parties consent to the jurisdiction of the Port Elizabeth High Court Office for the purposes of this clause.		
B 3.0 [3.2]	Offer and Acceptance :			
	Currency applicable to this agreement [3.2]	South African Rand (ZAR)		
B 4.0 [5.0] [5.2]	Documents :			
	The original signed agreement is to be held by the principal agent [5.2], if not, indicate by whom	Employer		
	[5.6] Number of copies of construction information issued to the contractor at no cost [5.6]	3 Sets of complete documents		
	Documents comprising the agreement	The documents forming the agreement are to be taken as mutually explanatory of one another and for the purpose of interpretation, the priority of the documents shall be in accordance with the following sequence: the Form of Offer and Acceptance (a) The Schedule of Deviations (b) This Contract Data; (c) The standard JBCC building agreement Ed 6.2 May 2018 (d) The Drawings (e) The Specifications (f) The Bills of Quantities. If an ambiguity or discrepancy is found in the documents, the Principal Agent shall issue any necessary clarification or instruction		
	Contract drawings	Contract drawings are contained in Part C3.2 (Book 1).		
B 5.0 [6.0] [6.2]	Employer's Agent :			
	Authority is delegated to the following agents to issue contract instructions and perform duties for specific aspects of the works [6.2]	Principal Agent Engineers Health & Safety Consultant		
	[6.3] Principal agent's and agents' interest or involvement in the works other than a professional interest [6.3]	N/A		
B6.0 [10.0]	INSURANCES :			
	Insurances by Contractor		Amount including tax	Deductible amount including tax
	<input type="checkbox"/> Yes/No?	<input type="checkbox"/> Yes		
	[10.1.1]	Contracts works insurance to be effected by: CONTRACTOR	Contract sum plus 20%	with deductible of 5%
	[10.1.2]	Supplementary/special insurance to be effected by: CONTRACTOR	Contract sum plus 20%	with deductible of 5%
	[10.1.3]	Public liability insurance to be effected by: CONTRACTOR	R 10 000 000.00	with deductible of 5%
	[10.1.4]	Removal of lateral support insurance to be effected by: Not applicable	N/A	N/A
[10.1.5]	Other insurances to be effected by: Not applicable	N/A	N/A	
B7.0	Obligations of the employer:			

[12.1] [12.1.2]	Existing premises will be in use and occupied [12.1.2]		Yes/No?	Yes
	If Yes, description	The Site will be live during the construction phase with some temporary spaces being provided.		
[12.1.2]	Restriction of working hours [12.1.2]		Yes/No?	No
	If Yes, description	N/A		
[12.1.3]	Natural features and known services to be preserved by the contractor [12.1.3]		Yes/No?	No
	If Yes, description	N/A		
[12.1.4]	Restrictions to the site or areas that the contractor may not occupy [12.1.4]		Yes/No?	No
	If Yes, description	N/A		
[12.1.10]	Supply of free issue [12.1.10]		Yes/No?	No
	If Yes, description	N/A		
B8.0 [14.0]	Nominated Subcontractor's:			
	Yes/no?	No	If yes, description of specialisation	
	Specialisation 1	N/A		
B9.0 [15.0]	Selected Subcontractor's:			
	Yes/no?	No	If yes, description of specialisation	
	Specialisation 1	N/A		
B10.0 [16.0]	Direct Subcontractor's:			
	Yes/no?	No	If yes, description of extent of works	
[12.1.11]	Extent of works [12.1.11]	N/A		
B11.0 [20.1]	Description of sections:			
	Sectional work completion?	No	If yes, description of sections	
	Section No.1	N/A		
	Section No.2	N/A		
	Section No.3	N/A		
	Section No.4	N/A		
B12.0 [12.1.5]	Possession of site:			
	Intended date of possession of the site Refer B17.0 [12.1.5; 12.2.22]	Possession of site shall be given to the Contractor after submission by the Contractor of the documents indicated in the Form of Offer and Acceptance and approval of the Contractor's Safety, Health and Environmental Plan.		
[19.0]	Practical Completion (Works as a whole):			
[19.3]	Yes/No?	Yes		
[12.2.7]	The date for practical completion shall be the period as indicated below from the date of possession of the site by the contractor [12.2.7; 24.1]	15 (Fifteen) Calendar months from possession of site (excluding annual builders' holiday)		

[24.0]	Penalty:		
[24.1]	Penalty for late completion [24.1]	R 0,0225 per R100 of Contract Sum excl. VAT per calendar day	
[19.0]	Practical Completion (Sectional):		
[19.3]	Yes/No?	No	
	Period for inspection by the principal agent [19.3]	N/A:	
[12.2.7]	The date for practical completion shall be the period as indicated below from the date of possession of the site by the contractor [12.2.7; 24.1]	N/A	
[24.0]	Penalty:		
[24.1]	Penalty for late completion [24.1]	N/A	
[12.2.7]	Criteria to achieve practical completion not covered in the definition of practical completion	N/A	
B13.0 [21.0]	Defects liability period:		
	Extended defects liability period: Refer B17.0 [21.13]	Yes/No	Yes
	If yes, description of applicable elements	13.1 Roads and Parking Areas 13.2 Electrical and mechanical equipment 13.3 13.4 13.5	
B14.0 [25.0] [25.2]	Payments:		
	Date of month for issue of regular payment certificates [25.2]	The interim payment certificate is to be issued by the 25th day of each month	
[25.3.4;26.9.5]	Contract price adjustment / Cost fluctuations [25.3.4; 26.9.5]	The contract value shall be adjusted according to CPAP if the construction period is more than 1 year. The base month for the application of CPAP is the month of closing of the tender.	
	If yes, method to calculate	Haylett Formula	
	Employer shall pay the contractor within: [25.10]	Thirty (30) Calendar days	
B15.0 [30.0] [30.3.1;30.10]	Dispute resolution:		
	Adjudication [30.6.1; 30.10] Name of nominating body	N/A	
[30.6.2]	Applicable rules for adjudication [30.6.2]	N/A	

[30.7.4;30.10]	Arbitration [30.7.4; 30.10] If Yes, name of nominating body * If No, then dispute will be referred to litigation	Yes/No?	Yes	The dispute resolution body shall be the Association of Arbitrators (Southern Africa).
[30.7.5]	Applicable rules for arbitration [30.7.5]	N/A		
B16.0	JBCC® General Preliminaries - Selections:			
[P2.2]	Provisional bills of quantities [P2.2]	Yes/No?	Yes	
[P2.3]	Availability of construction information [P2.3]	Yes/No?	Yes	
[P3.1]	Previous work - dimensional accuracy - details of previous contract(s) [P3.1]	N/A		
[P3.2]	Previous work - defects - details of previous contract(s) [P3.2]	N/A		
[P3.3]	Inspection of adjoining properties - details [P3.3]	N/A		
[P4.1]	Handover of site in stages - specific requirements [P4.1]	N/A		
[P4.2]	Enclosure of the works - specific requirements [P4.2]	YES		
[P4.3]	Geotechnical and other investigations - specific requirements [P4.3]	YES		
[P4.5]	Existing premises occupied - details [P4.5]	YES		
[P4.6]	Services - known - specific requirements [P4.6]	N/A		
[P8.1]	Water [8.1]	By Contractor	Yes/No?	Yes
		By Employer	Yes/No?	No
		By Employer - metered	Yes/No?	No
[P8.2]	Electricity [8.2]	By Contractor	Yes/No?	Yes
		By Employer	Yes/No?	No
		By Employer - metered	Yes/No?	No
[P8.3]	Ablution and welfare facilities [8.3]	By Contractor	Yes/No?	Yes
		By Employer	Yes/No?	No
[P8.4]	Communication facilities - specific requirements [P8.4]	YES		
[P11.1]	Protection of the works - specific requirements [P11.1]	YES		
[P11.2]	Protection / isolation of existing works and works occupied in sections - specific requirements [P11.2]	YES		
[P11.5]	Disturbance - specific requirements [P11.5]	N/A		
[P11.6]	Environmental disturbance - specific requirements [P11.6]	N/A		

B17.0	<p>Changes made to JBCC® documentation</p>
1.1	<p>Definitions</p> <p>AGREEMENT: The completed Form of Offer and Acceptance, the completed JBCC® Principal Building Agreement and JBCC® contract data for organs of state and other public sector bodies, the contract drawings, the priced document and any other documents reduced to writing and signed by the authorised representatives of the parties</p> <p>CONSTRUCTION PERIOD: The period commencing on the date of possession of the site by the contractor and ending on the date of practical completion</p> <p>CONTRACT DATA FOR ORGANS OF STATE AND OTHER PUBLIC SECTOR BODIES: The document listing the Organs of State and other Public Sector Bodies' requirements and the project specific information</p> <p>INTEREST: The interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be the rate as determined by the Minister of Finance from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No 1 of 1999), calculated as simple interest, in respect of debts owing to the State, and will be the rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No 55 of 1975), calculated as simple interest, in respect of debts owing by the State</p> <p>PRINCIPAL AGENT: The person or entity appointed by the employer and named in the contract data for organs of state and other public sector bodies. In the event of a principal agent not being appointed, then all the duties and obligations of a principal agent as detailed in the agreement shall be fulfilled by the employer's representative as named in the contract data for organs of state and other public sector bodies</p>
3.0	<p>Offer and Acceptance</p> <p>Amend 3.3 to read as follows: This agreement shall come into force on the date as stated on the Form of Offer and Acceptance and continue to be of force and effect until the end of the latent defects liability period [22.0] notwithstanding termination [29.0] or the certification of final completion [21.0] and final payment [25.0]</p>
6.0	<p>Employer's Agents</p> <p>Add the following as 6.7: In terms of the clauses listed hereunder, the employer has retained its authority and has not given a mandate to the principal agent. The employer shall sign all documents in relation to clauses 4.2, 14.1.2, 14.1.4, 14.4.1, 14.6, 23.1, 23.2, 23.3, 23.7, 23.8, 26.1, 26.7, 26.12 and 28.4</p>
9.0	<p>Indemnities</p> <p>9.2.7: Add the following to the end of the first sentence: "... due to no fault of the contractor"</p>
10.0	<p>Insurances</p> <p>Add the following as 10.1.5.1:</p> <p>Hi Risk Insurance</p> <p>In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable sub-surface conditions that might result in catastrophic ground movement evident by sinkhole or doline formation the following will apply:</p> <p>10.1.5.1.1 Damage to the works</p> <p>The contractor shall, from the date of possession of the site until the date of the certificate of practical completion, bear the full risk of and hereby indemnifies and holds harmless the employer against any damage to and/or destruction of the works consequent upon a catastrophic ground movement as mentioned above. The contractor shall take such precautions and security measures and other steps for the protection of the works as he may deem necessary When so instructed to do so by the principal agent, the contractor shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the works and to rebuild, restore, replace and/or repair the works, at the contractor's own costs</p> <p>10.1.5.1.2 Injury to persons or loss of or damage to property</p> <p>The contractor shall be liable for and hereby indemnifies and holds harmless the employer against any liability, loss, claim or proceeding arising at any time during the period of the contract whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above</p> <p>The contractor shall be liable for and hereby indemnifies the employer against any and all liability, loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable property, or personal property, or property contiguous to the site, whether belonging to or under the control of the employer or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the period of the contract</p> <p>10.1.5.1.3</p> <p>It is the responsibility of the contractor to ensure that he has adequate insurance to cover his risk and liability as mentioned in 10.1.5.1.1 and 10.1.5.1.2. Without limiting the contractor's obligations in terms of the contract, the contractor shall, within twenty-one (21) calendar days of the date of possession of the site, but before commencement of the works, submit to the employer proof of such insurance policy, if requested to do so</p> <p>10.1.5.1.4</p> <p>The employer shall be entitled to recover any and all losses and/or damages of whatever nature suffered or incurred consequent upon the contractor's default of his obligations as set out in 10.1.5.1.1; 10.1.5.1.2 and 10.1.5.1.3. Such losses or damages may be recovered from the contractor or by deducting the same from any amounts still due under this contract or under any other contract presently or hereafter existing between the employer and the contractor and for this purpose all these contracts shall be considered one indivisible whole</p>

11.0	<p>Securities Amend 11.10 to read as follows: There shall be no lien or right of retention held by any contractor in respect of the works executed on site</p>
12.0	<p>Obligations of the Parties Amend 12.1.5 to read as follows: Give possession of the site to the contractor within ten (10) working days of the contractor complying with the terms of 12.2.22 12.2.2: Not applicable Add the following as 12.2.22: Within fifteen (15) working days of the date of the agreement submit to the principal agent an acceptable health and safety plan, required in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993)</p>
19.0	<p>Practical Completion 19.5: Delete the words "subject to the contractor's lien or right of continuing possession of the works where this has not been waived"</p>
21.0	<p>Defects Liability Period and Final Completion Add the following as 21.13: The ninety (90) calendar days defects liability period for the works [21.1] is replaced with a period of three hundred and sixty-five (365) calendar days in respect of the listed applicable elements</p>
25.0	<p>Payment 25.7.5: Not applicable 25.10: Delete the words "and/or compensatory interest" 25.14.2: Not applicable</p>
27.0	<p>Recovery of Expense and/or Loss 27.1.5: Not applicable</p>
29.0	<p>Termination Add the following after 29.1.3: or where ... 29.1.4: The contractor's estate has been sequestrated, liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa 29.1.5: The contractor has engaged in corrupt or fraudulent practices in competing for or in executing the contract</p>
NEW	<p>The contractor shall achieve in the performance of the contract the Contract Skills Development Goals (CSDG) established in the CIDB Standard for Developing Skills through Infrastructure Contracts (published in GN 43495 of 3 July 2020)</p>
NEW	<p>The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) related to the engagement of targeted enterprises as established in the CIDB Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts (published in GN 36190 of 25 February 2013)</p>

C TENDERER'S SELECTIONS

C 1.0 Securities [11.0]

Guarantee for construction: Select Option A or B

Option A	Guarantee for construction (variable) by contractor [11.1.1]
Option B	Guarantee for construction (fixed) by contractor [11.1.2]
Guarantee for payment by employer [11.5.1; 11.10]	Not applicable
Advance payment, subject to a guarantee for advance payment [11.2.2; 11.3]	Not applicable

C 2.0 Contractor's annual holiday periods during the construction period

Year 1 contractor's annual holiday period	start date		end date	
Year 2 contractor's annual holiday period	start date		end date	
Year 3 contractor's annual holiday period	start date		end date	

C 3.0 Payment of preliminaries [25.0]

Contractor's selection

Select Option A or B

Where the contractor does not select an option, Option A shall apply

Payment methods

Option A	The preliminaries shall be paid in accordance with an amount prorated to the value of the works executed in the same ratio as the amount of the preliminaries to the contract sum, which contract sum shall exclude the amount of preliminaries. Contingency sum(s) and any provision for cost fluctuations shall be excluded for the calculation of the aforesaid ratio
Option B	The preliminaries shall be paid in accordance with an amount agreed by the principal agent and the contractor in terms of the priced document to identify an initial establishment charge, a time-related charge and a final dis-establishment charge. Payment of the time-related charge shall be assessed by the principal agent and adjusted from time to time as may be necessary to take into account the rate of progress of the works

Lump sum contract

Where the amount of preliminaries is not provided it shall be taken as 7.5% (seven and a half per cent) of the contract sum, excluding contingency sum(s) and any provision for cost fluctuations

C 4.0 Adjustment of preliminaries [26.9.4]

Contractor's selection

Select Option A or B

Where the contractor does not select an option, Option A shall apply

Provision of particulars

The contractor shall provide the particulars for the purpose of the adjustment of preliminaries in terms of his selection. Where completion in sections is required, the contractor shall provide an apportionment of preliminaries per section

Option A	An allocation of the preliminaries amounts into Fixed, Value-related and Time-related amounts as defined for adjustment method Option A below, within fifteen (15) working days of the date of acceptance of the tender
Option B	A detailed breakdown of the preliminaries amounts within fifteen (15) working days of possession of the site . Such breakdown shall include, inter alia, the administrative and supervisory staff, the use of construction equipment , establishment and dis-establishment charges, insurances and guarantees, all in terms of the programme

Adjustment methods

The amount of **preliminaries** shall be adjusted to take account of the effect which changes in time and/or value have on **preliminaries**. Such adjustment shall be based on the particulars provided by the **contractor** for this purpose in terms of Options A or B, shall preclude any further adjustment of the amount of **preliminaries** and shall apply notwithstanding the actual employment of resources by the **contractor** in the execution of the **works**

Option A	<p>The preliminaries shall be adjusted in accordance with the allocation of preliminaries amounts provided by the contractor, apportioned to sections where completion in sections is required</p> <p>Fixed - An amount which shall not be varied</p> <p>Value-related - An amount varied in proportion to the contract value as compared to the contract sum. Both the contract sum and the contract value shall exclude the amount of preliminaries, contingency sum(s) and any provision for cost fluctuations</p> <p>Time-related - An amount varied in proportion to the number of calendar days extension to the date of practical completion to which the contractor is entitled with an adjustment of the contract value [23.2; 23.3] as compared to the number of calendar days in the initial construction period [26.9.4]</p>
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Option B	<p>The adjustment of preliminaries shall be based on the number of calendar days extension to the date of practical completion to which the contractor is entitled with an adjustment of the contract value [23.2; 23.3] as compared to the number of calendar days in the initial construction period [26.9.4]</p> <p>The adjustment shall take into account the resources as set out in the detailed breakdown of the preliminaries for the period of construction during which the delay occurred</p>
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Failure to provide particulars within the period stated

Option A	<p>Where the allocation of preliminaries amounts for Option A is not provided, the following allocation of preliminaries amounts shall apply:</p> <p>Fixed - Ten per cent (10%) Value-related - Fifteen per cent (15%) Time-related - Seventy-five per cent (75%)</p> <p>Where the apportionment of the preliminaries per section is not provided, the categorised amounts shall be prorated to the cost of each section within the contract sum as determined by the principal agent</p>
Option B	Where the detailed breakdown of preliminaries amounts for Option B is not provided, Option A shall apply

Lump sum contract

Where the amount of **preliminaries** is not provided it shall be taken as 7.5% (seven and a half per cent) of the **contract sum**, excluding contingency sum(s) and any provision for cost fluctuations.

C1.3 – Form of Guarantee

Part C2: Pricing data

C2.1 - Pricing instructions

C2.1 - Pricing instructions

C2.1.1 **PREAMBLE TO THE SCHEDULE OF PRICES**

- C2.1.1.1 **All** prices shall be quoted in the currency of the Republic of South Africa and will be held to be firm unless otherwise stated, in which case sufficient information must be afforded at the time of tendering to indicate the basis on which payment shall be adjusted.
- C2.1.1.2 The Tenderer shall enter a price against each item in the schedule of prices. If the Tenderer fails to enter a price against any item in the schedule of prices the relevant cost for such item shall be regarded as being covered by other prices in the schedule of prices. **Should an item specifically be excluded from the offersubmitted, such tender will be regarded as non-responsive and not be considered.**
- C2.1.1.3 The prices quoted against each item of these schedules shall cover the full inclusive cost of everything required for the execution of the work under the item plus an apportionment of any cost involved in meeting the obligations and liabilities imposed by the conditions of contract and in complying with the specifications.
- C2.1.1.4 The prices quoted for the supply of plant and equipment shall include for all handling, loading, transporting and of-loading required for the delivery of the plant and equipment to the site, including in the case of of-site storage for double handling at the store.
- C2.1.1.5 The prices quoted for erection and installation shall include for all handling, loading, transporting and of- loading, to take plant and equipment to place on site where required, erection, installation, painting, commissioning, operating, testing, adjusting, handing over in proper working order and upholding for a period of 12 months, all as specified.
- C2.1.1.6 Any additional charges in connection with of-site storage which there may be over and above the prices quoted in the various sections of these schedules of prices shall be set out in detail by the Tenderer.
- C2.1.1.7 The tendered rates and amounts must exclude Value Added Tax (VAT) but must include all levies, other taxes and duties on items to which they apply. Separate provision has been made in the Tender Summary for the purpose of VAT.
- C2.1.1.8 Amounts allowed for contingencies will be spent in part or as a whole at the sole discretion of the Principal Agent.
- C2.1.1.9 Schedule of Prices shall be completed and signed in **black ink**. Corrections must be done by deleting, rewriting and initialling next to the amendment.
- C2.1.1.10 **The Bills of Quantities are not to be used for the purpose of ordering materials**

C2.2 - Bill of Quantities

(See Attached)

Item No		Quantity	Amount
	<p><u>SECTION No. 1: PRELIMINARIES</u></p> <p><u>BILL No 1: PRELIMINARIES</u></p> <p><u>BUILDING AGREEMENT AND PRELIMINARIES</u></p> <p>The JBCC Principal Building Agreement (Edition 6.2 - May 2018) prepared by the Joint Building Contracts Committee shall be the applicable building agreement, amended as hereinafter described</p> <p>The JBCC Principal Building Agreement contract data form an integral part of this agreement</p> <p>The JBCC General Preliminaries (May 2018) published by the Joint Building Contracts Committee for use with the JBCC Principal Building Agreement (Edition 6.2 - May 2018) shall be deemed to be incorporated in these bills of quantities, amended as hereinafter described</p> <p>The contractor is deemed to have referred to the above mentioned documents for the full intent and meaning of each clause</p> <p>The clauses in the above mentioned documents are hereinafter referred to by clause number and heading only</p> <p>Where any item is not relevant to this agreement such item is marked N/A signifying "not applicable"</p> <p>Where standard clauses or alternatives are not entirely applicable to this agreement such amendments, modifications, corrections or supplements as will apply are given under each relevant clause heading and such amendments, modifications, corrections or supplements shall take precedence notwithstanding anything to the contrary contained in the above mentioned documents</p> <p><u>PREAMBLES FOR TRADES</u></p> <p>The General Preambles for Trades 2017 published by the Association of South African Quantity Surveyors shall be deemed to be incorporated in these bills of quantities and no claims arising from brevity of description of items fully described in the said General Preambles will be entertained</p> <p>Supplementary preambles and/or specifications are incorporated in these bills of quantities to satisfy the requirements of this project. Such supplementary preambles and/or specifications shall take precedence over the provisions of the General Preambles</p> <p>The contractor's prices for all items throughout these bills of quantities shall take account of and include where applicable for all of the obligations, requirements and specifications given in the General Preambles and in any supplementary preambles and/or specifications</p> <p>If any discrepancy in any of the documents forming part of the contract is found, then the contract data and or amendments within the special conditions of contract and herein shall prevail in cases of conflict between any of the documents</p>		
	Carried to Collection	R	
	Section No. 1 PRELIMINARIES Bill No. 1 PRELIMINARIES		

STRUCTURE OF THIS PRELIMINARIES BILL

Section A : A recital of the headings of the individual clauses in the aforementioned **JBCC** Principal Building Agreement

Section B : A recital of the headings of the individual clauses in the aforementioned **JBCC** General Preliminaries

Section C : Any special clauses to meet the particular circumstances of the project

PRICING OF PRELIMINARIES

Contractors are required to price all individual items in the preliminary and general section of the bill of quantities and should not lump the items into a single sum or amount. This fully priced schedule must be included as part of the priced bill of quantities returnable with tender submission

In the event that the contractor, due to causes of his own making, fails to achieve the targets set out in his construction programme and his performance is not in accordance with the contract, payment of the time related Preliminaries will be paid in proportion to the value of the monthly progress payment and not in accordance with the projected cash flow for this item. The principal agent shall review the status quo and revert to paying the contractor in accordance with the contract once the contractor has demonstrated improvement of their performance and the principal agent is satisfied that the contractor is performing diligently.

Similarly the full amount of the fixed portion of the Preliminaries will be paid only once the successful contractor has fully complied with deliverables under this section

Should the **contractor** select Option A in the **contract data** for the adjustment of **preliminaries**, the amounts entered against the relevant items in these **preliminaries** are to be divided into one or more of the three categories provided namely fixed (F), value related (V) and time related (T)

SECTION A: PRINCIPAL BUILDING AGREEMENT

Interpretation (A1-A7)

1 Clause 1.0 - Definitions and interpretation

Pricing of bills of quantities

The **contractor** is to allow opposite each item for all costs in connection therewith. All prices to include, unless otherwise stated, for all materials, fabrication, conveyance and delivery, unloading, storing, unpacking, hoisting, labour, setting, fitting and fixing in position, cutting and waste (except where to be measured in accordance with the standard system of measurement), patterns, models and templates, plant, temporary works, returning of packaging, duties, taxes (other than Value Added Tax), imposts, establishment charges, overheads, profit and all other obligations arising out of this **agreement**. Value Added Tax (VAT) is to be separately stated on the summary page of these **bills of quantities**

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Items left unpriced will be deemed to be covered in prices against other items throughout these bills of quantities and no claim for any extras arising out of the contractor's omission to price any item will be entertained

Prices for all construction equipment, temporary works, services and other items shall include for the supply, maintenance, operating cost and subsequent removal and making good as necessary

Contractors are reminded that some of the works are to be undertaken under restrictive site conditions, over steep terrain, in dense vegetation, protected environments etc.

In addition to the usual rates priced for standard measured items in the bills of quantities, contractors shall provide for all additional plant, labour, equipment, temporary works, temporary access ways and any additional supervision, transport, security, special plant and equipment to navigate restrictive site conditions and all things necessary for the completion of the works within this bills of quantities. The rates or amounts tendered for these items shall also include for the contractors management, attendance, profit, costs for removal and reinstatement of the ground conditions, vegetation, etc. in the state and condition prior to the works being undertaken.

In addition to the usual rates priced for compliance with law and regulation in relation to inspections, warranties, guarantees, tests, analysis, commissioning and all things necessary for compliance, the contractor is expected to include in the rates, prices and the tendered total of the prices for all inspections, warranties, guarantees, tests, analysis, commissioning and all things necessary for compliance, payable by the contractor.

Such items include but are not limited to: - Electrical Compliance Certificate - Plumbing Compliance Certificate - Structural Steel Compliance Certificate - Lightning Certificate - Soil Protection Certificate - Concrete test results and cube certificates - Compaction Test results and certificates - Waterproofing guarantee certificates - TR1 and TR2 prefabricated roof truss certificates - Roof covering certificate - Soil compaction certificates - Electrical and Mechanical test certificates - Plumbing and drainage pressure test certificates - Fire Compliance Certificate - Entomology Certificate - SANS 10400-A:2010 compliance certificates - Any other requirement as per the latest National Building Regulation

Contractors are reminded and hereby given the opportunity to allow for and price all costs related to the abnormal working conditions referred to herein as no claims for additional costs will be entertained for any omission on the part of contractor

Clause 3.9 amended to read 'The priced document shall not be used as a specification for material and goods and the quantities should not be used for procurement purposes.

All procurement of material will be based on actual site measurements and not on drawings, specifications or the bill of quantities

Abbreviated descriptions

The items in these **bills of quantities** utilise abbreviated descriptions. It is the intention that the abbreviated descriptions be fully described when read with the applicable measuring system and the relevant preambles and/or specifications. However, should the full intent and meaning of any description not be clear, the **contractor** shall, before submission of his tender, call for a written directive from the **principal agent**, failing which it shall be assumed that the **contractor** has allowed in his pricing for materials and workmanship in terms of international best practice

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Legal status of contractor

If the **contractor** constitutes a joint venture, consortium or other unincorporated grouping of two or more persons then:

1. These persons are deemed to be jointly and severally liable to the **employer** for the performance of this **agreement**
2. These persons shall notify the **employer** of their leader who has assigned authority to bind the **contractor** and each of these persons
3. The **contractor** shall not alter its composition or legal status without the prior written consent of the **employer**

F:..... V:..... T:.....

Item

2 **Clause 2.0 - Law, regulations and notices**

F:..... V:..... T:.....

Item

3 **Clause 3.0 - Offer and acceptance**

F:..... V:..... T:.....

Item

4 **Clause 4.0 - Cession and assignment**

F:..... V:..... T:.....

Item

5 **Clause 5.0 - Documents**

Value Added Tax

Provision is made in the summary page of these **bills of quantities** for the inclusion of Value Added Tax (VAT)

Priced document as specification

Clause 5.4 is deemed to be deleted

The **principal agent** shall decide which portion of the **priced document** may be used as a specification of **materials and goods** or methods, if any

Electronic issue of drawings

Some drawings for this project will be issued electronically and the **contractor** shall be deemed to have received such drawings on the date that such drawings have been dispatched electronically [5.6]

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Section No. 1
 PRELIMINARIES
 Bill No. 1
 PRELIMINARIES

F:..... V:..... T:.....

6 Clause 6.0 - Employer's agents

Delegated authority

The authority of the **principal agent** to issue **contract instructions** [17.1] and perform duties for specific aspects of the **works** is delegated to **agents** as follows [6.2]. This does not preclude the **principal agent** from issuing such **contract instructions**:

1. Architect

1.1 Duties [6.2] :

The architect is responsible for the architectural design, functional design and quality inspection of the **works**

1.2 **Contract instructions** [6.2; 17.1] :

1.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement

1.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**

1.2.3 The **site** [13.0]

1.2.4 Compliance with the **law**, regulations and bylaws [2.1]

1.2.5 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**

1.2.6 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]

1.2.7 Removal or re-execution of work

1.2.8 Removal or substitution of any **materials and goods**

1.2.9 Protection of the **works**

1.2.10 Making good physical loss and repairing damage to the **works** [23.2.2]

1.2.11 Rectification of **defects** [21.2]

1.2.12 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**

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1.2.13 Expenditure of **budgetary allowances, prime cost amounts and provisional sums**

1.2.14 Appointment of a **subcontractor** [14.0; 15.0]

1.2.15 Work by **direct contractors** [16.0]

1.2.16 On suspension or termination, protection of the **works**, removal of **construction equipment** and surplus **materials and goods** [29.0]

2. Quantity surveyor

2.1 Duties [6.2] :

The quantity surveyor is responsible for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions of the **works**

2.2 **Contract instructions** [6.2; 17.1] :

2.2.1 No **contract instructions** delegated to the quantity surveyor

3. Civil and structural engineer

3.1 Duties [6.2] :

The civil and structural engineer is responsible for all aspects of civil and structural engineering design and quality inspection of the **works**

3.2 **Contract instructions** [6.2; 17.1] :

3.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement

3.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**

3.2.3 The **site** [13.0]

3.2.4 Compliance with the **law**, regulations and bylaws [2.1]

3.2.5 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**

3.2.6 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]

3.2.7 Removal or re-execution of work

3.2.8 Removal or substitution of any **materials and goods**

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- 3.2.9 Protection of the **works**
- 3.2.10 Making good physical loss and repairing damage to the **works** [23.2.2]
- 3.2.11 Rectification of **defects** [21.2]
- 3.2.12 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**
- 3.2.13 Expenditure of **budgetary allowances, prime cost amounts** and **provisional sums**

4. Mechanical engineer

4.1 Duties [6.2] :

The mechanical engineer is responsible for all aspects of mechanical engineering design and quality inspection of the **works** and, where appointed by the **employer** for quantity surveying services in respect of the mechanical installations, for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions

4.2 **Contract instructions** [6.2; 17.1] :

- 4.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement
- 4.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**
- 4.2.3 Compliance with the **law**, regulations and bylaws [2.1]
- 4.2.4 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**
- 4.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]
- 4.2.6 Removal or re-execution of work
- 4.2.7 Removal or substitution of any **materials and goods**
- 4.2.8 Protection of the **works**
- 4.2.9 Making good physical loss and repairing damage to the **works** [23.2.2]
- 4.2.10 Rectification of **defects** [21.2]

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4.2.11 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**

4.2.12 Expenditure of **budgetary allowances, prime cost amounts and provisional sums**

5. Electrical/Electronics engineer

5.1 Duties [6.2] :

The electrical engineer is responsible for all aspects of electrical and electronics engineering design and quality inspection of the **works** and, where appointed by the **employer** for quantity surveying services in respect of the electrical installations, for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions

5.2 **Contract instructions** [6.2; 17.1] :

5.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement

5.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**

5.2.3 Compliance with the **law**, regulations and bylaws [2.1]

5.2.4 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**

5.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]

5.2.6 Removal or re-execution of work

5.2.7 Removal or substitution of any **materials and goods**

5.2.8 Protection of the **works**

5.2.9 Making good physical loss and repairing damage to the **works** [23.2.2]

5.2.10 Rectification of **defects** [21.2]

5.2.11 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**

5.2.12 Expenditure of **budgetary allowances, prime cost amounts and provisional sums**

6. Health and safety consultant

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6.1 Duties [6.2] :

The health and safety consultant is responsible for all aspects of health and safety of the **works**. Without derogating from the generality thereof, the health and safety consultant will perform the following specific functions and duties in respect of the health and safety aspects of the **works**. He shall:

- 6.1.1 Act as the **employer's agent** in terms of the Construction Regulations issued in terms of the Occupational Health and Safety Act, 1993 as amended
- 6.1.2 Prepare and update the health and safety specification for the **works**
- 6.1.3 Agree with the **contractor** the health and safety plan for the **works**
- 6.1.4 Carry out regular audits to ensure adherence to the safety plan and compliance with the act and regulations
- 6.1.5 Stop the execution of the **works** where the agreed specification or plan is not adhered to

F:..... V:..... T:.....

Item

7 Clause 7.0 - Design responsibility

F:..... V:..... T:.....

Item

Insurances and securities (A8-A11)

8 Clause 8.0 - **Works** risk

F:..... V:..... T:.....

Item

9 Clause 9.0 - Indemnities

F:..... V:..... T:.....

Item

10 Clause 10.0 - Insurances

Clause 10.1.1 - Contracts Works Insurance

'the contractor shall be responsible for effecting and maintaining the contract works insurance for the full duration of the contract period. The insured amount for the full scope of works shall be 120% of the contract amount

- Clause 10.1.2 - Supplementary Insurance
- Clause 10.1.3 - Public Liability Insurance
- Clause 10.1.4 - Removal of Lateral Support Insurance
- Clause 10.1.5 - Other Insurances - N/A

F:..... V:..... T:.....

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11 Clause 11.0 - **Securities**

Clause 11.1 - Guarantee for construction

The contractor shall not provide to the employer a **guarantee for construction** within fifteen (15) working days of acceptance of the contractor's tender.

Clause 11.5 - Guarantee for payment

The employer shall not provide to the contractor a **guarantee for payment**. The contractor shall waive his lien or right of continuing possession of the works [11.10]

Extension of waiver of lien

The **contractor** shall ensure that a waiver of lien is included in all subcontracts and that the **works** executed on the **site** are kept free of all liens and other encumbrances at all times [11.10]

F:..... V:..... T:.....

Execution (A12 - A17)

12 Clause 12.0 - Obligations of the **parties**

Office accommodation

The **contractor** shall provide, maintain and remove on **practical completion** air conditioned office accommodation with suitable tables and chairs for meetings to be held on the **site**. Such offices shall be kept clean and fit for use at all times [12.2.18]

Notice board

The **contractor** shall erect in a position approved by the **principal agent**, maintain and remove on **practical completion** a notice board recommended by the South African Institute of Architects and as approved by the **principal agent** listing the names and logos of the **employer**, the **contractor** and the professional consultants. No subcontractor or supplier notice boards may be erected unless permission is granted by the **principal agent** for such notice boards to be erected [12.2.18]

Statutory and other notices

The **contractor** shall submit and/or comply with all statutory and other notices that may be required by any local or other authority in order not to cause any delay to the commencement of the **works** by the **contractor**. The **contractor** shall pay all deposits or fees in this regard

It is, however, specifically recorded that the **employer** shall be responsible for the timeous approval of building plans by any local or other authorities and the payment of any fees or charges related thereto

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13	Clause 13.0 - Setting out F:..... V:..... T:.....	Item	
14	Clause 14.0 - Nominated subcontractors F:..... V:..... T:.....	Item	
15	Clause 15.0 - Selected subcontractors F:..... V:..... T:.....	Item	
16	Clause 16.0 - Direct contractors In respect of direct contractors the contractor shall: <ol style="list-style-type: none"> 1. Designate an area for the direct contractor to establish a temporary office and workshop and storage of equipment and materials 2. Allow the use of personnel welfare facilities, where provided 3. Provide water, lighting and single phase electric power to a position within 50m of the place where the direct contract work is to be carried out, other than fuel or power for commissioning of any installation 4. Permit the direct contractor to use erected scaffolding, hoisting facilities, etc. provided by the contractor, in common with others having the like right, while it remains erected on the site [16.1] F:..... V:..... T:.....	Item	
17	Clause 17.0 - Contract instructions Site instructions Instructions issued on site are to be recorded in a site instruction book which is to be supplied and maintained on site by the contractor F:..... V:..... T:.....	Item	
18	Clause 18.0 - Interim completion	N/A	
19	Clause 19.0 - Practical completion F:..... V:..... T:.....	Item	
20	Clause 20.0 - Completion in sections		
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Prices submitted

Where prices are submitted by the **contractor** or **subcontractor** during the progress of the **works** in respect of **contract instructions** or in regard to a claim under the terms of this **agreement** and notwithstanding the fact that such prices may be used in an interim **payment certificate**, there is to be no presumption of acceptance. Should the **principal agent** wish to accept any such prices prior to the issue of the **certificate of final completion**, it shall be in writing

Clause 25 amended to read 'The employer shall pay to the contractor the amount certified in interim payment certificate within thirty (30) calendar days of the date of issue of the payment certificate or the contractors tax invoice whichever is the later date'

Materials and goods stored off site shall not be included in the amount authorised for payment unless the requirements for an Advanced Payment Guarantee are met

F:..... V:..... T:.....

Item

26 Clause 26.0 - Adjustment of the **contract value** and **final account**

Fluctuations in costs

All fluctuations in costs, with the exception of fluctuations in the rate of Value Added Tax, shall be for the account of the **contractor** [26.9.5]

Tenant installation/user requirements delayed

There is a possibility that certain works related to tenant installation/user requirements may have to be delayed and may consequently not be executed prior to **practical completion**

Should the **contractor** be instructed to do so he shall execute this work under the conditions pertaining to this **agreement** on the basis that a separate amount for **preliminaries** appurtenant to this work (if applicable) is agreed to between the **contractor** and the **principal agent** and on condition that instruction to proceed with such work is given to him within a period of three (3) calendar months after the date of **practical completion** of the **works**

The contractor shall not receive any mark-up for overheads and profit on any omission of tenant installation work or tenant installation work by others. Claims of loss of profit shall not be considered

The **employer** reserves the right to omit such work without compensation to the **contractor** for loss of profit or any other loss which the **contractor** may suffer as a result of such omission

Cost of claims

All costs incurred by the **contractor** in the preparation of claims shall be borne by the **contractor**. This provision shall not preclude an adjudicator or an arbitrator appointed in terms of this **agreement** [30.6 & 7] from making a determination on costs

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Claims from subcontractors

The **contractor** shall review, assess and adjudicate any claims received by him from any **subcontractor** and thereafter submit same to the **principal agent** with a recommendation in order to assist the **principal agent** in adjudicating the claim [26.6]

F:..... V:..... T:.....

Item

27 Clause 27.0 - Recovery of expense and/or loss

F:..... V:..... T:.....

Item

Suspension and termination (A28 - A29)

28 Clause 28.0 - Suspension by the **contractor**

F:..... V:..... T:.....

Item

29 Clause 29.0 - Termination

F:..... V:..... T:.....

Item

Dispute resolution (A30)

30 Clause 30.0 - Dispute resolution

F:..... V:..... T:.....

Item

31 **Agreement**

The required information of the **parties** and the amount of the **contract sum** shall be inserted in the **agreement** for signature of the **agreement** by the **parties**

F:..... V:..... T:.....

Item

32 **Contract data**

Tenderer's selections

Before submission of his tender the **contractor** is to complete the tenderer's selections in the **contract data**

F:..... V:..... T:.....

Item

SECTION B: GENERAL PRELIMINARIES

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Definitions and interpretation (B1)

33 Clause 1.1 - Definitions
 F:..... V:..... T:.....

Item

34 Clause 1.2 - Interpretation
 F:..... V:..... T:.....

Item

Documents (B2)

35 Clause 2.1 - Checking of documents
 F:..... V:..... T:.....

Item

36 Clause 2.2 - Provisional **bills of quantities**

Multiple procurement

These provisional bills of quantities are in multiple procurement format and are provisionally measured and the subsequent trades are budgetary allowances and provisional sums.

F:..... V:..... T:.....

Item

37 Clause 2.3 - Availability of **construction information**
 F:..... V:..... T:.....

Item

38 Clause 2.4 - Ordering of **materials and goods**
 F:..... V:..... T:.....

Item

Previous work and adjoining properties (B3)

39 Clause 3.1 - Previous work - dimensional accuracy
 F:..... V:..... T:.....

Item

40 Clause 3.2 - Previous work - **defects**
 F:..... V:..... T:.....

Item

41 Clause 3.3 - Inspection of adjoining properties
 F:..... V:..... T:.....

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The site (B4)

42 Clause 4.1 - Handover of **site** in stages
 F:..... V:..... T:..... Item

43 Clause 4.2 - Enclosure of the **works**
 F:..... V:..... T:..... Item

44 Clause 4.3 - Geotechnical and other investigations
 F:..... V:..... T:..... Item

45 Clause 4.4 - Encroachments
 The contractor shall notify the principal agent if any encroachments of adjoining foundations, buildings, structures, pavements, boundaries, etc. exist in order that the necessary arrangements may be made for the rectification of any such encroachment
 F:..... V:..... T:..... Item

46 Clause 4.5 - Existing premises occupied
 F:..... V:..... T:..... Item

47 Clause 4.6 - Services - known
 F:..... V:..... T:..... Item

Management of contract (B5)

48 Clause 5.1 - Management of the **works**
 F:..... V:..... T:..... Item

49 Clause 5.2 - Progress meetings
 F:..... V:..... T:..... Item

50 Clause 5.3 - Technical meetings
 F:..... V:..... T:..... Item

Samples, shop drawings and manufacturer's instructions (B6)

51 Clause 6.1 - Samples of materials
 F:..... V:..... T:..... Item

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Attendance on subcontractors (B10)

61 Clause 10.1 - General attendance
 F:..... V:..... T:.....

Item

62 Clause 10.2 - Special attendance
 F:..... V:..... T:.....

Item

General (B11)

63 Clause 11.1 - Protection of the **works**
 F:..... V:..... T:.....

Item

64 Clause 11.2 - Protection/isolation of existing **works** and **works** occupied in **sections**
 F:..... V:..... T:.....

Item

65 Clause 11.3 - Security of the **works**
 The contractor shall be briefed on the restrictions of movement, servitudes, access control, buildings in use, security requirements and security clearances, working hours due to the right being occupied and under the employers control at all times. The contractor shall not extend his operations into any restricted or undefined areas.

Work shall be carried out during normal working hours. Any extended times or approval or overtime work shall be considered and approved by the PA. The contractor shall comply with the employers rules for the control of delivery of materials and goods into the site and for the removal of such items from the site.

The Contractor will be responsible for ensuring the security and protection of all material, hand tools, power tools, plant, equipment, machinery, etc. stored on the site.

The Contractor will be required to make arrangements with the Employer, through the Principal Agent, for the use of and reimbursement for the security measures currently in force and operational on the site

F:..... V:..... T:.....

Item

66 Clause 11.4 - Notice before covering work
 F:..... V:..... T:.....

Item

67 Clause 11.5 - Disturbance

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Disturbance

All work is to be carried out in such a manner as to cause no unacceptable or unreasonable dust, noise, vibrations, nuisance, inconvenience, annoyance and the like to the public, others, other properties and traffic in so far as they exceed the permissible limitations set by government legislation or by the local authority. Any delays, stoppages and the like arising from or in order to comply with the above will not constitute grounds for an adjustment to the **construction period** or **contract value** whatsoever

F:..... V:..... T:.....

Item

68 Clause 11.6 - Environmental disturbance

Controlling all forms of pollution

The **contractor** shall be responsible for and take all precautions in controlling by whatever means necessary all forms of pollution emanating from the **site** during the **construction period** due inter alia to noise, artificial light, wind-blown sand, dust, deposits of mud, etc.

The **contractor** is to ensure that all roads which border the **site** and are used by the **contractor** during the execution of the **works** are kept clean and free of any dirt or debris caused by the execution of the **works**

F:..... V:..... T:.....

Item

69 Clause 11.7 - **Works** cleaning and clearing

F:..... V:..... T:.....

Item

70 Clause 11.8 - Vermin

F:..... V:..... T:.....

Item

71 Clause 11.9 - Overhand work

F:..... V:..... T:.....

Item

72 Clause 11.10 - Tenant installations

F:..... V:..... T:.....

Item

73 Clause 11.11 - Advertising

F:..... V:..... T:.....

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SECTION C: SPECIFIC PRELIMINARIES

74 Warranties for materials and workmanship

Where warranties for materials and/or workmanship are called for, the **contractor** shall obtain a written warranty, addressed to the **employer**, from the entity supplying the materials and/or executing the work and shall deliver same to the **principal agent** on **final completion** of the contract

The warranty shall state that workmanship, materials and installation are warranted for a specific period from the date of **practical completion** and that any **defects** that may arise during the specified period shall be made good at the expense of the entity supplying the materials and/or doing the work, upon written **notice** to do so

The warranty will not be enforced if the work is damaged by **defects** in the execution of the **works**, in which case the responsibility for replacement shall rest entirely with the **contractor**

F:..... V:..... T:.....

Item

75 Overtime

Should overtime be required to be worked for any reason whatsoever, the cost of such overtime is to be borne by the **contractor** unless the **principal agent** has specifically authorised, prior to execution thereof, that costs for such overtime are to be borne by the **employer**

F:..... V:..... T:.....

Item

76 Cooperation of the **contractor** for cost management

It is specifically agreed that the **contractor** accepts the obligation of assisting the **principal agent** in implementing proper cost management. The **contractor** will be advised by the **principal agent** of all cost management procedures which will be implemented to ensure that the **contract value** does not exceed the budget

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77 Health and safety

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Without limiting the generality of the provisions of clause 2.0, the contractor's attention is drawn to the provisions of the Construction Regulations issued in terms of the Occupational Health and Safety Act, 1993 as amended. It is specifically stated that the employer shall prepare a documented health and safety specification for the works and that the employer shall ensure that the contractor has made provision for the cost of health and safety measures during the execution of the works. The contractor shall price the Pricing schedule for Health, Safety and Environment as per the pricing schedule included in Bill No. 2 as part of the Preliminaries Section.

Provision for pricing of the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification inclusive of Asbestos Abatement Regulations 2020 Project Specifications is made under this clause and under Bill No. 2 and it is explicitly pointed out that all requirements of the aforementioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained.

The **contractor** shall:

1. Comply with the health and safety specification for the **works**
2. Prepare and agree with the health and safety consultant the health and safety plan for the **works**
3. Cooperate with the health and safety consultant in all respects
4. Manage the compliance of all subcontractors with the regulations and with the health and safety plan and specification
5. Conform to the conditions contained in the **employer's** health and safety specification

F:..... V:..... T:.....

Item

78 Reporting by the Contractor

The **Contractor** is required to complete a **CONTRACTOR MONTHLY REPORT** which is to be submitted together with the **Contractor's** payment claim.

Payment of the **Contractor** is conditional on this information being accurate and timeously provided.

Payment shall be subject to the **Contractor** giving the **Employer** a tax invoice for the amount due.

The **Contractor** is to take note of the following requirements -

At the bottom of the **CONTRACTOR MONTHLY REPORT**, the **Site Agent, Clerk of Works, CLO** or **Contractor** must sign the document as proof that the people indicated have worked the number of days.

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79	<p>Administration</p> <p>The Contractor must allow for all costs (including any profit or attendance) associated with the administration, appointment, training and/or payment of the CLO, Built Environment Interns or student, Training of Local Labour, Students as applicable and included in this tender document (refer PROVISIONAL SUMS section). No additional claims in this regard shall be entertained.</p> <p>F:..... V:..... T:.....</p>	Item	
80	<p>Advertising rights</p> <p>The employer may elect to contract with advertising agencies for the erection of advertising hoardings, banners, wraps or the like for the duration of the contract. The contractor shall not prevent such an arrangement and will assist in the facilitation of same. The position and type of advertising structure to be agreed with the principal agent so as not to hinder the contractor in meeting his obligations under this agreement</p> <p>F:..... V:..... T:.....</p>	Item	
81	<p>Confidentiality</p> <p>The contractor undertakes to maintain in confidence any and all information regarding this project and shall obtain appropriate similar undertakings from all subcontractors and suppliers. Such information shall not be used in any way except in connection with the execution of the works</p> <p>No information regarding this project shall be published or disclosed without the prior written consent of the employer</p> <p>F:..... V:..... T:.....</p>	Item	
82	<p>Media releases</p> <p>All rights of publication of articles in the media, together with any advertising relating thereto or in any way connected with this project, shall vest with the employer</p> <p>The contractor together with his subcontractors shall not, without the prior written consent of the employer, cause any statement or advertisement connected with this project to be printed, screened or aired by the media</p> <p>F:..... V:..... T:.....</p>	Item	
83	<p>Socio-Economic Deliverables</p> <p>The Tenderer must allow for all costs (including any profit or attendance) associated with the administration, appointment, training and/or payment of the CLO, Built Environment Interns, Training of Local Labour, Students, Steering Committee Members, SMME Mentor as applicable and included in this tender document (refer PROVISIONAL SUMS section). No additional claims in this regard shall be entertained.</p> <p>F:..... V:..... T:.....</p>	Item	
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84 SMME Contractors as Sub-Contractors to the Principal Contractor

The Tenderer must allow for all costs applicable that they may feel will be associated with the successful integration, mentoring, development of and completion of **SMME Sub-contractors'** work to the approval of the Principal Agent on this project. A minimum of **30%** of the building work needs to be allocated to SMME Sub-contractors. Contractors will be required to supply verified monthly statements/schedules (verified by their auditors) indicating the % achieved for that month. A cumulative schedule also needs to be maintained for each month that has passed.

Any additional costs that the Tenderer may deem applicable due to the use of **30%** of SMME Sub-contractors, should be allowed for in this item (Preliminaries, OHS, Profit and Attendance, etc.), as no claim for any additional costs attributable to the incorporation and development of SMME Sub-contractors on this project will be entertained after the tenders are submitted.

F:..... V:..... T:.....

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Category : Value R.....

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Item No		Quantity	Rate	Amount
	<p><u>SECTION No. 1: PRELIMINARIES</u></p> <p><u>BILL NO. 2 HEALTH AND SAFETY</u></p> <p><u>MODEL PREAMBLES</u></p> <p>The tenderer is referred to the "Model Preambles for Trades 2008" for supplementary and comprehensive expansion of descriptions, appropriate provision for which shall be deemed to have been included in all relevant rates.</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p>Supplementary preambles and/or specifications are incorporated in these bills of quantities to satisfy the requirements of this project. Such supplementary preambles and/or specifications shall take precedence over the provisions of the General Preambles.</p> <p>The contractor's prices for all items throughout these bills of quantities shall take account of and include where applicable for all of the obligations, requirements and specifications given in the General Preambles and in any supplementary preambles and/or specifications.</p> <p>Prior to pricing the principal contractor must familiarize him/herself with the Occupational Health and Safety Act No. 85 Of 1993, Construction Regulations 2014, other relevant Regulations and Standards as well as project specific Health & Safety specifications including any latest amendments.</p> <p>The items in this Bill do not contain quantities hence the Contractor must insert his own quantities based on his individual requirements to comply with the Health and Safety obligations and demands of the Occupational Health and Safety Act No. 85 of 1993, Construction Regulations 2014, other relevant Regulations and Standards as well as project specific Health & Safety Specifications.</p> <p>The costs included herein must incorporate Community Liaison Officer (CLO).</p> <p><u>OCCUPATIONAL HEALTH AND SAFETY</u></p>			
	Carried to Collection			
	<p>Section No. 1 PRELIMINARIES Bill No. 2 HEALTH AND SAFETY</p>		R	

General:

- 1 One full time Construction Health and Safety Officer or Manager (CHSO/M)

Full time attendance on site of a SACPCMP-registered CHSO/M from the start of construction until the end of project handover and provisions of telecommunications.
 - 2 Provision for Health and Safety Management Plans and File inclusive of Asbestos Abatement Regulations 2020 Project Specifications
 - 3 Allow for the necessary Workman's Compensation Fund or approved Insurer contributions for the duration of the project with and including renewals
 - 4 Medical certificates of fitness.

Medical examination of all employees and certification of fitness for Pre-employment is required.

Medical examination of all employees and certification of fitness for Exit-employment is required.

Allow for annual medicals for employees if the project duration is more than 12 months.
 - 5 Emergency Equipment based on the risk exposure and emergency rescue. stretchers, neck brace, first aid kits, fire fighting equipment.
 - 6 Competent inspectors for equipment such as examples scaffolding inspectors and lifting machine inspector.
 - 7 Mandatory training such as risk assessments, legal liability/OHS Act, awareness, first aid incident investigation.
 - 8 Allow for the implementation and maintenance of project-specific H &S Plan & file including implementation of and handling ACM as per Asbestos Abatement Regulations 2020 as per ECDC H&S Specification
 - 9 Allow for appointment of Fall Protection Plan Construction Regulation 10
- Provide, supply and maintenance for each worker the following SANS approved personal protective equipment & clothing as per the site-specific risk assessments:**
- 10 Hard hats (High density polyethylene with 6 point lining)

Item

Item

Item

Item

Item

Item

Item

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Section No. 1
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 Bill No. 2
 HEALTH AND SAFETY

11	Overall/work suits (100% Cotton)	Item	
12	The following PPE to be worn at all times during the handling of ACM as per Asbestos Abatement Regulations 2020 <ul style="list-style-type: none"> • Disposable overall • Eye protection • FF3 - Particulate masks • Gloves 	Item	
13	Reflective vests with visible marking of contractor and proof of induction	Item	
14	Safety boots/shoes (Steel-Toe)	Item	
15	Ear Plugs/Muffs	Item	
16	Dust Mask FFP2	Item	
17	Safety goggles	Item	
18	Safety gloves	Item	
19	Respirators	Item	
20	Safety harness	Item	
21	Permit board	Item	
22	Barricading and hoarding for fall arrest, SANS approved safety netting (orange colour with minimum of 1,2 meters high)	Item	
23	Personal fall arrest and rescue equipment with and including lifelines and associated equipment	Item	
24	Temporary handrails, toe boards other than for access to scaffolding	Item	
25	Construction information, warning signage, posters	Item	
26	Allow for fire extinguishers and fire fighting equipment	Item	
27	Safe lifting equipment for lifting and lowering pipes, lifting tackles and slings	Item	
28	Allow for provision of telecommunication facilities for the appointed OHS officer	Item	
	Carried to Collection		R
	Section No. 1 PRELIMINARIES Bill No. 2 HEALTH AND SAFETY		

29 Provide for appointment of responsible and competent person/s to manage and supervise the works and administer and enforce health and safety on site

Item

30 Allow for provision of Basic medical Preparedness and Response equipment & at least Level 2 First Aider/s

Item

Environmental:

31 Dust control measure for the prevention of dust nuisance

Item

32 Provision for spill kits, drip trays

Item

33 Housekeeping – provide for the waste bins, safe collection and disposal of waste material from site by an approved method

Item

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 PRELIMINARIES
 Bill No. 2
 HEALTH AND SAFETY

Section No. 1

Bill No. 2

HEALTH AND SAFETY

COLLECTION

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 PRELIMINARIES
 Bill No. 2
 HEALTH AND SAFETY

Bill No	<u>SECTION SUMMARY - PRELIMINARIES</u>	Page No	Amount
1	PRELIMINARIES	25	
2	HEALTH AND SAFETY	30	
	Carried to FINAL SUMMARY		R
	Section No. 1 PRELIMINARIES		

Item No		Quantity	Rate	Amount
	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 1: ALTERATIONS</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p>All work described in this bill is to be to be executed in/on existing buildings and prices shall allow for this</p> <p><u>General</u></p> <p>Descriptions that include the text "... take out/up/off/down and remove" shall indicate that the Tenderer shall allow that these items/materials shall become his property and shall be removed from site, or dumped at a site of disposal that the Tenderer has identified.</p> <p>Descriptions that include the text "..... make good" shall indicate that the Tenderer shall allow for all associated costs of repairing disturbed finishes, costs of disconnecting/removing the items/materials and preparatory work to receive new items/materials.</p> <p>Descriptions that include the text "..... carefully take out/up/remove" shall indicate that the Tenderer shall allow for all possible care in the removal process and temporarily storage processes, as these items/materials will be re-used elsewhere.</p> <p>All costs associated with the above will be deemed to be included in the Tenderer's prices.</p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent.</p> <p>Making good of finishes shall include making good of the brick and/or concrete surfaces onto which the new finishes are applied, where necessary</p>			
	Carried to Collection			
	<p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 1 ALTERATIONS</p>		R	

The Contractor will be required to take dimensions when fitting new items/elements to existing structures/frames, etc. as there may be some minor adjustments required and it shall be deemed that all prices shall include such minor adjustment work.

Viewing of the site

Before submitting his tender, the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.

Removal and disposal of harmful material

Tenderers are to note that some of the buildings to be altered, contain harmful materials/elements:

Refer to the project scope of works, asbestos to be removed per building.

The items that are measured in this section are described, where applicable, as "asbestos".

Tenderers have to price under alterations also for a Comprehensive Asbestos Plan, Pre-production sampling, Clearance Sampling and Clearance Report/Certificate.

It will be deemed that Tenderers' prices received have fully taken the above requirements into consideration and priced accordingly to allow for the correct procedure of removal and disposal thereof to a designated dumping site in terms of the latest legislation applicable. No extra cost will be entertained for not pricing for the correct legislative procedures. The asbestos removal must be done by a registered asbestos removal contractor. Removal as per the Asbestos Management Plan is proposed for a period of two months including disposal to a waste management site or asbestos disposal site. After complete removal and disposal of the asbestos, the AIA will complete an asbestos testing that can take up to one week to confirm the site is asbestos free and a compliance certificate is to be provided. The Tenders must allow for all the above costs in the tender price submitted. The asbestos removal must be read in conjunction with the OHS Specification, Baseline Risk Assessment and the Asbestos Management Plan included in this tender document. All Asbestos removal must be done and comply to the Asbestos Abatement Regulation 2020.

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Section No. 2
 BUILDING WORKS (PROVISIONAL)
 Bill No. 1
 ALTERATIONS

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General

Tenderers are to note that a large portion of the works associated with this bill section are required at extreme heights (ground level to top of roof approximately 4,5m high). The contractor shall include for all required OHS items as per the included OHS plan including any scaffolding that may be required when pricing this bill section.

TEMPORARY BARRIERS, SCREENS, ETC.

Temporary hoarding

1	Hoarding formed of 5mm thick plywood walling fixed to 50 x 50mm timber framework with intermediate members at 2m centres, etc. fixed in position between brick walls including dismantling on completion and make good existing surfaces (temporary barriers to be reused on site as work progresses)	m2	300	
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CLEANING/PLASTERING OF EXISTING FACED BRICKWORK SURFACES

Cleaning of existing walls:

2	High pressure clean existing block work walls	m2	3 268	
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Cleaning of existing floors:

3	High pressure clean existing concrete floors	m2	12 812	
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Cleaning of existing roofs:

4	Clean down existing waterproofing and remove all vegetation, rubbish and loose or flaking material on flat concrete roofs.	m2	5 083	
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REMOVAL OF EXISTING WORK

Comprehensive Asbestos Plan

5	Comprehensive asbestos plan		Item	
6	Pre-production sampling		Item	
7	Clearance sampling: To state area is clear and safe for normal occupation		Item	
8	Clearance Report/Certificate: To state area is clear and safe for normal occupation		Item	

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Section No. 2
 BUILDING WORKS (PROVISIONAL)
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<u>Break up and remove existing concrete, brick structures, etc.:</u>				
9	150mm Thick surface bed	m2	377	
<u>Excavate for and remove fill under surface bed to be demolished (elsewhere measured):</u>				
10	Filling inside existing building	m3	11	
<u>Break down and remove existing brickwork or blockwork, etc.:</u>				
11	Half brick wall	m2	345	
12	One brick wall	m2	139	
13	190mm Concrete block wall	m2	261	
14	290mm Concrete block wall	m2	36	
<u>Break down and remove existing partitioning/filter walls complete with doors, etc.:</u>				
15	50mm Thick filter walls	m2	35	
16	89mm Thick assembly	m2	88	
17	250mm Thick concrete partition	m2	17	
<u>Take out/up/off/down and remove existing doors, door frames/linings and windows complete with thresholds, cills, etc.:</u>				
18	Timber door complete with frame size 900 x 2032mm high from half brick wall	No	13	
19	Timber door complete with frame size 900 x 2100mm high from one brick wall	No	3	
20	Timber door complete with frame size 923 x 2114mm high from 190mm concrete block wall	No	23	
21	Timber door complete with frame size 980 x 2140mm high from 270mm cavity brick wall and prepare for new door (elsewhere measured)	No	6	
22	Timber door complete with steel lining size 900 x 2100mm high from 290mm concrete block wall	No	6	
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Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 1 ALTERATIONS				R

23	Timber double door complete with frame size 1350 x 2100mm high from partitioning	No	1		
24	Steel double door complete with steel lining size 1765 x 2185mm high from 290mm concrete block wall	No	4		
25	Timber double door complete with frame size 1800 x 2100mm high from 270mm cavity brick wall and prepare for new door (elsewhere measured)	No	2		
26	Steel double door complete with steel lining size 2000 x 2100mm high from 290mm concrete block wall	No	1		
27	Steel double door complete with steel lining size 2000 x 2400mm high from 290mm concrete block wall	No	1		
28	Timber double door complete with frame size 2100 x 2100mm high from one brick wall and prepare for new door (elsewhere measured)	No	1		
29	Steel window 400 x 600mm high from 290mm concrete block wall and prepare for new window (elsewhere measured)	No	1		
30	Steel window size 600 x 700mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	2		
31	Steel window 600 x 2000mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	4		
32	Steel window size 650 x 900mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	2		
33	Steel window size 969 x 900mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	4		
34	Steel window size 1056 x 982mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	1		
35	Steel window size 1080 x 1240mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	4		
36	Steel window size 1100 x 600mm high from one brick wall	No	1		
37	Steel window size 1200 x 1600mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	2		
38	Steel window 1200 x 600mm high from 290mm concrete block wall and prepare for new window (elsewhere measured)	No	1		
Carried to Collection					
Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 1 ALTERATIONS					R

39	Steel window 1200 x 600mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	4		
40	Steel window 1240 x 2000mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	12		
41	Steel window size 1400 x 791mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	2		
42	Steel window size 1612 x 973mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	1		
43	Steel window size 1612 x 510mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	2		
44	Steel window size 1639 x 1441mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	1		
45	Steel window 1800 x 600mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	6		
46	Steel curtain wall 1890 x 3400mm high from 290mm concrete block wall and prepare for new window (elsewhere measured)	No	1		
47	Steel window size 1973 x 1410mm high from one brick wall and prepare for new window (elsewhere measured)	No	2		
48	Steel window size 2000 x 1240mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	1		
49	Steel window 2300 x 1200mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	2		
50	Steel window 2400 x 600mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	1		
51	Steel window size 2580 x 982mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	1		
52	Steel window size 3200 x 510mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	12		
53	Steel window size 3239 x 973mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	6		
54	Steel window size 3238 x 1441mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	4		
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55	Steel curtain wall 3500 x 3400mm high from 290mm concrete block wall and prepare for new window (elsewhere measured)	No	1	
56	Steel window 3500 x 3020mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	2	
57	Steel window 3000 x 2100mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	2	
58	Steel window 3000 x 1600mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	2	
59	Steel window size 3923 x 1240mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	2	
60	Steel window size 4800 x 965mm high from one brick wall and prepare for new window (elsewhere measured)	No	5	
61	Steel window size 4800 x 2607mm high from one brick wall and prepare for new window (elsewhere measured)	No	1	
62	Steel window size 4951 x 993mm high from one brick wall and prepare for new window (elsewhere measured)	No	3	
63	Steel curtain wall 5653 x 4969mm high from 290mm concrete block wall and prepare for new window (elsewhere measured)	No	2	
64	Steel curtain wall 5653 x 1900mm high from 290mm concrete block wall and prepare for new window (elsewhere measured)	No	12	
65	Steel curtain wall 5653 x 3400mm high from 290mm concrete block wall and prepare for new window (elsewhere measured)	No	2	
66	Steel window size 5986 x 1240mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	2	
67	Steel window size 7037 x 1240mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	1	
68	Steel window size 9976 x 1240mm high from 270mm cavity brick wall and prepare for new window (elsewhere measured)	No	1	
69	Steel louvre window 800 x 800mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	1	
70	Steel louvre window 800 x 1000mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	1	
Carried to Collection				
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71	Steel louvre window 1200 x 800mm high from 190mm concrete block wall and prepare for new window (elsewhere measured)	No	8	
72	Steel vent, 390 x 190mm high from 190mm concrete block wall	No	12	
73	Steel vent, 390 x 190mm high from 290mm concrete block wall	No	1	
74	Steel roller shutter door size 900 x 2100mm high from 290mm concrete block wall	No	4	
75	Steel roller shutter door size 923 x 1800mm high from 190mm concrete block wall	No	2	
76	Remove strongroom door and frame size 928 x 1970mm high from 190mm concrete block wall	No	3	
77	Steel roller shutter door size 1300 x 2200mm high from 190mm concrete block wall	No	5	
78	Steel roller shutter door size 1600 x 2000mm high from 190mm concrete block wall	No	3	
79	Steel roller shutter door size 2000 x 2000mm high from 290mm concrete block wall	No	8	
80	Steel roller shutter door size 2000 x 2713mm high from one brick wall	No	2	
81	Steel roller shutter door size 2092 x 2467mm high from 270mm cavity brick wall	No	1	
82	Steel roller shutter door size 2500 x 3000mm high from 290mm concrete block wall	No	1	
83	Steel roller shutter door size 2500 x 2000mm high from 290mm concrete block wall	No	2	
84	Steel roller shutter door size 2700 x 3000mm high from 290mm concrete block wall	No	2	
85	Steel roller shutter door size 2750 x 3000mm high from 190mm concrete block wall	No	1	
86	Steel roller shutter door size 3000 x 3000mm high from 290mm concrete block wall	No	4	
87	Steel roller shutter door size 3000 x 4500mm high from 290mm concrete block wall	No	5	
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88	Steel roller shutter door size 4000 x 4545mm high from one brick wall	No	1
89	Steel roller shutter door size 4800 x 5100mm high from 290mm concrete block wall	No	1
90	Steel roller shutter door size 5100 x 4800mm high from 290mm concrete block wall	No	2
91	Steel roller shutter door size 5653 x 3000mm high from 290mm concrete block wall	No	4
<u>Take up/down and remove existing roofs, floors, panelling, ceilings, partitions, etc.:</u>			
92	Asbestos cement roof covering and preparing area to receive timber purlins and roof sheeting (elsewhere measured) (purlins elsewhere removed)	m2	1 037
93	Asbestos cement roof covering and preparing area to receive steel roof sheeting (elsewhere measured) by pressure cleaning steel purlins, and painting (elsewhere measured) prior to fixing of new roof covering	m2	8 322
94	Asbestos cement side cladding and preparing area to receive steel roof sheeting (elsewhere measured) by pressure cleaning steel purlins, and painting (elsewhere measured) prior to fixing of new roof covering	m2	282
95	Asbestos cement gutters, including accessories	m	469
96	Asbestos cement box gutters, including fixing brackets	m	250
97	Asbestos cement downpipes including angles, bends and accessories	m	96
98	Asbestos cement downpipes exceeding 150mm diameter including angles, bends and accessories	m	374
99	Asbestos cement fascias	m	443
100	Asbestos cement barge boards	m	204
101	Asbestos cement rainwater head	No	70
102	Fibre cement ceilings complete with cornices, timber bandering, etc.	m2	619
103	Fibre cement eaves/verge soffit complete with timber bandering, etc.	m2	41

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104	Corrugated metal roof sheeting complete with supporting timber purlins, sidewall and cover flashings, etc.	m2	36		
105	Timber purlins and prepare timber roof members under to receive new timber purlins, etc. (elsewhere measured)	m	816		
106	Timber bracing where roof trusses are to be replaced (elsewhere measured) and prepare timber roof members under to receive new timber bracing, etc. (elsewhere measured)	m	30		
107	Timber double pitched roof truss (12 degree pitch) with span exceeding 6,66m, including carefully unfixing roof ties and prepare wall plate and roof ties for new truss (elsewhere measured) including removal of beamfilling, etc. as required	No	10		
108	Timber double pitched roof truss (12 degree pitch) with span exceeding 10,50m, including carefully unfixing roof ties and prepare wall plate and roof ties for new truss (elsewhere measured) including removal of beamfilling, etc. as required	No	5		
109	Temporary timber bracing where roof trusses are to be replaced (elsewhere measured) to support surrounding timber roof members	m	45		
110	100 x 50mm Parallel flange steel purlins as directed by the Engineer including cutting all welds.	m	50		
	<u>Take up and remove existing mastic waterproofing and prepare surface new screed (elsewhere measured):</u>				
111	On flat roof (including all turn-ups)	m2	53		
	<u>Take up and remove existing mastic waterproofing complete with 50mm insulation material under and prepare surface new screed (elsewhere measured):</u>				
112	On flat roof (including all turn-ups)	m2	5 029		
	<u>Take up and remove existing floor sheeting complete with adhesive from screed and prepare screed to receive new finish (elsewhere measured):</u>				
113	Vinyl floor tiles	m2	240		
	<u>Take out/off and remove existing sundry metalwork:</u>				
114	Cat ladder and make good finishes	No	7		
115	Industrial balustrading complete, 1100mm high and make good finishes disturbed	m	31		
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	Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 1 ALTERATIONS				R

116	Flagpole assembly fixed on top of flat concrete roof	No	2
<u>Take out and remove piping, sanitary fittings, etc. including disconnecting piping from fittings and making good floor and wall finishes (making good tiling and paintwork elsewhere measured):</u>			
117	Brass piping including all fittings, brackets, etc.	m	40
118	15mm Copper piping including all fittings, brackets, etc.	m	265
119	25mm Galvanised piping including all fittings, brackets, etc.	m	122
120	40/50mm PVC piping including all fittings, brackets, etc.	m	180
121	110mm uPVC piping including fittings and brackets	m	88
122	110mm Cast iron piping including fittings and brackets	m	110
123	110mm Cast iron piping underground in trenches not exceeding 2m deep including backfilling, compaction, etc.	m	90
124	15mm Polycop piping including fittings and brackets	m	120
125	22mm Steel piping including fittings and brackets	m	60
126	28mm Steel piping including fittings and brackets	m	50
127	Towel rail complete with two end brackets	No	27
128	Toilet roll holder size 125 x 260mm high from brick wall	No	27
129	Shower assembly including taps, traps, etc.	No	19
130	Wash hand basin size 570 x 430mm wide including taps, traps, etc.	No	16
131	Wall mounted bowl urinal size 390 x 660mm high, complete with flush pipe, etc.	No	14
132	Floor mounted WC pan with wallhung cistern	No	31

OPENINGS THROUGH EXISTING WALLS, ETC.

Carried to Collection

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 BUILDING WORKS (PROVISIONAL)
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Break out for and form openings through existing concrete block walls for new door/curtain wall openings, including necessary precast concrete lintols, making good reveals, cills, etc. 100mm concrete thresholds with steel trowelled finish (new doors/curtain walls and making good paintwork elsewhere measured):

133	Opening size 4176 x 4969mm high in existing 290mm concrete block wall	No	1
134	Opening size 4529 x 1469mm high in existing 290mm concrete block wall	No	1
135	Opening size 4800 x 5100mm high in existing 290mm concrete block wall	No	1
136	Opening size 5000 x 2918mm high in existing 290mm concrete block wall	No	1
137	Opening size 5000 x 4969mm high in existing 290mm concrete block wall	No	1
138	Opening size 5653 x 1900mm high in existing 290mm concrete block wall	No	2
139	Opening size 5653 x 1490mm high in existing 290mm concrete block wall	No	18
140	Opening size 5653 x 4969mm high in existing 290mm concrete block wall	No	1

Break out for and form openings through existing brick walls for window openings, including necessary precast concrete lintols over, closing cavities, etc. (new windows elsewhere measured):

141	Opening size 900 x 2100mm high in existing half brick wall	No	1
142	Opening size 900 x 500mm high in existing 270mm cavity brick wall	No	6

SPALLING CONCRETE REPAIRS

Carried to Collection

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ALTERATIONS

Preparation

The contractor is to perform an inspection of the site together with the engineer or his representative. Each area of spalling to be repaired must be recorded in terms of position and length/area.

- Areas, where spalling repair is to take place, should be propped before repair work can commence.
- All edges along the length/area to be repaired should receive a square cut, with a minimum depth of 10mm to ensure that no over-breaking can occur. All cuts should be made a minimum of 100mm past the furthest point of oxidation.
- Concrete to be cleared from the entire area and reinforcement exposed in full.
 - o Concrete to be cleared from reinforcement in such a way that one would be able to get one's fingers in behind the reinforcement.
 - o Concrete surface to have a rough finish.
- Remove all dust and loose material/debris using a wire brush.
- Reinforcement to be cleaned of any oxidants/rust by means of wire brushing.
- Apply SikaTop Armatec 110 EC (or similar approved) to all exposed reinforcement.
- Apply bonding agent, SikaTop Armatec 110 EC (or similar approved), to all exposed concrete surfaces where remedial work is being done.
- Apply cementitious repair mortar.
 - o For easily accessible areas use Sika REP LW (or similar approved).
 - o For confined sections use Sikacrete-214 (or similar approved).
- As soon as the surface is not able to be marred, apply two coats of approved curing compound (Sika Antisol or similar approved).
- Propping to remain in place until repair products have reached a minimum compressive strength of 30MPa.
- All products used must be installed and used in accordance with the supplier's specifications and details.

Concrete repairs

Thoroughly pre-wet the surface and apply SikaTop-Armatec - 110 EpeCem or other approved cementitious epoxy resin primer strictly in accordance with the manufacturer's specification and recommendations.

Restore original concrete shape and lines using Sika Rep LW or other approved non-sag mortar repair strictly in accordance with the manufacturer's specification and recommendations.

143 Break out and remove 120mm wide x 40mm deep deleterious (weak) concrete, including preparing surfaces to receive concrete repair compounds

m

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 BUILDING WORKS (PROVISIONAL)
 Bill No. 1
 ALTERATIONS

144 Concrete repair comprising 200mm wide Sika ArmaTec - 110
 EcoCem or other approved primer and 120mm wide x 40mm deep
 Sika Rep LW or other approved repair mortar finished to the original
 shape and lines of the concrete on previously prepared area
 (elsewhere measured)

m

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 BUILDING WORKS (PROVISIONAL)
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	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 2: EARTHWORKS</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>EARTHWORKS</u></p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Nature of ground</u></p> <p>Description of excavations shall be deemed to include all ground conditions classifiable as earth and where conditions of a more difficult character might be encountered, these are separately measured</p> <p><u>Excavations</u></p> <p>No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling.</p> <p>Class of Excavations will be in accordance with SABS 1200D Clause 3.1. For the purpose of this project "Soft Rock" will have the same meaning as Intermediate excavations as defined in SABS 1200D Clause 3.1.</p> <p>Boulder excavation definitions as stated in SABS 1200D will not apply.</p> <p>Classification of soils and gravel is in accordance with SABS 1200M: 1996 Table 3A & 3B or TRH14.</p> <p>Open face excavation is in accordance with SANS 2001: Part BE1.</p> <p><u>Carting away of excavated material</u></p> <p>Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stockpiles situated on the building site</p>				
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Dewatering of excavations

The Contractor shall allow for removing seepage and other water from subterranean sources from the excavations by pumping, baling or otherwise.

Accurate records of all such dewatering shall be kept to determine the total volume of water so removed and a clear distinction shall be made between water from subterranean sources and other water.

Density testing on filling

Rates for filling, etc. shall include for all density and soil type testing to prove that the specified compaction is achieved.

When additional testing is done on instruction of the principal agent and these tests are successful, they will be paid for additionally.

Imported fill

"Filling and bedding to trenches etc. to be in compliance with SABS 1200 DB and LB respectively".

EXCAVATION, FILLING, ETC. OTHER THAN BULK

Compaction of surfaces:

1	Compaction of ground surface under floors, etc. including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to a minimum of 90% Mod AASHTO dry density	m2	349	
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Earth filling supplied by the Contractor under surface beds or rafts:

2	G4 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 98% Mod AASHTO dry density	m3	4	
3	G7 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 95% Mod AASHTO dry density	m3	65	
4	G7 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 98% Mod AASHTO dry density	m3	65	

Sand filling supplied by the contractor:

5	Under floors	m3	17	
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	<u>Prescribed density tests on filling:</u>				
6	Modified AASHTO density test	No	5		
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	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 3: CONCRETE, FORMWORK & REINFORCEMENT</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>Concrete</u></p> <p>All concrete work to be carried out in accordance with SABS 1200G</p> <p><u>Cost of tests</u></p> <p>The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (test cubes are measured separately)</p> <p><u>Formwork</u></p> <p>Description of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use</p> <p>The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself</p>				
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	<p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 3 CONCRETE, FORMWORK & REINFORCEMENT</p>			R	

Formwork to soffits of solid slabs, etc. shall be deemed to be slabs not exceeding 250mm thick unless otherwise described

Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the Engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"

Degree of accuracy: Accuracy II as SABS 1200G

Permissible deviations:

Flatness of plain surface - 5mm

Abrupt changes in a continuous surface - 5mm

Reinforcement

Reinforcement to include 30MPa concrete cover blocks to ensure correct cover to reinforcing

REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES

25MPa/19mm Concrete:

1	Strip footings	m3	7
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REINFORCED CONCRETE

20MPa/19mm Concrete:

2	Surface beds	m3	52
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3	Surface beds to falls	m3	6
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25MPa/19mm Concrete:

4	Surface beds	m3	108
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CONCRETE TESTS

Test blocks:

5	Making and testing 150 x 150 x 150mm concrete test cube (Only test cubes that have passed will be reimbursed)	No	15
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CONCRETE, FORMWORK & REINFORCEMENT

CONCRETE SUNDRIES

Smooth power floated finish to top surfaces of concrete:

6	Surface beds, slabs, etc.	m2	5
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Finishing top surfaces of concrete with broom/brush finish:

7	Surface beds, etc.	m2	349
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ROUGH FORMWORK (DEGREE OF ACCURACY III)

Rough formwork to sides:

8	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	60
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Forming recess/nib to concrete, including all necessary formwork, etc.:

9	Boxing in concrete surface bed to form channel size 100 x 75mm deep (average), with a slope of 1:12 to base	m	37
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STEEL REINFORCEMENT

Fabric reinforcement:

10	Type 193 fabric reinforcement in concrete surface beds, etc.	m2	349
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11	Type 245 fabric reinforcement in concrete surface beds, etc.	m2	432
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12	Type 311 fabric reinforcement in concrete surface beds, etc.	m2	28
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CONCRETE, FORMWORK & REINFORCEMENT

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	<u>SECTION No. 2: BUILDING WORKS</u>			
	<u>BILL No. 4: PRECAST CONCRETE</u>			
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>Proprietary products in descriptions</u>			
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted			
	<u>PRECAST CONCRETE</u>			
	<u>LG Green precast concrete window sill or other approved, including lugs, waterproofing, fixing in position, etc.:</u>			
1	140 x 165mm Thick (extreme) precast concrete window cill (Type B - C13)	m	80	
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	Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 4 PRECAST CONCRETE			

Item No		Unit	Quantity	Rate	Amount
	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 5: MASONRY</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>Types of Bricks:</u></p> <p>Unless otherwise stated all brickwork in these Bills of Quantities shall mean approved hard burnt Clay bricks.</p> <p><u>Sizes in descriptions:</u></p> <p>Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick.</p> <p><u>Bagged and sealed walls</u></p> <p>Walls in two skins described as "bagged and sealed" shall be deemed to include having the outer face of the inner skin bagged with 1:6 cement and sand mixture and sealed with two coats bitumen emulsion waterproofing coating</p> <p><u>Cement mortar</u></p> <p>Unless otherwise described, all brickwork shall be built in 5:1 cement mortar.</p> <p><u>Face bricks</u></p> <p>Bricks shall be ordered timeously to obtain uniformity in size and colour.</p>				
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	<p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 5 MASONRY</p>				

Pointing

Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc.

Samples, etc.

Rates for brickwork, faced brickwork, etc. shall include for all required samples

Hollow walls, etc.

Descriptions of hollow walls shall be deemed to include leaving every fifth perpend of the bottom course of the external skin open as a weep hole.

Walls in two skins described as "bagged and sealed" shall be deemed to include having the outer face of the inner skin bagged with 1:6 cement and sand mixture and sealed with two coats "Brixeal" bitumen emulsion waterproofing coating.

BRICKWORK/BLOCKWORK IN SUPERSTRUCTURE

Brickwork of NFP bricks in Class II mortar:

1	Half brick wall	m2	168
2	Half brick wall in patchings	m2	2
3	Half brick wall in beamfilling	m2	10
4	One brick wall	m2	170
5	One brick wall in patchings	m2	1

Cape Brick or other approved concrete bricks in Class II mortar:

6	140mm Concrete block wall	m2	769
7	140mm Concrete block wall built above I-beam	m2	526
8	190mm Concrete block wall in patchings	m2	1
9	290mm Concrete block wall in patchings	m2	13

BUILDING UP BRICKWORK

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<u>Cape Brick or other approved concrete bricks in Class II mortar:</u>					
10	Half brick wall in patchings	m2	1		
11	One brick wall in patchings	m2	2		
<u>BRICKWORK/BLOCKWORK SUNDRIES</u>					
12	Fair rake cutting	m	190		
13	Cut, tooth and bond new 110mm wall to existing	m	32		
14	Cut, tooth and bond new 230mm wall to existing	m	32		
<u>Brickwork reinforcement:</u>					
15	75mm Wide reinforcement built in horizontally	m	4 111		
16	150mm Wide reinforcement built in horizontally	m	501		
<u>Prestressed fabricated lintols including necessary temporary supports:</u>					
17	110 x 70mm Lintol in lengths not exceeding 3m	m	15		
18	Pair of 110 x 70mm lintols in lengths not exceeding 3m	m	9		
<u>Galvanised hoop iron ties, cramps, etc.:</u>					
19	4mm Diameter roof tie 2m girth bent double with one end fixed to timber and other end built into existing brickwork including making good	No	20		
20	30 x 1,2mm Cramp 1000mm long one end built into block work and other end fixed securely to existing block work	No	48		
<u>FACE BRICKWORK</u>					
<u>Corobrik Silvergrey Travertine or other approved FBX clay face bricks, manufactured in accordance with SANS 227:2007, including pointing with 6mm square recessed horizontal and vertical joints as the work proceeds:</u>					
21	220mm Wide brick-on-edge coping to top of one brick wall, faced on top and both ends	m	89		
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	<u>SECTION No. 2: BUILDING WORKS</u>				
	<u>BILL No. 6: WATERPROOFING</u>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<u>SUPPLEMENTARY PREAMBLES</u>				
	<u>Proprietary products in descriptions</u>				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	<u>DAMPPROOFING OF WALLS AND FLOORS</u>				
	<u>One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:</u>				
1	Under surface beds	m2	781		
2	On screeds as moisture barrier under vinyl floor planks	m2	228		
	<u>One layer of 375 micron embossed polyethylene dampproof course (SANS 952-1985 type B):</u>				
3	In walls, under cills, etc.	m2	17		
	<u>ABE Duraflex or other approved waterproofing slurry, applied with and including ABE Ecofelt membrane in strict accordance with the manufacturer's instructions:</u>				
4	On walls to receive tiling	m2	235		
5	Floors	m2	60		
6	On plastered walls in narrow widths	m	7		
	<u>SHEET OR MEMBRANE WATERPROOFING</u>				
	A ten year guarantee on workmanship, material and water tightness is required by the Principal Agent				
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	Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 6 WATERPROOFING				

Descriptions of sheet or membrane waterproofing shall be deemed to include additional labour to turn-ups and turn downs.

One coat Bituprime or other approved bituminous primer applied at a rate of 6m² per litre:

7	On precast concrete roofs, box gutter, etc.	m ²	5 636
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Abedex Unigum dual reinforced or other approved bitumen waterproofing membrane fully bonded by means of heat fusion, secured to primer layer (elsewhere measured):

8	On flat roofs	m ²	5 033
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9	On bottoms and sides of concrete box gutter	m ²	606
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10	In turn-ups exceeding 300mm girth	m ²	10
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11	In turn-ups not exceeding 300mm girth	m	54
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12	In dressing around skylight	m	60
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13	In dressing around rainwater pipe outlet	No	26
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14	In dressing inside and galvanised mild steel rainwater collector head	No	28
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15	In dressing around Fullbore outlet	No	4
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Silvakote or other approved reflective aluminium paint applied at a rate of 8m² per litre to waterproofing layer (elsewhere measured):

16	On flat roofs, box gutters, etc.	m ²	5 689
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JOINT SEALANTS, ETC.

Approved polyurethane sealing compound:

17	Rake out 10mm thick joint for a depth of 15mm and fill with polysulphide compound	m	750
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Approved polysulphide sealing compound including backing cord, bond breaker, primer, etc.:

18	10 x 10mm In vertical expansion joint between concrete and brick surfaces including raking out joint filler as necessary	m	30
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19	10 x 10mm In vertical expansion joint between concrete surfaces including raking out joint filler as necessary	m	250
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WATERPROOFING

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	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 7: ROOF COVERINGS, ETC.</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions:</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>Fixing</u></p> <p>Fixing shall be done according to SABS 1200HB with minimum 225mm end laps</p> <p><u>Pricing</u></p> <p>Prices for roof covering and cladding are to include for all necessary drive screws, hook bolts, clips, sheet bolts, nuts, washers, etc., for drilling holes for screws and bolts including removing all swarf from the sheeting and all right angle cutting and waste</p> <p><u>PROFILED METAL SHEETING AND ACCESSORIES</u></p> <p>Safintra Tufdek IBR Desert Sand COLORPLUS or other approved roofing sheeting installed by an approved Roofing Contractor in strict accordance with the manufacturer's instructions. A ten year guarantee on thickness, workmanship, material and water tightness is required by the Principal Agent (to be supplied by Safal Group/Safintra)</p> <p>The contractor shall include for all raking cutting and waste when pricing this bill section</p>				
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	<p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 7 ROOF COVERINGS, ETC.</p>				

	<u>0.55mm Thick IBR Desert Sand Colorplus AZ 200 or other approved roof sheeting and accessories, fixed to timber purlins (elsewhere measured) at 1892mm centres, pierce-fixing through each sheet under the flashings, cappings or along the top of the sheets (for low pitch roofs). Side laps to be secured using Fixtite fasteners and sealed with Butyl tape, all in accordance with the manufacturer's instructions:</u>			
1	Roof covering with pitch not exceeding 25 degrees	m2	9 155	
2	Cladding fixed vertically	m2	239	
	<u>0.8mm Thick concealed fix flashings, etc. finished to same finish as roof sheeting, including fixing to interlocking roofing on steel and/or timber roof trusses:</u>			
3	Ridge/hip capping to suit roof profile	m	592	
4	Barge flashing 462mm girth to suit roof profile	m	237	
5	Apex flashing 660mm girth	m	69	
6	Headwall/sidewall flashing	m	140	
7	Counter flashing	m	140	
8	Broad flute closers	m	2 165	
9	Flashing around 150mm diameter pipe	No	15	
	<u>ROOF VENTILATORS</u>			
	Roof ventilators measured under Mechanical Installation. The roofing contractor and the mechanical contractor are required to co-ordinate these activities so that ventilators are built in with the roof covering. Flashing and sealing around the ventilators in the main contractors responsibility			
10	Allow for the co-ordination of trades, and sealing of ventilators at junction of roof sheeting to suit roof profile		Item	
	<u>RAINWATER DISPOSAL</u>			
	<u>0.9mm Thick Watertite or other approved seamless aluminium gutters and rainwater pipes with ColourTechG4 finish to Marble White colour, including fixing with heavy duty brackets in accordance with the manufacturer's instructions:</u>			
11	150 x 150mm Box eaves gutter	m	494	
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12	Extra over gutter for stopped end	No	28
13	Extra over gutter for angle	No	6
14	Extra over gutter for outlet to suit 150 x 150mm rainwater pipe	No	49
15	150 x 150mm Rainwater pipe	m	162
16	Extra over rainwater pipe for eaves offset to 600mm projection	No	27
17	Extra over rainwater pipe for bend or shoe	No	49
<u>Purpose made galvanised steel box gutters</u>			
18	3mm Thick galvanised steel with a girth of 2070mm six times bent fixed to steel roof members	m	250
19	Extra over gutter for stopped end	No	10
20	Extra over gutter for and including outlet for 150mm diameter galvanised pipe 400mm long and 4mm thick	No	30
21	Galvanised wire balloon grating fixed to galvanised mild steel gutter over rainwater outlet	No	30
22	Galvanised wire balloon grating fixed to concrete box gutter over rainwater outlet	No	26
<u>Purpose made galvanised steel downpipes</u>			
23	250mm Galvanised mild steel downpipe with wall thickness of 4,5mm fixed to walls/columns with and including galvanised straps at 1500mm centres	m	126
24	Extra over rainwater pipe for 250mm diameter offset bend	No	56
25	Purpose made galvanised steel box gutter rainwater collector head formed of 3mm thick galvanised steel size 550mm high x 822mm wide x 500mm deep with outlet to suit 250mm diameter steel downpipe (elsewhere measured)	No	28
26	Extra over rainwater pipe for connection to existing underground stormwater pipes	No	28
27	150mm Galvanised mild steel downpipe with wall thickness of 4,5mm	m	57
28	Extra over rainwater pipe for bend or shoe	No	16

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	<u>Sundries:</u>			
29	150mm Wide expanded aluminium mesh leaf guard fixed to gutter in accordance with the manufacturer's instructions	m	250	
	<u>Fullbore or other approved cast iron rainwater outlets cast into concrete, including all connections to HDPE piping, etc.:</u>			
30	150mm Diameter Cast Iron fullbore outlet with dome grating	No	4	
	<u>ROOF INSULATION</u>			
	<u>Safintra Safftherm 203ECO or other approved double sided aluminium foil based insulation:</u>			
31	Insulation laid taut over purlins (at approximately 1700mm centres) and fixed concurrent with roof covering, including galvanised steel straining wires if required, laps, etc.	m2	716	
	<u>Lambdaboard or other approved laminated polyisocyanurate core board with a minimum core density of 34kg/m³, minimum thickness of 100mm; in widths of 1,220mm with a 4.17 (Km²/W) R-Value. Finish shall be White Mineral and Mineral Natural laminated on each side. Lambdaboard to be installed above purlin and in conjunction with Roof covering and in accordance with manufactures specification:</u>			
32	Insulation laid over purlins and fixed concurrent with roof covering	m2	8 602	
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	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 8: CARPENTRY & JOINERY</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>Prefabricated roof trusses</u></p> <p>Prefabricated timber roof trusses shall be constructed of South African pine by a firm of specialist designer manufacturer's as approved by the architect</p> <p>Prices must include for all cross and wind bracing according to the manufacturer's instruction</p> <p>Prices must include for the design, plans and approval of all timber trusses including a COC and no further claims shall be considered</p> <p>Pre-fabricated timber roof trusses shall comply with the requirements of SABS Specification 0163 and be constructed of South African pine as described in clause 8.5 to the designs shown on the Manufacturer's detail drawings. The timber shall be of cross-sectional dimensions shown, cut to correct lengths with ends square or at the required angle</p> <p>Trusses shall be assembled in truss fabricating jigs with the truss having the proper camber, all tightly clamped together with joints secured using approved connector plates of galvanised steel sheet. Connector plates shall be pressed into the timber simultaneously from both sides of the truss with a hydraulic press capable of exerting such pressure as will ensure complete penetration of the teeth into the timber</p>				
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The connector plates shall be of such size as will ensure that the joints so made will adequately withstand the forces exerted on the joints

In coastal areas connector plates in buildings without ceilings shall be painted with two coats of epoxy tar complying with SABS Specification 801 Type 2, or rust neutralising paint

Timber members built into brickwork to be given two coats of carbolineum and wrapped in plastic

Approval of pre-fabricated roofing systems, whether measured as an alternative or not, shall be subject to the following requirements:

(a) The Manufacturer of the pre-fabricated trusses shall hold a certificate of competence issued by the Institute for Timber Construction

(b) A polyester print, size A1 having a minimum thickness of 0,5mm, shall be submitted by the Contractor to the Regional Representative at an early stage for approval by the Directorate: Structural Engineering Services

(c) The drawings shall be signed by a Registered Professional Engineer whose name appears on the Departmental panel for structural work

(d) In the case of systems buildings, approval shall be given with submission of the contract drawings on acceptance of the tender

The following minimum information shall be shown on the drawings:

- (a) Details of the roof system with the position of the rafters and purlins indicated thereon as well as typical elevations
- (b) Bracing as recommended by the Institute for Timber Construction
- (c) Sizes and grading of the timber components
- (d) Truss sizes, e.g. height of ridge or angle of pitch
- (e) Plate sizes for every construction point (Code numbers only are deemed insufficient)
- (f) Separate connection details for hip, valley and jack rafters
- (g) Maximum spacing for purlins and bracing to ceilings shall be according to specifications

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(h) The type of roof covering as well as the design load. Over and above the supervision undertaken by the Representative/Agent, the Truss Fabricator or his Design Engineer shall inspect the completed roof structure and issue a certificate of confirmation to the Department that:

"The roof structure(s) has (have) been erected in accordance with the Design Engineer's drawings, as accepted by the Department, and the relevant details given in the manual "THE ERECTION AND BRACING OF TIMBER ROOF TRUSSES" issued by the National Timber Research Institute and the Institute for Timber Construction"

The prefabricated timber roof trusses shall be designed by a Registered Professional Engineer and shall be in accordance with SABS 0160 and 0163, as well as the additional requirements of PW 371, clause 8.10. The wind loading shall be as determined in terms of Clause 5.5 of SABS 0160. The applicable terrain category shall be taken as Category 2.

All prices shall be deemed to include the cost of the Registered Professional Engineer and the issuing of a certificate on completion, certifying the workmanship, erection and materials meeting the stated requirements.

Fixing

All nailing of timber roof trusses, purlins, etc. shall be done with galvanised nails. In coastal areas, copper, aluminium or stainless steel nails shall be used

Items described as "nailed" shall be deemed to be fixed with hardened steel nails or shot pins to brickwork or concrete

Where items are described as "bolted" the bolts have been measured elsewhere

PREFABRICATED ROOF TRUSSES, ETC.

Replacement Roof Trusses

1	Double pitched prefabricated roof truss (12 degrees) spanning 6,6m with 600mm overhang on both sides	No	10
2	Double pitched prefabricated roof truss (12 degrees) spanning 10,5m with 600mm overhang on both sides	No	5

GENERAL ROOF TIMBERS

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<u>Sawn softwood:</u>					
3	50 x 76mm Purlins	m	816		
4	38 x 114mm Wall plate	m	10		
<u>EAVES, VERGES, ETC.</u>					
<u>Sawn softwood:</u>					
5	38 x 38mm Battens fixed to walls	m	187		
6	38 x 38mm Battens nailed to rafter ends	m	43		
<u>Pressed fibre cement:</u>					
7	15 x 300mm Fascia fixed vertically to timber battens at end of roof trusses (elsewhere measured) with brass screws, including H-profile PVC joint strips, caps, etc.	m	188		
<u>FIRE DOORS</u>					
<u>Varikust VK59F or other approved sound insulating fire door:</u>					
8	Fire door and frame, 900 x 2100mm high as per D07	No	1		
9	Fire door and frame, 900 x 2100mm high as per GH-D05	No	2		
10	Fire door and frame, 900 x 2150mm high as per FAC-D13	No	15		
<u>SOLID FLUSH DOORS</u>					
<u>Solid core doors with commercial veneer suitable for painting both sides and hardwood edge strips all round, hung to timber/steel door linings:</u>					
11	40mm Thick door size 870 x 2032mm high	No	6		
12	Extra over above for forming two rectangular cut outs size 150 x 700mm high, one complete with framing around cut out and supply and securely fit Trox Type AGS-T anodised aluminium louvre and other 150 x 800mm high for and including viewing panel with glazing and beads complete	No	6		
13	40mm Thick door size 923 x 2114mm high	No	40		
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14	Extra over above for forming two rectangular cut outs size 150 x 700mm high, one complete with framing around cut out and supply and securely fit Trox Type AGS-T anodised aluminium louvre and other 150 x 800mm high for and including viewing panel with glazing and beads complete	No	40		
15	40mm Thick door size 923 x 1900mm high	No	1		
16	Extra over above for forming two rectangular cut outs size 150 x 700mm high, one complete with framing around cut out and supply and securely fit Trox Type AGS-T anodised aluminium louvre and other 150 x 800mm high for and including viewing panel with glazing and beads complete	No	1		
17	40mm Thick door size 923 x 1800mm high	No	2		
18	Extra over above for forming two rectangular cut outs size 150 x 700mm high, one complete with framing around cut out and supply and securely fit Trox Type AGS-T anodised aluminium louvre and other 150 x 800mm high for and including viewing panel with glazing and beads complete	No	2		
	<u>Cape Culture SK1 or similar approved no sill frame with door SD21:</u>				
19	40mm Thick door size 813 x 2032mm high to suit 2 panel louvre door as per FAC-D17	No	2		
	<u>FRAMES, ETC.</u>				
	<u>Wrot Meranti:</u>				
20	67 x 86mm Rebated frame plugged to wall	m	256		
	<u>SUNDRY JOINERY ITEMS, ETC.</u>				
	<u>Cubical Solutions or other approved locker, including setting up complete in strict accordance with the manufacturer's instructions:</u>				
21	Locker unit 3T, three door Code CSL/CHPL/304/3, overall size 300 x 450 x 1900mm high (1800mm locker and 100mm plinth), comprising 12mm compact high pressure laminate white carcasses with 12mm pastel grey compact high pressure laminate doors including auto return hinges Code CSSH/E112 and D shaped keeps Code CSLJ/LK/3 for padlocks (no locking mechanism included), lock cover plate and handles Code CSLJ/LH/.9	No	87		
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Cubical Solutions or other approved free standing bench, including setting up complete in strict accordance with the manufacturer's instructions:

22 Bench 1600mm long Code CSBEN/chpl, comprising powder coated charcoal mild steel frame with 12mm thick pastel grey compact high pressure laminate solid seat pop-riveted to frame

No

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Item No		Unit	Quantity	Rate	Amount
	<u>SECTION No. 2: BUILDING WORKS</u>				
	<u>BILL No. 9: CEILINGS, PARTITIONS & ACCESS FLOORING</u>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<u>SUPPLEMENTARY PREAMBLES</u>				
	<u>Proprietary products in descriptions</u>				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	<u>Descriptions</u>				
	Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete				
	Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted" the bolts have been given elsewhere				
	<u>NAILED UP CEILINGS</u>				
	<u>6mm Thick Nutec or other approved fibre cement ceiling boarding, laid in staggered pattern with and including H-profile jointing strips, secured to branderling with drywall screws at maximum 150mm centres:</u>				
1	Ceiling fixed to and including 38 x 50mm sawn softwood branderling at 600mm centres at joints, against walls, etc.	m2	601		
2	Extra over ceiling for 600 x 600mm hinged trap door of white epoxy coated galvanised steel T frame with white powder coated lid and concealed snap lock (Code LA600x600SW1) and fitted flush in opening	No	7		
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	Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 9 CEILINGS, PARTITIONS & ACCESS FLOORING				

	6mm Thick Nutec or other approved fibre cement ceiling boarding, laid in staggered pattern with and including 40 x 12mm wrot Meranti jointing strips fixed over joints, secured to and including 38 x 50mm sawn softwood brandering at 600mm centres at joints, against walls, etc. with drywall screws at maximum 150mm centres:			
3	Eaves soffits (generally 550mm wide)	m2	104	
	<u>CORNICES</u>			
	<u>Gypsum cornices plugged to walls:</u>			
4	75mm Coved cornice secured to walls around existing ceilings	m	576	
	<u>INSULATION</u>			
	<u>Aerolite or other approved lightweight non-combustible insulation material</u>			
5	135mm Thick cut and fitted between roof timbers	m2	601	
	<u>TOILET/SHOWER PARTITIONS, ETC.</u>			
	<u>Cubicle Solutions Cube Exclusive Overlap Code CSCHPLCEO or other approved toilet cubicle assembly using 12mm compact high pressure laminate with complete overhead braces, hanging clamps, supporting feet, complete with all fixing and ironmongery with hat and coat hook with buffer stoppers, indicator bolt and rise and fall butt auto open hinge with colour to be confirmed by the Architects, including setting up complete in strict accordance with the manufacturer's instructions:</u>			
6	Partition stile, size 1800 x 1830mm high secured to wall complete with required supporting foot and hanging clamps	No	37	
7	Mid stile, size 250 x 1830mm high secured to wall complete with required supporting foot and hanging clamps	No	38	
8	End stile, size 125 x 1830mm high secured to wall complete with required supporting foot and hanging clamps	No	18	
9	End stile, size 755 x 1830mm high secured to wall complete with required supporting foot and hanging clamps	No	3	
10	Partition door size 750 x 1780mm high, fixed as required complete with all ironmongery	No	42	
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11	Partition door size 900 x 1780mm high, fixed as required complete with all ironmongery	No	6		
12	Extra over for three-roll toilet roll holder	No	31		
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CEILINGS, PARTITIONS & ACCESS FLOORING

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BUILDING WORKS (PROVISIONAL)

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CEILINGS, PARTITIONS & ACCESS FLOORING

Item No		Unit	Quantity	Rate	Amount
	<u>SECTION No. 2: BUILDING WORKS</u>				
	<u>BILL No. 10: FLOOR COVERINGS, PLASTIC LININGS, ETC.</u>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<u>SUPPLEMENTARY PREAMBLES</u>				
	<u>Proprietary products in descriptions</u>				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	<u>FLOOR COVERINGS, CARPETS, ETC.</u>				
	<u>3,2mm Thick Evalast Tier (stone colour) or other approved composite flooring with 0,5mm clear wear layer and 1mm underlay, including fixing with interlocking tongue and groove click system and installed in accordance with the manufacturer's instructions:</u>				
1	On self-levelling screed (elsewhere measured)	m2	228		
	<u>POLISH, SEALERS, ETC.</u>				
	<u>Machine clean with water only:</u>				
2	Vinyl floor areas	m2	228		
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	Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 10 FLOOR COVERINGS, PLASTIC LININGS, ETC.				
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Item No		Unit	Quantity	Rate	Amount
	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 11: IRONMONGERY</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>Fixing of ironmongery</u></p> <p>Descriptions of wall mounted and floor standing ironmongery items shall be deemed to include for fixing in position and all fixing accessories.</p> <p>Descriptions of proprietary items shall be deemed to include fixing in position and all fixing accessories as specified by the manufacturer.</p> <p><u>Finishes to ironmongery</u></p> <p>Where applicable finishes to ironmongery are indicated by suffixes in accordance with the following list:</p> <p>BS Satin bronze lacquered CP Chromium plated SC Satin chromium plated SE Silver enamelled GE Grey enamelled</p> <p>AS Anodised silver AB Anodised bronze AG Anodised gold ABL Anodised black PB Polished brass PL Polished and lacquered PT Epoxy coated SD Sanded Fixing</p>				
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	<p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 11 IRONMONGERY</p>				

Descriptions of wall mounted and floor standing ironmongery items shall be deemed to include for fixing in position and all fixing accessories

Descriptions of proprietary items shall be deemed to include fixing in position and all fixing accessories

Unless otherwise described locks shall have two keys each

HINGES, BOLTS, ETC.

Union or other approved:

1	JH-BB-STD-2-SS 2BB Butt hinge	No	156
2	J-CE851PB-SIL Single panic bolt	Sets	12

LOCKS

Union or other approved:

3	SS5305-05SS Escutcheon on rose profile	Pairs	2.0
4	PZ-05SS Escutcheon on rose profile	Pairs	7.0
5	SS5305-73SSS Escutcheon on rose bathroom	Pairs	1.0
6	SS2016SS Bathroom deadbolt	No	1
7	CY2X18-65SNKD Gemini euro profile double cylinder 65mm KD SN	No	47
8	CY2X19-65SNKD Gemini euro profile thumbturn cylinder 65mm KD SN	No	7
9	ARC1182SS Roller catch	No	3
10	L-2215-78SS/SL E/P Cylinder upright lock	No	42
11	L-2215-78SS Euro cylinder deadlock	No	2
12	L-2215-78SS/R Euro cylinder deadlock with adjustable roller latch	No	5
13	QR35X85MMSW-SS Roller latch and swing dead bolt mortice lock, 35mm backset	No	7
14	2X20SC-OADK Single cylinder profile KD SC lock	No	13

HANDLES

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 BUILDING WORKS (PROVISIONAL)
 Bill No. 11
 IRONMONGERY

<u>Union or other approved:</u>					
15	J-CE855OADL-SIL Outside access lever handle without cylinder	No	13		
16	J-CE854EL-SIL Outside access lever handle without cylinder	No	1		
17	SS5D96-22-06SS 22mm diameter tubular SS dove pull handle on 152 x 228mm back plate	No	8		
18	SS5004SS Flush pull handle	No	4		
19	SS6166-05SS Dove lever handle on 152 x 152mm SS backplate profile	Pairs	42.0		
20	5206BB SS 400mm Pull handle BTB - 200mm centre	Pairs	13.0		
21	PHD-BB-150-22SS BTB Pull handle 150 centres	Pairs	1.0		
22	5213-BB-SS BTB 350mm pull handle	Pairs	1.0		
<u>POLISHED STAINLESS STEEL PUSH AND KICK PLATES</u>					
<u>Assa Abloy or other approved:</u>					
23	SS5023-06-228W 152 x 228mm push plate with and including countersunk holes for screws (screws included)	No	3		
<u>DOOR CLOSER ASSEMBLIES</u>					
<u>Assa Abloy or other approved:</u>					
24	DC200 R&P Door closer EN 2-4 SIL	Sets	19		
25	DC300DA R&P Door closer EN 3-6 DA SIL	Sets	1		
26	DC200HO R&P Door closer EN 2-4 SIL hold open	Sets	6		
27	CE25T Rack and pinion door closer	Sets	3		
<u>DOOR STOPS, CABIN HOOKS, ETC.</u>					
<u>Assa Abloy or other approved:</u>					
28	87001SS Floor mounted door stop	No	51		
29	SS8025SS Hat and coat hook with rubber buffer	No	1		
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30	37651AS Paraplegic facility indicator bolt AS	No	1	
	<u>LETTERS, NAMEPLATES, ETC.</u>			
	<u>Contractor to provide samples of nameplates for approval of the Architect</u>			
	<u>Assa Abloy or other approved:</u>			
31	SP5066-06SSE11 Female sign	No	5	
32	SP5066-06SSE10 Male sign	No	3	
33	SP5066-06SSE14 Paraplegic sign	No	1	
	<u>BATHROOM FITTINGS, ETC.</u>			
	<u>Franke or other approved:</u>			
34	Folding shower seat CNTX400A, size 484 x 526 x 115mm, plugged and screwed to the wall with stainless steel screws	No	4	
35	Waste disposal bin STRX 605 1,2/1,5mm thick Grade 304 18/10 satin stainless steel Code 2120097, size 355 x 168 x 460mm high, capacity of 23 litres and screwed to the wall with stainless steel screws	No	20	
36	Soap dispenser Stratos STRX619 1,2/1,5mm thick satin finished stainless steel soap dispenser Code 2120095, size 100 x 134 x 304mm high with a replaceable and refillable 1 litre container, cylinder lock with standard Franke key, plugged and screwed to the wall with stainless steel screws	No	35	
37	Hand dryer HF2400 HD 1,2/1,5mm thick Grade 304 18/10 stainless steel automatic hands free Code 2500001, size 284 x 202 x 248mm deep with two vandal proof lock screws and key wrench, plugged and screwed to the wall with stainless steel screws, 200W motor connected to 230/240volt power supply	No	20	
38	Grab rail CNTX PAR 32mm diameter Grade 304 18/10 stainless steel paraplegic grab rail Code 2510012, size 578 x 578 x 95mm deep with fine grip surface, plugged and screwed to wall with stainless steel screws	No	4	
39	Grab rail CNTXBR 32mm diameter Grade 304 18/10 stainless steel cistern back grab rail Code 2510014, size 750 x 260mm wide with fine grip surface, plugged and screwed to wall with stainless steel screws	No	4	
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	Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 11 IRONMONGERY			

40 Grab rail CNTX450 32mm diameter Grade 304 18/10 stainless steel grab rail with fine grip Code 2510003, size 450 x 95mm deep, plugged and screwed to wall with stainless steel screws

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IRONMONGERY

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 Bill No. 11
 IRONMONGERY

Item No		Quantity	Rate	Amount
	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 12: STRUCTURAL STEELWORK</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Descriptions</u></p> <p>Descriptions of bolts to be Grade 8.8 and shall be deemed to include nuts and washers unless otherwise stated</p> <p>Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete</p> <p>Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete. Where anchor bolts are described as embedded in sides or soffits of concrete it shall be deemed to include holes through formwork.</p> <p>Description of welds to be 6mm continuous fillet welds unless otherwise stated</p> <p><u>Hot dip galvanising</u></p> <p>Where hot dip galvanising is specified, it should be executed in accordance with SANS 121 specification for coastal conditions, unless otherwise described</p> <p><u>SHOP PRIMED STEEL TRUSSES, ETC.</u></p> <p>Painting to steel roof truss members is measured in the relevant trade</p> <p><u>All steel to be Grade 355W</u></p> <p><u>Welded trusses with gussets, connection plates, including all welding, etc.:</u></p>			
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	<p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 12 STRUCTURAL STEELWORK</p>		R	

Purlins, girts, bracing, etc including welding in position on existing structure where corroded purlins removed (elsewhere measured):

1	100 x 50mm (10,1kg/m) Cold formed parallel flange channel section	t	1.52
2	120 x 55mm (12,5kg/m) Cold formed parallel flange channel section	t	0.63
3	175 x 65 x 20 x 2mm (5,18kg/m) Cold formed lipped channel section	t	2.04
4	125 x 75 x 8mm Angle cleat 50mm long welded to roof member and with hole for bolt (elsewhere measured)	No	40

Welded bracing, etc. bolted to steel:

5	50 x 50 x 6mm (4,47kg/m) Angle section bracing	t	0.36
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Hot dipped galvanised bolts to trusses, etc.:

6	High tensile bolts	t	0.50
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COLUMNS, BEAMS, ETC.

All steel to be Grade 350W

Subdivision walls structural columns fixed into position:

7	203 x 133 x 25mm thick (25,3kg/m) I-section in short lengths	t	3.43
8	200 x 200 x 8mm Thick plate welded to bottom of I-section column (elsewhere measured) including 2 x 16mm diameter holes for bolts (elsewhere measured)	No	21
9	M16 Grade 8.8 holding down bolt 320mm long, screwed one end with lock nut and flat washer	No	42

Subdivision walls structural beams fixed into position:

10	203 x 133 x 25mm thick (25,3kg/m) I-section in short lengths	t	4.63
11	200 x 130 x 8mm Thick plate welded to I-section column (elsewhere measured) including 4 x 16mm diameter holes for bolts (elsewhere measured)	No	72
12	M16 Grade 8.8 holding down bolt 320mm long, screwed one end with lock nut and flat washer	No	144

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STRUCTURAL STEELWORK

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 Bill No. 12
 STRUCTURAL STEELWORK

Item No		Unit	Quantity	Rate	Amount
	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 13: METALWORK</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>General</u></p> <p>Descriptions of bolts shall be deemed to include nuts and washers.</p> <p>Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete.</p> <p>Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described.</p> <p>Each window shall be tested for water tightness with water sprayed on by means of a 20mm hosepipe using adequate pressure. If in the opinion of the principal agent, the pressure proves to be inadequate, then the pressure in the hosepipe shall be boosted by means of compressed air or other approved means.</p> <p>Tenderers are referred to Architect's drawings indicated in the general window layout as annexed to these bills of quantities for tender purposes</p> <p>Aluminium doors and windows shall comply with AAAMSA design and performance criteria for built up areas.</p> <p>Glazing shall comply with SAGGA regulations. Glass shall be type 6.38mm laminated performance glass as shown on the window schedules / drawings appended to these bills of quantities.</p>				
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Glass thickness shall comply with SAGGA regulations irrespective of thicknesses shown on the schedules/drawings.

Doors and windows shall be supplied with protective tape and plastic and shall be removed only once surrounding trades have been completed.

For purpose made windows and doors, refer to drawings annexed to these bills of quantities.

The following certificates shall be provided prior to commencement of site work:

- 1.) A copy of the relevant AAAMSA Performance Test Certificate from the manufacturer/contractor supplying the architectural aluminium product
- 2.) A Certificate of Conformance confirming that anodising or powder coating has been processed in accordance with SANS 999 and SANS 1796
- 3.) A powder guarantee of not less than 15 years issued by the powder manufacturer. The specific conditions contained in this guarantee shall form part of the powder coating process
- 4.) A Certificate of Conformance confirming that glazing has been installed in accordance with SANS 0137, ensuring that safety glazing materials have been installed in the mandatory areas and that each individual pane of safety glazing materials has been permanently marked
- 5.) A warranty from the manufacturer of the laminated safety glass and/or hermetically sealed glazing units guaranteeing the products against delamination and colour degradation for a period of not less than five years including Glazing COC

All windows to be approved by the Architect prior to installation.

Hot dip galvanising

Where hot dip galvanising is specified, it should be executed in accordance with SANS 121:2011 (ISO 1461:2009), unless otherwise described

STAINLESS STEEL PURPOSE MADE AWNING

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 BUILDING WORKS (PROVISIONAL)
 Bill No. 13
 METALWORK

	<p><u>Stainless steel (Grade 304) awning, including all scribing, welding, setting up in position, adjusting, fixing with stainless steel expansion bolts etc.:</u></p>				
1	<p>2000 x 953mm x 1,6mm Thick stainless steel awning with including galvanised mild steel frame and stays, powder coated to Architects specification</p>	No	1		
	<p><u>ALUMINIUM WINDOWS</u></p>				
	<p>All aluminium shopfronts, doors and assemblies to be constructed of CrealCo Clip 44 system components, including lock furniture and hinges, glazing to be fixed with clip-on glazing beads and including gasket seals, all in accordance with AAAMSA performance criteria Class A3 (2000Pa), SANS 10400:2010 (Part N of section 3) and SANS 1263-1:2006, and powder coated finish</p>				
	<p><u>Black powder coated aluminium casement windows glazed with clear 6,38mm thick clear NS PVB laminated safety glass plugged to brickwork, concrete or partitioning including clear silicone sealant applied around:</u></p>				
2	<p>Window size 1800 x 600mm high overall consisting of three panes, divided by two vertical mullions, 3 opening sections consisting of 1 pane, top hung to open out, as per FAC-W03</p>	No	8		
	<p><u>Black powder coated aluminium casement windows glazed with 6,38mm thick S10 regal blue laminated safety glass plugged to brickwork, concrete or partitioning including clear silicone sealant applied around (burglar proofing to all sections):</u></p>				
3	<p>Window size 600 x 700mm high overall consisting of four panes, divided by one vertical mullion and one horizontal transome, 1 opening section consisting of 4 panes, top hung to open out, as per GH-W07</p>	No	2		
4	<p>Window size 1200 x 600mm high overall consisting to two panes, divided by one vertical mullion, each top hung to open out, as per FAC-W02</p>	No	7		
5	<p>Window size 969 x 900mm high overall consisting of two unequal sections, one top hung to open out and other fixed, panes divided by one horizontal transome, as per AD-W17</p>	No	4		
6	<p>Window size 1800 x 600mm high overall consisting of three panes, divided by two vertical mullions, each top hung to open out, as per FAC-W03</p>	No	8		
7	<p>Window size 1400 x 791mm high overall consisting of single fixed pane, as per AD-W18</p>	No	2		
	<p style="text-align: right;">Carried to Collection</p> <p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 13 METALWORK</p>			R	

8	Window size 2400 x 600mm high overall consisting of four panes, divided by three vertical mullions, each top hung to open out, as per FAC-W04	No	1	
9	Window size 1635 x 965mm high overall consisting of ten equal sections divided with four vertical mullions and one horizontal transome, four panes fixed, two opening sections consisting of three panes each, top hung to open out, as per BOI-W07	No	5	
10	Window size 1200 x 1600mm high overall consisting of two unequal top hung to open out panes divided by one horizontal transome, as per AF-W12	No	2	
11	Window size 2000 x 1240mm high overall consisting of four panes, divided by one vertical mullion and one horizontal transome, 3 panes fixed, one top hung to open out, as per AD-W16	No	1	
12	Window size 1639 x 1441mm high overall consisting of fifteen panes, divided by four vertical mullions and two horizontal transomes, 9 fixed panes and one opening section consisting of 6 panes with single pivot, as per AF-W13	No	1	
13	Window size 2580 x 982mm high overall consisting of sixteen panes, divided by seven vertical mullions and one horizontal transome, 8 fixed panes and 8 opening sections, each consisting of 1 pane top hung to open out, as per GH-W05	No	1	
14	Window size 1973 x 1410mm high overall consisting of eighteen panes, divided by five vertical mullions and two horizontal transomes, 6 fixed panes and 6 opening sections, each consisting of 2 panes top hung to open out, as per BOI-W06	No	2	
15	Window size 3923 x 1240mm high overall consisting of eight panes, divided by three vertical mullions and one horizontal transome, 6 fixed panes and 2 opening sections consisting of one pane each, top hung to open out, as per AD-W13	No	2	
16	Window size 4870 x 965mm high overall consisting of thirty panes, divided by fourteen vertical mullions and one horizontal transome, 12 fixed panes and 3 opening sections consisting of six panes each, pivot type opening, as per BOI-W08	No	1	
17	Window size 5986 x 1240mm high overall consisting of twelve panes, divided by five vertical mullions and one horizontal transome, 9 fixed panes and three opening sections consisting of one pane each, top hung to open out, as per AD-W12	No	2	
Carried to Collection				R
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18	Window size 4951 x 1410mm high overall consisting of forty-five panes, divided by fourteen vertical mullions and two horizontal transomes, 18 fixed panes and 9 opening sections consisting of three panes each, top hung to open out, as per BOI-W05	No	3	
19	Window size 7037 x 1240mm high overall consisting of fourteen panes, divided by six vertical mullions and one horizontal transome, 11 fixed panes and three opening sections consisting of one pane each, top hung to open out, as per AD-W10	No	1	
20	Window size 9976 x 1240mm high overall consisting of twenty panes, divided by nine vertical mullions and one horizontal transome, 15 fixed panes and five opening sections consisting of one pane each, top hung to open out, as per AD-W11	No	1	
<p><u>Black powder coated aluminium casement windows glazed with S10 regal blue obscure 6,38mm thick laminated safety glass plugged to brickwork or concrete, including clear silicone sealant applied around:</u></p>				
21	Window size 900 x 500mm high overall consisting of one fixed pane, as per AD-W19	No	6	
22	Window size 900 x 600mm high overall consisting of one fixed pane, as per AD-W20	No	2	
23	Window size 650 x 900mm high overall consisting of two unequal sections, one top hung to open out and other fixed, panes divided by one horizontal transome, as per AD-W15	No	2	
24	Window size 1612 x 510mm high overall consisting of five equal sections divided with four vertical mullions, each section consisting of one top hung to open out section as per AF-W08	No	2	
25	Window size 1080 x 1240mm high overall consisting of two unequal sections, one top hung to open out and other fixed, panes divided by one horizontal transome, as per AD-W14	No	4	
26	Window size 3200 x 510mm high overall consisting of ten equal sections divided with nine vertical mullions, each section consisting of one top hung to open out section as per AF-W07	No	12	
27	Window size 1612 x 973mm high overall consisting of ten equal sections divided with four vertical mullions and one horizontal transome, with 7 fixed panes and one opening section consisting of three panes, top hung to open out as per AF-W11	No	1	
Carried to Collection				R
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28	Window size 3239 x 973mm high overall consisting of twenty equal sections divided with nine vertical mullions and one horizontal transome, with 14 fixed panes and two opening sections consisting of three panes each, top hung to open out as per AF-W09	No	6	
29	Window size 3238 x 1441mm high overall consisting of thirty equal sections divided with nine vertical mullions and two horizontal transomes, with 18 fixed panes and four opening sections consisting of three panes each, top hung to open out as per AF-W10	No	4	
<u>Black powder coated aluminium casement windows glazed with S10 regal blue bulletproof laminated safety glazing plugged to brickwork or concrete, including clear silicone sealant applied around:</u>				
30	Window size 1056 x 982mm high overall consisting of four equal sections divided with one vertical mullion and one horizontal transome, each section consisting of fixed bulletproof pane, as per GH-W06	No	1	
<u>ALUMINIUM SHOPFRONTS, DOORS, ETC.</u>				
All aluminium shopfronts, doors and assemblies to be constructed of CrealCo Clip 44 system components, including lock furniture and hinges, glazing to be fixed with clip-on glazing beads and including gasket seals, all in accordance with AAAMSA performance criteria Class A3 (2000Pa), SANS 10400:2010 (Part N of section 3) and SANS 1263-1:2006, and powder coated finish				
<u>Black powder coated aluminium shopfront or doors glazed with 6.38mm thick S10 regal blue laminated safety glass plugged to brickwork or concrete, including clear silicone sealant applied around:</u>				
31	Shower door assembly with single door and frame size 725 x 1899mm high, as per AD-D16	No	2	
32	Door assembly with single door and frame size 900 x 2100mm high divided in two unequal glazed sections with one horizontal transome 220mm high, with lower horizontal transome 150mm high, as per AD-D13	No	1	
33	Shopfront assembly frame and fanlight unit, fanlight consisting of one fixed pane, divided from door with horizontal transome, double door consisting of two leafs, each leaf divided by horizontal transome with fixed panes, double door size 1224 x 2100mm high and overall assembly size 1224 x 2709mm high as per AD-D14	No	2	
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34	Door assembly with double door and frame size 1800 x 2100mm high, each leaf divided in two unequal glazed sections with one horizontal transome 220mm high, with lower horizontal transome 150mm high, as per AF-D06	No	2	
35	Door assembly with double door and frame size 1950 x 2100mm high, each leaf divided in two unequal glazed sections with one horizontal transome 220mm high, with lower horizontal transome 150mm high, as per AD-D15	No	1	
36	Shopfront assembly frame and sidelight unit, sidelights consisting of two fixed bottom panes and two top hung to open out panes, divided from door with vertical mullion each, and each with three horizontal transomes, double door consisting of two leafs, each leaf divided by horizontal transome with fixed panes, double door size 1690 x 2050mm high and overall assembly size 2987 x 2100mm high as per AD-D12	No	1	
37	Shopfront assembly frame, fanlight and sidelight unit, sidelights, divided from door with two vertical mullions and one horizontal transome, double door consisting of two leafs, each leaf divided by horizontal transome with fixed panes, double door size 1950 x 2100mm high and overall assembly size 6112 x 2709mm high as per D15	No	1	
<u>CURTAIN WALLS, ETC.</u>				
All aluminium shopfronts, doors and assemblies to be constructed of CrealCo Clip 44 system components, including lock furniture and hinges, glazing to be fixed with clip-on glazing beads and including gasket seals, all in accordance with AAAMSA performance criteria Class A3 (2000Pa), SANS 10400:2010 (Part N of section 3) and SANS 1263-1:2006, and powder coated finish				
Tenderer to allow for all additional support members, mullions, transomes, etc., required as per AAAMSA requirements, including larger profiles to withstand wind loading (if necessary) per fabricator designs.				
<u>Black powder coated aluminium curtain walls glazed with S10 regal blue laminated safety glazing plugged to brickwork/blockwork or concrete, including clear silicone sealant applied around:</u>				
38	Curtain wall panel size 600 x 2000mm high overall, as per CW15	No	4	
39	Curtain wall panel size 1240 x 2000mm high overall, as per CW11	No	12	
40	Curtain wall panel size 2300 x 1200mm high overall, as per CW20	No	1	
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41	Curtain wall panel size 2400 x 1600mm high overall, as per CW19	No	2
42	Curtain wall panel size 3000 x 1600mm high overall, as per CW17	No	2
43	Curtain wall panel size 2400 x 1600mm high overall, including double door, as per CW18	No	2
44	Curtain wall panel size 3000 x 2100mm high overall, as per CW16	No	2
45	Curtain wall panel size 1890 x 3400mm high overall, as per CW09	No	1
46	Curtain wall panel size 3500 x 3020mm high overall, as per CW12	No	2
47	Curtain wall panel size 3960 x 1490mm high overall, as per CW10B	No	1
48	Curtain wall panel size 3729 x 3150mm high overall, including double door, as per CW14	No	1
49	Curtain wall panel size 5653 x 1490mm high overall, as per CW10	No	17
50	Curtain wall panel size 4639 x 1900mm high overall, as per CW06B	No	1
51	Curtain wall panel size 5653 x 1900mm high overall, as per CW06	No	13
52	Curtain wall panel size 3500 x 3400mm high overall, as per CW08	No	1
53	Curtain wall panel size 5000 x 2918mm high overall, including double door, as per CW04	No	1
54	Curtain wall panel size 5653 x 3400mm high overall, as per CW07	No	2
55	Curtain wall panel size 4176 x 4969mm high overall, as per CW03	No	1
56	Curtain wall panel size 5000 x 4969mm high overall, as per CW02	No	1
57	Curtain wall panel size 5653 x 4969mm high overall, as per CW01	No	3
58	Curtain wall panel size 11800 x 3150mm high overall, including double door, as per CW13	No	1

SPECIALIST ALUMINIUM ROOF AND SKYLIGHTS

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	<u>Pyramid shaped square or rectangular roof lights with light blue powder coated aluminium framing and sub-framing, fitted with and including 8,38mm thick S10 regal blue laminated safety glass (SANS 10400 XA and SANS 204), fixed to top of concrete, including dressing mastic waterproofing around sub-frame to render installation waterproof:</u>				
59	1000 x 1000mm Roof light	No	17		
	<u>STRONG ROOM DOOR, VENTILATOR, ETC.</u>				
	<u>Strong room door assembly suitable for 190mm wall built into block work:</u>				
60	Mutual Austen Safes DS50 SABS Category 2ADM strong room door and frame, complete with grip lugs including setting up, adjusting and building in, all in accordance with the manufacturer's instructions, to suit opening size 928 x 1970mm high	No	3		
	<u>HOT DIP GALVANISED STEEL</u>				
	<u>Eskom substation transformer door in two equal leaves, including frame, fixed securely to wall:</u>				
61	Assembly size 1765 x 2185mm high as per FAC-D18	No	4		
	<u>Substation transformer door in two equal leaves, with and including 800mm high ventilation panel, frame, securely fixed to wall:</u>				
62	Assembly size 2000 x 2400mm high as per FAC-D19	No	2		
	<u>ROLLER SHUTTER DOORS</u>				
	<u>Xpanda or other approved galvanised roller shutter door units complete:</u>				
63	Standard push pull operated roller shutter door for 1600 x 2000mm high, as per FAC-D10	No	3		
64	Standard push pull operated roller shutter door for 2000 x 2000mm high, as per FAC-D09	No	7		
65	Standard push pull operated roller shutter door for 1300 x 2200mm high, as per FAC-D12	No	5		
66	Standard chain operated roller shutter door for 2500 x 3000mm high, as per FAC-D07	No	1		
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67	Standard chain operated roller shutter door for 2700 x 3000mm high, as per FAC-D04	No	1	
68	Standard chain operated roller shutter door for 3000 x 3000mm high, as per FAC-D20	No	2	
69	Standard chain operated roller shutter door for 3000 x 4500mm high, as per FAC-D05	No	4	
70	Electrically operated roller shutter door for 2092 x 2467mm high, as per GH-D06	No	1	
71	Electrically operated roller shutter door for 5653 x 3000mm high, as per FAC-D03	No	4	
72	Electrically operated roller shutter door for 2000 x 2713mm high, as per BOI-D02	No	2	
73	Electrically operated roller shutter door for 3000 x 4500mm high, as per FAC-D06	No	1	
74	Electrically operated roller shutter door for 4500 x 5000mm high, as per FAC-D01	No	2	
75	Electrically operated roller shutter door for 5100 x 4800mm high, as per FAC-D02	No	2	
76	Electrically operated roller shutter door for 4000 x 4545mm high, as per BOI-D05	No	1	
	<u>Xpanda or other approved fire rated (Type 2 Class C - 120 minutes rated) galvanised roller shutter door complete:</u>			
77	Roller shutter door for 1200 x 1600mm high, including Econo 500 indirect motor and battery back-up, as per AF-D08	No	2	
	<u>LOUVRE UNITS, ETC.</u>			
	<u>Aluminium louvre units fixed to and including frames in openings:</u>			
78	800 x 800mm High square shaped louvre as per FAC-W05	No	1	
79	1200 x 800mm High rectangular shaped louvre as per FAC-W07	No	7	
	<u>ABLUTIONS</u>			
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Galvanised steel custom made floor drain assembly including fixing complete:

80 Floor drain channel, size 3mm thick x 100mm wide x 75mm high complete with all cover plates, welded ends on both sides, drip flashing, cover support and dowels, channel side dowels embedded in concrete shower floor (shower floor and screed elsewhere measured) with an including suitable water-proofing on all sides for leak prevention including cutting into existing surface bed for drain, backfilling, etc. as per Drawing DS3 - General Details Part B

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 BUILDING WORKS (PROVISIONAL)
 Bill No. 13
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Item No		Unit	Quantity	Rate	Amount
	<u>SECTION No. 2: BUILDING WORKS</u>				
	<u>BILL No. 14: PLASTERING</u>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<u>SUPPLEMENTARY PREAMBLES</u>				
	<u>Proprietary products in descriptions</u>				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	<u>SCREEDS</u>				
	<u>3:1 Cement screed (SANS 2001) steel trowelled on concrete:</u>				
1	30mm Thick on floors and landings	m2	349		
	<u>TAL Screedmaster or other approved self-levelling screed applied in accordance with the manufacturer's instructions:</u>				
2	3 - 8mm Thick on concrete	m2	240		
	<u>INTERNAL PLASTER</u>				
	<u>4:1 Cement plaster (SANS 2001) steel trowelled on brickwork/concrete:</u>				
3	On walls	m2	778		
4	On narrow widths	m2	40		
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	Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 14 PLASTERING				

Item No		Quantity	Rate	Amount
	<u>SECTION No. 2: BUILDING WORKS</u>			
	<u>BILL No. 15: TILING</u>			
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>Proprietary products in descriptions</u>			
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted			
	<u>WALL TILING</u>			
	<u>600 x 600 x 10.5mm Thick (1RISNARD6013W600) porcelain tiles fixed to plaster with approved tile adhesive, 3mm wide continuous joints in both directions, pointed with UNILOC waterproof tile grout:</u>			
1	On walls including key coat	m2	397	
2	Extra over above for tiles in patterns	m2	160	
3	On walls in narrow widths	m2	32	
	<u>FLOOR TILING</u>			
	<u>300 x 300 x 8mm Thick Iced Coffee slip resistant porcelain tiles fixed to screed with approved tile adhesive, continuous joints in both directions pointed with Unilok or other approved waterproof tile grout:</u>			
4	On floors to falls	m2	60	
5	On risers of steps not exceeding 300mm high	m	15	
6	In turn-ups not exceeding 100mm high	m	12	
	<u>Sundry cutting and fitting to all types of tiling:</u>			
7	Fair cutting and fitting around pipe not exceeding 50mm diameter	No	167	
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8	Fair cutting and fitting around pipe exceeding 50mm not exceeding 110mm diameter	No	86
SUNDRIES			
<u>Kirk or other approved:</u>			
9	10mm High aluminium corner beading trim Code ATICB100.BL	m	205

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TILING

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 TILING

Item No		Unit	Quantity	Rate	Amount
	<u>SECTION No. 2: BUILDING WORKS</u>				
	<u>BILL No. 16: GLAZING</u>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<u>SUPPLEMENTARY PREAMBLES</u>				
	<u>Proprietary products in descriptions</u>				
	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted				
	<u>TOPS, SHELVES, DOORS, MIRRORS, ETC.</u>				
	<u>Franke or other approved stainless steel mirror with polished edges, holed for and fixed with round rose chromium plated mirror screws with rubber buffers to plugs in brickwork or concrete, complete with silicone sealant around edges of mirror:</u>				
1	Mirror Code CHRH401, size 400 x 300mm high with four screws	No	35		
	Carried Forward to Summary of Section No. 2			R	
	Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 16 GLAZING				

Item No		Unit	Quantity	Rate	Amount
	<p><u>SECTION No. 2: BUILDING WORKS</u></p> <p><u>BILL No. 17: PAINTWORK</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>Previously painted plastered surfaces</u></p> <p>Surfaces shall be thoroughly washed down and allowed to dry completely before any paint is applied. Blistered or peeling paint shall be completely removed and cracks shall be opened, filled with a suitable filler and finished smooth</p> <p><u>Previously painted metal surfaces</u></p> <p>Surfaces shall be thoroughly rubbed and cleaned down. Blistered or peeling paint shall be completely removed down to bare metal</p> <p><u>Previously painted wood surfaces</u></p> <p>Surfaces shall be thoroughly cleaned down. Blistered or peeling paint or varnish shall be completely removed and cracks and crevices shall be primed, filled with suitable filler and finished smooth</p> <p><u>General</u></p> <p>Tenderers are to note that a large portion of the works associated with this bill section are required at extreme heights (ground level to top of roof approximately 4,5m high). The contractor shall include for all required OHS items as per the included OHS plan including any scaffolding that may be required when pricing this bill section.</p>				
	Carried to Collection				R
	<p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 17 PAINTWORK</p>				

PAINTWORK TO NEW AREAS

External elements to each block may be painted in a predetermined colour scheme

ON INTERNAL FLOATED PLASTER OR SKIMMED SURFACES

Prepare and apply one coat plaster primer and two coats Marmaglow PU enamel paint on:

1	Plastered internal walls	m2	370
2	Plastered ceilings and beams	m2	93

Prepare and apply one coat Marmoran acrylic primer and two coats Marmoran Marmocote M180 paint on:

3	Plastered internal walls	m2	255
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Prepare and apply two coats ABE cote 337 tough epoxy paint (colour to Architect's specifications) all in accordance with the manufacturer's specifications:

4	Plastered internal walls	m2	16
5	Screeded floors	m2	277
6	Existing smooth concrete floors floors (cleaned elsewhere)	m2	199

ON FIBRE CEMENT

Prepare and apply one coat undercoat and two coats interior quality acrylic paint on:

7	Internal ceilings, including priming timber coverstrips to part areas	m2	601
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Prepare and apply one coat undercoat and two coats exterior quality acrylic paint on:

8	Fascias and barge boards	m2	70
9	Eaves soffits	m2	104

ON PRECAST CONCRETE

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Section No. 2
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10	<p><u>Prepare and apply one coat undercoat and two coats exterior quality acrylic paint on:</u></p>	m2	40		
	<p><u>ON SHOP PRIMED STRUCTURAL STEEL</u></p>				
	<p><u>General</u></p>				
	<p>All steelwork surfaces that are to be painted, oiled or otherwise treated shall be dry, clean and prepared in accordance with the project specification. The Contractor shall apply such protective treatment to the steel as is required in terms of the project specification. All painted surfaces (and surfaces to be touched up) shall be thoroughly cleaned and dried before the application of any further coats. Shop contact surfaces need not be painted unless so required in terms of the drawings.</p>				
	<p>Surfaces not in contact, but inaccessible after assembly, shall receive the full specified protective treatment before assembly. The interior of hollow members sealed against the ingress of air or moisture shall not be given any protective treatment. Where welding is to be carried out subsequently, the surface of the steel shall not be painted, metal coated, or otherwise treated within a suitable distance of the weld if such paint, metal coating, or other protective treatment is likely to be harmful to welders or impair the quality of the welds. Welds and adjacent parent metal shall not be painted before the welds have been inspected for freedom from slag, de-slagged where necessary and have been approved.</p>				
	<p>Parts to be structurally encased in concrete shall be free from paint and oil and loose rust before encasement. Where friction-grip fasteners are used, protective treatment shall not be applied to the contact surfaces. After the fasteners have been finally tightened, inspected and approved, the exposed parts of the joints shall be given the full specified protection.</p>				
	<p><u>Shop Painting</u></p>				
	<ol style="list-style-type: none"> 1. Steelwork after fabrication shall be subjected to abrasive blast cleaning to a finish equal to or better than Sa 2½ of SIS 05 59 00 2. Within four hours after the completion of blast cleaning, two coats of an epoxy zinc rich primer which complies with the requirements of SABS 679 Type 1, is to be applied to provide a total dry film thickness 35 to 40 microns. The primer shall be applied by means of a spray except for small areas which may be painted by a brush 3. Epoxy micaceous iron oxide barrier to be applied 				
	<p>Carried to Collection</p>				R
	<p>Section No. 2 BUILDING WORKS (PROVISIONAL) Bill No. 17 PAINTWORK</p>				

Painting after Erection

1. After erection of steelwork all areas where the primer coat has been damaged, shall be touched up as specified (2)
 1. Provided that the primer is fully cured, as proved by a coin hardness test, general purpose structural steel paint to SABS 864 or a coat of a high gloss enamel to SABS 630 Type II, is to be applied to provide a dry film thickness of between 25 and 30 microns. The paint may be applied by means of a brush roller or airless or conventional spray
 2. Provided that the undercoat is touch dry within two hours, the finishing coat may be applied the following day. One coat of structural steel paint to SABS 864 Type Bor a high gloss enamel to SABS 630 Type II, shall be applied to provide a total dry film thickness of between 25 and 30 microns
2. The total dry film thickness of paint and primer coats shall be between 70 and 100 microns
3. The two coats of structural steel paint or high gloss enamel are to be of different colours. The colour of the final coat will be determined by the Architect

Repairs to Paint

1. All items of steelwork shall be examined on site, before and after erection, for damage to the paintwork and damaged areas shall be degreased, de-rusted and then repaired as follows:-
 1. Surrounding paint work that is still intact shall be feathered for a distance of about 20mm beyond each damaged area
 2. The whole of the area shall then be re-primed as specified previously as applicable
2. Where site cutting or welding (or both) are required, the area for a distance of about 50mm either side of the weld or cut shall be cleaned of all coatings, the cutting or welding (or both) carried out, the weld de-slagged, all flux and weld splatter removed, and the steelwork ground down to "white metal" and painted as specified previously as applicable

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Section No. 2
 BUILDING WORKS (PROVISIONAL)
 Bill No. 17
 PAINTWORK

Site Painting

1. No painting on site shall be carried out in inclement weather or when humidity or frost is liable to cause wet or damp conditions on the surfaces to be painted
2. Subject to the provisions of (3) and (4) below, only in special circumstances will the application of final coats of paint to the steelwork before erection followed by touching up after erection, be permitted by the Engineer
3. Surfaces that will be in contact after Site Assembly or Erection shall (when relevant), receive a final coat of the specified paint (in addition to shop priming) and shall be brought together while the paint is still wet
4. Surfaces that will be inaccessible after Site Assembly or Erection, shall receive the specified paint coats before assembly or erection as applicable

Stop-Contact and fazing surface

Stop-contact surfaces shall not be painted, nor shall protective treatment be applied to the fazing surfaces of friction-grip fasteners, except where shown on the drawings

Prepare and paint as described (colour to the approval of the Architects) on:

11	General surfaces of shop primed structural steel roof members, etc.	m2	292	
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ON WOOD

Prepare and apply two coats Plascon Carbolineum on:

12	General surfaces of roof timbers at eaves or verges	m2	71	
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Prepare and apply one coat pink wood primer and two coats eggshell enamel paint on:

13	Timber doors (both sides measured)	m2	202	
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14	Timber frames, cills, etc. not exceeding 300mm girth	m	256	
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PAINTWORK TO PREVIOUSLY PAINTED SURFACES

Wash down soiled surfaces with sugar soap, remove all debris, fill imperfections with Mendall and apply three coats Aquastop brick seal on:

15	External walls	m2	2 693	
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16	Internal walls	m2	44	
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Section No. 2
BUILDING WORKS (PROVISIONAL)
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PAINTWORK

All steelwork surfaces that are to be painted, oiled or otherwise treated shall be dry, clean and prepared in accordance with the project specification. The Contractor shall apply such protective treatment to the steel as is required in terms of the project specification. All painted surfaces (and surfaces to be touched up) shall be thoroughly cleaned and dried before the application of any further coats. Shop contact surfaces need not be painted unless so required in terms of the drawings.

Surfaces not in contact, but inaccessible after assembly, shall receive the full specified protective treatment before assembly. The interior of hollow members sealed against the ingress of air or moisture shall not be given any protective treatment. Where welding is to be carried out subsequently, the surface of the steel shall not be painted, metal coated, or otherwise treated within a suitable distance of the weld if such paint, metal coating, or other protective treatment is likely to be harmful to welders or impair the quality of the welds. Welds and adjacent parent metal shall not be painted before the welds have been inspected for freedom from slag, de-slagged where necessary and have been approved.

Parts to be structurally encased in concrete shall be free from paint and oil and loose rust before encasement. Where friction-grip fasteners are used, protective treatment shall not be applied to the contact surfaces. After the fasteners have been finally tightened, inspected and approved, the exposed parts of the joints shall be given the full specified protection.

On site Painting

1. Steelwork after fabrication shall be subjected to blast cleaning
2. Epoxy micaceous iron oxide barrier to be applied

Prepare and paint as described (colour to the approval of the Architects) on:

22 Barrier coat on existing painted structural steel roof members (measured on flat area of roof, to include all truss member, purlins, girts, columns, etc)

m2

8 602

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	<p><u>SECTION No. 3: PLUMBING & DRAINAGE (PROVISIONAL)</u></p> <p><u>BILL No. 1: PLUMBING & DRAINAGE</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>"Polycop" polypropylene pipes:</u></p> <p>Polypropylene pipes 54 mm diameter and under shall be seamless copper coloured class 16 pipes jointed with "Fast-fuse" heat welded thermoplastic or brass compression fittings as designed for use with copper pipes as stated.</p> <p>Pipes shall be firmly fixed to walls etc with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions.</p> <p>All pipe diameters are nominal external.</p> <p>Polypropylene pipes 63 mm diameter and over shall be class 12 pipes jointed with cast iron "Supraclamp" running joints.</p> <p>Fusion welded bends, once or twice mitred as necessary, and tees shall be factory manufactured.</p> <p>Fusion welded bends and tees shall include jointing to pipes with PVC rubber ring double Z joint couplers.</p> <p>Branch tees shall include flanged and bolted joints to "Polycop" branch pipes in addition and for brass compression male iron to copper straight couplers.</p>			
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Reducers shall include jointing to pipes with PVC rubber ring double Z joint couplers and reducers shall be of sufficient overall length to accommodate same.

All pipes shall be jointed and fixed strictly in accordance with the manufacturer's instructions.

All pipe diameters are nominal external.

Concrete pipes:

Pipes shall be jointed with ogee joints with rubber collars or socket and spigot joints with rubber rings.

uPVC pipes and fittings:

Soil, waste and vent pipes and fittings shall be solvent weld jointed.

uPVC pressure pipes and fittings:

Pipes for water supply shall be of the class stated.

Pipes of 40mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings.

Pipes of 50mm diameter and greater shall have sockets and spigots with push in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints.

Copper pipes:

Pipes shall be hard drawn and half-hard pipes of the class stated. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), class 2 (half-hard) and class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers. Fittings to copper waste, vent and anti-syphon pipes, capillary solder fittings and compression fittings shall be "Cobra Watertech" type. Capillary solder fittings shall comply with ISO 2016. Only compression fittings shall be used in walls or in ground.

Fixing of pipes:

Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls etc, casting in, building in or suspending not exceeding 1m below suspension level.

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Reducing fittings:

Where fittings have reducing ends or branches they are described as "reducing". In the case of pipes with diameters not exceeding 60mm only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all sizes are given and no claim for extra bushes, reducers, etc will be entertained.

Wire gratings:

Descriptions of gutter outlets etc shall be deemed to include wire balloon gratings.

Excavations:

No claim for rock excavation will be entertained unless the contractor has timeously notified the quantity surveyor thereof prior to backfilling.

"Soft rock" and "hard rock" shall be as defined in "Earthworks".

Laying, backfilling, bedding, etc. of pipes:

Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions.

Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:

SABS 1200 L : Medium-pressure pipelines

LD : Sewers

LE : Stormwater drainage

Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200

DB : Earthworks (Pipe trenches)

Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200

LB : Bedding (Pipes).

Unless otherwise described bedding of rigid pipes shall be class B bedding.

Flush pans:

Flush pans shall have straight or side outlets and "P" or "S" traps as necessary.

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Section No. 3
 PLUMBING & DRAINAGE (PROVISIONAL)
 Bill No. 1
 PLUMBING & DRAINAGE

Stainless steelbasins, sinks, wash troughs, urinals, etc:

Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable.

Waste unions:

Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings.

Chasing:

Rates for items are to include for chasing pipes into walls where applicable.

Disinfection of water pipework

All pipework is to be disinfected in accordance with SABS 1200L.

Excavation and filling

Excavation and backfilling must be done using hand held tools only.

Flexible connectors

Tenderers are to allow for the pricing of flexible connectors to all instances where deemed necessary. No extra will be entertained in this regard.

Laying, backfilling, bedding, etc. of pipes

Where no manufacturer's instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200 L : Medium pressure pipelines LD : Sewers LE : Stormwater drainage.

Internal water supplies

Prices for all piping laid in ground, inspection chambers, etc. shall include for excavations, keeping free of water, distributing surplus material on site (carting away has been separately measured) and backfilling in selected material (imported fill where required will be separately measured).

Holes, chases, etc. are deemed to be included in the descriptions of the pipework.

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Testing of installations/reticulation

The Contractor is to allow for testing of the internal water supply and fire supply installations per building as this will be completed as per the sectional completion requirements, as elsewhere described.

General

WC fittings to comply with compliant with SABS 497:1991 and SABS 1733:2002

SANITARY PLUMBING

uPVC piping in accordance with SABS 967, including all straight couplings, cutting and waste, etc.:

1	40mm Pipe	m	95
2	50mm Pipe	m	264
3	110mm Pipe	m	155
4	50mm Pipe chased into walls	m	24
5	50mm Pipe laid in filling under floors	m	95
6	50mm Pipe laid in filling under floors including cutting into existing surface bed for piping, backfilling, etc.	m	519
7	110mm Pipe laid in filling under floors	m	122
8	110mm Pipe laid in filling under floors including cutting into existing surface bed for piping, backfilling, etc.	m	102
<u>Extra over uPVC piping for the following fittings:</u>			
9	40mm Bend	No	40
10	50mm Bend	No	200
11	110mm Bend	No	31
12	110mm Pan connector	No	31
13	110mm Bent pan connector	No	4
14	50 x 40mm Reducer	No	20

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15	40mm Access bend	No	201
16	50mm Access bend	No	99
17	110mm Access bend	No	31
18	40mm Access junction	No	20
19	50mm Access junction	No	53
20	110mm Access junction	No	31
21	110 x 50mm Access reducing junction	No	30
22	50mm Two-way vent valve	No	20
23	110mm Two-way vent valve	No	31
<u>Sundries:</u>			
24	Unreinforced concrete (15MPa/19mm) encasing around 110mm drain pipe to cleaning eye including all necessary formwork	m	15
<u>Testing:</u>			
25	Allow for testing, operational manual and training for complete installation		Item
<u>WATER SUPPLY</u>			
<u>Polycop or other approved polypropylene piping, including chasing into brick walls if required:</u>			
26	15mm Pipe	m	20
27	15mm Pipe chased into walls	m	30
28	22mm Pipe	m	35
29	22mm Pipe chased into walls	m	25
30	28mm Pipe	m	25
<u>Extra over Polycop pipes for brass compression fittings:</u>			
31	15mm Pipe fittings	No	30
32	22mm Pipe fittings	No	30

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33	28mm Pipe fittings	No	30
<u>Class 2 copper piping in accordance with SABS 460, including straight couplings, cutting and waste, etc.:</u>			
34	15mm Pipe	m	266
35	15mm Pipe chased into walls	m	101
36	22mm Pipe	m	55
37	22mm Pipe chased into walls	m	230
38	28mm Pipe	m	45
39	35mm Pipe	m	55
40	42mm Pipe	m	50
<u>Extra over copper piping for the following Conex type fittings:</u>			
41	15mm Fittings	No	595
42	22mm Fittings	No	184
43	28mm Fittings	No	30
44	35mm Bend	No	15
45	35mm Reducer	No	10
46	35mm Reducing tee	No	15
47	35mm Elbow	No	15
48	35mm Tee	No	10
49	42mm Bend	No	10
50	42mm Reducer	No	12
51	42mm Reducing tee	No	15
52	42mm Elbow	No	15
53	42mm Tee	No	15

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<u>Paper lagging:</u>				
54	Thermaflex protective tube around 15mm pipe and couplings	m	131	
55	Thermaflex protective tube around 22mm pipe and couplings	m	115	
56	Thermaflex protective tube around 35mm pipe and couplings	m	50	
<u>Sundries:</u>				
57	22mm Brass Fullway gate valve with non-rising spindle to SABS 776	No	10	
<u>Testing:</u>				
58	Allow for testing, operational manual and training for complete installation		Item	
<u>SANITARY FITTINGS</u>				
<u>Supply and fit the following sanitary fittings and equipment together with loose ancillary fittings supplied therewith, including unloading, storing, unpacking, hoisting or lowering as required, fixing and building into position, cutting all mortices and chases as required, cutting, brackets, clamps, etc. and connecting up pipework and handing over in perfect working order at completion</u>				
<u>All gaps between fittings and/or tiles and walls to be filled with white silicone</u>				
<u>Franke or other approved - Grade 304 (18/10) polished stainless steel:</u>				
59	HCL pedestal WC pan Code 2540154, size 500 x 360 x 429mm high with Black Estonia self closing seat Code 2540095, connected to SCL 11 litre low level stainless steel cistern (Code:2570005), size 490 x 336 x 154mm deep with PVC flush pipe, supra flush valve and ball valve, bolted to floor with 6mm anchor bolts complete	No	27	
60	CMPX592 wall hung WC pan Code 2540142-001, size 500 x 360 x 350mm high with Black Estonia self closing seat Code 2540095, exposed top entry flush inlet and 38mm s/s flush pipe connected to SCL 11 litre low level stainless steel cistern Code 2570005, size 490 x 150 x 336mm high with s/s flush pipe, supra flush valve and ball valve, bolted to wall with anchor bolts. WC pan is fixed with 3mm stainless steel bracket bolted to wall with 4 x 8mm anchor bolts	No	4	
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Franke or other approved:

70	15mm Aspera Code 2150019 swivel mixer with fixed spout	No	35
71	15mm Code 11150019 swivel mixer with overarm swivel spout	No	4

Splashworks or other approved:

72	15mm Code PSC210 CP wal mounted sink mixer with aerator swivel outlet	No	5
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Cobra Watertech or other approved:

73	15mm In-line strainer restricting flow to 6 litres per minute	No	4
74	20mm Cobra 208 brass hose bibtap with hose union	No	3
75	20mm Cobra 208 brass hose bibtap with hose union secured to and including 50mm diameter galvanised steel stand pipe 1500mm long, including excavations, suitable concrete base, backfilling, etc.	No	5
76	15mm Type 1080 Ball-o-Flo ballcock	No	173
77	22mm Type 1080 Ball-o-Flo ballcock	No	10
78	35mm Type 1080 Ball-o-Flo ballcock	No	8
79	22mm Heavy duty gate valve Code 1003/125-22	No	5

Schell or other approved:

80	15 x 15mm Code 52055405 angle valve	No	88
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Hansgrohe or other approved:

81	Crometta S showerpipe 240 1jet with thermostat and hand shower, with large 240mm wide shower head and handset with a height adjustable shower holder Code 27267000 and adjustable slider and chrome plated wall supports complete	No	4
82	Raindance S overhead shower 150 1jet Code 27486005, shower arm ceiling connector Code SAC07 with vernis blend single lever mixer for concealed installation Code 71649000 shower mixer with basic set for single lever shower mixer Code 13620180	No	19

WASTE UNIONS, TRAPS, ETC.

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	<p><u>SECTION No. 4: EXTERNAL WORKS (PROVISIONAL)</u></p> <p><u>BILL No. 1: HOARDING, ETC.</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Viewing of the site</u></p> <p>Before submitting his tender, the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.</p> <p><u>General</u></p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent</p> <p>Descriptions that include the text ".... taking out/up/off/down and removing" shall indicate that the Tenderer shall allow that these items/materials shall become his property and shall be removed from site, or dumped at a site of disposal that the Tenderer has identified.</p> <p>Descriptions that include the text "..... carefully take out/up/remove" shall indicate that the Tenderer shall allow for all possible care in the removal process and temporarily storage processes, as these items/materials will be re-used elsewhere.</p> <p>All costs associated with the above will be deemed to be included in the Tenderer's prices.</p> <p><u>Procedure of work</u></p> <p>The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.</p> <p style="text-align: right;">Carried to Collection</p> <p>Section No. 4 EXTERNAL WORKS (PROVISIONAL) Bill No. 1 HOARDING AND RELOCATION OF EXISTING STRUCTURES</p>			R

Lost by theft, fire or otherwise

The risk of loss by theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take steps as he may deem fit for his own protection against such loss.

Water and other piping

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary are to be made with proper fittings and to the satisfaction of the Representative/Agent to whom due notice is to be given of all alterations to existing services.

Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone, or other wires and fittings that may be met with and due notice must be given to the Representative / Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the Contractor is to afford every facility to the workmen carrying out this work.

Noise prevention

The Contractor shall take special care to minimize noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

TEMPORARY BARRIERS, SCREENS, ETC.

Temporary hoarding including dismantling all hoarding, filling all post holes and compacting and levelling to adjacent ground levels, when phased work is completed:

- 1 Hoarding formed of 1,8m high galvanised steel weldmesh type fencing with 50 x 100mm apertures, secured to and including 60mm diameter treated gumpole fencing posts 2400mm long at 2m centres, gumpoles securely bedded 600mm deep in ground, medium grade shade cloth securely fastened to and including four rows of 4mm diameter straining wires, fastened to fencing and posts with 2mm diameter galvanised binding wire at 400mm centres, including all excavations, etc.

m 100

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 HOARDING AND RELOCATION OF EXISTING STRUCTURES

2	Pedestrian gate size 1000 x 1800mm high complete with all necessary posts, hinges, locking mechanism, etc.	No	1		
3	Vehicular double gate size 4000 x 1800mm high complete with all necessary posts, hinges, locking mechanism, etc.	No	1		
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HOARDING AND RELOCATION OF EXISTING STRUCTURES

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	<p><u>SECTION No. 4: EXTERNAL WORKS (PROVISIONAL)</u></p> <p><u>BILL No. 2: DEMOLITIONS AND REMOVAL OF EXISTING WORK</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Viewing of the site</u></p> <p>Before submitting his tender, the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.</p> <p><u>General</u></p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent</p> <p>Materials described as "Taking out and removing or demolishing" and the like shall become the property of the contractor after handing over any material as may be requested by the school governing body and be removed from site and disposed of at a suitable place all done at the Contractor's expense.</p> <p>Descriptions which include "Making good" the Contractor shall allow for all costs of disconnecting and removing the said materials and preparatory work to receive new materials.</p> <p><u>Procedure of work</u></p> <p>The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.</p>			
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Lost by theft, fire or otherwise

The risk of loss by theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take steps as he may deem fit for his own protection against such loss.

Water and other piping

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary are to be made with proper fittings and to the satisfaction of the Representative/Agent to whom due notice is to be given of all alterations to existing services.

Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone, or other wires and fittings that may be met with and due notice must be given to the Representative / Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the Contractor is to afford every facility to the workmen carrying out this work.

Protection, etc

The Contractor must protect all work not removed such as walls, floors, doors, windows, fittings, etc. from damage during the progress of the work and provide all necessary materials for doing so.

All shoring, etc. of portions of the existing buildings necessary to ensure the stability of the premises while executing the demolitions or alterations is to be provided by the Contractor, who will be held solely responsible for any damage to persons or property and for the safety of the structure throughout the contract period. The contractor will be required to make good at his own expense any damage that may occur.

Noise prevention

The Contractor shall take special care to minimize noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

Demolitions, removals and works on site

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The whole of old materials from the demolitions and pulling down, unless otherwise specified are to become the property of the Contractor and shall be immediately cleared from the site.

Tenderers are advised to visit the site and to satisfy themselves, in conjunction with the drawings of the nature and extent of the work to be done.

The contractor is advised to check all dimensions and heights on site affecting the existing building against those indicated on plan as he will be responsible for all new work being of the correct sizes. Should any discrepancies be found he is to refer them to the Representative / Agent for correction before proceeding with the work.

Special care is to be exercised not to interfere with any electric light, power or telephone wires and due notice must be given to the Representative / Agent for any disconnection that is necessary, and the Contractor is to afford every facility to the Electrician when making new connections.

Any water supply or soil or waste pipes that may be met with and found necessary to be disconnected or cut are to be traced back to the main connection, cut out and plugged with (3-1) cement mortar to a minimum depth of 300mm and any new connections that may be necessary are to be made with proper junction pieces, tees, etc. to the satisfaction of the Representative / Agent, to whom due notice must be given of all alterations to the existing services.

In taking down and removing existing work, the utmost care is to be observed to avoid any structural or other damage to the remaining portion of the building. The Contractor must protect all work not removed, such as walls, floors, doors, windows or other joinery or fittings, etc. from damage during the progress of the work and provide all necessary material for doing so.

The Contractor will be solely responsible for any damage to persons or property and for the safety of the portions of the existing buildings remaining throughout the whole of the Contract, and must make good at his own expense any damage that may occur.

Old materials for re-use are to be carefully taken out, stored and protected from damage and made good as required before being re-fixed into position.

Old materials described to be handed over are to be carefully removed and properly stored by the Contractor until handing over thereof. The remainder of the old materials and all rubbish are to be immediately carted away and the site left clean and unencumbered. None of the old materials from the demolitions are to be re-used for any new work unless otherwise described or directed.

Bricking up openings shall include all preparatory work, cutting

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toothings and bonding new brickwork to existing surface for raising upon, pinning up new brickwork to underside of existing.

Forming new openings shall include all labour and materials in forming opening, cutting toothings and bonding for and plumbing and flushing reveals, cutting for and forming precast concrete, or reinforced brick lintol over including necessary turning pieces, reinforcement, sills, etc.

Making good shall include all labour and material required to match existing work and is to include making good new work up to existing and labours to plaster, etc.

Shoring is not specifically mentioned in each item, however, prices are to include for all shoring, needling, strutting deadwork, etc. as may be required.

DEMOLITIONS AND REMOVAL OF EXISTING WORK

Site clearance, etc.:

1	Remove topsoil and vegetation to a depth of 100mm and deposit on site in stockpiles where directed by the Engineer	m2	5 410
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Reduce levels under roads and parking areas:

2	Reducing levels on roadwork areas, etc. and depositing excavated material in stockpiles on site	m3	2 667
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Extra over all excavations for carting spoil off site to a location to be identified by the Contractor:

3	Surplus material from stockpiles on site	m3	1 953
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Keeping excavations free of water:

4	Keeping excavations free of all water other than subterranean water	Item	
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Breaking up/taking down/lifting up and remove:

5	Reinforced concrete walls and structures, etc.	m3	87
6	100mm Thick concrete surface beds, paving, aprons, etc.	m2	141
7	100 - 200mm Thick concrete road	m2	1 674
8	Existing tarmac road	m2	1 486
9	Standard precast concrete kerbing	m	196

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10	Water tank (5000L) with stand elevated 5m high from ground level	No	1		
11	Manhole/chamber complete with all brickwork sides, concrete slab and cast iron cover on top, concrete surface bed, etc. size 700 x 750mm wide not exceeding 1m deep	No	6		
12	Ditto size 1200 x 1200mm wide not exceeding 1m deep	No	2		
13	Planter wall in one brickwall, 500mm high complete with foundations	m	48		
14	Gulley overall size 510 x 640mm wide complete with concrete surround, etc.	No	4		
<u>Break down and remove existing brick walls, etc.:</u>					
15	One and half brick wall	m2	98		
<u>Take down and remove existing pipework, etc. including disconnecting where required:</u>					
16	25mm Galvanised steel pipe	m	21		
17	75mm Galvanised steel pipe	m	10		
18	Fire hydrant	No	1		
<u>Take down and remove complete with all posts, bases, etc. including filling in post holes:</u>					
19	2400mm High steel weldmesh fence with barbed wire complete with all precast concrete support posts at approximately 2,5m centres (all gates included)	m	914		
<u>REMOVAL OF TREES, ETC.</u>					
<u>Cut down and remove, grub up roots and fill in holes:</u>					
20	Digging up and removing all debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth and carting off site to a location to be identified by the contractor	m2	1 303		
21	Multi-stem shrub exceeding 1000mm and not exceeding 1500mm girth	No	1		
22	Ditto exceeding 1500mm and not exceeding 2000mm girth	No	8		
23	Tree exceeding 500mm and not exceeding 1000mm girth	No	1		
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24	Ditto exceeding 1000mm and not exceeding 1500mm girth	No	6	
25	Ditto exceeding 1500mm and not exceeding 2000mm girth	No	2	
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	<p><u>SECTION No. 4: EXTERNAL WORKS (PROVISIONAL)</u></p> <p><u>BILL No. 3: ROADS, WALKWAYS AND MAIN GATE WALL, ETC.</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted</p> <p><u>View site</u></p> <p>Before submitting his tender the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.</p> <p><u>General</u></p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent</p> <p><u>Procedure of work</u></p> <p>The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.</p> <p><u>Maintenance period</u></p> <p>Attention is drawn to the maintenance period of twelve (12) months from Practical Completion</p> <p style="text-align: right;">Carried to Collection</p> <p>Section No. 4 EXTERNAL WORKS (PROVISIONAL) Bill No. 3 ROADS, WALKWAYS AND MAIN GATE WALL, ETC.</p>			R

Lost by theft, fire or otherwise

The risk of loss by theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take steps as he may deem fit for his own protection against such loss.

Water and other piping

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary are to be made with proper fittings and to the satisfaction of the Representative/Agent to whom due notice is to be given of all alterations to existing services.

Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone, or other wires and fittings that may be met with and due notice must be given to the Representative / Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the Contractor is to afford every facility to the workmen carrying out this work.

Noise prevention

The Contractor shall take special care to minimize noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

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Excavations

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling

Class of excavations will be in accordance with SABS 1200D Clause 3.1. For the purpose of this project "Soft Rock" will have the same meaning as Intermediate excavations as defined in SABS 1200D Clause 3.1

Boulder excavation definitions as stated in SABS 1200D will not apply

Classification of soils and gravel is in accordance with SABS 1200M: 1996 Table 3A & 3B or TRH14

Open face excavation is in accordance with SANS 2001: Part BE1

Concrete

All concrete work to be carried out in accordance with SABS 1200G

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200G, shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (test cubes are measured separately)

Formwork

Description of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use

The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself

Formwork to soffits of solid slabs, etc. shall be deemed to be slabs not exceeding 250mm thick unless otherwise described

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Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the Engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"

Degree of accuracy: Accuracy II as SABS 1200G

Reinforcement

Reinforcement to include 30MPa concrete cover blocks to ensure correct cover to reinforcing

Reinforced concrete work

All aspects of structural concrete work (plain and reinforced) for civil engineering and building construction shall be in accordance with the requirements of SANS 2001: Part CC1 and SABS 0155 (Accuracy in Building). Any discrepancies are to be referred to the Engineer

1.1 Concrete mixes: All concrete mixing shall conform to SANS 2001: Part CC1. Specialised concrete applications will be referred to the Engineer. All aggregates used are to be approved by the Engineer. The water is to be clean as for human consumption

1.2 Concreting: Concreting shall conform to SANS 2001: Part CC1. All dirt and trash shall be removed from the formwork before concreting. Concrete shall be thoroughly consolidated by means of tamping or vibration

1.3 Maintaining reinforcement in position: The Contractor shall ensure that the correct concrete cover is maintained during the casting of concrete. In order to do this the Contractor shall provide suitable concrete or plastic cover blocks. All reinforcing is to be inspected and approved by the Engineer prior to casting of concrete. The Engineer shall be given 24 hours notice prior to any inspection required

1.4 Cure: All new concrete shall be thoroughly cured by means of a resin-based curing compound or as approved by the Engineer

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Concrete paving blocks

Pavers manufactured in accordance with SANS 1058: 2012, laid in alternative stretcher bond patten in accordance with SANS 1200 MJ and CMA concrete Block Paving Manuals. Pavers to be laid to falls in compliance with SABS & as per Civil Engineer's specifications. Pavers to be laid on 25mm well-compacted sand bed on subgrade conforming to SANS 1200 D Degree of Accuracy I. Sand bed to be treated with ant & weed killer prior to laying pavers. Paving joints to be filled with fine clean jointing sand swept into joints & vibrated to a smooth & evenly uniform paving surface. Paving to be inspected for settlement and re-sanded after three months.

CLEANING OF EXISTING CONCRETE WALKWAYS/ROADS

Where descriptions refer to "..... clean of existing concrete walkways/roads", Tenderers shall allow for the cleaning off of all fungal matter by whatever means and water pressure cleaning the areas

1	Clean existing concrete walkways/roads by pressure cleaning to remove all algae, discolourations, dirt, etc	m2	989
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Approved polyurethane sealing compound:

2	Rake out 10mm thick joint for a depth of 15mm and fill with compound	m	374
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REPAIR ASPHALT ROADS, ETC.

All roadworks must be maintained throughout the whole project period. The whole of the roadworks element must, additionally, be maintained for a period of twelve (12) months after Practical Completion of the whole project.

Keeping excavations free of water:

3	Keeping excavations free of all water other than subterranean water		Item
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Road repair work:

4	Clean the existing parking area to remove all loose material, remove vegetation growth, remove old slurry, apply herbicide and prepare surface to received new asphalt layer (elsewhere measured)	m2	2 308
5	Pothole repairs, less than 1m2: Remove 100mm of material, broom away all loose impediments, tack with anionic stable grade 60% bitumen emulsion, fill with cold premix and compact	No	50

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6	Pothole repairs, less than 4m2: Remove 100mm of material, broom away all loose impediments, tack with anionic stable grade 60% bitumen emulsion, fill with cold premix and compact	No	20
7	Cold applied crack sealant, latex modified mineral filled bitumen emulsion, cracks with a width of less than 5 mm	m	210
8	Apply a tack coat of 30% stable-grade emulsion at a rate of 0.50 litres per square meter	m2	2 308
9	30mm Thick continuously graded asphalt overlay surfacing to roads, parking areas, etc. to falls and cross falls	m2	2 308

NEW ASPHALT ROADS, ETC.

All roadworks must be maintained throughout the whole project period. The whole of the roadworks element must, additionally, be maintained for a period of twelve (12) months after Practical Completion of the whole project.

Keeping excavations free of water:

10	Keeping excavations free of all water other than subterranean water		Item
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Earth filling supplied by the Contractor under roads, etc.:

11	C4 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 97% Mod AASHTO dry density	m3	434
12	G7 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 95% Mod AASHTO dry density	m3	325
13	G9 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 93% Mod AASHTO dry density	m3	325
14	G10 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 90% Mod AASHTO dry density	m3	325

Compaction of surfaces:

15	Compaction of in-situ surfaces, etc. including scarifying for a depth of 150mm, breaking down oversized material and compacting to a minimum of 93% Mod AASHTO dry density	m2	2 168
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Prescribed density tests on filling:

16	Modified AASHTO density test	No	10
17	CBR test in accordance with method A8 of TMH 1	No	4

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<u>Asphalt (preparation of ground or filling elsewhere):</u>				
18	80mm Thick black base BC compacted to 75% blow marshall surfacing to roads, parking areas, etc. to falls and cross falls	m2	2 168	
19	30mm Thick continuously graded asphalt overlay surfacing to roads, parking areas, etc. to falls and cross falls	m2	2 168	
<u>NEW CONCRETE ROADS, WALKWAYS, ETC.</u>				
All roadworks must be maintained throughout the whole project period. The whole of the roadworks element must, additionally, be maintained for a period of twelve (12) months after Practical Completion of the whole project.				
<u>Keeping excavations free of water:</u>				
20	Keeping excavations free of all water other than subterranean water			Item
<u>Earth filling supplied by the Contractor under platforms, etc.:</u>				
21	Over site of G8 material in accordance with SANS 1200DM compacted to a minimum of 90% Mod AASHTO dry density	m3	68	
<u>Compaction of surfaces:</u>				
22	Compaction of in-situ surfaces, etc. including scarifying for a depth of 150mm, breaking down oversized material and compacting to a minimum of 90% Mod AASHTO dry density	m2	1 473	
<u>Earth filling supplied by the Contractor under roads, container area, etc.:</u>				
23	G5 Material in accordance with SABS 1200DM in 150mm layers compacted to a minimum of 95% Mod AASHTO dry density	m3	370	
<u>Prescribed density tests on filling:</u>				
24	Modified AASHTO density test	No	5	
25	CBR test in accordance with method A8 of TMH 1	No	4	
<u>25MPa/19mm Reinforced concrete:</u>				
26	Access roads, ramps, walkways, etc.	m3	245	
<u>Finishing top surfaces of concrete smooth with a wood float:</u>				
27	Access road, ramps, walkways, etc. to falls and currents	m2	1 473	
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<u>Smooth formwork to sides:</u>				
28	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	246	
<u>Fabric reinforcement:</u>				
29	Type 311 fabric reinforcement in concrete walkways, etc.	m2	481	
30	Type 888 fabric reinforcement in concrete roads, etc.	m2	992	
<u>Test blocks:</u>				
31	Making and testing 150 x 150 x 150mm concrete test cube (Only test cubes that have passed will be reimbursed)	No	10	
<u>Expansion joints with bitumen impregnated softboard between vertical concrete or brick surfaces:</u>				
32	10mm Joint not exceeding 300mm wide	m	75	
<u>Approved polysulphide sealing compound including backing cord, bond breaker, primer, etc.:</u>				
33	10 x 10mm In vertical expansion joint between concrete and brick surfaces including raking out joint filler as necessary	m	75	
<u>EXTERNAL PAVING</u>				
<u>Keeping excavations free of water:</u>				
34	Keeping excavations free of all water other than subterranean water			Item
<u>Earth filling supplied by the Contractor under paved areas, etc.:</u>				
35	G7 Material in accordance with SABS 1200DM in 150mm layers compacted to a minimum of 95% Mod AASHTO dry density	m3	36	
<u>Compaction of surfaces:</u>				
36	Compaction of ground surface under paving including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to a minimum of 93% Mod AASHTO dry density	m2	239	
<u>Chlordane or other approved soil insecticide (Compliance Certificate with 10 year guarantee to be provided), laid in accordance with the manufacturer's instructions:</u>				
37	Under paving, etc.	m2	239	
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<u>Facebrick paving:</u>				
	Paving is to be laid to herringbone pattern on 20mm (thickness after final compaction) clean river sand			
	Clean sand is to be swept into joints between paving bricks after laying and forming to correct cambers, etc.			
	<u>200 x 100 x 60mm Thick Corobrik Corolock or other approved grey facebrick paving bricks with butt joints, laid on and including 20mm thick clean river sand bed, with sand swept into joints after laying to correct levels (preparation of ground or filling elsewhere measured):</u>			
38	Interlocking paving laid in herringbone pattern, to slight falls	m2	239	
	<u>200 x 100 x 50mm Thick Infraset Bevel Tan colour or other approved concrete paving blocks with butt joints, laid on and including 25mm thick clean river sand bed, with sand swept into joints after laying to correct levels (preparation of ground or filling elsewhere measured):</u>			
39	Interlocking paving laid in herringbone pattern, to slight falls	m2	239	
40	Brick-on-edge Infraset figure 10 barrier precast concrete kerb complete with concrete haunching, excavation, backfilling, ramming, etc.	m	130	
<u>OPEN PARKING AREA BEHIND ABLUTIONS, ETC.</u>				
<u>Keeping excavations free of water:</u>				
41	Keeping excavations free of all water other than subterranean water		Item	
<u>Earth filling supplied by the Contractor under roads, etc.:</u>				
42	G7 Material in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 95% Mod AASHTO dry density	m3	714	
<u>Compaction of surfaces:</u>				
43	Compaction of in-situ surfaces, etc. including scarifying for a depth of 150mm, breaking down oversized material and compacting to a minimum of 93% Mod AASHTO dry density	m2	4 762	
<u>Gravel wearing course supplied by the Contractor on parking area, etc.:</u>				
44	Gravel wearing course in accordance with SANS 1200DM in 150mm layers compacted to a minimum of 97% Mod AASHTO dry density	m3	714	
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<u>Earth berm including forming to slope,as required:</u>		
45	Selected filling material from stockpiles lightly compacted to create earth berm with a minimum height of 200mm and a minimum width of 940mm	m 400
<u>NEW CONCRETE KERBING, ROAD MARKINGS, ETC.</u>		
<u>Precast concrete finished smooth on all exposed surfaces, including bedding, jointing and pointing:</u>		
46	125 x 250mm High standard kerb (SANS 927 figure 14) including excavation, backfilling, etc.	m 344
47	Ditto circular on plan not exceeding 4m radius	m 140
48	150 x 250mm High barrier kerb (SANS 927 figure 4) with 150 x 150mm unreinforced concrete (15MPa/19mm) continuous haunching at back and bedded on unreinforced concrete (15MPa/19mm) bedding 50mm thick including excavation, backfilling, etc.	m 687
49	Ditto circular on plan not exceeding 4m radius	m 140
<u>White road marking paint to SABS 731 on concrete pavers:</u>		
50	Line 100 mm wide for parking bay	m 99
51	GM6.3 wheelchair sign size overall 1200 x 1200mm	No 2
52	Standard delivery sign size overall 1200 x 300mm	No 4
<u>Yellow road marking paint to SABS 731 on concrete pavers:</u>		
53	Traffic arrow 2200mm long and 400mm wide	No 6
54	GM6.3 wheelchair sign size overall 1200 x 1200mm	No 3
<u>Traffic signs in accordance with SA road traffic signs</u>		
55	Standard regulatory road "Stop" sign type R1 fixed to and including 76mm diameter x 2mm thick galvanised mild steel post 2500mm long bedded in and including 400 x 400 x 400mm unreinforced concrete base, including necessary excavation, backfilling, paint finish, etc.	No 5
<u>MAIN GATE WALL, ETC.</u>		
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<u>Excavation in earth not exceeding 2m deep:</u>			
56	Trenches	m3	14
<u>Extra over trench and hole excavations in earth for excavation in:</u>			
57	Soft rock	m3	3
58	Hard rock	m3	2
<u>Extra over all excavations for carting off site to a location to be identified by the Contractor:</u>			
59	Surplus material from excavations	m3	5
<u>Risk of collapse of excavations:</u>			
60	Sides of trench and hole excavations not exceeding 1,5m deep	m2	48
<u>Keeping excavations free of water:</u>			
61	Keeping excavations free of all water other than subterranean water		Item
<u>G5 Material in accordance with SABS 1200DM in 150mm layers compacted to a minimum of 90% Mod AASHTO dry density:</u>			
62	Sides of main wall, etc.	m3	9
<u>30MPa/19mm Reinforced concrete cast against excavated surfaces:</u>			
63	Surface beds, etc.	m3	11
<u>Smooth power floated finish to top surfaces of concrete:</u>			
64	Surface beds, etc.	m2	35
<u>Sundries:</u>			
65	Form V-channel in concrete surface bed with 1:100 fall	m	20
<u>Test blocks:</u>			
66	Making and testing 150 x 150 x 150mm concrete test cube (Only test cubes that have passed will be reimbursed)	No	3
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<u>Mild steel reinforcement to structural concrete work:</u>		
67	10mm Diameter bars	t 0.36
<u>High tensile steel reinforcement to structural concrete work:</u>		
68	12mm Diameter bars	t 0.36
69	10mm Diameter bars	t 0.36
<u>Brickwork of NFX bricks (14MPa nominal compressive strength) in Class II mortar:</u>		
70	One brick wall in two half brick skins tied together with and including galvanised wire ties	m2 24
71	330mm Solid brick wall with and including galvanised wire ties	m2 13
<u>Brickwork reinforcement:</u>		
72	150mm Wide reinforcement built in horizontally	m 435
<u>5:1 Cement plaster (SANS 2001) wood floated on brickwork:</u>		
73	On vertical surfaces	m2 74
74	On narrow widths	m2 9
<u>Prepare and apply one Dulux Durafill filler coat and two coats exterior quality acrylic PVA paint on:</u>		
75	Plastered walls	m2 41

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	<p><u>SECTION No. 4: EXTERNAL WORKS (PROVISIONAL)</u></p> <p><u>BILL No. 4: STORMWATER</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior tender closing written approval by the principal agent</p> <p><u>View site</u></p> <p>Before submitting his tender the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.</p> <p><u>General</u></p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent</p> <p><u>Procedure of work</u></p> <p>The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.</p> <p><u>Lost by theft, fire or otherwise</u></p> <p>The risk of loss by theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take steps as he may deem fit for his own protection against such loss.</p>			
	Carried to Collection			
	<p>Section No. 4 EXTERNAL WORKS (PROVISIONAL) Bill No. 4 STORMWATER</p>		R	

Water and other piping

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary are to be made with proper fittings and to the satisfaction of the Representative/Agent to whom due notice is to be given of all alterations to existing services.

Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone, or other wires and fittings that may be met with and due notice must be given to the Representative / Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the Contractor is to afford every facility to the workmen carrying out this work.

Noise prevention

The Contractor shall take special care to minimize noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

Laying, backfilling, bedding, etc. of pipes

Pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:

- SABS 1200L : Medium-pressure pipelines
- LD : Sewers
- LE : Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB : Earthworks (Pipe trenches)

Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB : Bedding (Pipes)

Excavations

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling

Carried to Collection

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Carting away of excavated material

All excavated material from the excavations are to be deposited in spoil heaps average 50 - 100mm away from point of excavations

Concrete

All concrete work to be carried out in accordance with SABS 1200G

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200G, shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (test cubes are measured separately)

STORMWATER RETICULATION/CHANNELS

Precast concrete channels, etc. shall be manufactured in suitable lengths

Select concrete products or other approved precast concrete open-ended channels including bedding, jointing and pointing:

1	150mm Half round channel laid on 20mm thick mortar bed on concrete with butt joints	m	263
2	Extra over stormwater channel for angle, intersection, end, etc.	No	11

STORMWATER DRAINAGE

Pipes to be laid on and including bedding cradle and 300mm blanket fill of selected granular material and compact to a minimum of 90% Modified AASHTO dry density in trenches.

Class 100D concrete pipes:

3	600mm Pipe laid in and including trenches exceeding 1m and not exceeding 2m deep	m	146
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 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 4
 STORMWATER

<u>Extra over concrete pipes for:</u>				
4	Stormwater grid inlet manhole size 1360 x 1360mm exceeding 1m and not exceeding 2m deep to invert, consisting of reinforced concrete (30MPa/19mm) base with Type 311 fabric reinforcement, 150 mm thick projecting 75mm all round, one brick walls plastered internally, 200mm thick cover slab on top tapered and rebated for and fitted with 740 x 740mm cementile precast concrete cover slab with 595mm diameter lid and frame to SANS 2001, including benching, excavations, backfilling, etc.	No	3	
<u>Extra over excavation in earth for excavation in:</u>				
5	Soft rock	m3	30	
6	Hard rock	m3	15	
<u>Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 93% Mod AASHTO dry density:</u>				
7	Backfilling to trenches, holes, etc.	m3	51	
<u>Extra over all excavations for carting off site to a location to be identified by the Contractor:</u>				
8	Surplus material from excavations and stockpiles on site	m3	45	
<u>Earth filling supplied by the Contractor in backfilling to excavations, etc.:</u>				
9	Over site of G6 material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers	m3	50	
<u>Stormwater headwall:</u>				
10	Stormwater headwall 1200mm wide at stormwater inlet for 600mm stormwater pipe (elsewhere measured), projecting for a length of 740mm to extreme width of 2110mm wide, comprising of 150mm thick reinforced concrete (20MPa/19mm) base with Type 245 fabric reinforcement with 230 x 230mm concrete edge to base at extreme side and 230mm brick wing walls on sides for a length of 1000mm, tapering down on two sides from 650mm to 250mm high complete with soldier course brickwork to top of inlet and wing walls with 10mm plaster on visible surfaces including all necessary excavating, compaction to base, carting away, etc.	No	1	
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	Testing:				
11	Allow for testing all external stormwater reticulation piping and components		Item		
	Sundries:				
12	Form 600mm diameter hole through existing 230mm brick wall for concrete pipe (pipe elsewhere measured)	No	2		
	Earth berm including forming to slope,as required:				
13	Selected filling material from stockpiles lightly compacted to create earth berm	m3	200		
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STORMWATER

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Item No		Quantity	Rate	Amount
	<p><u>SECTION No. 4: EXTERNAL WORKS (PROVISIONAL)</u></p> <p><u>BILL No. 5: EXTERNAL WATER RETICULATION</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior tender closing written approval by the principal agent</p> <p><u>View site</u></p> <p>Before submitting his tender the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.</p> <p><u>General</u></p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent</p> <p><u>Procedure of work</u></p> <p>The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.</p> <p><u>Lost by theft, fire or otherwise</u></p> <p>The risk of loss by theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take steps as he may deem fit for his own protection against such loss.</p>			
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Water and other piping

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary are to be made with proper fittings and to the satisfaction of the Representative/Agent to whom due notice is to be given of all alterations to existing services.

Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone, or other wires and fittings that may be met with and due notice must be given to the Representative / Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the Contractor is to afford every facility to the workmen carrying out this work.

Noise prevention

The Contractor shall take special care to minimize noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

Hot dip galvanising:

Where hot dip galvanising is specified, it should be executed in accordance with SANS 121:2011 (ISO 1461:2009), unless otherwise described

Laying, backfilling, bedding, etc. of pipes

Pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:

- SABS 1200L : Medium-pressure pipelines
- LD : Sewers
- LE : Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB : Earthworks (Pipe trenches)

Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB : Bedding (Pipes)

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Section No. 4
 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 5
 EXTERNAL WATER RETICULATION

Galvanised mild steel heavy duty Class 16 piping:

Galvanised mild steel piping and fittings to comply with SANS 62.2, SANS 1109.1 and galvanising with SANS 32

Excavations

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling

Carting away of excavated material

All excavated material from the excavations are to be deposited in spoil heaps average 50 - 100mm away from point of excavations

Concrete

All concrete work to be carried out in accordance with SABS 1200G

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200G, shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (test cubes are measured separately)

EXTERNAL WATER RETICULATION

Municipal water connection:

- 1 Allow for the completed municipal water connection, including meter, stopcock, monitoring and pressure reducing equipment (municipal chamber elsewhere measured)

Item

Class 10 HDPE pressure pipes in accordance with SANS 4427, with spigots and sockets including all straight couplings, cutting and waste, etc.:

2	25mm Pipe laid in and including trenches not exceeding 1m deep	m	90
3	32mm Ditto	m	126
4	63mm Ditto	m	67

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 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 5
 EXTERNAL WATER RETICULATION

<u>Extra over HDPE piping for the following Class 10 HDPE fittings:</u>			
5	25mm Fittings	No	10
6	32mm Elbow	No	4
7	63mm Ditto	No	1
8	63 x 32mm Reducing elbow	No	2
9	63mm Equal tee	No	2
10	32 x 25mm Reducing tee	No	5
11	63 x 32mm Ditto	No	2
12	32 x 25mm Reducer	No	6
13	63 x 32mm Ditto	No	3
<u>Extra over excavation in earth for excavation in:</u>			
14	Soft rock	m3	28
15	Hard rock	m3	11
<u>Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 93% Mod AASHTO dry density:</u>			
16	Backfilling to trenches, holes, etc.	m3	71
<u>Extra over all excavations for carting spoil off site to a location to be identified by the Contractor:</u>			
17	Surplus material from stockpiles on site	m3	39
<u>Earth filling supplied by the Contractor in backfilling to trenches, etc.:</u>			
18	Over site of G7 material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers	m3	71
<u>Taps, valves, etc.:</u>			
19	25mm Fullway gate valve with flange adaptors both sides	No	6
20	32mm Ditto	No	1
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EXTERNAL WATER RETICULATION

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EXTERNAL WATER RETICULATION

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	<p><u>SECTION No. 4: EXTERNAL WORKS (PROVISIONAL)</u></p> <p><u>BILL No. 6: SOIL DRAINAGE</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior tender closing written approval by the principal agent</p> <p><u>View site</u></p> <p>Before submitting his tender the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.</p> <p><u>General</u></p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent</p> <p><u>Procedure of work</u></p> <p>The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.</p> <p><u>Lost by theft, fire or otherwise</u></p> <p>The risk of loss by theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take steps as he may deem fit for his own protection against such loss.</p>			
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Water and other piping

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary are to be made with proper fittings and to the satisfaction of the Representative/Agent to whom due notice is to be given of all alterations to existing services.

Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone, or other wires and fittings that may be met with and due notice must be given to the Representative / Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the Contractor is to afford every facility to the workmen carrying out this work.

Noise prevention

The Contractor shall take special care to minimize noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

Laying, backfilling, bedding, etc. of pipes

Pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:

- SABS 1200L : Medium-pressure pipelines
- LD : Sewers
- LE : Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB : Earthworks (Pipe trenches)

Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB : Bedding (Pipes)

Excavations

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling

Carried to Collection

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 Bill No. 6
 SOIL DRAINAGE

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Carting away of excavated material

All excavated material from the excavations are to be deposited in spoil heaps average 50 - 100mm away from point of excavations

Concrete

All concrete work to be carried out in accordance with SABS 1200G

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200G, shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (test cubes are measured separately)

SOIL DRAINAGE

Pipes to be laid on and including bedding cradle and 300mm blanket fill of selected granular material and compact to a minimum of 90% Modified AASHTO dry density in trenches.

Class 34 Unplasticised polyvinyl chloride (uPVC) pipes:

1	50mm Pipe fixed to wall	m	8
2	110mm Pipe raking to inspection eye	m	3
3	110mm Pipe laid in and including trenches not exceeding 1m deep	m	218
4	110mm Pipe laid in and including trenches exceeding 1m and not exceeding 2m deep	m	18
5	160mm Pipe laid in and including trenches exceeding 2m and not exceeding 3m deep	m	35
6	160mm Pipe laid in and including trenches exceeding 3m and not exceeding 4m deep	m	18

Extra over uPVC piping for:

7	50mm Vent cowl	No	8
8	110mm Access bend	No	22
9	110mm Junction	No	22

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Section No. 4
 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 6
 SOIL DRAINAGE

10	110mm Access junction	No	5	
11	110mm Bend	No	22	
12	110mm Access rodding eye	No	2	
<u>Grease traps, gulley traps, manholes, etc.:</u>				
13	110mm uPVC gulley trap and hopper with grid not exceeding 1000mm deep all set and encased in unreinforced concrete (20MPa/19mm) to form kerb, finished smooth with plaster	No	3	
14	Precast concrete chamber for inspection eye not exceeding 1m deep, including precast concrete base size 450 x 450 x 100mm thick and 300 x 400mm cast iron cover and frame (SANS EN 124 Saint Gobian Hydrex), lid to have 'IE' letters cast in with mortar at top joint, overall size 450 x 450mm wide, including all excavations, backfilling, etc.	No	2	
15	Manhole 1000mm diameter and not exceeding 1m deep internally to invert level, formed of precast concrete chamber sections (SANS 1294) with interlocking joints sealed with Denzo seal strips internally and joints filled with 1:3 cement sand mixed chalked in, complete with cast in step irons at 250mm centres, with unreinforced concrete (20MPa/19mm) base 270mm thick projecting 75mm all round, unreinforced concrete (15MPa/19mm) benching with 20mm thick HAC concrete topping on 1:6 benching slope, rebated for and fitted with Rocla or other approved heavy duty concrete lid and frame (SABS 558-1973), bedded in 1:3 cement mortar and sealed in tallow including all necessary channels and fittings, excavations, backfilling, holes through sides for pipes, etc. with and including 150mm layer G7 layer to bottom of concrete base compacted to a minimum of 93% Mod AASHTO dry density complete	No	3	
16	Ditto exceeding 1m and not exceeding 2m deep internally to invert level, ditto	No	2	
17	Ditto exceeding 2m and not exceeding 3m deep internally to invert level, ditto	No	2	
18	Ditto exceeding 3m and not exceeding 4m deep internally to invert level, ditto	No	1	
<u>Extra over trench and hole excavations in earth for excavation in:</u>				
19	Soft rock	m3	33	
20	Hard rock	m3	17	
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SOIL DRAINAGE

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	<p><u>SECTION No. 4: EXTERNAL WORKS (PROVISIONAL)</u></p> <p><u>BILL No. 7: FENCING AND GATES</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior tender closing written approval by the principal agent</p> <p><u>View site</u></p> <p>Before submitting his tender the Contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.</p> <p><u>General</u></p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent</p> <p><u>Procedure of work</u></p> <p>The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.</p> <p><u>Lost by theft, fire or otherwise</u></p> <p>The risk of loss by theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take steps as he may deem fit for his own protection against such loss.</p>			
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	<p>Section No. 4 EXTERNAL WORKS (PROVISIONAL) Bill No. 7 ENTRANCE WALL, FENCING AND GATES</p>			

Water and other piping

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary are to be made with proper fittings and to the satisfaction of the Representative/Agent to whom due notice is to be given of all alterations to existing services.

Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone, or other wires and fittings that may be met with and due notice must be given to the Representative / Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the Contractor is to afford every facility to the workmen carrying out this work.

Protection, etc

The Contractor must protect all work not removed such as walls, floors, doors, windows, fittings, etc. from damage during the progress of the work and provide all necessary materials for doing so.

Noise prevention

The Contractor shall take special care to minimize noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

Hot dip galvanising:

Where hot dip galvanising is specified, it should be executed in accordance with SANS 121:2011 (ISO 1461:2009), unless otherwise described

Excavations

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling

Carting away of excavated material

All excavated material from the excavations are to be deposited in spoil heaps average 50 - 100mm away from point of excavations

Carried to Collection

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Section No. 4
 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 7
 ENTRANCE WALL, FENCING AND GATES

Concrete

All concrete work to be carried out in accordance with SABS 1200G

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200G, shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (test cubes are measured separately)

Formwork

Description of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use

The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself

Formwork to soffits of solid slabs, etc. shall be deemed to be slabs not exceeding 250mm thick unless otherwise described

Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the Engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"

Degree of accuracy: Accuracy II as SABS 1200G

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Section No. 4
 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 7
 ENTRANCE WALL, FENCING AND GATES

Reinforced concrete works

All aspects of structural concrete work (plain and reinforced) for civil engineering and building construction shall be in accordance with the requirements of SABS 1200G and SABS 0155 (Accuracy in Building). Any discrepancies are to be referred to the Engineer

1.1 Concrete mixes: All concrete mixing shall conform to SABS 1200G. Specialised concrete applications will be referred to the Engineer. All aggregates used are to be approved by the Engineer. The water is to be clean as for human consumption

1.2 Concreting: Concreting shall conform to SABS 1200G. All dirt and trash shall be removed from the formwork before concreting. Concrete shall be thoroughly consolidated by means of tamping or vibration. T and L beams shall be cast simultaneously with the slabs, unless otherwise agreed with the Engineer

1.3 Maintaining reinforcement in position: The Contractor shall ensure that the correct concrete cover is maintained during the casting of concrete. In order to do this the Contractor shall provide suitable concrete or plastic cover blocks. All reinforcing is to be inspected and approved by the Engineer prior to casting of concrete. The Engineer shall be given 24 hours notice prior to any inspection

Unless otherwise specified the clear cover to the reinforcement shall be as follows:

Slabs	20mm (internal construction)
Slabs	40mm (external construction)
Beams	40mm All faces
Columns	40mm All faces
Bases	75mm All faces

1.4 Cure: All new concrete shall be thoroughly cured by means of a resin-based curing compound or as approved by the Engineer

Concrete paving blocks

Pavers manufactured in accordance with SANS 1058: 2012, laid in alternative stretcher bond pattern in accordance with SANS 1200 MJ and CMA concrete Block Paving Manuals. Pavers to be laid to falls in compliance with SABS & as per Civil Engineer's specifications. Pavers to be laid on 25mm well-compacted sand bed on subgrade conforming to SANS 1200 D Degree of Accuracy I. Sand bed to be treated with ant & weed killer prior to laying pavers. Paving joints to be filled with fine clean jointing sand swept into joints & vibrated to a smooth & evenly uniform paving surface. Paving to be inspected for settlement and re-sanded after three months.

Carried to Collection

Section No. 4
 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 7
 ENTRANCE WALL, FENCING AND GATES

R

Descriptions

Descriptions of bolts to be Grade 8.8 and shall be deemed to include nuts and washers unless otherwise stated

Descriptions of expansion anchors, expansion bolts and chemical anchors, shall be deemed to include nuts, washers and mortices in brickwork and/or concrete

Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete. Where anchor bolts are described as embedded in sides or soffits of concrete it shall be deemed to include holes through formwork

Description of welds to be 6mm continuous fillet welds unless otherwise stated

PERIMETER FENCING AND GATES

Clearing of site:

1	Allow for clearing site for the width of 1m where fencing runs are to be erected including removing trees, shrubs, etc. not exceeding 200mm girth, grubbing up roots and roughly levelling	m	566
2	Ditto exceeding 200mm and not exceeding 500mm girth, ditto	m	100

Clearvu or other approved fencing panels and posts complete with all components, setting up, adjusting, etc.:

PVC coated high security fencing and gates ref. 3510 3D. All bolts, nuts and washers to be stainless steel Grade 304. Fixators to be stainless steel Grade 304 and PVC coated. Fence system to be maintenance free and shall carry a 10 year insurance underwritten anti-corrosion guarantee for material and workmanship issued for original panels, posts and fixators. The supplier/erector to be ISO 9001 compliant.

Allowance shall be made as required to excavate areas that are too high and to fill depressions with approved filling, carted on site where necessary and well compacted prior to erection of fencing

Carried to Collection

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Section No. 4
 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 7
 ENTRANCE WALL, FENCING AND GATES

3	Zincalu manufactured super wire and PVC coated (Anthracite RAL 7021) weldmesh panels with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 500N/mm2 with weld mesh strength of 60% of the minimum tensile strength of the wire. Panels with a maximum width of 3050mm as determined on site and laterally strengthened by 4 x 43mm deep V-profiled horizontal stiffener bends as per manufacturer's specification to ensure sufficient rigidity, fence 2400mm high	m	566	
4	HDG & PVC coated (Anthracite RAL 7021) with a minimum thickness layer of 200micron hot dipped galvanised H-shaped posts, with 70 x 44 x 2mm profile with holes inside flanges, sealed with UV stabilized polymer cap, complete with required bolt clamps for fixing to panels (elsewhere measured) and embedded and including 400 x 400 x 700mm deep mass concrete 20MPa/19mm base, excavations, filling, etc., posts 3200mm high	No	199	
5	Serrated top rail, hot dip galvanised and PVC coated (Anthracite RAL 7021) with tooth spikes, 2.5mm thick and 100mm high fitted to top of fencing or gates (elsewhere measured) with M8 x 30 bolts, shear nuts and stainless steel washers	m	566	
6	Zincalu manufactured super wire weldmesh underdig with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 500N/mm2 with weld mesh strength of 60% of the minimum tensile strength of the wire. Panels with a maximum width of 3050mm as per manufacturer's specification, underdig 450mm high secured to welded mesh panels (elsewhere measured) with bekafix fixators	m	559	
7	Double leaf swing vehicle gate, size 6000 x 2400mm high with Zincalu manufactured super wire and PVC coated (Anthracite RAL 7021) weldmesh panels with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 235N/mm2. Gate to be lockable including heavy duty support posts, suitable padlock, gate bolts, concrete tie beam, etc.	No	1	
8	Single leaf swing pedestrian gate, size 1400 x 2400mm high with zincalu manufactured super wire and PVC coated (Anthracite RAL 7021) weldmesh panels with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 235N/mm2. Gate to be lockable including heavy duty support posts, suitable padlock, gate posts, concrete tie beam, etc.	No	1	
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9	Vehicular sliding gate, size 9000 x 2400mm high with Zincalu manufactured super wire and PVC coated (Anthracite RAL 7021) weldmesh panels with rectangular apertures of 76.2 x 12.7mm with horizontal and vertical wire of 3mm diameter thickness. Tensile strength of wire to be 235N/mm ² . Gate to be lockable including heavy duty support posts, suitable padlock, gate bolts, concrete tie beam, complete with 500 x 800mm high unreinforced concrete (15MPa/19mm) beam, with 25 x 25 x 3mm angle iron track secured to base, complete with base plate 300 x 300 x 5mm thick cast into concrete base, gate rollers, stoppers, guide-rollers, end stops, anti-lift brackets, etc.	No	1
<u>Extra over hole excavations in earth for excavation in:</u>			
10	Soft rock	m3	5
11	Hard rock	m3	3
<u>Extra over all excavations for carting off site to a location to be identified by the Contractor:</u>			
12	Surplus material from excavations	m3	23
<u>Centurion or other approved vehicle gate remote capable motors including providing ten remote control units</u>			
13	Gate motor to suit 9000 x 2400 steel gate including fixing rail, etc.	No	1

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Section No. 4
 EXTERNAL WORKS (PROVISIONAL)
 Bill No. 7
 ENTRANCE WALL, FENCING AND GATES

Section No. 4

Bill No. 7

EXTRANCE WALL, FENCING AND GATES

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EXTERNAL WORKS (PROVISIONAL)

Bill No. 7

EXTRANCE WALL, FENCING AND GATES

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1	HOARDING AND RELOCATION OF EXISTING STRUCTURES	130	
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4	STORMWATER	156	
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	Section No. 4 EXTERNAL WORKS (PROVISIONAL)		

<u>ELEVATED WATER TANK AT ABLUTION BLOCK</u>			
5	Provide the sum of R75,000.00 (Seventy Five Thousand Rand) for elevated water tank	Item	75 000,00
<u>SKYLIGHT BOXES</u>			
6	Provide the sum of R1,800,000.00 (One Million Eight Hundred Thousand Rand) for fabrication and installation of Skylight boxes as per Engineer's drawings	Item	1 800 000,00
<u>CLEAN/INVESTIGATE EXISTING STORMWATER CATCHMENT AREA</u>			
7	Provide the sum of R200,000.00 (Two Hundred Thousand Rand) for stormwater investigation	Item	200 000,00
<u>CAT LADDERS, BALUSTRADING, ETC.</u>			
8	Provide the sum of R400,000.00 (Four Hundred Thousand Rand) for cat ladders, balustrading, etc.	Item	400 000,00
<u>JOINERY FITTINGS</u>			
9	Provide the sum of R150,000.00 (One Hundred and Fifty Thousand Rand) for joinery fittings	Item	150 000,00
<u>LOOSE FURNITURE</u>			
10	Provide the sum of R150,000.00 (One Hundred and Fifty Thousand Rand) for loose furniture	Item	150 000,00
<u>REMOVAL OF EXISTING SUNDRY JOINERY ITEMS</u>			
11	Provide the sum of R75,000.00 (Seventy Five Thousand Rand) for removal of sundry joinery items	Item	75 000,00
<u>SPECIALIST WORK</u>			
<u>ATTENDANCE</u>			
General attendance on Nominated Sub-contractors' work shall be deemed to include the following			
1. Access to the site and places where the sub-contract work is to be carried out, including the reasonable use of any temporary personnel hoists erected by the contractor;			
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2. The provision of water and lighting and of single phase electric power to a position within 50 metres of the place where sub-contract work is to be carried out but excluding water, fuel and power for commissioning of the installation for which the sub-contractor shall be responsible;
3. The provision of an area for the sub-contractor to establish office accommodation, temporary workshops and for the storage of plant and material;
4. The use of erected scaffolding belonging to the contractor, in common with others having the like right, whilst it so remains erected upon the site;
5. The use of mess rooms, latrine, health and welfare facilities and the like, where provided.
6. The use of site telephone and facsimile machine, where provided, subject to the payment by the sub-contractor for all his outgoing calls.

WATER RETICULATION AND HOT WATER GENERATING PLANT

12	Provide the sum of R1,500,00.00 (One Million Five Hundred Thousand Rand) for Water Reticulation and Hot Water Generating Plant	Item	1 500 000.00
13	Add for profit	Item	
14	Allow for attendance	Item	

MONETARY PROVISIONS

COMMUNITY LIAISON OFFICER

15	Provide the sum of R120 000.00 (One Hundred and Twenty Thousand) for the employment of a Community Liaison Officer (R8,000.00 per month for the duration of contract plus sundries)	Item	120 000.00
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SMME MENTOR

16	Provide the sum of R120 000.00 (One Hundred and Twenty Thousand) for the employment of a SMME Mentor (R8,000.00 per month for the duration of contract plus sundries)	Item	120 000.00
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Section No. 5
 PROVISIONAL SUMS
 Bill No. 1
 PROVISIONAL SUMS

PLACEMENT OF STUDENTS

17 Provide the sum of R240 000.00 (Two Hundred and Forty Thousand) for the Placement/In-Service training of two (2) students within the Built Environment at the Bursary of R8,000.00 (Eight Thousand Rand) each per month, employed by the Principal Contractor for the duration of the contract

Item 240 000.00

STEERING COMMITTEE MEMBERS

18 Provide the sum of R8,250.00 (Eight Thousand Two Hundred and Fifty Rand) for the payment of three Steering Committee Members for attendance of formal monthly meetings at R550.00 (Five Hundred and Fifty Rand) per sitting, for the duration of the contract

Item 8 250.00

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Bill No. 1

PROVISIONAL SUMS

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	VOLUME 1: ELECTRICAL INSTALLATION		SUM
	VOLUME 2.1: MECHANICAL INSTALLATION - Fire Suppression		SUM
	VOLUME 2.2: MECHANICAL INSTALLATION - Ventilation		SUM
	VOLUME 2.3: MECHANICAL INSTALLATION - Fire Detection		SUM
	Sub Total		R
	<u>MONETARY PROVISIONS</u>		
	The following monetary provisions have been made in the contract and must be omitted from the contract sum at the start of the contract and used as directed below.		
	<i>Please note: These are monetary provisions only and the use, value and payment thereof are subject to adjustment based on actual costs through contractually approved variation orders and escalation costs calculated in terms of the prescribed contractual escalation calculations directives respectively.</i>		
	<u>CONTINGENCIES</u>		
	Provide the sum of R4,000,000.00 (Four Million Rand) for Contingencies to be used or deducted in full at the Principal Agent's discretion		R 4 000 000.00
	<u>ESCALATION</u>		
	Provide the sum of R4,300,000.00 (Four Million Three Hundred Thousand Rand) for Building Cost Escalation to be adjusted in terms of the JBCC Contract Price Adjustment Provisions		R 4 300 000.00
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Section No	<u>ECDC: DIMBAZA INDUSTRIAL PARK SITE 3 - FINAL SUMMARY</u>	Page No	Amount
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	VALUE ADDED TAX 15%		R
	TOTAL BUILDING WORKS INCLUDING VAT		R
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**REPAIRS AND REFURBISHMENTS OF SITE 03
IN DIMBAZA INDUSTRIAL PARK**

VOLUME No.1 - ELECTRICAL INSTALLATION

Consisting of:

- Section 1: Technical Specification & Tender Drawings**
- Section 2: Outdoor Standby Generator Specifications & Returnable Schedules**
- Section 3: Returnable Schedules**
- Section 4: Pricing Instructions & Bills of Quantities**
- Section 5: Pictures**

DOCUMENTS COMPILED BY:

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Fax: (043) 742 3883

Section 1 – Technical Specification & Tender Drawings

TECHNICAL SPECIFICATIONS

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ELECTRICAL INSTALLATION DETAILS

1. SCOPE OF WORK

The main contract is for the refurbishment of Site 03 factory within the Dimbaza Industrial Park in Dimbaza, Eastern Cape.

The work to be carried out by the Electrical Subcontractor under this Contract comprises of, but not limited to, the supply and installation of the following, including commissioning:

- (i) Isolating, disconnecting & removal of the existing electrical installation.
- (ii) Liaising with Buffalo City Metropolitan Municipality (BCMM) Electrical Department, Qonce Offices, for switching of power, as and when required.
- (iii) Supply and installation of Low Voltage cabling from the BCMM's Substation within the site boundary to Main-LV Panel within Factory Building.
- (iv) Supply, Install, Configure & Commission Power Factor Correction equipment to be connected within the Main-LV Panel.
- (v) Supply and installation of power and data cable sleeves.
- (vi) Supply and installation of power and data manholes within the site boundary.
- (vii) Supply and installation of Low Voltage power and data distribution boards.
- (viii) Supply and installation of wireways (power skirting, cable ladders, P2000, P8000 & P9000 trunking) at high & low levels for lighting, power and data.
- (ix) Supply and installation of luminaires, light switches, occupancy sensors, switched socket outlets and other small power systems.
- (x) Submission of samples of all luminaires and other materials for vetting and approval as to the Engineer, Client, Principal Agent or any other member of the professional team.
- (xi) Supply and installation of Earthing and Bonding of all building installations.
- (xii) Attendance to any specialist installers, such as LPS (Lightning Protection System), mechanical (fire detection, smoke ventilation, etc.) intruder alarm and data cabling and other related services; if and when required.
- (xiii) Supply, Install & Commissioning Smoke Ventilation Fan Standby Generator.
- (xiv) Performing and submission of test records and certificates.
- (xv) Balancing of loading and circuits at Final Works completion.
- (xvi) Test completed installations and issue of Certificates of Compliance for all Electrical System Installation (including LPS, Earth Mat installations, etc.).
- (xvii) Produce marked As-Built drawings for all Electrical (including DB Schematic Diagrams, LPS Earth Mat installations, etc.) to be submitted to the Engineer.

The description of the Works listed above, is not necessarily complete and shall not limit the work to be carried out by the Electrical Subcontractor under this Contract.

2. SPECIFICATIONS & STANDARDS

The works carried out under this Contract shall be governed, but not limited to:

- (i) SANS 10142-1: Wiring Code and/or as amended,
- (ii) SANS 10114-1: Interior Lighting Part 1: Artificial Lighting of Interiors;
- (iii) SANS 10114-2: Part 2: Emergency Lighting;
- (iv) Protection against Lightning – Physical Damage to Structures and Life Hazard: SANS 10313: 2008 and in conjunction with the SANS 62305 series
- (v) The Occupational Health and Safety Act, 1993 (Act 85 of 1993)

3. SYSTEM LOW VOLTAGE

The supply to the Electrical installation shall be 400/230 Volts, 3 phase, 4 wire, 50 Hertz, Earthed Neutral or as directed by the relevant Supply Authority.

4. SCHEDULE OF MATERIALS

In all instances where schedule of materials are attached or included on the drawings, these schedules are to be regarded as forming part of the specification.

All materials and equipment procured by the Electrical Subcontractor must be made in South Africa. Where this is not possible, the Electrical Subcontractor must provide to the Engineer or Engineer's Representative validating evidence that such material and/or equipment is not available South Africa.

5. CONTRACT DRAWINGS

Drawings must be read in conjunction with this Specification and the Bills of Quantities. Any errors, discrepancies or contradictions found between the Drawings, the Specifications and the Bills of Quantities must be brought to the attention of the Engineer or Engineer's Representative **immediately** as they become evident.

The drawings generally show the scope and extent of the proposed work and shall not be construed as showing every minute detail of the work to be executed.

The position of power points, switches and light points that may be influenced by built-in furniture and equipment must be established on site prior to these items being built in.

Drawings will be issued to site accompanied by drawing issue slips. The drawing issue register reflecting the summary of all previously issued drawings with dates and drawing revisions will be issued at site meetings once a month.

6. POWER CABLE SLEEVES

Where cables cross paved, concrete or tarred surfaces and roadways where cables enter buildings, cables shall be run in flexible (corrugated) PVC sleeves. **Any other cable sleeves will not be acceptable.**

The ends of all sleeves shall be sealed with a non-hardening watertight compound after the installation of cables. All sleeves intended for future use shall likewise be sealed and provided with pulling tape/rope for pulling in future cables. The pulling tape/rope shall be manufactured from unstarched polyester & coated with silicone, have a thickness of 1.0mm (± 0.2 mm) x width 16mm (± 1.0 mm) and have a breaking strain of 800kg, similar or equivalent to Optex Pull Tape.

All sleeves shall be laid in at a minimum depth of 600mm below final levels. Slow bends approved by the Engineer shall be used where sleeves enter buildings.

7. NOTICES AND FEES

The Electrical Subcontractor shall liaise, issue all notices and make the necessary arrangements with the Supply Authority for power connection.

The Electrical Subcontractor shall give all notices required and pay all necessary fees which may be due to the relevant authorities.

8. EXISTING SERVICES

The Electrical Subcontractor shall be held responsible for damage to any existing services shown on the drawings and/or brought to his attention by the relevant authorities, Engineer, Client, Principal Agent or any other member of the professional team. The repairs to such the damaged services will be to the Electrical Subcontractor's account.

To avoid damaging existing services and existing services that cannot be identified and indicated to Electrical Subcontractor, the Electrical Subcontractor shall supply and use detection equipment for the location of existing services.

9. QUALITY OF MATERIALS

Materials are to comply with the relevant South African National Standards (SANS), or to IEC specifications, where no SANS specifications exist. All materials used shall bear the SABS mark of approval as applicable.

All materials must be of South African manufacture unless this is not possible.

10. BALANCING OF LOAD

The Electrical Subcontractor is required to balance the load as **equally** as possible over the multiphase supply during the construction period of the Contract.

The Electrical Subcontractor is, then, to return to site at Final Completion to take current readings from all the distribution boards and balance the loads where necessary. This is to be done with the Engineer or the Engineer's Representative in attendance.

11. SUPERVISION

The work shall, at all times for the duration of the Contract, be carried out under the supervision of a skilled and competent representative of the Electrical Subcontractor, who will be able and be authorised to receive and carry out instructions on behalf of the Electrical Subcontractor. A sufficient number of workmen shall be employed at all times to ensure satisfactory progress of the work.

12. WORKMANSHIP

All inferior work shall, on indication by the Engineer, Client, Principal Agent or any other member of the professional team, be **immediately** removed and rectified by and at the expense of Electrical Subcontractor.

13. SUPPLY OF MATERIAL

The Client reserves the right to supply material, tools or equipment to the Electrical Subcontractor for installation. The Electrical Subcontractor must arrange for taking delivery of and providing safe storage for such materials, tools or equipment and he/she will be held responsible for any and all damages to or loss of such materials, tools or equipment while they are in custody of the Electrical Subcontractor. The Electrical Subcontractor will submit the installation rate of such materials, tools or equipment to the Engineer or Engineer's Representative if not included in the priced Bills of Quantities.

14. SAMPLES AND DRAWINGS

14.1 The Electrical Subcontractor is required to submit for vetting, approval, comment or records, samples of materials upon which the Electrical Subcontractor's offer is based prior to installation. Any approvals given or comments made shall be on the generality of the scheme and shall not relieve the Electrical Subcontractor of his responsibility to ensure full compliance with all performance, regulatory criteria and latent defects experienced.

14.2 Samples forwarded shall remain in the site stores until completion of the Works. The samples will be the last items to be embodied within the installation.

14.3 All expenses in connection with the supply and return of the samples shall be borne by the Electrical Subcontractor.

15. SWITCHES AND SOCKET OUTLETS (SSO)

15.1 General

Covers shall be of at least 1mm thickness and to be manufactured in accordance with, but not limited SANS 1084 and SANS 164 – 1, 2 & 3 and any other gazetted legislation. The Electrical Subcontractor may submit equivalent alternatives to the Engineer for approval.

Light switches and switched socket outlets plates must be provided with earth studs and all light switch boxes shall be connected to the earth conductor.

For uniformity only one make must be installed.

15.2 Light Switches and Occupancy Sensors

Light switches shall be of 250 Volts grade and comply with, but not limited to SANS 1085 as amended and bear SABS mark. Light switches shall be rated at 16 Amperes.

Switches which shall be of the single pole, rocker operated type, flush mounted in 100mm x 50mm x 50mm galvanised boxes.

Light switches exposed to the weather must be of an approved watertight type.

Multi-gang switches are to be used where more than one light switch is indicated on the drawing.

Occupancy Sensors Features:

- Self-adjusting ultrasonic [US] and passive,
- Infrared [PIR] sensitivity,
- Self-adjusting timer,
- Automatic false-on/false-off corrections,
- Natural light override range: 100 – 5000 LUX,
- Casing must be rugged, high impact, injection-moulded,
- Plastic KJAB ABS Cyclac (UL-954VA) flame class,
- Rating UV inhibitors, impact resistant lens and
- 152.4mm long colour-coded leads

15.3 Socket Outlets

Switched socket outlets shall comply with SANS 1085 as amended and be rated at 16 Amperes, 250 Volts unless otherwise specified.

Flush mounted standard switched socket outlets shall be of the 16Amp 3-pin shuttered base type, with SANS 164-2 (ZA/Euro plug) 16Amp 3-pin + earth module and bear SABS mark.

Socket outlets indicated on walls shall be existing flush mounted 100mm x 100mm x 50mm galvanised boxes.

All surfaces mounted switched socket outlets to be in 100 x 100 x 50 extension outlet boxes mounted on the wall surfaces; colours of outlet boxes and cover plates to match.

The powerskirting mounted standard switched shall be of the 16Amp 3-pin shuttered base type, with SANS 164-2 IEC 16Amp 3-pin + earth, ~~including the 3Amp USB module~~. All switched socket outlets mounted in powerskirting to have matching cover plates.

Further details of these outlets are listed in the Switch, SSO and Isolator Schedule.

The Electrical Subcontractor will be responsible for the installation of power points to feed equipment such as water heaters, air-conditioners, fans, security equipment, etc. This equipment, if supplied and installed by others, will be connected by the Electrical Subcontractor.

The cover plates to all outlets shall be fixed **AFTER** the final coat of paint has been applied. The Electrical Subcontractor shall allow for this in his programme and pricing of the Works.

15.4 Labelling

All light switches and switched socket outlets shall be permanently labelled with a circuit number e.g.:

- Dn/m
- Pn/m
- Ln/m

Where D = Dedicated Power circuit
P = Power circuit
L = Light circuit
n = circuit number (1, 2, 3, etc.)
m = component number in the circuit

16. LUMINAIRES AND LAMPS

All luminaires to be supplied by the Electrical Subcontractor shall have the approval of the Engineer or Engineer's Representative.

Luminaires must be of the type specified in the Schedule of Light Fittings.

16.1 Luminaires

The Electrical Subcontractor shall supply luminaires complete with lamps in separate boxes. All fluorescent and CFL luminaires shall have class A2 electronic ballasts.

All internal and external luminaires shall have LED modules and drivers. All LED luminaire drivers shall conform to SANS/IEC/EN standards.

16.2 Installation

The installation and mounting of luminaires must conform to the manufacture's specification that must be obtained by the Electrical Subcontractor.

The Electrical Subcontractor is to note that in the case of board and acoustic tile ceilings i.e., as opposed to concrete slabs, close co-operation with the Principal Contractor is necessary to ensure that as far as possible luminaires are symmetrically positioned with regard to the ceiling pattern. The lay-out of the luminaires as indicated on the drawings must be adhered to as far as possible, and where this is not possible due to partitioning, etc., the Engineer's, Client's, Principal Agent's or any other member of the professional's decision must be sought.

Fluorescent and/or channel type luminaires installed against concrete ceilings shall be screwed to the outlet boxes and in addition 2 x 6mm expansion or other approved type fixing bolts are to be provided. The bolts are to be 3/4 of the length of the luminaires apart.

Fluorescent and/or channel type luminaires to be mounted on board ceilings shall be fixed onto wooden brading and where necessary, additional brading must be provided

for this purpose. The fixing screws are to be placed 3/4 of the length of the fitting apart. Earth conductors must be drawn in with the circuit wiring and connected to the earthing terminal of all fluorescent luminaires as well as other luminaires exposed to the weather.

Bulkhead luminaires are to be screwed directly to the concrete and brick work with approved expansion type of fixing plugs and round head screws. Against board ceilings luminaires shall be secured to the bracing or joists by means of two 40mm x No. 8 round head screws.

16.3 Lamps

Lamps to be supplied with luminaires must be from manufacturers listed below. Any other similar lamps may be submitted for approval:

- Wotan, Osram, Phillips, GEC and GE

16.4 Electronic Ballasts and L.E.D Drivers

Class A2 electronic ballasts and L.E.D drivers to be supplied with luminaires must be from manufacturers listed below. Any other similar lamps may be submitted for approval:

- Tridonic
- Vossloh Schwabe
- Osram
- Phillips
- Mean Well

NOTE: No-name brands and brands of dubious quality and origin are not acceptable.




17. SCHEDULE OF LIGHT FITTINGS




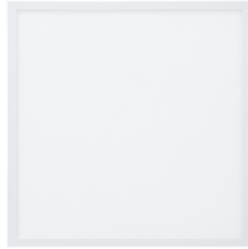
Luminaires and accessories are to be according to this Specification and shall be approved by the Engineer. As a minimum requirement, all luminaires to be installed in this contract shall bear the bear a SABS or IEC mark of quality approval including their components



All luminaires to




- Have Tridonic LED module and driver with dimmable option with 3m cable with 6A plug and 5-year Warranty
- LED luminaires to be 4000K (Neutral White) with Ra of not less than 80
- Life cycle: 60000 hours lifetime @ Tq 25°C minimum and L70 derating, 80 or more colour rendering index (CRI > 80).
- Surge protection device: 5kV/5kA (this will depend on the location, for indoor it is usually between 5kV/5kA and 10kV/10KA and for outdoor is 20kV/20kA)
- Insulation classification: Class 1
- Driver shall comply with IEC 61347-1 & IEC 61347-2-B as applicable and shall be suitable for operation on 230V +/- 10% 50Hz single phase system and it must be insured that harmonics filter is provided as per SANS 61000-3-2. The driver and LED circuitry shall be protected against lightning and power surges. The suitable surge arrestor with 10kA rating shall be provided for indoor installations and 20kA for outdoor installations.
- The driver should be 198 – 277V tolerance.
- Driver – Built-in driver must have 5-year guarantee.
- Luminaires shall be suitable for operation with Mid Power LED's. Note: NO LED TUBES are allowed to be used.
- Power factor capacitors shall be shall be supplied to correct the power factor to at least 0.95 or higher.
- THERMAL: the luminaire must be able to withstand an ambient temperature of 35°C Storage temperature of the luminaire should be able to handle -40°C <T<60°C. To this end internal electrical and mechanical components shall not be allowed to exceed their maximum temperature ratings of 75°C. Test report from an independent authorized testing facility proving this requirement shall be made available to the client on request.



Noise: Due to the sensitive environment in which the luminaire is used, the noise level emitted from the luminaire shall be kept as low as possible. Drivers/electronic components shall, therefore, comply fully with the requirements of the latest edition of SANS 55015.

Type	Description	Picture of Luminaire
A	47W LED linear channel type luminaire, 1150mm in length, manufactured in black polymethyl methacrylate (PMMA) body, housing CRI:80 4000 Kelvin low voltage LED Zhaga Boards (6265lm luminous flux), IP44 rated, surface mounted, including mounting clips, onto ceiling and/or onto P2000 trunking, with opal diffuser & integrated driver.	
AE	Same as above, but with 1-hour <u>lithium</u> battery back-up.	
A1	Same as Type-A, but with 35W LED linear channel type luminaire, with low voltage LED Zhaga Boards (5019lm luminous flux).	
B	19W LED linear channel type luminaire, 580mm in length, manufactured in black polymethyl methacrylate (PMMA) body, housing CRI:80 4000 Kelvin low voltage LED Zhaga Boards (2508lm luminous flux), IP44 rated, surface mounted, including mounting clips, onto ceiling and/or onto P2000 trunking, with opal diffuser & integrated driver.	
BE	Same as above, but with 1-hour <u>lithium</u> battery back-up.	
EX	15W LED Surface mounted or ceiling suspended single-sided maintained emergency exit sign with an EXIT decal. With one hour maintained emergency lighting.	
G	100W LED channel type luminaire, 595mm in length, manufactured in extruded aluminium, black powder coated body; CRI:80 4000 Kelvin LED Boards (17786lm nominal flux) diffuser to be at 90°, <u>IP66 rated</u> , suspended (mounted onto P2000 galvanised trunking) under canopy (to include suspension kit) with opal diffuser & integrated driver.	

GE	Same as above, but with 1-hour <u>lithium</u> battery back-up.	
G1	47W LED channel type luminaire, 1150mm in length, manufactured in black polymethyl methacrylate (PMMA) body, housing CRI:80 4000 Kelvin high voltage LED Samsung Zhaga Boards (7145lm nominal flux), <u>IP65 rated</u> , surface mounted, including mounting clips, onto ceiling, with opal diffuser & integrated driver.	
G1E	Same as above, but with 1-hour <u>lithium</u> battery back-up.	
G2	35W LED channel type luminaire, 1150mm in length, manufactured in black polymethyl methacrylate (PMMA) body, housing CRI:80 4000 Kelvin high voltage LED Samsung Zhaga Boards (5019lm nominal flux), <u>IP65 rated</u> , surface mounted, including mounting clip, onto ceiling, with opal diffuser & integrated driver.	
G2E	Same as above, but with 1-hour <u>lithium</u> battery back-up.	
HS	40W LED <u>surface</u> mounted (including surface mount frame) 600mm x 600mm backlit luminaire (4656lm nominal flux), with 1.5kV surge protected driver, body made from matt white epoxy powder coated finish, seamless aluminium extruded frame. High colour rendering index CRI>80, UGR: <22; <19(4Hx8H,8Hx4H), colour temperature 4000k, ambient temperature -20°C - +30°C, opal diffuser & 5Amp plug top.	
HSE	Same as above, but with 1-hour <u>lithium</u> battery back-up.	

JS	40W LED <u>recessed</u> mounted 600mm x 600mm backlit luminaire (4656lm nominal flux), with 1.5kV surge protected driver, body made from matt white epoxy powder coated finish, seamless aluminium extruded frame. High colour rendering index CRI>80, UGR: <22; <19(4Hx8H,8Hx4H), colour temperature 4000k, ambient temperature -20°C - +30°C, opal diffuser & 5Amp plug top.	
JSE	Same as above, but with 1-hour <u>lithium</u> battery back-up.	
L	15W LED outdoor decorative wall mounted bulkhead (2456lm nominal flux), LM6 die cast aluminium base, opal UV stabilised non-discolouring high impact acrylic injection moulded diffuser, captive washers, stainless steel Allen key screws, the diffuser must be permanently sealed to the aluminium base and must be supplied with a 600mm cable supply lead, mains connections must be by means of a suitable screw terminal block with a wire clamping contact, the trim ring casting is manufactured from high-pressure die-cast aluminium and is finished in a special multi-stage epoxy powder surface coating IP65 rating	
LE	Same as above, but with 1-hour <u>lithium</u> battery back-up.	
O	100W LED UFO type luminaire, manufactured in extruded aluminium, black powder coated body; CRI:80 4000 Kelvin LED Boards (15211lm nominal flux) diffuser to be at 120°, <u>IP65 rated</u> , suspended (mounted onto P2000 galvanised trunking - to include <u>suspension kit</u>) with stainless steel external screws & integrated driver.	
OE	Same as above, but with 1-hour <u>lithium</u> battery back-up.	

P	<p>124W LED 48 LEDs wall mounted (including wall mounting bracket) luminaire, with 3 compartment design; 1-Optical compartment with LED engine, 2-Gear compartment & 3-A spigot compartment. Both optical & gear compartments are to be rated IP67. Housing to be of marine grade aluminium with high impact glass or polycarbonate. LED engine to consist of the LED light source & the power supply which can be easily replaced or upgraded (Futureproof). The power supply is to automatically disengage when opening the luminaire. Luminaire is to be supplied with an electronic trip connector protector with surge protection 6kV & additional removable inline 10kV surge protection device, with stainless steel external screws.</p>	
P1	<p>48W LED 24LEDs wall mounted (including wall mounting bracket) luminaire, with both optical & gear compartments are to be rated IP67. Housing to be of marine grade aluminium with high impact glass or polycarbonate. LED engine to consist of the LED light source & the power supply which can be easily replaced or upgraded (Futureproof). The power supply is to automatically disengage when opening the luminaire. Luminaire is to be supplied with an electronic trip connector protector with surge protection 6kV & additional removable inline 10kV surge protection device, with stainless steel external screws. Electrical contractor to price in for constructing a small concrete plinth & stainless-steel cage to protect the floor mounted floodlight.</p>	
R1	<p>15W LED Surface mounted or ceiling suspended one directional and one-sided emergency sign with a RUNNING MAN decal. With one hour <u>lithium</u> battery maintained emergency lighting.</p>	
R2	<p>Same as above, but ceiling suspended, double-sided emergency sign</p>	

S	<p>42W LED Post top mounted luminaire with UV stabilised satine acrylic or clear acrylic with glare baffles a mounting height of up to 6m. Luminaire to be IP65 rated and to have a 10kV/kA surge protection. Luminaire is to have 360-degree symmetrical angle light distribution.</p>	
ZD	<p>20W LED white recessed slim backlit flicker free downlighter luminaire, powder coated aluminium extruded body, and black anodised aluminium extruded heatsink, opal diffuser (120° beam), small colour tolerance (Mac Adams 3 SDMC) and including an integrated surge protection.</p>	
ZP	<p>Same as Type-ZD, but weatherproof (IP 65 rated)</p>	

18. EARTHING AND BONDING

18.1 General

Earthing shall generally be in accordance with, but not limited to:

- (i) SANS 10142-1: Wiring Code,
- (ii) SANS 10198: Part 3 - Earthing System; General Provision
- (iii) Part 12 - Installation of Earthing Systems
- (iv) SANS 1063: Earth Rods Couplers and Clamps
- (v) AMEU Code of Practice for the application of protective multiple earthing to low voltage distribution systems and
- (vi) The OHS Act 85 of 1993.

18.2 Trench Earthing

- (i) The trench earth shall be laid alongside and not above cables.
- (ii) All connections shall be by means of crimped lugs and bolted connections.

18.3 Earth Terminal

A readily accessible earthing terminal shall be provided, near the trap door in the ceiling, for the bonding of other services such as a telephone, an audio system, a video, and the like, to the building. Such an earthing terminal shall be bonded to the consumer's earth terminal in the main distribution board by a conductor of at least 6mm² copper or equivalent, and shall be identified by the earth symbol.

NOTE: Providers of services other than the electrical power services should not access the distribution board or other parts of the electrical installation.

19 LIGHTNING PROTECTION SYSTEM

The Electrical Subcontractor shall be responsible for the employment of an accredited specialist subcontractor to design, supply and install the lightning protection system (LPS). A provisional sum has been allowed for in the Bill of Quantities for the lightning protection system. The Electrical Subcontractor will be instructed to obtain quotations from specialist LPS sub-contractors who will submit their quotation accompanied by the full analysis and design of the LPS system as directed below.

NOTE: No quotes will be considered without this full analysis and design of the LPS system.

This specialist shall conduct a full survey of the buildings to be protected in order to evaluate the type of lightning protection system to be implemented. This survey must be conducted in accordance with the latest following SANS codes of practice:

- (vii) SANS 10313: Protection against lightning – Physical damage to structures & life hazard.
- (viii) SANS 62305-1: General Principals.
- (ix) SANS 62305-2: Risk management.

- (x) SANS 62305-3: Physical damage to structures & life hazard.
- (xi) SANS 62305-4: Electrical & electronic systems within structures.
- (xii) SANS 1063: Earth rods, couplers & connections.
- (xiii) SANS 10199: The design & installation of earth electrodes.

The LPS specialist shall provide a risk analysis spread sheet to conclude the buildings classification. The risk analysis shall take into account the following criteria.

19.1 Type of structure:

- (i) Construction of walls.
- (ii) Roof construction.
- (iii) Roof covering.
- (iv) Equipment on the roof.

19.2 Contents of the structure:

- (i) Risk of panic.
- (ii) Kind of contents.
- (iii) Value of contents.
- (iv) Measures for reduction of damage.

19.3 Consequential losses:

- (i) Danger to the environment.
- (ii) Loss of services to the public.
- (iii) Other consequential losses.

Based on the above results and in conjunction with location and accepted annual frequency of lightning flashes the required protection level must be established. The design methodology (Protective Angle, Grid or Rolling Sphere) used for the system must be stated and it must be shown with the use of drawings that the building / structure falls within the shielding offered by the LPS.

The LPS specialist shall also provide drawings to indicate the positions of the air termination system and down conductors. Where applicable the down conductors are to be installed in down pipes. Each down conductor should be bonded to the air termination system and be terminated to a 1 800mm copper earth spike in the ground.

The issue of a Certificate of Compliance for the Lightning Protection Systems is compulsory on completion of the installation.

20 MOUNTING HEIGHTS

Unless indicated differently on drawings all boxes must be mounted as follows:
(Measurements to be taken from the finished floor level to underside of a box).

Wall switches, general	: 1 000mm
Switched socket outlets	: 450mm
(") above worktop	: 300mm
Outside wall outlets for luminaires	: 2 200mm (Bulkheads) or 3800mm (Floodlights)

Stove isolators and pushbuttons : 1 200mm

On-tap hot water dispenser isolators : 2 000mm

21 WIRING

Lighting and Power wiring in conduit and channel wireways shall comprise 600/1000V single core PVC insulated copper wire sized in accordance with the distribution board schematics. Conductor outer sheaths shall be of the following colours:-

- Phase Conductors : red, white, blue
- Neutral : black
- Earth : green or yellow/green

Conductors shall not be drawn into conduit until the conduit installation has been completed and all conduit ends are provided with bushes, dried out and cleaned, etc.

The loop-in system shall be followed through out, and no joints of any description will be permitted. The earth wire must be continuous and can be common in the same conduit. If cut, the earth wire must be ferruled with a spigot type ferrule.

The following sizes of PVC insulated stranded copper conductors must be used:

- (i) Light fittings : 1,5 or 2,5mm²
- (ii) Socket outlets : 2,5mm²
- (iii) Mechanical equipment isolators : 4mm²
- (iv) Solar water heaters isolators : 4mm²

Bare copper earth continuity conductor must be drawn into wireways with the "live" conductors and connected to the earth pin of the socket outlet and earth terminal block at the respective Switch Board.

22 WIREWAYS

22.1 Wiring Channels

Wiring channels, wherever indicated on the drawings, shall be medium duty and shall be complete with corner pieces, end pieces, junction pieces, supply conduits and cover plates as specified and indicated on the drawings. **Note that Nylon or plastic nuts or fasteners will not be accepted.**

The channels shall be manufactured of rolled sheet steel and hot-dip galvanised to SANS 763.

Channels shall be cold galvanised at all joints, sections that have been cut and at places where the galvanising has been damaged.

22.2 Conduit and Conduit Accessories

Unless indicated differently on the drawings conduit and conduit accessories shall be PVC

to SANS 950.

Draw-boxes and bonding trays are to be provided in accordance with the 'Wiring Code' and wherever necessary to facilitate easy wiring. Draw boxes are not measured separately in the Bill of Quantities. The Electrical Subcontractor must therefore include the cost of draw boxes and bonding trays in the conduit rates.

22.2.1 Installation

A maximum of 2 plug circuits or 3 light circuits per 20mm diameter conduits will be permitted. Therefore, before conduit installation care must be taken to work out from the construction drawings the number of circuits required in any section.

23 MEASUREMENT OF QUANTITIES

For construction and installations, the Electrical Subcontractor shall take quantities from the latest available revised construction drawings and physically measure cable routes on site before ordering.

Quantities in the Bills of Quantities must not be used for ordering.

24 LV DISTRIBUTION BOARDS

Distribution boards must be manufactured and wired by a specialist distribution board manufacturer who is a member of the Electrical Contractor Association (ECA). Readymade boards purchased from hardware shops and wholesalers and wired by the contractor are not acceptable.

24.1 Distribution Boards Layout

- (i) The layout shall be such that three-phase and single-phase sections are mechanically and electrically separated.

Single phase sections of three phase boards shall be arranged in three horizontal parallel rows, directly above on another and in the phase sequence L1 - L2 - L3 from top to bottom.

- (ii) Lighting and power circuits shall be separated by a dummy space and along the horizontal rows. Extra space for future circuits shall be allowed for at the right-hand side of each lighting and power row, in the ratio of **one** spare space for each **four** lighting or power circuit installed (**30%**). A minimum of **one** space shall be allowed to each lighting and power row. Dummy covers are to be provided over spare spaces. Similar provision for future circuits shall be made on the bus-bars, neutral and earth bars.
- (iii) Any part of the distribution board metal work shall be electrically continuous and a suitable stud shall be provided for the earthing of the enclosure.
- (iv) An earth bar must be provided in the bottom of the distribution boards for the connection of earth conductors for other services.

24.2 Marking and Labelling

- (i) The distribution boards shall be fitted with identification labels engraved with the reference logos indicated on the wiring diagrams. The labels shall be affixed to the front of the panels or in a similar prominent position, by drive screws or other approved method.

DB's label shall indicate the following information:

- **DB name e.g., "SDB-G"**
- **Where it is fed from, the cable and Earthwire sizes e.g., "Fed from MDB-G with 35mm² 4-core SWA ECC cable"**

- (ii) Each individual item of equipment installed in the panels shall be identified by a label engraved with the corresponding diagram reference.

Note: Self-adhesive tape labels, such as Brother™ labelling machines will not be considered suitable for this purpose.

- (iii) Each wiring termination of contactors, timers, shunt trip coils, etc. shall be fitted with a concentric wire marker marked with unique numbers and indicated on the DB as-built schematic diagram. Clip-on and stick-on cable markers will not be considered suitable for this purpose.
- (iv) Where an outgoing terminal block is provided, each individual terminal shall be marked with unique numbers and indicated on the DB as-built schematic diagram.
- (v) Purpose made labels shall describe the various sections or functions of the panels, to facilitate the identification of the equipment and relate it to the diagrams.

24.3 Drawing Pocket

Each distribution board must be provided with **A4 size pockets**, fixed on the inside of the doors to store two A1 size drawings which will be folded into A4 size.

24.4 Equipment

Unless otherwise stated on the drawings, the following minimum specification shall be assumed for equipment to be installed in the panels: -

Moulded Case Breakers (MCB)	SABS Class 15 kA
Miniature Circuit Breaker (mccb)	SABS Class 6 kA

24.5 Shop Drawings

Prior to manufacture the Electrical Contractor will be required to submit to the Engineer for approval, factory shop drawings for each distribution board. **No request for relaxation of this requirement shall be entertained.** The drawings must, at least, indicate the following information:

- Outside distribution dimensions,
- Notes giving detailed description of components and equipment in each board,
- General arrangement of installed equipment,
- Schematic wiring diagrams with fault levels,
- List of equipment to be installed; details to include rating, make and type number,
- Distribution board labels,
- Circuit breaker and isolator label names, as per schematic diagram,
- Project name,
- Drawings number,
- Size of legend card slot.

25 INSTALLATION GUARANTEE

The whole installation shall be guaranteed for the period stated in Contractor Data from the date of Practical Completion.

26 PRATICAL COMPLETION

Practical completion shall take place **only** after the whole installation has been accepted by the Engineer and;

- (a) All damage that may have been done by the Electrical Contractor or any other parties in the process of the installation has been repaired and made good.
- (b) All tests of the general building's electrical installation have been done and tests results have been submitted to the Engineer or Engineer's Representative.
- (c) The completed Certificate of Compliance for Electrical installation have been submitted to the Engineer or Engineer's Representative.
- (d) The completed Certificate of Compliance for Lightning Protection System installation have been submitted to the Engineer or Engineer's Representative.
- (e) All equipment guarantees, if any, have been submitted to the Engineer or Engineer's Representative.
- (f) Correct As-Built drawings have been submitted and accepted by the Engineer or Engineer's Representative.
- (g) The building has been cleared of all debris and electrical waste materials and left in a neat and tidy condition.
- (h) All three phases have been balanced and witnessed by the Engineer or Engineer's Representative. This may require the Electrical Contractor to return to site when the building is occupied to take current measurements and rebalance phases.

27 FINAL COMPLETION

Final Completion shall be taken on expiration of the maintenance period which is stated in the Contract Data calculated from the date of taking the Practical Completion.

The final payment will not be approved without the submission of all the above information under heading 26 and accepted by the Engineer.

28 CABLE TRENCHES

Prior to payment of final retention monies, all cable trenches shall be checked for settling and repaired as necessary.

29 TENDER DRAWINGS

The following tender drawings are attached to this document

Drawing No.	Title	Size
1. 2318-T-E-101-S03	Main Factory – Lighting Layout	A3
2. 2318-T-E-102-S03	Main Factory – Power Layout	A3
3. 2318-T-E-103-S03	Main Factory – First Floor – Lighting Layout	A3
4. 2318-T-E-104-S03	Main Factory – First Floor – Power Layout	A3
5. 2318-T-E-105-S03	Administration Building – Lighting Layout	A3
6. 2318-T-E-106-S03	Administration Building – Power Layout	A3
7. 2318-T-E-107-S03	Ablution Building – Lighting Layout	A3
8. 2318-T-E-108-S03	Ablution Building – Power Layout	A3
9. 2318-T-E-109-S03	Boiler Building – Lighting Layout	A3
10. 2318-T-E-110-S03	Boiler Building – Power Layout	A3
11. 2318-T-E-111-S03	Gatehouse Building – Lighting & Power Layout	A3
12. 2318-T-E-301-S03	MAIN-LV Panel DB Schematic Diagram	A3
13. 2318-T-E-302-S03	SMDB-T1& SMDB-T4 DB Schematic Diagrams	A3
14. 2318-T-E-303-S03	SMDB-T2, SMDB-T3 & SMDB-T5 DB Schematic Diagrams	A3
15. 2318-T-E-304-S03	SDB-T4-B1, SDB-T5-B1, SDB-T5-B2 & SDB-T5-B3 DB Schematic Diagram	A3
16. 2318-T-E-305-S03	SDB-ADMIN, SDB-ABL, SDB-BH & SDB-GH DB Schematic Diagrams	A3
17. 2318-T-E-400	Typical Electrical Details	A3

Section 2 – Outdoor Standby Generator Specification & Returnable Schedules

Outdoor Standby Generator Specification

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1.0 GENERAL

This specification covers the supply, delivery, installation on site and commissioning of an **80kVA**, outdoor, sound attenuated, diesel-powered, standby generator including a fuel tank with the capacity to run the generator for 24-hours at full load.

Full particulars, performance curves and illustrations of the equipment offered, must be submitted with the returnable documents.

The standby generator must be prime painted then finished with two coats of enamel paint.

The schedule of information which is attached to this Specification must be completed and submitted with the quotation.

This tender shall include 3 sets of SABS (SABS 1451: 1998) approved ear muffs, to be stored in the standby generator.

NB: All engine, alternator and control panel parts must be readily available in South Africa. A letter confirming this must be submitted with the tender.

2.0 SITE CONDITIONS

- Location : Dimbaza
- Altitude : +/-580m above Sea level
- Maximum High temperature : 45° C
- Minimum Low temperature : 3° C

3.0 OUTPUT AND VOLTAGE

The standby generator shall be able to accept a 60% emergency step load in 10 seconds after being started. The remaining 40% must be accepted 5 seconds later, i.e. 100% load shall be accepted within 15 seconds. It must have a built-in AVR (automatic voltage regulator) which delivers non fluctuating power.

The standby generator shall have an output as follows

- (a) No load voltage : 400/230 Volt
- (b) Frequency : 50Hz
- (c) Fault Level : 10kA
- (d) Prime power (PRP) : 80kVA
- (e) Standby power (LTP) : 88kVA
- (f) Power factor : 0.8 ϕ

4.0 CONSTRUCTION

The engine and alternator of the set shall be built together on a hot dip galvanised sled base framework on anti-vibration mountings. A drip tray must be fitted under

the engine. The tray must be large enough to contain 110% engine oil sump capacity in case of an oil leak and must be removable.

5.0 OPERATION

The standby generator shall be fully automatic.

It must disconnect the mains power supply and start in case of any one or more of the following conditions occur;

- (a) Any of the three mains power supply phases fails,
- (b) Any of the three mains power supply phases drifts outside set voltage tolerances,
- (c) The mains power supply frequency drifts outside set frequency tolerances.

In addition, it shall be possible to manually start and stop the standby generator by means of push buttons on the standby generator control panel.

The automatic control shall make provision for three consecutive starting attempts. Thereafter the set must switch off, and the start failure relay on the switchboard must give a visible and audible indication of the fault.

To prevent the alternator being electrically connected to the mains supply when the mains supply is on and vice versa, a safe and fail proof system of suitable interlocked contactors shall be supplied and fitted to the changeover switchboard.

6.0 ENGINE

6.1 GENERAL

The engine must comply with the requirements as per BS 5514 and must be of the atomised injection, compression ignition type, running at a speed not exceeding 1500 R.P.M. The engine must be amply rated for the required electrical output of the set, when running under the site conditions. The starting period for either manual or automatic switching-on until the taking over by the generator set, in one step, of a load equal to the specified site electrical output, shall not exceed 15 seconds. This must be guaranteed by the Tenderer.

Turbo-charged engines will only be accepted if the Tenderer submits a written guarantee that the engine can deliver full load within the specified starting period.

The engine must be equipped with an Algae-X® or equal diesel fuel conditioning system.

Curves furnished by the engine makers, showing the output of the engine offered against the speed, for both intermittent and continuous operation as well as fuel consumption curves when the engine is used for electric generation, must be submitted with the Tender.

Only the following engines are acceptable:

- John Deere
- Caterpillar
- Volvo
- Perkins

- Cummings
- Mitsubishi

6.2 RATING

The standby generator shall be capable of delivering the specified output continuously under the site conditions, without overheating.

6.3 DERATING

The derating of the engine for site conditions shall be strictly in accordance with BS 5514 of 1997 as amended to date. Any other methods of derating must have the approval of the Engineer, Client or Principal Agent and must be motivated in detail. Such derating must be guaranteed in writing and proved on site tests.

6.4 STARTING AND STOPPING

The engine shall be fitted with an electric starter motor and be easily started from cold, without the use of any special ignition devices, under summer as well as winter conditions.

Tenderers must state what arrangements are provided to ensure easy starting in cold weather. Full details of this equipment must be submitted. In the case of water-cooled engines, any electrical heaters shall be thermostatically controlled. The electrical circuit for such heaters shall be taken from the control panel, and must be protected by a suitable circuit breaker.

6.5 STARTER BATTERY

The standby generator must be supplied with a fully charged battery. The battery must have sufficient capacity to provide the starting torque stipulated by the engine makers. The battery capacity shall be capable of providing three consecutive start attempts from cold and thereafter a fourth attempt under manual control of not less than 20 seconds duration each. The battery must be of the heavy-duty "maintenance free" type, housed in a suitable battery box and **guaranteed for 24 months**.

6.6 COOLING

The engine may be either air-cooled or water-cooled. In the case of water-cooling, a built-on heavy duty, tropical type pressurised radiator must be fitted.

For either method of cooling, protection must be provided against running at excessive temperatures. The operation of this protective device must give a visual and audible indication on the switchboard. Water-cooled engines shall in addition be fitted with a low water cut-out switch, installed in the radiator to switch the set off in the event of a loss of coolant. The protection shall operate in the same way as the other cut-out switches (e.g., low oil pressure). All air ducts for the cooling of the engine are to be allowed for. The air shall not re-circulate in the enclosure and an air duct shall be supplied from the cooling fan cowling/radiator face to the air outlet louvers in enclosure wall / attenuator.

6.7 LUBRICATION

Lubrication of the main bearings and other important moving parts shall be by forced feed system. An automatic low oil pressure cut-out must be fitted, operating the stop solenoid on the engine and giving a visible and audible indication on the switchboard.

6.8 FUEL PUMP

The fuel injection equipment must be suitable for operation with the commercial brands of diesel fuel normally available in South Africa.

6.9 FUEL TANK

The standard generator diesel of ± 320 litres or as an extension to ensure a 24-hour running time at full load.

~~6.10 BULK FUEL TANK~~

~~The standby generator shall have a 1000L double skinned bunded fuel tank, complete with all accessories.~~

6.11 GOVERNOR

The speed of the engine shall be controlled by a governor in accordance with class A2 of BS 5514 of 1977 if not otherwise specified.

The permanent speed variation between no load and full load shall not exceed 4.5% of the nominal engine speed and the temporary speed variation shall not exceed 10%. External facilities must be provided on the engine; to adjust the nominal speed setting by $\pm 5\%$ at all loads between zero and rated load.

6.12 FLYWHEEL

A suitable flywheel must be fitted, so that lights fed from the set will be free from any visible flicker.

A cyclic irregularity of the set must be within the limit as per BS 5514 of 1977.

6.13 EXHAUST SILENCER

It is essential to keep the noise level as low as possible. An effective exhaust silencing system of a super residential type must be provided.

The exhaust pipe shall be installed in such a way that the expelled exhaust fumes will not cause discomfort to the public. The exhaust pipe must be flexibly connected to the engine to take up vibrations transmitted from the engine, which may cause breakage. The exhaust piping and silencer shall be lagged to reduce the heat and noise transmission into the enclosure and shall be protected against the ingress of driving rain at 45° to the horizontal.

6.14 ACCESSORIES

The engine must be supplied complete with all accessories, air and oil filters, 3 instruction manuals, spare parts lists, the first fill of lubricating oils, etc.

7.0 **ALTERNATOR**

The alternator shall be of the self-excited brush less type, with enclosed ventilated drip-proof housing and must be capable of supplying the specified output continuously with a temperature rise not exceeding the limits as per BS 5000 for rotor and stator windings.

The alternator shall be capable of delivering an output of 125% of the specified output, for one hour in any period of 8 hours consecutive running.

Both windings must be fully impregnated for tropical climate and must have oil resisting finishing varnish.

7.1 REGULATION

The alternator must preferably be self-regulated without the utilization of solid-state elements. The inherent voltage regulation must not exceed plus or minus 5% of the nominal voltage specified, at all loads with the power factor between unity and 0,8 lagging and within the driving speed variations of 4,5% between no-load and full load.

7.2 PERFORMANCE

The excitation system shall be designed to promote rapid voltage recovery following the sudden application of the full load. The voltage shall recover to within 5% of the steady state within 300 milliseconds following the application of full load and the transient voltage dip shall not exceed 15%.

7.3 COUPLING

The engine and alternator must be directly coupled by means of a high-quality flexible coupling, of equal quality and performance to the "HOLSET" type.

8.0 **SWITCHBOARD**

A free-standing automatic main failure panel incorporate all the standard equipment for the control and protection of the standby generator and battery charging must be positioned directly behind the set.

The automatic change-over switch must be accommodated inside the mains fail panel.

The switchboard must conform to the specification as set out in the following paragraphs.

8.1 CONSTRUCTION

The switchboard shall be a totally enclosed, and mounted inside the generator enclosure.

All equipment, connections and terminals shall be easily accessible from the front. The front panels may be either hinged or removable and fixed with studs and chromium-plated cap nuts. Self-tapping screws shall not be used in the construction of the board.

All push buttons, pilot lights, control switches, instrument and control fuses, shall be mounted on hinged panels with control wires in flexible looms.

The steelwork of the boards must be thoroughly de-rusted, primed with zinc chromate and finished with two coats of signal red quality enamel, or a baked powder epoxy coating.

Suitably rated terminals must be provided for all main circuits and the control and protection circuits. Where cable lugs are used, these shall be crimped onto the cable stands. Screw terminals shall be of the type to prevent spreading of cable strands. All terminals shall be clearly marked.

For the control wiring, each wire shall be fitted with a cable or wire marker of approved type and numbering of these markers must be shown on the wiring diagram of the switchboards. Control wiring shall be run in PVC trunking as far as possible. The trunking shall be properly fixed to the switchboard steelwork. Adhesives shall not be acceptable for the fixing of trunking or wire looms to the steelwork.

The automatic control and protection equipment shall be mounted on a separate easily replaceable small panel with printed circuits. The equipment shall mainly be the "solid state" type. After mounting the equipment on the panel, the rear of this panel shall be sealed with epoxy-resin. However, other proven control systems may also be considered, but must be described in detail.

All equipment on the switchboard, such as contactors, isolators, busbars, etc., shall have ample current carrying capacity to handle at least 150% of the full load alternator current specified.

8.2 PROTECTION AND ALARM DEVICES

A switchboard shall be equipped with protection and alarm devices as described below.

A circuit breaker and an adjustable current limiting protection relay must be installed, for protection of the alternator. The protection relay shall be of the type with inverse time characteristics.

Protection must be provided for overload, high engine temperature, low lubricating oil pressure, over speed, start-failure and low water level.

Individual relays with reset pushes are required, to give a visible signal and stop the engine when any of the protective devices operate. In the case of manual operation of a standby set, it shall not be possible to restart the engine by pushing the re-set.

The indicators and re-set push-buttons must be marked in English only.

"OVERLOAD"	"TEMPERATURE HIGH"	"OIL PRESSURE LOW"
"OVERSPEED"	"START FAILURE"	"LOW WATER LEVEL"

In addition, two relays with reset push-buttons must be fitted giving an audible and visible signal, when:

- a) The fuel level in the service tank is low. The reset push button of this relay must be marked "FUEL LOW".

In addition, an extra low-level fuel sensor must be provided. At this level the engine must stop to prevent air entering the fuel system.

- b) The battery charger failed. The reset push-button of this relay must be marked "CHARGER FAIL".

All relays must operate an alarm siren. A push-button must be installed in the siren circuit to stop the audible signal, but the fault indicating light on the control panel must remain lit until the fault has been rectified. An on/off switch is not acceptable. After the alarm siren has been stopped, it must be reset automatically, ready for a further alarm.

The siren must be of the continuous duty and low consumption type. Both siren and protection circuits must operate from the battery.

Potential free contacts from the alarm relay must be brought down to terminals for remote indication of alarm conditions.

A test push-button must be provided to test all indicator lamps.

8.3 GENERATOR CONTROLLER

8.3.1 Design

- (a) The controller shall be similar, equal to or newer than the Deepsea MK II or Lovato modular generator controller. Controllers with less functionality will not be accepted.
- (b) The controller shall be manufactured with all its functions and supplied in one box with plug in termination blocks for easy installation and replacement.
- (c) The control circuit shall be designed by using fully approved electronic programmable logic controllers. Preference will be given to local manufactured programmed control circuits.
- (d) The controller shall be equipped with a GSM cell phone-type modem or Ethernet Gateway/controller. This modem shall allow remote access to the standby generator controller where the status of the generator set can be remotely monitored via the cell phone network and a computer equipped with an internet modem and the necessary controller software. The system must also be programmed to output various statuses and alarm conditions by means of SMS or Email messages to any number of designated cell phones or email addresses.

8.3.2 Communication Interface

- (a) The controller will have a standard RS 232/485 or Ethernet interface suitable for TCP I/P transport medium.
- (b) All communication including configuration management shall be done through this port. The use of external program adaptors etc. will not be acceptable.
- (c) The controller shall incorporate the following functions:
 - (i) Mains sensing
 - (ii) Alternator output-voltage sensing
 - (iii) Alternator over-frequency sensing
 - (iv) Control of processor unit (self-diagnostics)
 - (v) Alarms/Status indications.
 - (vi) Control selector and operation

8.3.3 Control Selector

A 4-position control-selector on the controller shall be provided to facilitate the following modes of operation:

- OFF** : Generator switched off
- MANUAL** : Mains bypassed: Generator shall not take load
- AUTO** : Generator takes load on mains failure
- TEST** : Generator takes load on mains failure

8.3.4 Protections, Alarm and Status Indications

- (a) Provision shall be made for an acoustic as well as visual alarm device.
- (b) A red flashing beacon (electronic strobe light) shall be installed on the outside of the standby generator set enclosure.
- (c) This alarm device shall be powered from the standby generator set 12V starter battery.
- (d) The audible alarm shall be a low-powered electronic device, in order to prevent the starter battery from being discharged when an alarm condition has been activated.

The audible alarm shall be muted automatically after 120 seconds, but the flashing beacon (electronic strobe light) shall remain activated until the RESET function has been operated at the standby generator controller.
- (e) The “common” alarm function shall be activated when any alarm condition is activated.
- (f) Alarm status indications shall be provided on the standby generator controller. The controller shall contain a HELP menu included in the software, which will provide basic guidance in the event of any monitored alarm functions being activated.

- (g) The standby generator controller documentation shall to be provided with the generator set.

8.3.5 Functions

- (a) At least the following front Panel Indicators shall be provided

<u>Condition</u>	<u>Alarm</u>	<u>Shutdown</u>
High Temperature	√	√
Low Oil Pressure	√	√
Overspeed	√	√
Under speed	√	√
Manual/Test Mode		
Heater Fault	√	
Low Fuel	√	
No Fuel	√	√
Low Water	√	√
<u>Condition</u>	<u>Alarm</u>	<u>Shutdown</u>
Modem Remote Start		
Start Fail	√	√
Manual Start		
Emergency Stop	√	√
Mains Phase Rotation Fault	√	
High Mains Volts	√	
Low Mains Volts	√	
Mains On		
Mains On Load		
Alternator On		
Alternator On Load		
Alternator Phase Rotation Fault	√	√
High Alternator Volts	√	√
Low Alternator Volts	√	√
Battery Volts Fault	√	
Alternator Charge Fault	√	
Control System On		

(b) Logging of Events

All events relating to the status of the generator set shall be logged with date and time in a non-volatile memory (which can retain information for a period of 6 months in the absence of power to the controller) and the user shall be able to obtain a hard copy on site. Logging of the following events with date and time shall be programmed

- Buffer erased
- Mains on load
- Unit switched ON
- Unit switched OFF
- Low Fuel Level
- Alternator on load
- Alternator off
- Start attempts = 01
- Start attempts = 02
- Start attempts = 03
- Mains phase low
- Unit Mode = Auto
- Manual Stop
- Manual Start
- Unit Mode = Manual
- Alt. Phase 1 min Volts
- Alt. Phase 2 min Volts
- Alt. Phase 3 min Volts
- Alt. Phase 1 max Volts
- Alt. Phase 2 max Volts
- Alt. Phase 3 max Volts
- Alt. Phase 1 min Amps
- Alt. Phase 2 min Amps
- Alt. Phase 3 min Amps
- Alt. Phase 1 max Amps
- Alt. Phase 2 max Amps
- Alt. Phase 3 max Amps

(c) User Programmable

The controller shall be user programmable on site via a menu system with clear prompts for the required data.

(d) Control System DC Supply Voltage

The control system must be able to operate with a minimum DC supply voltage of 4 Volts (without making use of either an internal or an external auxiliary battery) to allow cranking and starting under conditions of low battery capacity.

8.4 MANUAL STARTING

The switchboard shall be equipped with two push-buttons marked "START" and "STOP" for manual starting and stopping of the set.

8.5 BATTERY CHARGING EQUIPMENT

The switchboard shall be equipped with battery charging equipment.

The charger shall operate automatically in accordance with the state of the battery and shall generally consist of an air-cooled transformer, a full wave solid-state rectifier, and the necessary automatic control equipment of the constant voltage system.

The charger must be fed from the mains. An engine driven alternator must also be provided for charging the battery while the set is operational. Failure of this alternator must also activate the battery charger failure circuit.

8.6 SWITCHBOARD DISPLAYS

All readings Voltage, Amperes (instantaneous, average and maximum), Frequency, kW, kVA, kVAr frequency, etc must be displayed on the controller panel.

8.7 MARKINGS

All labels, markings or instructions on the switchgear shall be in English only.

8.8 EARTHING

An earth bar must be fitted in the switchboard, to which all non-current carrying metal parts shall be bonded.

The neutral point of the alternator must be solidly connected to this bar by means of a removable link labelled "EARTH". Suitable terminals must be provided on the earth bar for connection of up to three earth conductors, which will be supplied and installed by others.

8.9 OPERATIONAL SELECTOR SWITCH

A four-position selector switch must be provided on the switchboard marked "AUTO", "MANUAL", "TEST", and "OFF".

With the selector on “AUTO”, the set shall automatically start and stop, according to the mains supply being available or not.

With the selector on “TEST”, it shall only be possible to start and stop the set with the push buttons, but the running set shall not be switched to the load.

With the selector on “MANUAL”, the set must take the load when started with the push-button, but it must not be possible to switch the set on to the mains, or the mains onto the running set.

With the selector on “OFF”, the set shall be completely disconnected from the automatic controls, for cleaning and maintenance of the engine.

8.10 AUTOMATIC CHANGE-OVER SYSTEM

A motorised 24-pole fully automatic changeover system must be provided to isolate the mains supply from two sources and connect the standby generator set to the outgoing feeder in case of a mains failure and reverse this procedure on return of the mains.

The contactors for this system must be interlocked in a safe and fail proof way to prevent the alternator from being switched onto the mains or vice versa.

8.10.1 Generator set Controller in AUTO mode:

- (a) In the event of a mains failure, the plant must start up after a 3 second delay. This delay shall be introduced to prevent spurious starting of the generator set caused by mains supply transients.
- (b) During starting and run-up, engine oil pressure, and alternator output voltage and frequency monitoring, shall be blocked for a controlled period of time.
- (c) Once the blocking is released and the various operating parameters confirmed as correct, the control system must signal the remote NORMAL supply changeover contactor to open, followed by a closing command for the remote STANDBY supply changeover contactor.
- (d) The plant shall now provide power to the essential power loads.
- (e) After the mains supply has been restored, the plant must remain on load for a further 60 seconds, after which time it must cause the STANDBY supply changeover contactor to open, followed 2 seconds later by the closing of the NORMAL supply changeover and remote DB mounted contactors.
- (f) Mains power is now restored to the essential and non-essential power loads.
- (g) The plant shall now continue to run for a further 3 minutes in order to stabilize the engine and turbocharger temperatures before stopping, thereby avoiding thermal stresses on the engine.
- (h) Should the mains fail during the 3-minute cool-down cycle, the system must cause an immediate changeover to STANDBY power, while resetting the cool-down cycle. After the mains have been restored, changeover back to NORMAL supply and shutdown procedures must be re-initiated as described above.

8.11 START DELAY

Starting shall be automatic in event of a mains failure. A 0-10s adjustable, start delay timer shall be provided to prevent start-up on power dips or very short interruptions.

8.12 STOP DELAY

A stop delay with timer is required for the set, to keep the set on load for an adjustable period of one to sixty seconds (0–6s) after the return of the mains supply, before changing back to the supply. An additional timer shall keep the set running for a further adjustable cooling period of 5 to 10 minutes at no-load before stopping.

9.0 **PLANT AND EQUIPMENT GUARANTEES**

The generator plant (genset set and all associated equipment) will be guaranteed for twelve (12) months irrespective of the running hours recorded on the hour meter. All the equipment supplied with it will be guaranteed for twelve (12) months from the date of Practical Completion and written guarantees must be submitted on completion.

10.0 **FIRST 12 MONTHS MAINTENANCE PERIOD**

The Tenderer shall be responsible for the service and maintenance of the generator plant for a period of twelve months after the Practical Completion has taken place.

If during this period the plant is not in working order, or not working satisfactorily owing to faulty material, design or workmanship, the Tenderer will be notified and immediate steps shall be taken by the Tenderer to rectify the defects and/or replace the affected parts on site at the Tenderer's expense.

The Tenderer shall maintain the plant in good working condition for the full twelve (12) month period to the final delivery of the installation. However, should the Tenderer fail to hand over the plant in good working order on the expiry of the specified twelve (12) months, the Tenderer shall be responsible for further monthly maintenance until final delivery is taken.

During this period the Tenderer will undertake to arrange that the plant be inspected at least once per month by a qualified member of his staff who shall: -

- (a) Report to the Officer-in-charge, keeping the maintenance records, and enter into a log book the date of the visit, the tests carried out, the adjustments made, and any further details that may be required.
- (b) Grease and oil moving parts, where necessary.
- (c) Check the air filter and, when necessary, clean the filter and replace filter oil.
- (d) Check the lubricating oil and top-up when necessary.
- (e) After the plant has run one oil change for the number of hours stipulated by the manufacturers, drain the sump and refill with fresh lubricating oil. The reading of the hour meter on the switchboard will be taken to establish the number of hours run by the plant.

Under this heading only the cost of the actual oil used, shall be charged as an extra on the monthly account.

- (f) Clean the lubricating oil filter and/or replace the filter element at intervals recommended by the engine manufacturer, the cost of a new filter element to be charged as an extra on the monthly account.
- (g) Check and when necessary, adjust the valve settings and the fuel injection equipment.
- (h) Check the battery and top-up the electrolyte when necessary.
- (i) Test-run the plant for 0,5 hour and check the automatic starting with simulated faults on the mains, the proper working of all parts, including the electrical gear the protective devices with fault indicators, the changeover equipment and the battery charger. Make the necessary adjustments.
- (j) Report to the Officer-in-charge on any parts that become unserviceable through fair wear and tear, or damaged by causes beyond the control of the Subcontractor.

The Tenderer shall immediately submit a detailed quotation for the repair or replacement of such parts to the Officer-in-charge.

- (k) Advise the Officer-in-charge when it has become necessary to de-carbonise the engine and submit a quotation for this service.
- (l) Top up the water of the radiator, if applicable.
- (m) Clean the plant and its components.

11.0 TESTS

The following tests are to be carried out:

- a) At the supplier's premises, before the standby generator set will be delivered to site. The Engineer and/or the alternative Representative of the Employer will be present during the test to satisfy themselves that the generator set complies with the specification and delivers the specified output. The Engineer must be timeously advised of the date of this test.
- b) After completion of the works and before first delivery is taken, a full test will be carried out on the electrical installation on site for a period of sufficient duration to determine the satisfactory working thereof. During this period the installation will be inspected and the Tenderer shall make good, to the satisfaction of the Engineer, any defects which may arise.
- c) The Tenderer shall provide all instruments and equipment required for testing and any water, power and fuel required for the commissioning and testing of the installation at completion.
- d) Test reports of both tests as specified under (a) and (b) are to be submitted to the Engineer.

12.0 **SPARES, MANUALS AND RECORD DRAWINGS**

All necessary catalogues and nearest availability of spare parts shall be detailed in the offer.

On completion the Tenderer shall submit to the Engineer a set of

- (a) Operation,
- (b) Maintenance manuals,
- (c) Record drawings,
- (d) First batch of service spares and
- (e) Full diesel fuel tank.

13.0 **ENCLOSURE / CANOPY**

13.1 GENERAL

- (a) The generator set will be installed inside a sound attenuated 3CR12 stainless-steel purpose-built enclosure. Trox sound attenuators and louvres to suit must be fitted to both ends and both sides must be fitted with acoustic doors for access purposes. The inside of the container must be lagged with "Quash" type acoustic material and the standard aluminium chequer plate floor and lights etc. must be installed over the engine and in front of the switchboard.
- (b) The enclosure shall allow easy access to the engine, alternator, radiator filler cap and switchboard for maintenance purposes.
- (c) The door hinges and locking bars shall be of a heavy-duty type and be manufactured of an alloy or corrosion resistant material.
- (d) The diesel fuel level indicator and alternator rating plate shall be clearly visible with the doors open.
- (e) The silencer exhaust must be mounted within the enclosure.
- (f) Rubber seals on doors.

13.2 DESIGN

- (a) The enclosure shall be designed to be weather-proof and sound proofed. Rivets or self-tapping screws will under no circumstances be allowed for fixing the various sections of the enclosure. Only corrosion resistance nuts and bolts are acceptable.
- (b) The starter battery shall be housed in an insulated compartment with forced air flow when the engine is running. It should be provided with easy access for maintenance and removal.

13.3 ROOF

The roof of the enclosure shall be constructed for proper drainage of water with a pitch of not less than 7 degrees.

13.4 LIGHT FITTINGS

- (a) A vapor/corrosion proof LED light fitting and it's associated on/off door switch shall be provided inside the enclosure for illumination of the control panel and the inside of the enclosure.
- (b) The power for the LED luminaire shall be obtained from the starter battery.

13.5 PROVISIONS AND STORAGE

Provide the following suitably sized:

- (a) Readily accessible Carbon dioxide fire extinguisher
- (b) Storage box for service spares and a pair of ear muffs.

13.6 POWER POINT

A 16 Ampere switched socket outlet (SSO) shall be provided in the externally mounted terminal box or suitable accessible position and protected from rain. The SSO must be accessible without the use of tools. The power supply shall be taken from the mains side of the switchboard and protected by a 20A, 30mA Earth Leakage.

13.7 NOTICES

- (a) Notices in English as stipulated in the latest amendment of the Occupational Health and Safety Act 85/1993 shall be installed in the generator enclosure.
- (b) Notices shall be in accordance with SANS 1186-1:2008 Symbolic Safety Signs Part 1
- (c) All notices shall be of the metal engraved type with a minimum metal thickness of 1 mm. The words shall be in red lettering on a white background.
- (d) The lettering shall be embossed and the colouring shall not fade in sunlight
- (e) The contents of these notices are summarised below.
 - (i) A notice prohibiting unauthorised entry prohibited
 - (ii) A notice prohibiting unauthorised handling of or interfering with electrical apparatus
- (f) Notices (e) (i) must be installed outside next to the entrance of the generator enclosure and (e) (ii) to be inside the generator enclosure.
- (g) In the generator enclosure, a clearly legible and indelible warning notice must be mounted in a conspicuous position. The motive shall be made of a non-corrodible and non-deteriorating material, preferable plastic, and must read as follows:

DANGER: THIS ENGINE WILL START WITHOUT NOTICE. TURN SELECTOR SWITCH ON CONTROL BOARD TO "OFF" BEFORE WORKING ON THE PLANT.

14.0

CONCRETE PLINTH FOR MOUNTING THE GENERATOR

The Tenderer may negotiate the construction of the concrete plinth with the building contractor who may be better equipped for this.

The plinth must be strong enough to carry the dynamic wet mass of the generator. The plinth must be provided with a bund sized to for holding 110% of the fuel tank capacity and provided with a sump inside and a chamber with a draining gate valve outside. The drain valve outlet must discharge into the sewer system through an oil trap / interceptor.

Cabling must be through cable sleeves cast in the floor of the bund and protruding above the rim of the bund.

15.0 **SCHEDULE OF GENERATOR TECHNICAL RETURNABLE INFORMATION**

A. ENGINE

NO	ITEM	REMARKS
1.	Manufacturer's Name	
2.	Country of Origin	
3.	Manufacturer's model No. and year of manufacture	
4.	Continuous sea level rating after allowing for ancillary equipment: In kW.....	
5.	Percentage de-rating for site conditions, in accordance with BS 551.4	
	a) For altitude.....	
	b) For temperature...	
	c) For humidity.....	
	d) Total de-rating.....	
6.	Net output on site in kW	
7.	Nominal speed in r.p.m.	
8.	Number of cylinders	
9.	Swept volume in litres	
10.	Compression ratio	
11.	Fuel consumption of the complete generating set on site of alternator output at in l/h:	
	a) Full load.....	
	b) ¾ load.....	
	c) ½ load.....	
	NOTE: A tolerance of 5% shall be allowed above the stated value of fuel consumption.	
12.	Make of fuel injection system.	
13.	Capacity of fuel tank in litres	
	a) Primary..... b) Bulk.....	N/A
14.	Method of reading tank fuel level, with electromechanical or electronic gauge?	
	a) Primary tank..... b) Bulk tank.....	N/A
15.	Where is the fuel gauge situated?	
	a) Primary tank.....	

NO	ITEM	REMARKS
		N/A
	b) Bulk tank.....	
16.	Is water trap fitted in the fuel line system?	
17.	Is diesel fuel conditioner provided for the bulk fuel tank?	N/A
18.	Is electric pump for filling the fuel tank included?	
19.	Is manual pump for filling the fuel tank included?	
20.	Method of cooling	
21.	Type of radiator, if water-cooled	
22.	Type of heater for warming cylinder heads, if required	
23.	Capacity of heater in kW, if required	
24.	Method of protection against high temperature	
25.	Method of protection against low oil pressure	
26.	Type of governor	
27.	Speed variation in %	
	a) Temporary..... b) Permanent.....	
28.	Minimum time required for as assumption of full load after starting in seconds	
29.	Recommended interval in running hours for:	
	a) Lubricating oil change.....	
	b) Oil filter element change....	
	c) Decarbonising.....	
30.	Are all accessories and ducting of the radiator included?	
31.	Is engine naturally aspirated or turbocharged?	
32.	Are performance curves attached?	
33.	Noise level inside the generator enclosure in dBA	N/A
34.	Noise level at 5 000mm from the closed enclosure in dBA	
	a) Engine exhaust outlet..... b) Hot air discharge louvre.....	
35.	Is engine exhaust system as specified?	
36.	% Load acceptance to BS 5514, Part 4, with 10% transient speed drop	

B. ALTERNATOR

NO	ITEM	REMARKS
1.	Maker's name	
2.	Country of Origin	
3.	Maker's Model No and year of manufacture	
4.	Type of enclosure	
5.	Nominal speed in r.p.m.	
6.	Number of bearings	
7.	Terminal voltage	
8.	Sea level rating kVA at 0,8 power factor	
9.	De-rating for site conditions	
10.	Input required in kW	
11.	Method of excitation	
12.	Efficiency at 0,8 power factor and: a) Full load..... b) ¾ load..... c) ½ load.....	
13.	Maximum permanent voltage variation in %	
14.	Transient voltage dip on full load	
15.	Voltage recovery on full load application in milliseconds	
16.	Is alternator brushless?	
17.	Class of insulation of windings	
18.	Is alternator suitable for tropical conditions?	
19.	Symmetrical short circuit current at terminals in Amperes	
20.	Type of Coupling between engine and alternator	
21.	Is the alternator protected against a) Overload..... b) System faults..... c) Overvoltage..... d) Stator/Rotor winding temperature..... e) Internal generator faults.....	

C. SWITCHBOARD

NO	ITEM	REMARKS
1.	Maker's Name	
2.	Country of Origin	
3.	Is it free standing or mounted on the set?	
4.	Finish and colour	
5.	Ratio of current transformers	
6.	Make of the main circuit breaker	
7.	Rating of circuit breaker in Amps and fault level in kA	
8.	State the SA or international standard to which all circuit breakers conform	
9.	Setting range of overload trips	
10.	Setting range of instantaneous trips	
11.	Make of motorised change-over equipment	
12.	Rating of change-over equipment in Amps	
13.	State the SA or international standard to which all circuit breakers conform	
14.	Are auxiliary contacts available on the motorised change-over equipment?	
15.	Make of Controller	
16.	Make and type of rectifier for battery charger	
17.	Is battery charger automatically selected for boost / float?	
18.	Maker's name for the alarm siren	
19.	Is the alarm siren of the continuous duty type?	
20.	Are potential free contacts from the alarm relay brought down to terminals for remote indication of alarm conditions?	
21.	If the manufacture of switchboard/control panel to be sub-let state name and address of specialist manufacturer?	

D. BATTERY

NO	ITEM	REMARKS
1.	Maker's Name	
2.	Country of Origin	
3.	Type of battery	
4.	Voltage of battery	
5.	Number of cells	
6.	Capacity in cold crank in Ah	
7.	Battery warranty period in months	

E. DIMENSIONS

NO	ITEM	REMARKS
1.	Overall dimensions of set including the switchboard and the enclosure in mm	
2.	Overall wet mass of the set including the switchboard and the enclosure in kg	
3.	Overall dimensions of the bulk tank including the fuel conditioner.	N/A

F. SPARE PARTS AND MAINTENANCE FACILITIES

NO	ITEM	REMARKS
1.	Are engine and alternator spares available in the Eastern Cape?	
2.	Where are these spares held in stock?	
3.	What facilities exist in the Eastern Cape for the servicing of the equipment offered?	
4.	Where are these facilities available?	

G. GENERATOR ENCLOSURE

NO	DESCRIPTION	
1.	Construction material and thickness (submit proof)	
2.	Finish and colour	
3.	Number of access doors	
4.	Make and type of heavy-duty door hinges	
5.	Sound attenuation material	
6.	Exhaust silencer mounted within the enclosure or external?	
7.	Method of sealing doors	
8.	Type of corrosion resistant fasteners	
9.	Roof pitch	

Section 3 – Returnable Schedules

RETURNABLE SCHEDULES

TABLE OF CONTENTS

ITEM No.	DESCRIPTION
3.1	Registration as an Electrical Contractor
3.2	Details of Installation Electrician
3.3	Schedule of Material & Equipment Offered
3.4	Schedule of Electrical Subcontractor's Testing Equipment

3.1 REGISTRATION AS AN ELECTRICAL CONTRACTOR

The Tenderer must employ an Electrical Subcontractor registered with the Electrical Contracting Board of South Africa and must also be registered with the Workmen's Compensation Commissioner and the Unemployment Insurance Commissioner.

Tenderers must complete the following questionnaire and submit it with this tender.

- a) Has the Electrical Subcontractor been registered with the Electrical Contracting Board of South Africa YES/NO
Registration No:
Date of issue:

- b) Has the Electrical Subcontractor been registered with the Department of Manpower?
 - i) Registered for Workmen's Compensation for Occupational Injuries and Diseases Act YES/NO
Registration No:
Date of issue:

 - ii) The Unemployment Insurance Commissioner YES/NO
Registration No :
Date of issue:

I/We certify that the above information is correct

Signature:

Name of Signatory:

Name of Firm Represented:

Address:

.....

.....

Date:

NOTE: IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT ELECTRICAL INSTALLATIONS REGULATIONS FAILURE TO COMPLY WITH THIS CLAUSE OF THE SPECIFICATION MAY RESULT IN DISQUALIFICATION AND REJECTION OF THE TENDER.

3.2 DETAILS OF INSTALLATION ELECTRICIAN

I/We certify that is a registered installation electrician in terms of the Occupational Health and Safety Act (Act 85 1994 and is permanently employed by my/our company trading as:

.....
.....

I/We further certify that the abovementioned person will be appointed as the responsible person in charge of the installation, which person shall personally supervise the whole of the electrical works as tendered for from inception to completion inclusive of signing all commencement/completion/ cost certificates necessary as part of the Works.

I/We further certify that I/We am/are fully aware of the provisions of the Occupational Health and Safety Act (Act 85 1994), and that my/our company is trading as a registered electrical contracting organisation.

SIGNATURE OF TENDERER	SIGNATURE OF INSTALLATION ELECTRICIAN
REGISTRATION NUMBER OF INSTALLATION ELECTRICIAN	DATE
COMPANY STAMP			

NOTE **It is an offence to employ a registered single-phase installation electrician on a poly-phase installation and it may be necessary to submit a certified copy of the licence of the person to be employed on any poly-phase project.**

3.3 SCHEDULE OF MATERIALS & EQUIPMENT OFFERED – Electrical Installation

The Electrical Subcontractor shall complete the following schedule of materials and equipment offered at tender stage and undertook that the actual materials and equipment installed shall be in accordance with this schedule. Unless the equivalent is no longer available, previously offered equipment shall be binding. Where previously offered equipment or where the equipment specification has changed, the Electrical Subcontractor may indicate an alternative offer that must conform to the specifications.

The Electrical Subcontractor is to take note that if the material offered is not to specification, this may not be accepted by the Engineer.

NB : Only one manufacturer's name to be inserted for each item.

Col.	1	2	3	4	5	6
Item No.	Item	Make or Trade Name	Model No. or I.D.	Material to Spec? (Give details if not)	SABS Mark Y/N	Country of Origin
1.0	Distribution Boards					
1.1	Switchgear utilised					
2.0	Make of Switches & Accessories					
2.1	Light switches					
2.2	Photocell					
2.3	Switch socket outlets					
2.4	Isolators					
2.5	MCB's					
2.6	Circuit breakers 1P, 2P, 3P					
2.7	On load isolators without trips					
2.8	Contactors 1P, 2P, 3P					
2.9	Earth leakage units					
2.10	Powerskirting					
2.11	Switched Socket Outlets					

Col.	1	2	3	4	5	6
Item No.	Item	Make or Trade Name	Model No. or I.D.	Material to Spec? (Give details if not)	SABS Mark Y/N	Country of Origin
4.0	Wiring Channel					
4.1	Manufacturer					
4.2	Model No.					
5.0	Luminaires					
5.1	Type A					
5.2	Type AE					
5.3	Type A1					
5.4	Type B					
5.5	Type BE					
5.6	Type EX					
5.7	Type G					
5.8	Type GE					
5.9	Type G1					
5.10	Type G1E					
5.11	Type G2					
5.12	Type G2E					
5.13	Type HS					
5.14	Type HSE					
5.15	Type JS					
5.16	Type JSE					
5.17	Type L					
5.18	Type LE					
5.19	Type O					
5.20	Type OE					

Col.	1	2	3	4	5	6
Item No.	Item	Make or Trade Name	Model No. or I.D.	Material to Spec? (Give details if not)	SABS Mark Y/N	Country of Origin
5.21	Type P					
5.22	Type P1					
5.23	Type R1					
5.24	Type R2					
5.25	Type S					
5.26	Type ZD					
5.27	Type ZP					

NOTE: Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor.

Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.

.....

NAME OF TENDERER

.....

TENDERER'S SIGNATURE

.....

DATE

3.4 SCHEDULE OF ELECTRICAL SUBCONTRACTOR'S TESTING EQUIPMENT

Item	Test	Equipment
1.	Insulation Resistance	
2.	Earth Continuity	
3.	Polarity	
4.	Earth Leakage Protection	
5.	Other: (Specify)...	

SIGNATURE:

DATE:

(of person authorised to sign on behalf of the Electrical Subcontractor)

Section 4 – Pricing Schedules & Bills of Quantities

PRICING SCHEDULES & BILLS OF QUANTITIES

TABLE OF CONTENTS

Clause	DESCRIPTION
4.1	Pricing Instructions
4.2	Bills of Quantities

4.1 PRICING INSTRUCTIONS

- 1 These Bills of Quantities contain pages numbered in the consecutive order. The Electrical Subcontractor is required to check the numbers of pages and should any page be found to be missing, or in duplicate, or if any reproduction is indistinct, or if any ambiguity arises as to the meaning of any item or description, or if these Bills of Quantities contain any obvious errors, then the Electrical Subcontractor must immediately inform the Electrical Engineer and have the same rectified or explained, as the case may be. No claim will afterwards be considered where the Electrical Subcontractor has failed to comply with these instructions.
- 2 The units of measurement described in the Bills of Quantities are metric units. Abbreviations used in these Bills of Quantities are as follows:

%	=	percent
h	=	hour
km	=	kilometre
kW	=	kilowatt
mm	=	millimetre
m	=	metre
m ²	=	square metre
m ³	=	cubic metre
No.	=	number
Prov sum	=	Provisional sum
R/only	=	Rate only
Sum	=	lump sum
W/day	=	Work Day
- 3 Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.
- 4 The prices and rates in these Bills of Quantities are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.
- 5 It will be assumed that prices included in these Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards)
- 6 Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items
- 7 An item against which no price is entered will be considered to be covered by the other prices or rates in the Bills of Quantities. A single lump sum will apply should a number of items be grouped together for pricing purposes.
- 8 The quantities set out in these Bills of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Bills of Quantities.
- 9 Reasonable compensation will be received where no pay item appears in respect of work

required in the Bills of Quantities in terms of the Contract and which is not covered in any other pay item.

- 10 The short descriptions of the items of payment given in these Bills of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
- 11 Those parts of the contract to be constructed using labour-intensive methods have been marked in the Bills of Quantities with the letters LI in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour-intensive specification in the Scope of Works.
- 12 Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.
- 13 The responsibility for the accuracy of the Bills of Quantities written into the Bills of quantities remains with the person who prepared the Bills of Quantities. The Electrical Subcontractor shall be relieved of responsibility of measuring quantities at the tender stage, and the Electrical Subcontractor's sum submitted shall be in respect of the quantities set out in the Bills of Quantities, although he will be required to make his assessment of items such as brackets, fixing, etc., from details stated in the Bills of Quantities and shall include in the item prices for such small installation materials as are required for the complete installation in accordance with the Specification.
- 14 The Bills of Quantities are not to be used for ordering purposes. Any orders placed by the Contractor on the basis of these Bills of Quantities shall be at his own risk.

The quantities given in the Bills of Quantities for cables, cable markers, earth wire laid with cable and excavations cannot be regarded as exact and are subject to measurement on site after completion of the service and adjustments will be made according to the unit rates given in the Bills of Quantities.

Notwithstanding the fact that the lengths of cables as given in the Bills of Quantities have been measured from scaled drawings, the contractor shall check such lengths on site before ordering the cable, as he will not be paid for excess cable after the completion of the service. Any allowance for off-cuts shall be made in the unit rates. The final measurements shall be based on the net route length of the cables concerned.

- 15 All items described as "Provisional" shall be measured as executed and paid for according to prices in the Bills of Quantities and any unexpended amounts shall be deducted from the amount of the contract sum. No work for which "Provisional" items are provided shall be commenced without written instructions from the Engineer.
- 16 Materials encountered in the excavations for cable trenches, lighting standard and bollard holes generally shall, unless special provision to the contrary is made hereinafter, be classified as follows:-
 - a) 'Hard rock' shall mean any excavation requiring the use of explosives.
 - b) 'Soft rock' shall mean any excavation which necessitates the use of pneumatic tools.

c) 'Ordinary material' shall mean all pickable material.

In the event of any dispute regarding the classification of material, the Engineer's decision in this connection shall be final.

Should the Contractor consider that any material encountered in the excavations is 'hard rock' or 'soft rock', he shall immediately notify the Electrical Engineer in writing. Failing such notification, the excavation shall be assumed to be in 'ordinary material' and shall be measured and valued accordingly. Wherever practicable all excavation in ground other than 'hard rock' and/or 'soft rock' shall be carried out first after which levels will be taken of the exposed 'hard rock' and/or 'soft rock' and agreed upon by the Electrical Engineer and the Electrical Subcontractor.

Where the Electrical Subcontractor encounters a combination of 'hard rock' and/or 'soft rock' simultaneously in a section of trench and employs explosives or pneumatic tools to remove all the various types of materials in that section of trench, the use of these methods of removal will in no way influence the Electrical Engineer's classification of the materials.

4.2 - Bills of Quantities

Section 5 – Pictures

PICTURES



Change or Direction Cable Route Marker



Straight Run Cable Route Marker



Outdoor Cable Box



Cable Numbering



Distribution Board type



DB and Kiosk Labelling

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	RATE			AMOUNT
			Fixed	Value Related	Time Related	
1.0	<u>BILL NO. 1 : PRELIMINARY & GENERAL</u>					
1.1	Contract Works Insurances	Sum				
1.2	Supplementary Insurance	Sum				
1.3	Public Liability Insurance	Sum				
1.4	Construction Guarantee / Security	Sum				
1.5	Establish on Site and provision of buildings and materials storage facilities including de-establishment of site, cleaning and tidying up after completion of contract	Sum				
1.6	Contract Management and supervision of the Works including Contractor's Monthly Reports and attendance of site meetings (2 per month)	Sum				
1.7	Compliance with Construction Regulations and Health and Safety Act	Sum				
1.8	Compliance with EPWP Labour Intensive Specification	Sum				
1.9	Tools and Equipment	Sum				
1,10	Provision of shop drawings and manuals as specified	Sum				
TOTAL BILL NO.1 TO PRICE SUMMARY						

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

NB All materials must be of South African manufacture. The Electrical Subcontractor must submit proof of unavailability where this requirement cannot be fulfilled.

100% OF MATERIAL OR GOODS AND SERVICES MUST BE PROCURED WITHIN THE BOUNDARIES OF THE EASTERN CAPE AND MUST BE MARKED "ECP"

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
2.0	<u>BILL No. 2: DISTRIBUTION BOARDS</u>					
2.1	Indoor distribution boards <u>with cascaded protection</u> as specified and shown on the drawings. NOTE: All equipment to be SABS approved and bear the SABS performance mark					
2.1.1	MAIN-LV Panel (Site 03 Main DB - Factory)	No.	1			
2.1.2	SMDB-T1 (Tenant No.1 Sub-Main DB - Factory)	No.	1			
2.1.3	SMDB-T2 (Tenant No.2 Sub-Main DB - Factory)	No.	1			
2.1.4	SMDB-T3 (Tenant No.3 Sub-Main DB - Factory)	No.	1			
2.1.5	SMDB-T4 (Tenant No.4 Sub-Main DB - Factory)	No.	1			
2.1.6	SMDB-T5 (Tenant No.5 Sub-Main DB - Factory)	No.	1			
2.1.7	SDB-T4-B1 (Tenant No.1 Bay-1 Sub-DB - Factory)	No.	1			
2.1.8	SDB-T5-B1 (Tenant No.5 Bay-1 Sub-DB - Factory)	No.	1			
2.1.9	SDB-T5-B2 (Tenant No.5 Bay-2 Sub-DB - Factory)	No.	1			
2.1.10	SDB-T5-B3 (Tenant No.5 Bay-3 Sub-DB - Factory)	No.	1			
2.1.11	SDB-ADMIN (Administration Building)	No.	1			
2.1.12	SDB-ABL (Ablution Block)	No.	1			
2.1.13	SDB-BH (Boiler House Building)	No.	1			
2.1.14	SDB-GH (Guardhouse Building)	No.	1			
2.2	3CR12 outdoor distribution kiosk (EDK-S03) with 3-phase & neutral busbars, earth bar and plinth, no circuit breakers	No.	1			
2.3	<u>Distribution Board Equipment</u> The rates below will be used to add or omit relevant equipment into or out of distribution boards including wiring. All equipment to have a SABS stamp.					
2.3.1	10A - 20A 6kA SP circuit breaker (Curve-1)	No.	1			Rate Only
2.3.2	10A - 20A 6kA SP circuit breaker (Curve-2)	No.	1			Rate Only
2.3.3	25A - 32A 6kA SP circuit breaker (Curve-1)	No.	1			Rate Only
2.3.4	25A - 32A 6kA SP circuit breaker (Curve-2)	No.	1			Rate Only
2.3.5	10A - 20A 6kA SP circuit breaker (Curve-1)	No.	1			Rate Only
2.3.6	6A - 10A 6kA TP circuit breaker (Curve-2)	No.	1			Rate Only
2.3.7	20A - 32A 6kA DP circuit breaker (Curve-1)	No.	1			Rate Only
2.3.8	20A - 32A 6kA DP circuit breaker (Curve-2)	No.	1			Rate Only
2.3.9	32A - 63A 6kA DP circuit breaker (Curve-2)	No.	1			Rate Only
Carried Forward from Next Page						

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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100% OF MATERIAL OR GOODS AND SERVICES MUST BE PROCURED WITHIN THE BOUNDARIES OF THE EASTERN CAPE AND MUST BE MARKED "ECP"

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
2.3.10	32A - 63A 6kA TP circuit breaker (Curve-1)	No.	1			Rate Only
2.3.11	32A - 63A 6kA TP circuit breaker (Curve-2)	No.	1			Rate Only
2.3.12	63A 30mA Earth Leakage Unit with protective circuit breaker (single-phase)	No.	1			Rate Only
2.3.13	63A 30mA Earth Leakage Unit with protective circuit breaker (three-phase)	No.	1			Rate Only
2.3.14	63A - 80A 10kA TP circuit breaker (Curve-1)	No.	1			Rate Only
2.3.15	63A - 80A 10kA TP circuit breaker (Curve-2)	No.	1			Rate Only
TOTAL BILL No. 2 CARRIED TO PRICE SUMMARY PAGE						

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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100% OF MATERIAL OR GOODS AND SERVICES MUST BE PROCURED WITHIN THE BOUNDARIES OF THE EASTERN CAPE AND MUST BE MARKED "ECP"

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
3.0	<u>BILL No. 3: CABLING AND CABLE SLEEVES</u>					
3.1	<u>LV Cabling</u>					
	Multicore ECC PVC SWAPVC cable with stranded copper conductors to SANS 1507-3 drawn into cable sleeves, installed on cable trays/ladders or laid in open trenches and ducts					
3.1.1	185mm ² x 4 core	m	200			
3.1.2	150mm ² x 4 core	m	860			
3.1.3	120mm ² x 4 core	m	260			
3.1.4	95mm ² x 4 core	m	450			
3.1.5	70mm ² x 4 core	m	460			
3.1.6	50mm ² x 4 core	m	1			Rate Only
3.1.7	25mm ² x 4 core	m	70			
3.1.8	16mm ² x 4 core	m	1			Rate Only
3.1.9	10mm ² x 4 core	m	250			
3.1.10	6mm ² x 4 core	m	1			Rate Only
3.1.11	25mm ² x 2 core	m	90			
3.1.12	16mm ² x 2 core	m	1			Rate Only
3.1.13	10mm ² x 2 core	m	1			Rate Only
3.1.14	6mm ² x 2 core	m	1			Rate Only
3.1.15	4mm ² x 2 core	m	1			Rate Only
3.1.16	2,5mm ² x 2 core	m	1			Rate Only
3.2	<u>LV Cable Terminations for</u>					
3.2.1	185mm ² x 4 core	No.	16			
3.2.2	150mm ² x 4 core	No.	14			
3.2.3	120mm ² x 4 core	No.	8			
3.2.4	95mm ² x 4 core	No.	10			
3.2.5	70mm ² x 4 core	No.	6			
3.2.6	50mm ² x 4 core	No.	1			Rate Only
3.2.7	25mm ² x 4 core	No.	4			
3.2.8	16mm ² x 4 core	No.	1			Rate Only
3.2.9	10mm ² x 4 core	No.	12			
Carried Forward from Next Page						

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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100% OF MATERIAL OR GOODS AND SERVICES MUST BE PROCURED WITHIN THE BOUNDARIES OF THE EASTERN CAPE AND MUST BE MARKED "ECP"

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
3.2.10	6mm ² x 4 core	No.	1			Rate Only
3.2.11	25mm ² x 2 core	No.	20			
3.2.12	16mm ² x 2 core	No.	1			Rate Only
3.2.13	10mm ² x 2 core	No.	1			Rate Only
3.2.14	6mm ² x 2 core	No.	1			Rate Only
3.2.15	4mm ² x 2 core	No.	1			Rate Only
3.2.16	2,5mm ² x 2 core	No.	1			Rate Only
3.3	<u>LV Trenching</u>					
	Excavation 600mm deep x 400mm wide including backfilling and compacting					
3.3.1	In earth	m	750			
3.3.2	Soft rock EXTRA OVER earth (Proof of amount required)	m ³	1			
3.3.3	Selected fines bedding 150mm under cable and 150mm on top of cable (when required by soil conditions & Proof of amount utilised require)	m ³	5			
3.3.4	Excavation concrete & asphalt road crossings 600mm deep x 650mm wide including backfilling and compaction and re-instating the road surface to the original specification. The project's Civil Engineer to certify the road crossing re-instatement.	m	500			
3.3.5	LV Cable marker tape laid in an open trench and 150mm above a cable 150mm wide 800 gauge cable marker tape.	m	500			
3.3.6	250mm High truncated pyramid cable route marker with stainless steel insert engraved with the cable details e.g. " Low Voltage 25mm² 4C CABLE from DB-A to DB-B/Load X ". installed to protrude 150mm above ground on soft soil and be flush with paved surfaces. At every cable start point and end point and every 30m along the length and at every cable route direction change.	No.	6			
3.3.7	Double skin brick manhole, 900mm x 900mm x 600mm deep minimum inside dimensions with heavy duty cover for polymer Power Cabling	No.	4			
3.4	<u>LV Cable Sleeves & Bends</u>					
	Corrugated (Kabelflex) cable sleeve laid in open trench including cutting and joining NOTE: Spare sleeves for future use to be sealed at both ends					
3.4.1	110mm diameter	m	400			
Carried Forward from Next Page						

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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100% OF MATERIAL OR GOODS AND SERVICES MUST BE PROCURED WITHIN THE BOUNDARIES OF THE EASTERN CAPE AND MUST BE MARKED "ECP"

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
3.4.2	50mm diameter	m	1			Rate Only
3.4.3	90 degrees slow bends for 110mm dia. sleeve	No.	12			
3.4.4	90 degrees slow bends for 50mm dia. Sleeve	No.	1			Rate Only
3.5	Optex Pull Tape, or equivalent, with thickness of 1.0mm (±0.2mm) x width 16mm (±1.0mm) and breaking strain of 800kg, draw tape into conduit or sleeve(s)	m	200			
3.6	<u>Cable Ladder</u> Medium duty hot dipped galvanised cable ladder including splices clamps, hold down saddles and suspension materials installed at high level. Ladder spanning to be at 1.6m intervals					
3.6.1	100mm wide	m	200			
3.6.1.1	90 degrees Horizontal elbow	No.	2			
3.6.1.2	Elbow (rise/dropper)	No.	2			
3.6.1.3	4-Way Crossover	No.	1			Rate Only
3.6.1.4	Tee	No.	2			
3.6.2	300mm wide	m	250			
3.6.2.1	90 degrees Horizontal elbow	No.	2			
3.6.2.2	Elbow (rise/dropper)	No.	2			
3.6.2.3	4-Way Crossover	No.	1			Rate Only
3.6.2.4	Tee	No.	1			Rate Only
3.6.3	500mm wide	m	300			
3.6.3.1	90 degrees Horizontal elbow	No.	2			
3.6.3.2	Elbow (rise/dropper)	No.	3			
3.6.3.3	4-Way Crossover	No.	1			
3.6.3.4	Tee	No.	2			
3.6.4	1000mm wide (from MAIN-LV Panel)	m	20			
3.6.4.1	90 degrees Horizontal elbow	No.	1			
3.6.4.2	Elbow (rise/dropper)	No.	4			
3.6.4.3	4-Way Crossover	No.	1			Rate Only
3.6.4.4	Tee	No.	1			
3.7	Label cables on both ends with numbering beads or non-corroding straps to indicate their connection points [Refer to Technical Specification – Electrical Installation].	Sum	1			
TOTAL BILL No. 3 CARRIED TO PRICE SUMMARY PAGE						

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
4.0	<u>BILL No. 4 : GENERAL LIGHTING</u>					
4.1	<u>Conduit</u>					
	Conduit chased into brickwork, cast in concrete, laid in trench or fixed on I-beams, trusses in ceiling void including cutting, bending, reaming, setting, joining, draw boxes and fixing material					
4.1.1	20mm - PVC	m	16500			
4.1.2	25mm - PVC	m	1			Rate Only
4.1.3	20mm - Galvanised/Bosal (ORANGE)	m	1500			
4.1.4	25mm - Galvanised/Bosal (ORANGE)	m	1			Rate Only
4.2	<u>Conduit Boxes</u>					
4.2.1	PVC Round box for 20-25mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed onto trusses including couplings bushes cover plates and fixing materials	No.	340			
4.2.2	Galvanised/Bosal Round box for 20-25mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed onto trusses including couplings bushes cover plates and fixing materials (ORANGE)	No.	80			
4.2.3	Galvanised steel, 100 x 50 x 50mm box for 20-25mm conduit built into brickwork or cast in concrete. (cover plates measured elsewhere)	No.	80			
4.3	<u>Luminaires</u>					
	Luminaires must be delivered with lamps packed separately. For Types, see "Detailed Installation Specification".					
4.3.1	Type-A	No.	76			
4.3.2	Type-AE	No.	11			
4.3.3	Type-A1	No.	29			
4.3.4	Type-B	No.	7			
4.3.5	Type-BE	No.	3			
4.3.6	Type-EX	No.	20			
4.3.7	Type-G	No.	8			
4.3.8	Type-GE	No.	3			
4.3.9	Type-G1	No.	11			
4.3.10	Type-G1E	No.	3			
4.3.11	Type-G2	No.	29			
4.3.12	Type-G2E	No.	3			
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2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
4.3.13	Type-HS	No.	26			
4.3.14	Type-HSE	No.	10			
4.3.15	Type-JS	No.	18			
4.3.16	Type-JSE	No.	8			
4.3.17	Type-L	No.	24			
4.3.18	Type-LE	No.	13			
4.3.19	Type-O	No.	318			
4.3.20	Type-OE	No.	43			
4.3.21	Type-P	No.	40			
4.3.22	Type-P1	No.	5			
4.3.23	Type-R1	No.	2			
4.3.24	Type-R2	No.	3			
4.3.25	Type-S	No.	10			
4.3.26	Type-ZD	No.	20			
4.3.27	Type-ZP	No.	2			
4.4	<u>Equipment and Control Gear</u>					
	16 Amp rocker type light switch with coverplate installed into a flush box (box measured elsewhere)					
4.4.1	1-Lever, 1-Way	No.	60			
4.4.2	1-Lever, 2-Way	No.	12			
4.4.3	2-Lever, 1-Way	No.	2			
4.4.4	Rotary Switch Weatherproof	No.	1			
4.4.5	Photocell	No.	6			
4.4.6	230-250V _{AC} Ceiling mount occupancy sensors passive Infrared with IntelliDAPT self-adjusting technology, all digital passive infrared sensor, auto-on and manual-on operating modes, 360° coverage area, detection range of up to 6m & up to 15m , zero arc point switching and built-in photo-cell with supersaver mode.	No.	45			
4.5	<u>Conductors: 600/1000 grade PVC insulated single core copper conductors</u>					
4,5,1	2,5mm ² red/black	m	36000			
4,5,2	2,5mm ² red/black/Yellow-Green	m	18000			
4,6	Labelling of all Light switches with circuit numbers [Refer to Technical Specification – Electrical Installation].	Sum	1			
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2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
4,7	<u>Poles</u>					
4.7.1	5.7m long (5.0m mounting height) glass fibre reinforced polyester (GRP) pole with 50mm dia spigot, 6A SP circuit breaker and 6mm thick hot dip galvanised base plate	No.	10			
4,8	<u>Wiring Channel</u>					
	Hot dip galvanised channel with cover including propriety suspension hangers splices, end caps and joints; channel to be powder coated ORANGE & installed at high level (<i>for power and lighting conductors</i>).					
4.8.1	P2000 single channel including PVC cover, splices and hangers	m	2500			
4.8.1.1	P2000 90 bends	No.	5			
4.8.1.2	P2000 T piece	No.	25			
4.8.1.3	P2000 DB inlet	No.	6			
4.8.1.4	P2000 End Caps	No.	95			
4.8.1.5	P2000 Crossover Radiused	No.	10			
4.8.2	P8000 single channel including PVC cover, splices and hangers	m	1			Rate Only
4.8.2.1	P8000 90 bends	No.	1			Rate Only
4.8.2.2	P8000 T piece	No.	1			Rate Only
4.8.2.3	P8000 DB inlet	No.	1			Rate Only
4.8.2.4	P8000 End Caps	No.	1			Rate Only
4.8.2.5	P8000 Crossover Radiused	No.	1			Rate Only
4.9.2	P9000 single channel including PVC cover, splices and hangers	m	250			
4.9.2.1	P9000 90 bends	No.	5			
4.9.2.2	P9000 T piece	No.	25			
4.9.2.3	P9000 DB inlet	No.	5			
4.9.2.4	P9000 End Caps	No.	6			
4.9.2.5	P9000 Crossover Radiused	No.	5			
TOTAL BILL No. 4 CARRIED TO PRICE SUMMARY PAGE						

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
5.0	<u>BILL No. 5 : GENERAL SMALL POWER</u>					
5.1	<u>Powerskirting</u>					
	Two tier PVC power skirting complete with covers and cover strips. Colour to be selected by the Architect.	m	400			
5.1.1	End caps	No.	50			
5.1.2	Internal angles	No.	20			
5.1.3	External angles	No.	2			
5.1.4	Flat Tee	No.	10			
5.1.5	Power Skirting riser	No.	10			
5,2	<u>Wiring Channel</u>					
	Cabstruct powder coated orange 1-tier wiring channel with cover including propriety suspension hangers splices, end caps, joints & powder coated ORANGE					
5.2.1	P8200 channel with PVC covers	m	1			Rate Only
5.2.2	N8/1 channel with PVC covers	m	1			Rate Only
5.2.3	Endcaps	No.	1			Rate Only
5.2.4	Internal angles	No.	1			Rate Only
5.2.5	External angles	No.	1			Rate Only
5.2.6	Flat Elbow	No.	1			Rate Only
5,3	<u>Conduit</u>					
	Conduit chased into brickwork, cast in concrete, laid in trench or fixed on I-beams, trusses in ceiling void including cutting, bending, reaming, setting, joining, draw boxes and fixing material					
5.3.1	20mm - PVC	m	4500			
5.3.2	25mm - PVC	m	1			Rate Only
5.3.3	20mm - Galvanised/Bosal (ORANGE)	m	4000			
5.3.4	25mm - Galvanised/Bosal (ORANGE)	m	1			Rate Only
5,4	<u>Conduit Boxes</u>					
5.4.1	PVC round box for 20mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed onto trusses including couplings bushes, cover plates and fixing materials	No.	120			
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2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
5.4.2	Galvanised/Bosal Round box for 20-25mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed onto trusses including couplings bushes cover plates and fixing materials (ORANGE)	No.	105			
5.4.3	Galvanised steel, 100 x 100 x 50mm box for 20mm - 32mm conduit built into brickwork or cast in concrete. (cover plates measured elsewhere)	No.	65			
5.5	<u>Conductors</u> The supply and installation of PVC insulated stranded single core copper conductors drawn into conduits and ducting					
5.5.1	2.5mm ² PVC black and red	m	20500			
5.5.2	4mm ² PVC black and red	m	400			
5.5.3	2.5mm ² PVC insulated green/yellow earth wire	m	10700			
5.5.4	4mm ² Surfex Cable	m	1			Rate Only
5.6	<u>Equipment and Control Gear</u>					
5.6.1	Flush mounted 16 Amp 3 pin switched socket outlets with cover plates (Boxes measured elsewhere):					
5.6.1.1	Standard Single switched socket outlet with 3-Pin (SANS 164-1 & SANS 164-2)	No.	56			
5.6.2	Surface mounted 16 Amp 3 pin switched socket outlets with <u>including boxes & cover plates</u>					
5.6.2.1	6Amp 3-pin unswitched socket outlet fitted in a round box for light fittings & extract fans at high levels	No.	70			
5.6.2.2	Standard Single switched socket outlet with 3-Pin (SANS 164-1 & SANS 164-2)	No.	135			
5.6.2.3	Dedicated (Red) switched socket outlet with 3-Pin (SANS 164-1 & SANS 164-2)	No.	1			Rate Only
5.6.2.4	Weatherproof Standard Single switched socket outlet with 3-Pin (SANS 164-1 & SANS 164-2)	No.	5			
5.6.3	Power Skirting mounted 16 Amp 3-pin switched socket outlets with mounting cradle and cover plates:					
5.6.3.1	Standard single switched socket outlet (SANS 164-1)	No.	140			
5.6.3.2	Standard 3-Pin socket outlet (SANS 164-2) & Switch	No.	70			
5.6.3.3	Dedicated (red) switched socket outlet (SANS 164-1)	No.	1			Rate Only
5.6.4	N8/1 trunking mounted 16 Amp 3-pin switched socket outlets with mounting cradle and cover plates:					
5.6.4.1	Standard single switched socket outlet (SANS 164-1)	No.	1			Rate Only
5.6.4.2	Standard 3-Pin socket outlet (SANS 164-2) & Switch	No.	1			Rate Only
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2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
5.6,5	Indoor surface mounted 20A - 32A DP switched industrial (welding) socket outlets	No.	16			
5.6,6	Indoor surface mounted 20A - 32A DP isolator including box	No.	18			
5.6,7	Indoor surface mounted 20A - 32A TP switched industrial (welding) socket outlets	No.	5			
5.6,8	Indoor surface mounted 63A TP isolator including box	No.	20			
5.6,9	Indoor surface mounted 80A TP isolator including box	No.	1			Rate Only
5.6,10	Indoor surface mounted 100A TP isolator including box	No.	1			Rate Only
5.6,11	Outdoor surface mounted 20A - 32A DP isolator including box	No.	1			Rate Only
5.6,12	Outdoor surface mounted 20A - 32A TP isolator including box	No.	2			
5.7	Labelling of all Power points with circuit numbers [Refer to Technical Specification – Electrical Installation].	Sum	1			
TOTAL BILL No. 5 CARRIED TO PRICE SUMMARY PAGE						

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
6.0	<u>BILL No. 6 : TELEPHONE AND DATA SYSTEM</u>					
6.1	Double skin brick 600mm deep manhole with heavy duty polymer cover with the following minimum inside dimensions:					
6.1.1	inside dimensions:900mm x 900mm	No.	1			Rate Only
6.1.1	inside dimensions: 600mm x 600mm	No.	4			
6.2	Surface mounted distribution board with architrave, 10mm thick soft wood back board (plywood or shutter board) and hinged door:					
6.2.1	450mm x 450mm	No.	10			
6.2.2	650mm x 650mm	No.	1			Rate Only
6.3	<u>Cable sleeves</u>					
	Heavy duty or flexible (Kabelflex) PVC cable sleeves laid in open trench including cutting, backfilling and compacting. NOTE: Spare sleeves for future use to be sealed at both ends					
6.3.1	110mm diameter	m	750			
6.3.2	50mm diameter	m	1			Rate Only
6.3.4	90 degrees slow bends for 110mm sleeve	No.	6			
6.3.5	90 degrees slow bends for 50mm sleeve	No.	1			Rate Only
6.4	<u>Conduit</u>					
	The supply and installation of conduit including cutting, bending, joints, settings, fittings, boxes, fixing materials					
6.4.1	25mm - PVC	m	200			
6.4.2	32mm - PVC	m	1			Rate Only
6.4.3	25mm - Galvanised/Bosal (ORANGE)	m	300			
6.4.4	32mm - Galvanised/Bosal (ORANGE)	m	1			Rate Only
6.5	200 x 200 x 100 PVC wall boxes for 25mm & 32mm conduits installed in ceiling void including cover plates	No.	1			Rate Only
6.6	Optex Pull Tape, or equivalent, with thickness of 1.0mm (±0.2mm) x width 16mm (±1.0mm) and breaking strain of 800kg, draw tape into conduit or sleeve(s)	m	500			
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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
6.7	<u>Cable Tray</u>					
6.7.1	300mm wide medium duty hot dipped galvanised welded wire mesh cable tray including splices clamps, hold down saddles and suspension materials installed at high level (for ICT cabling).	m	1			Rate Only
6.7.1.1	90 degrees Horizontal elbow	No.	1			Rate Only
6.7.1.2	Tee piece	No.	1			Rate Only
6.7.1.3	Four way crossover	No.	1			Rate Only
6.7.1.4	Internal elbow (riser)	No.	1			Rate Only
6.7.1.5	External elbow (dropper)	No.	1			Rate Only
6.8	<u>Powerskirting Modules</u>					
6.8.1	Data RJ45 CAT6	No.	1			Rate Only
TOTAL BILL No. 6 CARRIED TO PRICE SUMMARY PAGE						

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
7.0	<u>BILL No. 7 : SUNDRY ITEMS</u>					
7,1	Earthing and Bonding to each of the building installations	Sum	1	-----		
7,2	Test the completed electrical installations and issue Certificates of Compliance	Sum	1	-----		
7,3	Prepare and issue marked-up "As-Built" drawings for the Electrical and Lightning Protection System installations including Distribution Boards.	Sum	1	-----		
7,4	Electrical Contractor is to return to site at Final Completion to take current readings from all the distribution boards and balance the loads where necessary.	Sum	1	-----		
7,5	Attendance to any specialist contractors during the installation of their respective plant, if required.	Sum	1	-----		
7,6	Prepare and conduct detailed Training Programme, including training documentation, for Tenant, Clients Staff and Maintenance Personnel. This will be training of 4 groups, each of up to 4 personnel. Each group shall receive a minimum of two 1-hour training sessions.	Sum	1	-----		
TOTAL BILL No. 7 CARRIED TO PRICE SUMMARY PAGE						

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
8,0	<u>BILL No. 8 : PROVISIONAL SUMS</u>					
	Allowance for the electrical subcontractor to; Isolate, disconnect & make safe the existing electrical installation. Safely remove existing installed electrical equipment, trunking, ducts, wiring & cables. Proven costs will need to be produced & agreed before claiming against this item - Bill No.9 - Dayworks Rates to be completed for consideration.	Sum	1	-----	-----	350 000,00
8,1						
8,2	Lightning Protection System (LPS) including soil resistivity testing, testing and issuing of an SABS prescribed certificate for LPS, Maintenance Manuals, As-built drawings and profit. (Quotations to be provided from Specialists, as per Electrical Specification)	Sum	1	156 216,00	-----	156 216,00
8.2.1	Mark-up on item above	%			-----	
8,3	Liasoning with the Supply Authority (Buffalo City Metropolitan Municipality - BCM) for switching on and off of the power supply to the factory as and when the electrical subcontractor requires to execute any electrical works.	Sum	1	-----		
8,4	LV Equipotential Earth Grid to be installed to the factories steel structure, including all testing, design works, issuing an earth test Certificate (if separate from the LPS COC), Maintenance Manuals and As-built drawings.	Sum	1	-----	-----	266 500,00
8.4.1	Mark-up on item above	%			-----	
8,5	5000mm x 5000mm Earth Mats installed 5000mm below finished floor level with Dehn flush mounted terminals and Dehn MV clamps, including testing and issuing a Certificate of Compliance/Test Report, Maintenance Manuals and As-built drawings.	Sum	1	-----	-----	129 200,00
8.5.1	Mark-up on item above	%			-----	
TOTAL BILL No. 8 CARRIED TO PRICE SUMMARY PAGE						

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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
9.0	<u>BILL NO. 9 : STANDBY GENERATOR</u>					
9,1	80kVA outdoor standby diesel generator set in a sound attenuated 3CR12 or Corten steel enclosure as specified complete with an 8-hour full load running fuel tank. Built-in AVR to deliver non fluctuating power. Proof of enclosure construction material required.	No	1			
9,2	SDB-FIRE (N)+(E)	Sum	1	-----	-----	45 000,00
9.2.1	Mark-up on item above	%			-----	
9,3	Electrically operated fuel pump mounted inside the generator enclosure complete with hoses suitable for all diesel fuels available in South Africa.	No.	1			
9,4	Set of SABS approved ear muffs to be kept in a storage box inside the generator enclosure including a storage box.	No.	2			
9,5	Klaxon type SY2/725 alarm and hooter installation, including all required cabling, connections and alarm warning strobe lights.	No.	1			
9,6	Remote Alarm Mimic Panel, installed at the security counter, including connections between generator and Mimic panel	No.	1			
9,7	Blaze cut Fire Suppression system (FM200 tube c/w pressure switch) to be installed within the canopy of the generator. Pressure switch to be integrated to interface monitoring unit on site.	No.	1			
9,8	2,5mm ² x 12 Core PVC SWA multi core control cable (remote alarm mimic panel connection to generator connection)	m	150			
9,9	First tank full of diesel fuel (all tanks) and full lubrication oil sump. Diesel fuel Prime Cost R24,00 per litre, delivered to site (Testing and full tank at Practical Completion). The tank must be a full after Load Testing and Commissioning, i.e. at site handover to the client.	Lt	400			
9,10	Set of Service and Operation Manuals, Record Drawings and Diagrams in hardcopy files & electronically on flash drives.	Set	3			
9,11	Money provision to fly the Engineer from the East London Airport, and/or drive, to the supplier's factory/workshop (if outside of the Eastern Cape) to inspect and witness the testing of the first completed unit.	Sum	1			
9,12	Test and commission standby generator in the assembler's workshop and submit tests reports.	Sum	1	----		
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ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
9,13	Run-tested the generator on site for thirty (30) minutes and do final onsite adjustments	Sum	1	----		
9,14	Assist the ECDC with the procurement and registration of a data SIM card to be installed in the generator cell phone modem. GSM/Data card monthly contract with a data bundle of size adequate for communications and monitoring via SMS and web based system, including external antenna, for a period of 24 months	Sum	1	----		
9,15	Provide Training to personnel (to be identified by the ECDC) on the Operation of the Generator set.	No.	3		----	
9,16	First 12 months Guarantee & Maintenance	Sum	1	----		
9,17	Allowance for the construction of a Generator mounting banded concrete plinth complete with sump and chamber with a draining gate valve.	No.	1			
TOTAL BILL No.9 CARRIED TO PRICE SUMMARY PAGE						

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ITEM	DESCRIPTION	UNIT	QNTY	RATE
10,0	<u>BILL No. 10 : ADJUSTMENTS TO N/S CONTRACT VALUE</u>			
10,1	An adjustment to the contract value resulting from a contract instruction for additional work not covered by the rates in the n/s priced document shall be determined in terms clause 32.0 of the JBCC Series 2000. NOTE: For the Public Sector Clause 3.2.2 is deleted			
10,2	Rates excluding mark-up for adjustment to the contract value under clause 32.2.3			
10,3	<u>Labour</u>			
10.3.1	Master Electrician			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10.3.2	Licensed Electrician			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10.3.3	Artisan			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10.3.4	Apprentice stage 1			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10.3.5	Apprentice stage 2			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10.3.6	Apprentice stage 3			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
NOTE: ITEMS ENTERED ON THIS PAGE ARE NOT CARRIED FORWARD TO PRICE SUMMARY				

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ITEM	DESCRIPTION	UNIT	QNTY	RATE
10.3.7	Econop 1			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10.3.8	Econop 2			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10.3.9	Econop 3			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10.3.10	Electrician Assistant			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
10,4	<u>Materials</u>			
10.4.1	At cost. Invoices to be submitted as proof			
10,5	<u>Transport</u>			
10.5.1	0,5 ton bakkie	km	1	
10.5.2	1 ton bakkie	km	1	
10.5.3	3 ton bakkie	km	1	
10.5.4	Crane truck	Hour	1	
10.5.5	Other (Specify)			
10,6	<u>Plant</u>			
10.6.1	100W - 500W Drilling machine	Hour	1	
10.6.2	Angle Grinder	Hour	1	
10.6.3	Cutting Disc	Hour	1	
10.6.4	Rock Breaker	Hour	1	
10.6.5	Chasing machine	Hour	1	
10.6.6	Generator	Hour	1	
10.6.7	Vacuum cleaner for dust extraction from grinder	Hour	1	
10.6.8	Other (Specify)	Hour	1	
NOTE: ITEMS ENTERED ON THIS PAGE ARE NOT CARRIED FORWARD TO PRICE SUMMARY				



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 Consulting Electrical & Mechanical Engineers
 2021/724549/07

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Email: office@rnaconsulteng.co.za

2318 - ECDC DIMBAZA FACTORIES - SITE 03 - ELECTRICAL INSTALLATION

PRICE SUMMARY PAGE

ITEM NO.	DESCRIPTION	AMOUNT
1	PRELIMINARY & GENERAL	
2	DISTRIBUTION BOARDS	
3	CABLING AND CABLE SLEEVES	
4	GENERAL LIGHTING	
5	GENERAL SMALL POWER	
6	TELEPHONE AND DATA SYSTEM	
7	SUNDRY ITEMS	
8	PROVISIONAL SUMS	
9	SMOKE VENTILATION FANS STANDBY GENERATOR	
10	ADJUSTMENTS TO N/S CONTRACT VALUE	NO AMOUNT
SUBTOTAL		
ADD 15% VAT		
TOTAL incl. V.A.T.		

REMINDER NOTE

The **Total Price** including Main Contractor's Mark-up **which excludes VAT**, must be carried over to the final summary in **Volume 1** and all fixed amounts shown in the price schedule must be included therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in the **Total Price** for this particular installation.

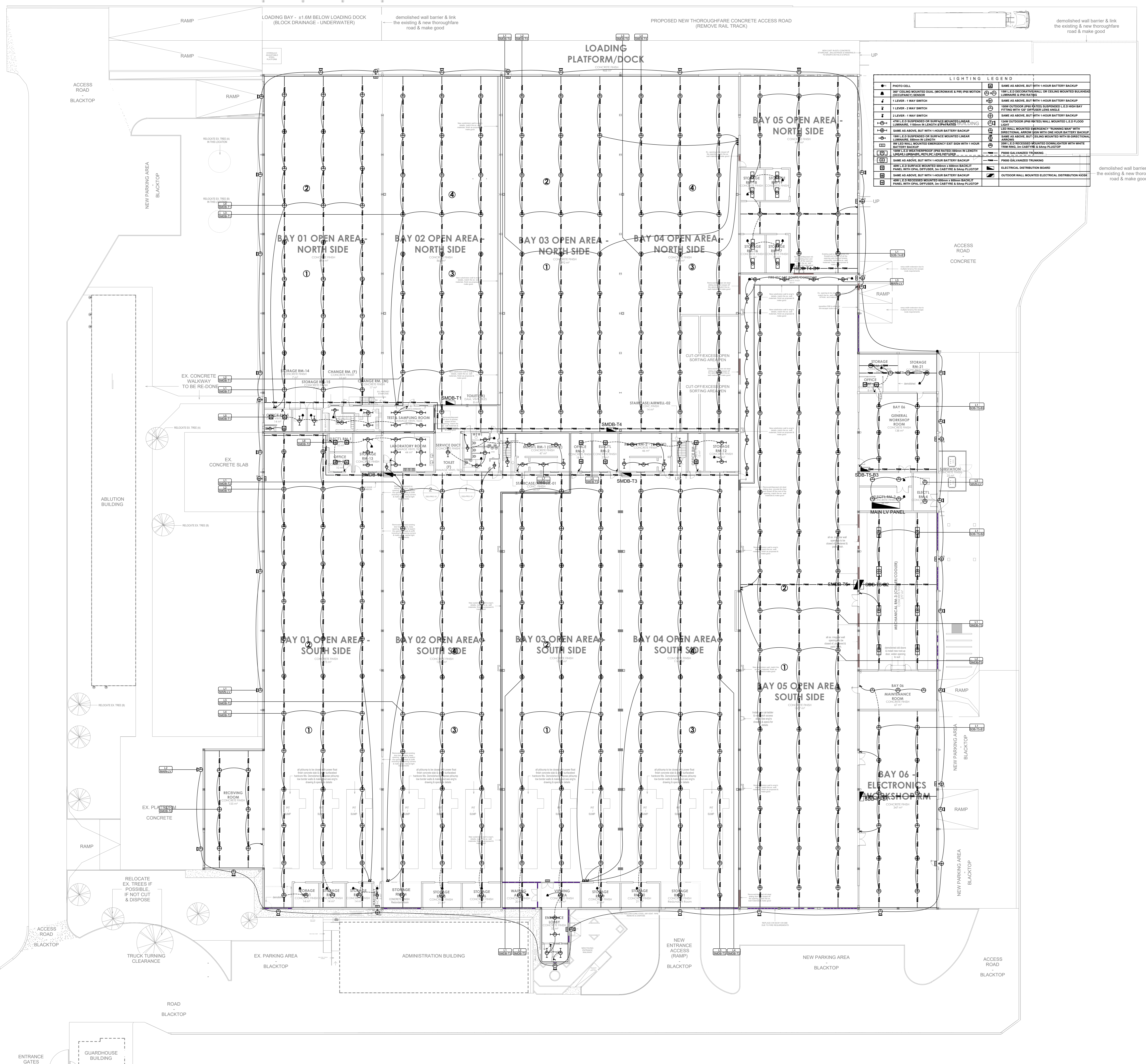
SUB-CONTRACTOR'S NAME:

DATE:

SIGNATURE:

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up **BUT** Exclude the VAT when transferring price to Volume 1 of the Final Summary Total of the Main Contractor's Document



- GENERAL NOTES:**
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 - DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS.
 - A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
 - FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
 - CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
 - SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
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 - CIRCUITING:
 - AC = AIR CONDITIONING
 - D = DEDICATED SSO
 - L = LIGHTING CIRCUIT
 - P = STANDARD SSO
 - XL = LIGHTING CIRCUIT ON STANDBY POWER
 - XP = STANDARD SSO ON STANDBY POWER
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 - ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
 - AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

MAIN FACTORY - GROUND FLOOR - LIGHTING LAYOUT

ARCHITECT



PINYO PRIDE ARCHITECTURE

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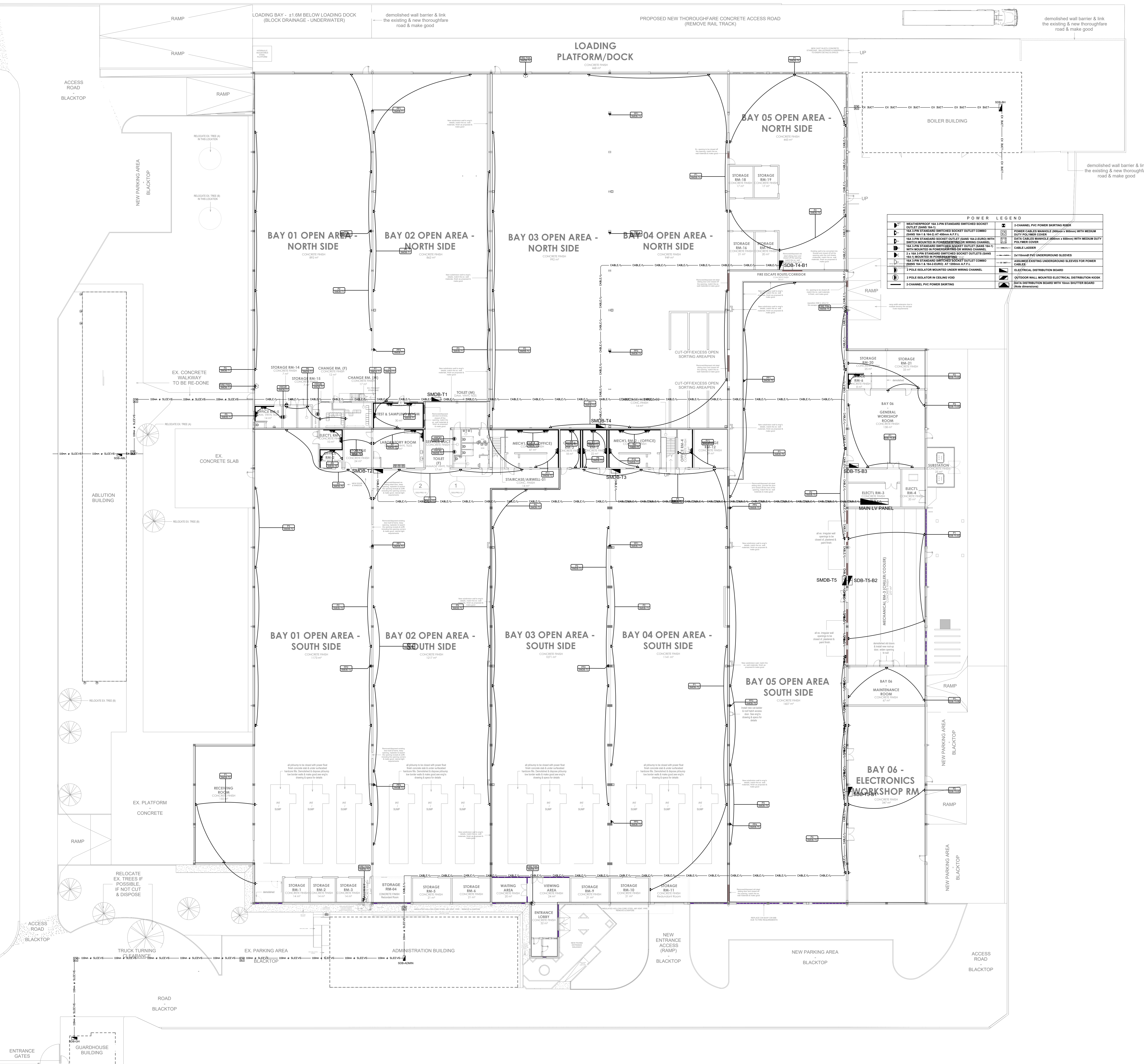
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CESA
Consulting Engineers South Africa


DESIGN	TENDER	CONSTRUCTION
DESIGNED BY: NT NZUZA	SCALE: 1:200	
DRAWN: NT NZUZA	DATE: 21/10/2023	PRINT DATE: 14/11/2023
CHECKED BY: N.T. NZUZA	REGISTRATION No. 201730103	
SIGNED: _____		
DRAWING NO. 2318-T-E-101-S03	REV No. 00	



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 - AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

MAIN FACTORY - GROUND FLOOR - POWER LAYOUT

ARCHITECT



PINYO PRIDE ARCHITECTURE

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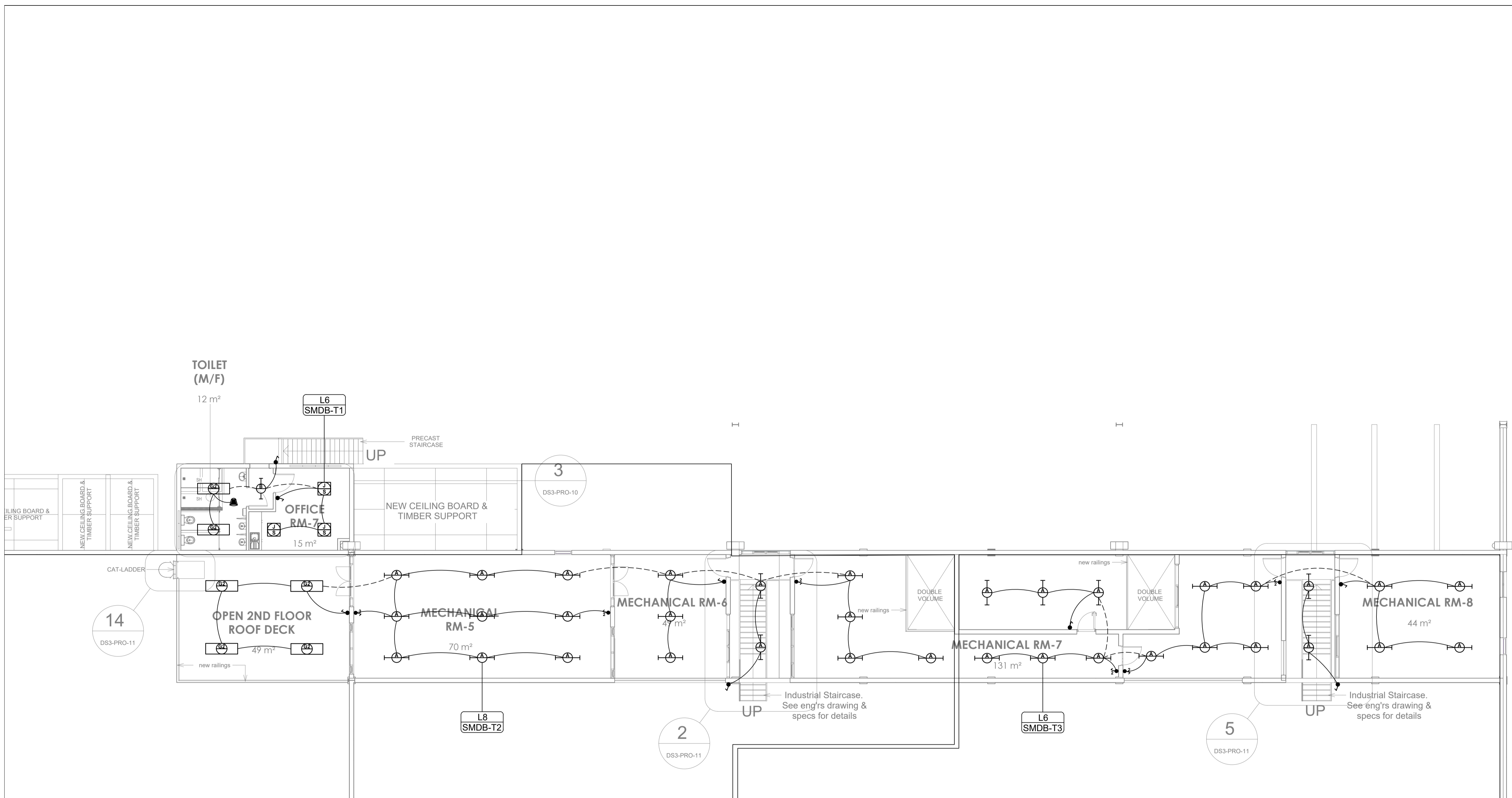
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CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
DESIGNED BY:	NT NZUZA	SCALE: 1:200
DRAWN:	DATE: 21/10/2023	PRINT DATE: 20/11/2023
CHECKED BY:	N.T. NZUZA	
REGISTRATION No.	201730103	
SIGNED:		
DRAWING NO. 2318-T-E-102-S03		REV No. 00




LIGHTING LEGEND			
● PC	PHOTO CELL	⊕ ⊖	15W L.E.D DECORATIVE WALL OR CEILING MOUNTED BULKHEAD LUMINAIRE & IP65 RATING
⊕ ⊖	360° CEILING MOUNTED DUAL (MICROWAVE & PIR) IP65 MOTION (OCCUPANCY) SENSOR WITH 6m/15m DETECTION RANGE	⊕ ⊖	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP
⊕ ⊖	1 LEVER - 1 WAY SWITCH	⊕ ⊖	50W OUTDOOR (IP65 RATED) WALL MOUNTED L.E.D FLOOD LIGHT
⊕ ⊖	2 LEVER - 1 WAY SWITCH	⊕ ⊖	LED CEILING MOUNTED EMERGENCY BI-DIRECTIONAL ARROW "RUNNING MAN" SIGN WITH 1-HOUR BATTERY BACKUP
⊕ ⊖	47W L.E.D SUSPENDED OR SURFACE MOUNTED LINEAR LUMINAIRE, 1150mm IN LENGTH & IP44 RATED	⊕ ⊖	20W L.E.D RECESSED MOUNTED DOWNLIGHTER WITH WHITE TRIM RING, 3m CABTYRE & 5Amp PLUGTOP
⊕ ⊖	35W L.E.D WEATHERPROOF (IP65 RATED) 1150mm IN LENGTH LINEAR LUMINAIRE	⊕ ⊖	20W WEATHERPROOF LED RECESSED MOUNTED DOWNLIGHTER WITH WHITE TRIM RING, 3m CABTYRE & 5Amp PLUGTOP
⊕ ⊖	40W L.E.D SURFACE MOUNTED 600mm x 600mm BACKLIT PANEL WITH OPAL DIFFUSER, 3m CABTYRE & 5Amp PLUGTOP	⊕ ⊖	ELECTRICAL DISTRIBUTION BOARD
⊕ ⊖	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP	⊕ ⊖	DATA DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)

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 - AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

MAIN FACTORY - FIRST FLOOR - LIGHTING LAYOUT

ARCHITECT



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Consulting Engineers South Africa

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DESIGNED BY: NT NZUZA	SCALE 1:100	
DRAWN NT NZUZA	DATE 21/10/2023	PRINT DATE 21/11/2023
CHECKED BY: N.T. NZUZA	REGISTRATION No. 201730103	
SIGNED.		
DRAWING NO. 2318-T-E-103-S03	REV No. 00	

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REVISIONS			
REV	DATE	INIT.	DESCRIPTION

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PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

MAIN FACTORY - FIRST FLOOR - POWER LAYOUT

ARCHITECT



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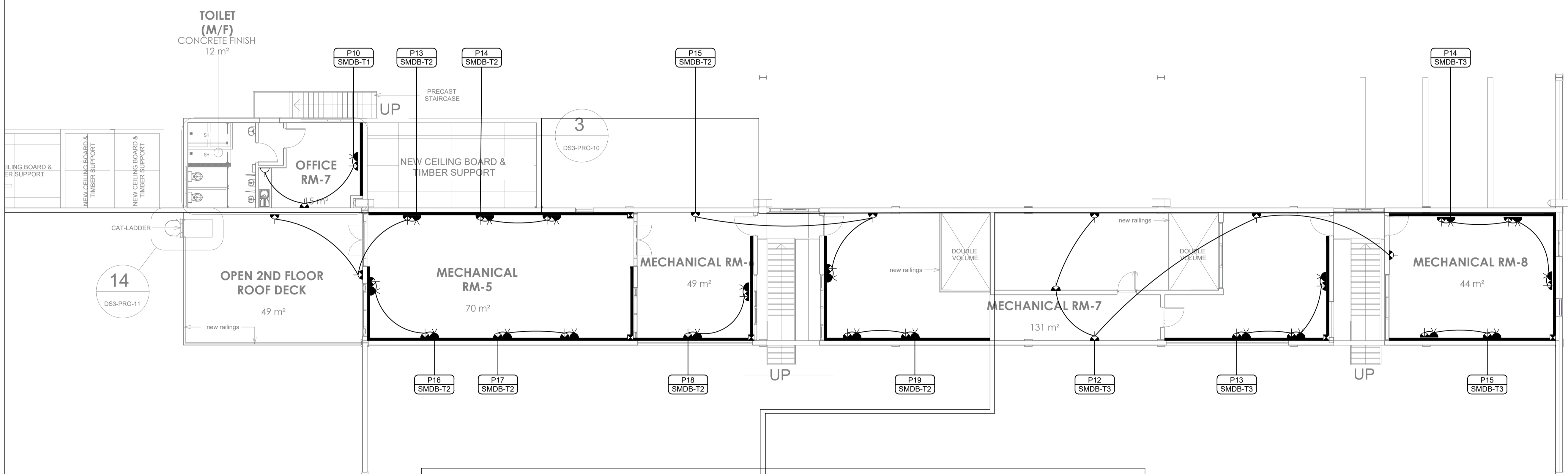
DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: NT NZUZA
SCALE: 1:100

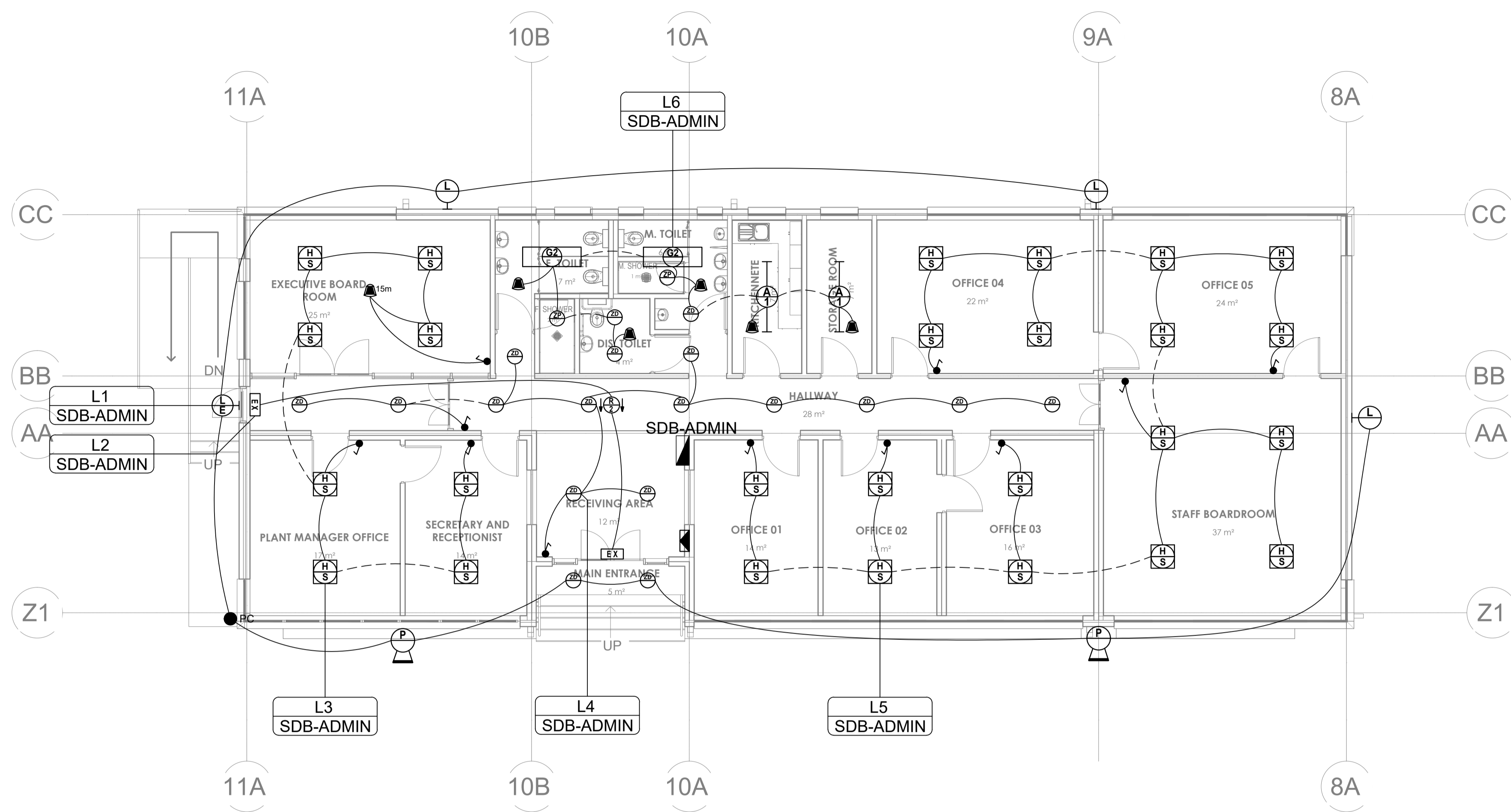
DRAWN: NT NZUZA
DATE: 21/10/2023
PRINT DATE: 20/11/2023

CHECKED BY: N.T. NZUZA
REGISTRATION No. 201730103
SIGNED:

DRAWING NO. 2318-T-E-104-S03
REV No. 00



POWER LEGEND	
	WEATHERPROOF 16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (SANS 164-1)
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 450mm A.F.F.L
	16A 3-PIN STANDARD SOCKET OUTLET (SANS 164-2-EURO) WITH SWITCH MOUNTED IN POWERSKIRTING OR WIRING CHANNEL
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (SANS 164-1) WITH MOUNTED IN POWERSKIRTING OR WIRING CHANNEL
	2 x 16A 3-PIN STANDARD SWITCHED SOCKET OUTLETS (SANS 164-1) MOUNTED IN POWERSKIRTING
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 1200mm A.F.F.L
	2 POLE ISOLATOR MOUNTED UNDER WIRING CHANNEL
	2 POLE ISOLATOR IN CEILING VOID
	2-CHANNEL PVC POWER SKIRTING
	2-CHANNEL PVC POWER SKIRTING RISER
	POWER CABLES MANHOLE (900mm x 900mm) WITH MEDIUM DUTY POLYMER COVER
	DATA CABLES MANHOLE (600mm x 600mm) WITH MEDIUM DUTY POLYMER COVER
	2x110mm \varnothing PVC UNDERGROUND SLEEVES
	ASSUMED EXISTING UNDERGROUND SLEEVES FOR POWER CABLES
	ELECTRICAL DISTRIBUTION BOARD
	OUTDOOR WALL MOUNTED ELECTRICAL DISTRIBUTION KIOSK
	DATA DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)



L I G H T I N G L E G E N D

● PC	PHOTO CELL	⊕ ⊖	15W L.E.D DECORATIVE WALL OR CEILING MOUNTED BULKHEAD LUMINAIRE & IP65 RATING
🔔	360° CEILING MOUNTED DUAL (MICROWAVE & PIR) IP65 MOTION (OCCUPANCY) SENSOR WITH 6m/15m DETECTION RANGE	⊕ ⊖	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP
🔑	1 LEVER - 1 WAY SWITCH	⊕ ⊖	124W OUTDOOR (IP65 RATED) WALL MOUNTED L.E.D FLOOD LIGHT
🔑	2 LEVER - 1 WAY SWITCH	⊕ ⊖	LED CEILING MOUNTED EMERGENCY BI-DIRECTIONAL ARROW "RUNNING MAN" SIGN WITH 1-HOUR BATTERY BACKUP
⊕ ⊖	35W L.E.D SUSPENDED OR SURFACE MOUNTED LINEAR LUMINAIRE, 1150mm IN LENGTH & IP44 RATED	⊕ ⊖	20W L.E.D RECESSED MOUNTED DOWNLIGHTER WITH WHITE TRIM RING, 3m CABTYRE & 5Amp PLUGTOP
EX	9W LED WALL MOUNTED EMERGENCY EXIT SIGN WITH 1-HOUR BATTERY BACKUP	⊕ ⊖	20W WEATHERPROOF LED RECESSED MOUNTED DOWNLIGHTER WITH WHITE TRIM RING, 3m CABTYRE & 5Amp PLUGTOP
⊕ ⊖	35W L.E.D WEATHERPROOF (IP65 RATED) 1150mm IN LENGTH LINEAR LUMINAIRE	⊕ ⊖	ELECTRICAL DISTRIBUTION BOARD
⊕ ⊖	40W L.E.D SURFACE MOUNTED 600mm x 600mm BACKLIT PANEL WITH OPAL DIFFUSER, 3m CABTYRE & 5Amp PLUGTOP	⊕ ⊖	DATA DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)
⊕ ⊖	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP		

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REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

**ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03**

TITLE

**ADMINISTRATION BLOCK -
LIGHTING LAYOUT**

ARCHITECT




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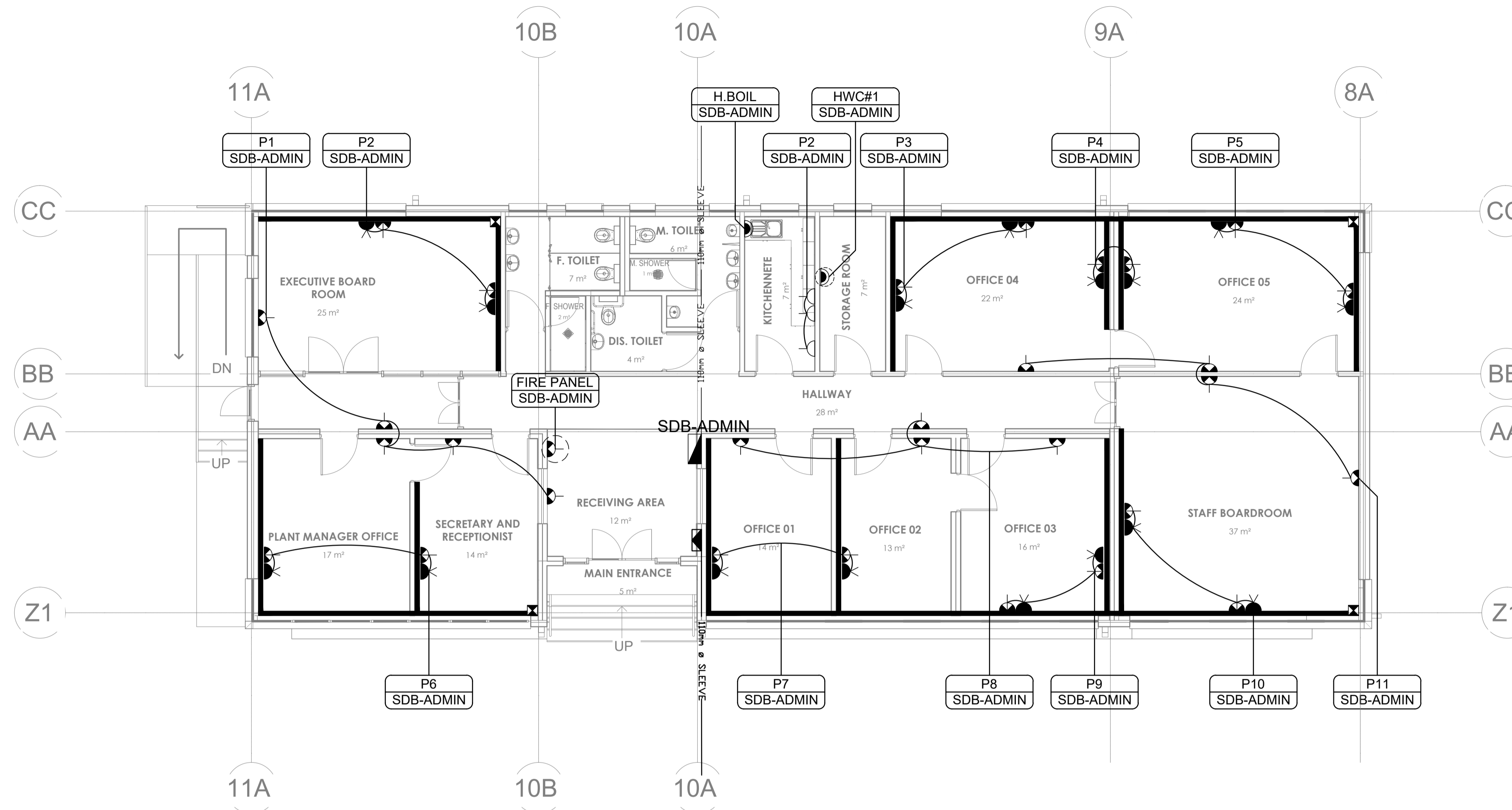
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	✓	

DESIGNED BY: NT NZUZA SCALE: 1:75

DRAWN: NT NZUZA DATE: 21/10/2023 PRINT DATE: 21/11/2023

CHECKED BY: N.T. NZUZA
REGISTRATION No. 201730103
SIGNED: _____

DRAWING NO. 2318-T-E-105-S03 REV No. 00




POWER LEGEND			
	WEATHERPROOF 16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (SANS 164-1)		2-CHANNEL PVC POWER SKIRTING RISER
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 450mm A.F.F.L		POWER CABLES MANHOLE (900mm x 900mm) WITH MEDIUM DUTY POLYMER COVER
	16A 3-PIN STANDARD SOCKET OUTLET (SANS 164-2-EURO) WITH SWITCH MOUNTED IN POWERSKIRTING OR WIRING CHANNEL		DATA CABLES MANHOLE (600mm x 600mm) WITH MEDIUM DUTY POLYMER COVER
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (SANS 164-1) WITH MOUNTED IN POWERSKIRTING OR WIRING CHANNEL		2x110mmØ PVC UNDERGROUND SLEEVES
	2 x 16A 3-PIN STANDARD SWITCHED SOCKET OUTLETS (SANS 164-1) MOUNTED IN POWERSKIRTING		ASSUMED EXISTING UNDERGROUND SLEEVES FOR POWER CABLES
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 1200mm A.F.F.L		ELECTRICAL DISTRIBUTION BOARD
	2 POLE ISOLATOR MOUNTED UNDER WIRING CHANNEL		OUTDOOR WALL MOUNTED ELECTRICAL DISTRIBUTION KIOSK
	2 POLE ISOLATOR IN CEILING VOID		DATA DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)
	2-CHANNEL PVC POWER SKIRTING		

- GENERAL NOTES:**
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 - DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS.
 - A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
 - FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
 - CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
 - SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
 - NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
 - DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
 - ALLOW 4 x 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DBs)
 - IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
 - TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
 - IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
 - CIRCUITING: AC = AIR CONDITIONING
D = DEDICATED SSO
L = LIGHTING CIRCUIT
P = STANDARD SSO
XL = LIGHTING CIRCUIT ON STANDBY POWER
XP = STANDARD SSO ON STANDBY POWER
 - DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
- 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
- 1x200mm WIDE FOR POWER CABLES (MINIMUM).
 - ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
 - AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03

TITLE

ADMINISTRATION BLOCK -
POWER LAYOUT

ARCHITECT



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DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: NT NZUZA

SCALE: 1:75

DRAWN: NT NZUZA

DATE: 21/10/2023

PRINT DATE: 20/11/2023

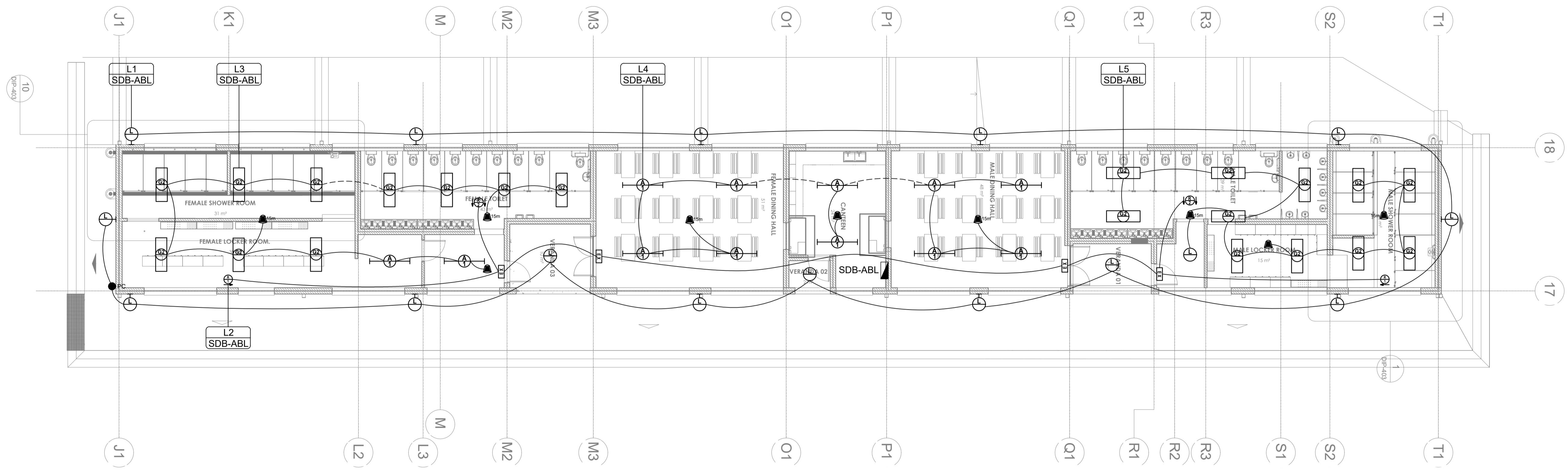
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REGISTRATION No. 201730103

SIGNED: _____

DRAWING NO. 2318-T-E-106-S03

REV No. 00




LIGHTING LEGEND			
● PC	PHOTO CELL	⊕	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP
📡	360° CEILING MOUNTED DUAL (MICROWAVE & PIR) IP65 MOTION (OCCUPANCY) SENSOR WITH 6m/15m DETECTION RANGE	⊕	50W OUTDOOR (IP65 RATED) WALL MOUNTED L.E.D FLOOD LIGHT
🔌	1 LEVER - 1 WAY SWITCH	⊕	LED WALL MOUNTED EMERGENCY "RUNNING MAN" WITH DIRECTIONAL ARROW SIGN WITH 1-HOUR BATTERY BACKUP
🔌	2 LEVER - 1 WAY SWITCH	⊕	LED CEILING MOUNTED EMERGENCY BI-DIRECTIONAL ARROW "RUNNING MAN" SIGN WITH 1-HOUR BATTERY BACKUP
⊕	35W L.E.D SUSPENDED OR SURFACE MOUNTED LINEAR LUMINAIRE, 1150mm IN LENGTH & IP44 RATED	⊕	20W L.E.D RECESSED MOUNTED DOWNLIGHTER WITH WHITE TRIM RING, 3m CABTYRE & 5Amp PLUGTOP
EX	9W LED WALL MOUNTED EMERGENCY EXIT SIGN WITH 1-HOUR BATTERY BACKUP	⊕	20W WEATHERPROOF LED RECESSED MOUNTED DOWNLIGHTER WITH WHITE TRIM RING, 3m CABTYRE & 5Amp PLUGTOP
⊕	35W L.E.D WEATHERPROOF (IP65 RATED) 1150mm IN LENGTH LINEAR LUMINAIRE	⊕	ELECTRICAL DISTRIBUTION BOARD
⊕	15W L.E.D DECORATIVE WALL OR CEILING MOUNTED BULKHEAD LUMINAIRE & IP65 RATING	⊕	DATA DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)

- GENERAL NOTES:**
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 - A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
 - FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
 - CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
 - SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
 - NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
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 - IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
 - TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
 - IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
 - CIRCUITING: AC = AIR CONDITIONING
D = DEDICATED SSO
L = LIGHTING CIRCUIT
P = STANDARD SSO
XL = LIGHTING CIRCUIT ON STANDBY POWER
XP = STANDARD SSO ON STANDBY POWER
 - DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
- 1x200mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
- 1x200mm WIDE FOR POWER CABLES (MINIMUM).
 - ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
 - AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

**ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03**

TITLE

**ABLUTION BLOCK -
LIGHTING LAYOUT**

ARCHITECT



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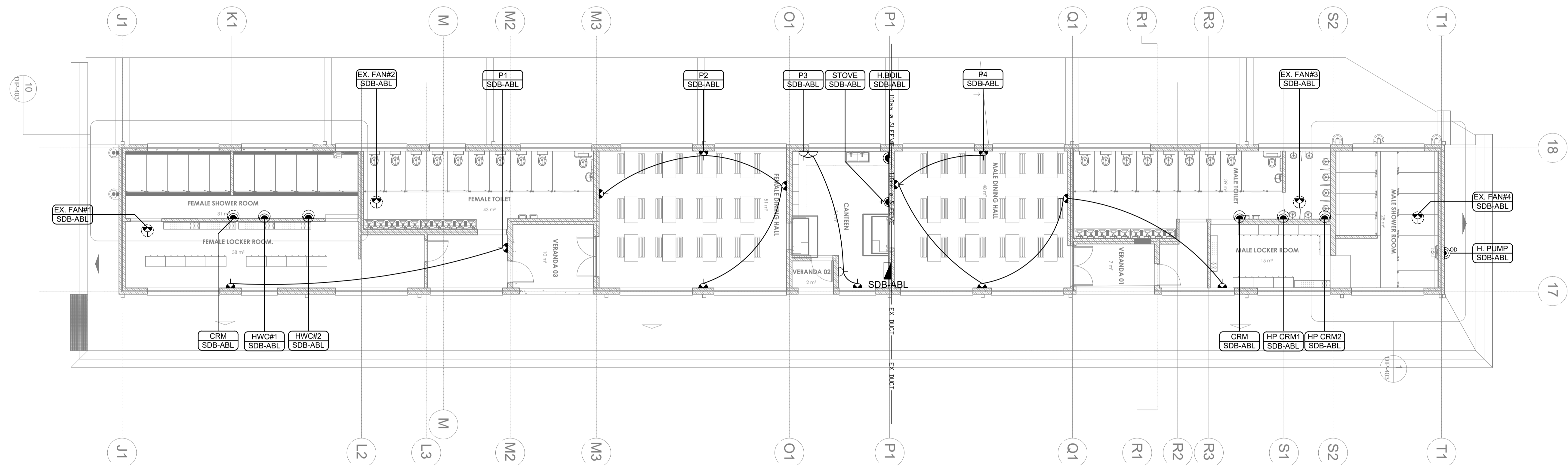
DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: NT NZUZA
SCALE: 1:100

DRAWN: NT NZUZA
DATE: 21/10/2023
PRINT DATE: 21/11/2023

CHECKED BY: N.T. NZUZA
REGISTRATION No. 201730103
SIGNED: _____

DRAWING NO. 2318-T-E-107-S03
REV No. 00




POWER LEGEND			
	WEATHERPROOF 16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (SANS 164-1)		POWER CABLES MANHOLE (900mm x 900mm) WITH MEDIUM DUTY POLYMER COVER
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 450mm A.F.F.L.		DATA CABLES MANHOLE (600mm x 600mm) WITH MEDIUM DUTY POLYMER COVER
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 1200mm A.F.F.L.		2x110mmØ PVC UNDERGROUND SLEEVES
	2 POLE ISOLATOR MOUNTED UNDER WIRING CHANNEL		ASSUMED EXISTING UNDERGROUND SLEEVES FOR POWER CABLES
	2 POLE ISOLATOR IN CEILING VOID		ELECTRICAL DISTRIBUTION BOARD
	DOUBLE POLE STOVE ISOLATOR WITH MALE & FEMALE STOVE CONNECTORS		OUTDOOR WALL MOUNTED ELECTRICAL DISTRIBUTION KIOSK
	OUTDOOR THREE-PHASE ISOLATOR		TELEPHONE DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)

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 - AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

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PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

ABLUTION BLOCK - POWER LAYOUT

ARCHITECT



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DESIGN	TENDER	CONSTRUCTION
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DRAWN: NT NZUZA	DATE: 21/10/2023	PRINT DATE: 20/11/2023
CHECKED BY:	N.T. NZUZA	
REGISTRATION No.	201730103	
SIGNED:		
DRAWING NO. 2318-T-E-108-S03		REV No. 00

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REVISIONS			
REV	DATE	INIT.	DESCRIPTION

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PROJECT

**EADC PROPERTIES - DIMBAZA
FACTORIES - SITE 03**

TITLE

**BOILER BLOCK -
LIGHTING LAYOUT**

ARCHITECT



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DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: NT NZUZA

SCALE: 1:100

DRAWN: NT NZUZA

DATE: 21/10/2023

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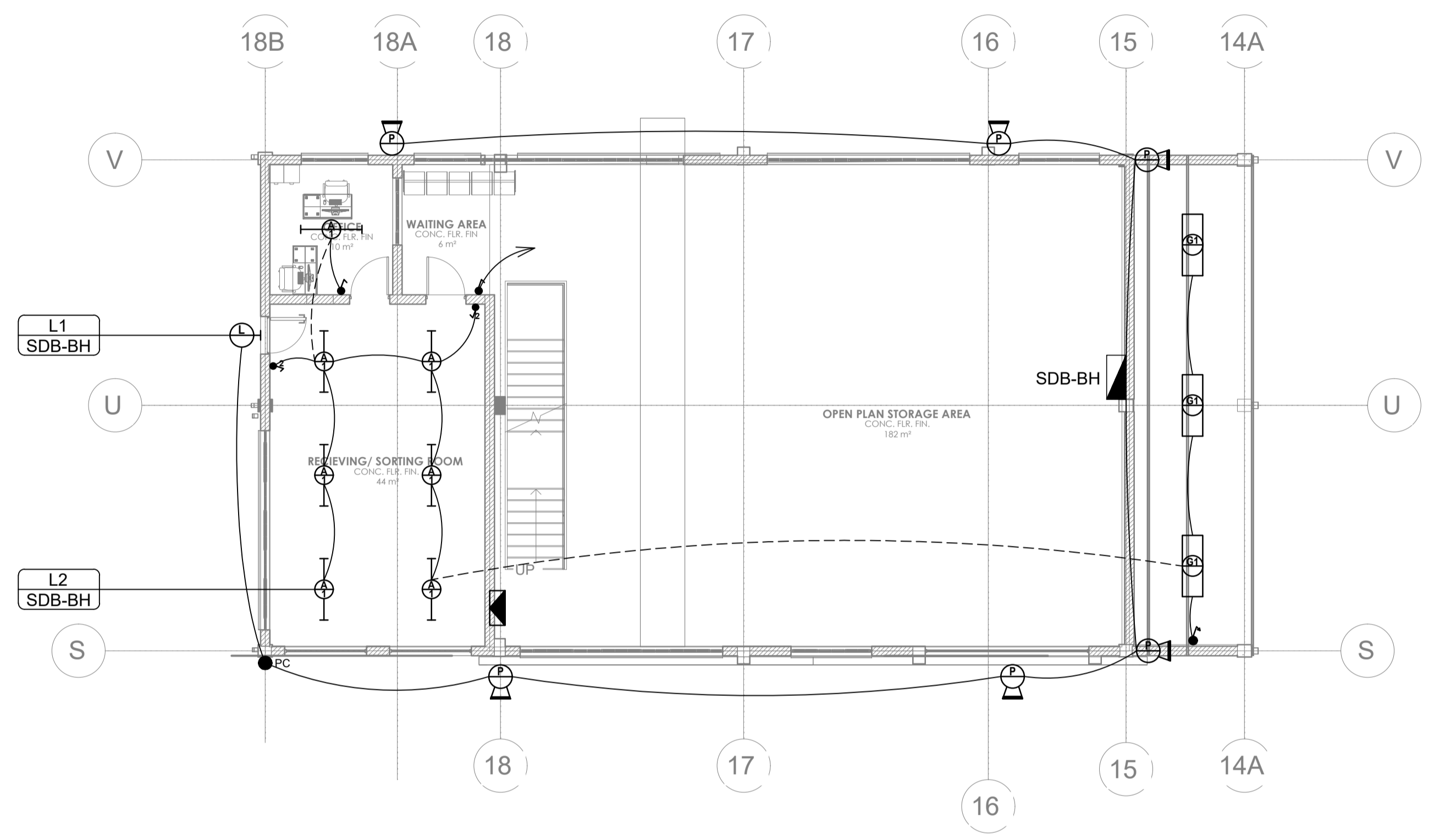
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REGISTRATION No. 201730103

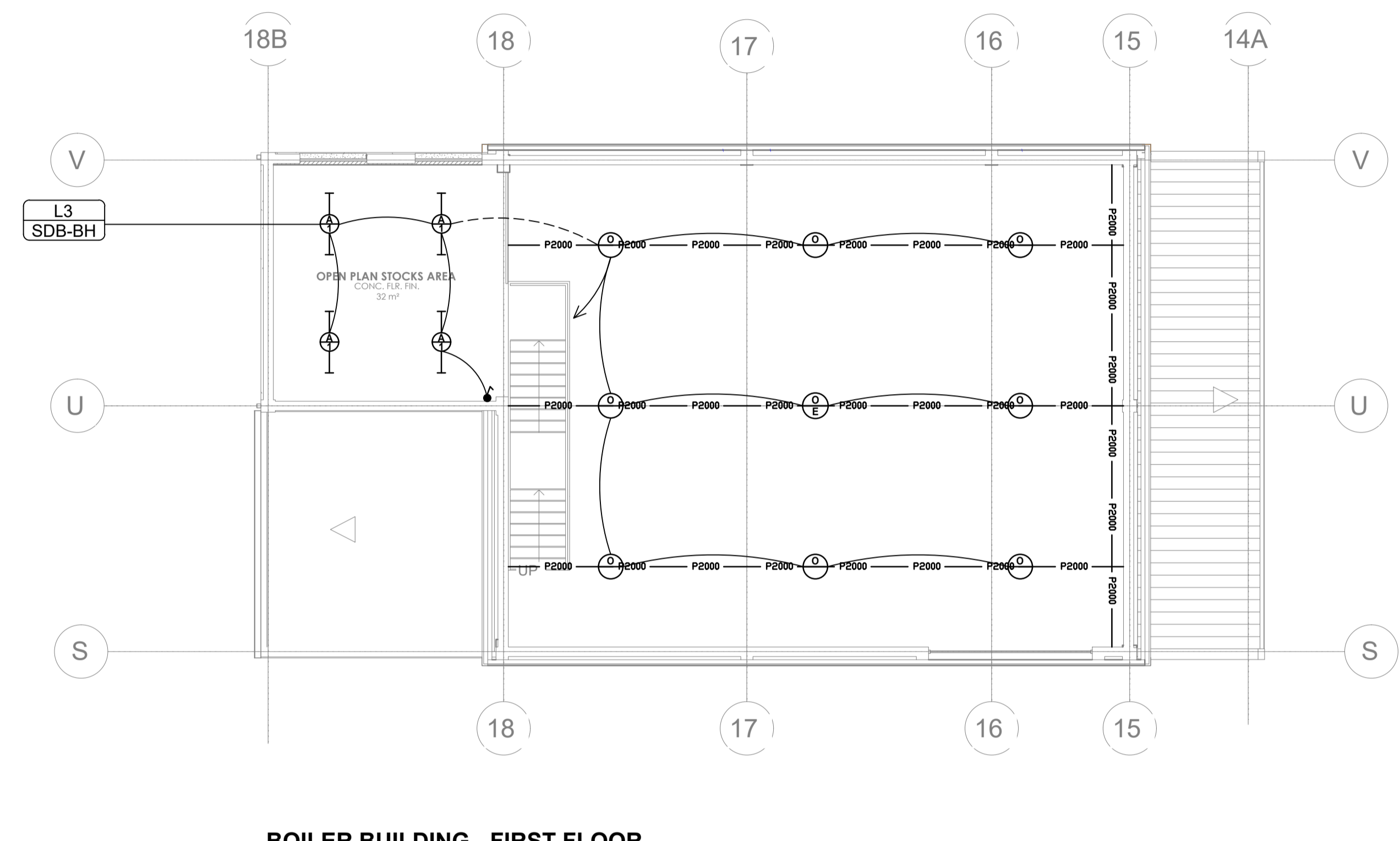
SIGNED: _____

DRAWING NO. 2318-T-E-109-S03

REV No. 00



BOILER BUILDING - GROUND FLOOR




BOILER BUILDING - FIRST FLOOR

LIGHTING LEGEND			
● PC	PHOTO CELL	⊕ ⊖	15W L.E.D DECORATIVE WALL OR CEILING MOUNTED BULKHEAD LUMINAIRE & IP65 RATING
📡	360° CEILING MOUNTED DUAL (MICROWAVE & PIR) IP65 MOTION (OCCUPANCY) SENSOR	⊕ ⊖	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP
🔌	1 LEVER - 1 WAY SWITCH	⊕ ⊖	100W OUTDOOR (IP65 RATED) SUSPENDED L.E.D HIGH BAY FITTING WITH 120° DIFFUSER LENS ANGLE
🔌	1 LEVER - 1 WAY WEATHERPROOF ROTARY SWITCH	⊕ ⊖	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP
🔌	1 LEVER - 2 WAY SWITCH	⊕ ⊖	124W OUTDOOR (IP65 RATED) WALL MOUNTED L.E.D FLOOD LIGHT
⊕ ⊖	35W L.E.D SUSPENDED OR SURFACE MOUNTED LINEAR LUMINAIRE, 1150mm IN LENGTH & IP44 RATED	⊕ ⊖	LED WALL MOUNTED EMERGENCY "RUNNING MAN" WITH DIRECTIONAL ARROW SIGN WITH 1-HOUR BATTERY BACKUP
EX	9W LED WALL MOUNTED EMERGENCY EXIT SIGN WITH 1-HOUR BATTERY BACKUP	— P2000 —	P2000 TRUNKING INSTALLED AT HEIGHT FOR LIGHTING
⊕ ⊖	47W L.E.D WEATHERPROOF (IP65 RATED) 1150mm IN LENGTH LINEAR LUMINAIRE	⬛	ELECTRICAL DISTRIBUTION BOARD
⊕ ⊖	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP	⬛	DATA DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)

- GENERAL NOTES:**
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
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 - AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

EADC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

BOILER HOUSE - POWER LAYOUT

ARCHITECT



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DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: NT NZUZA

SCALE: 1:100

DRAWN: NT NZUZA

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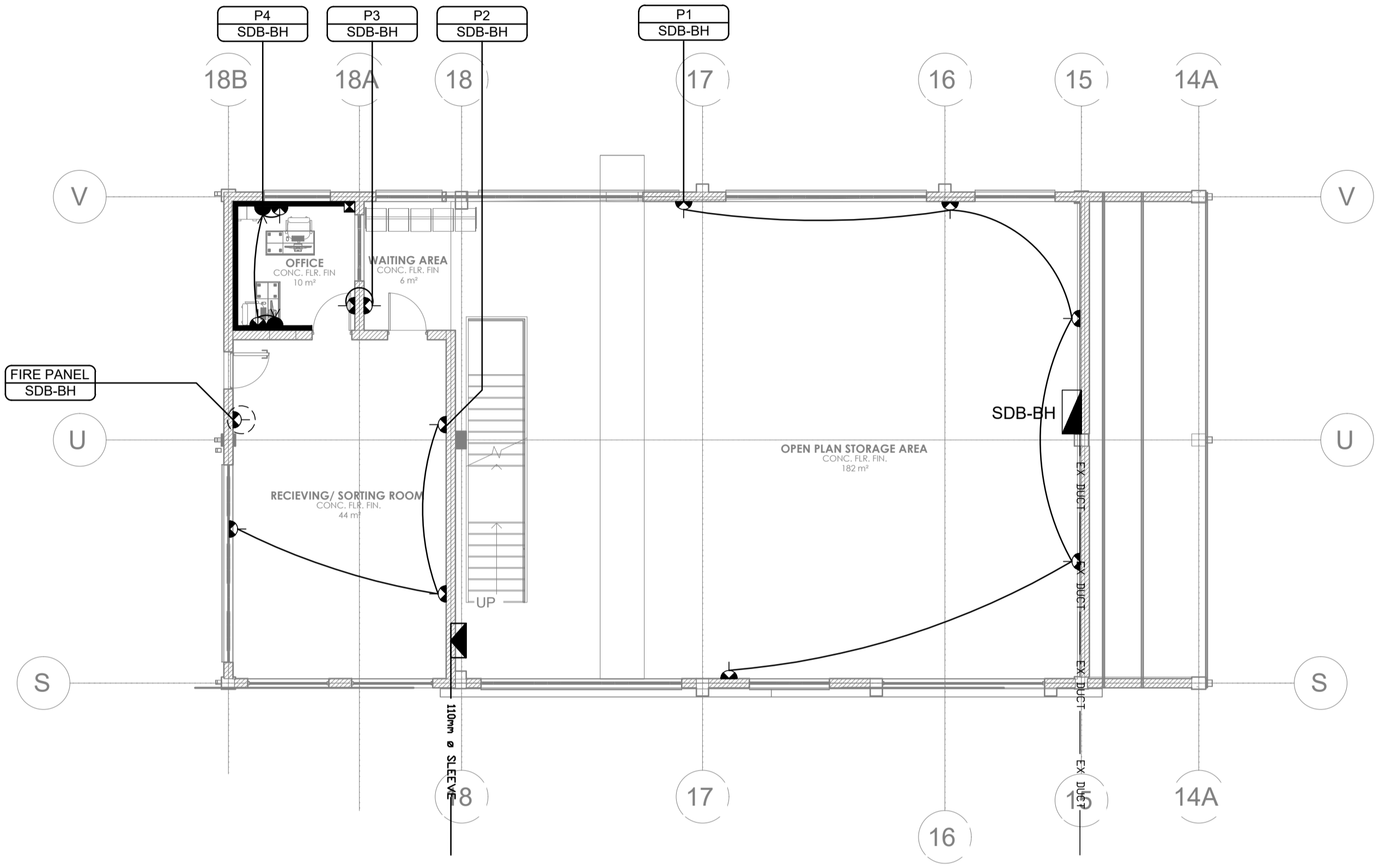
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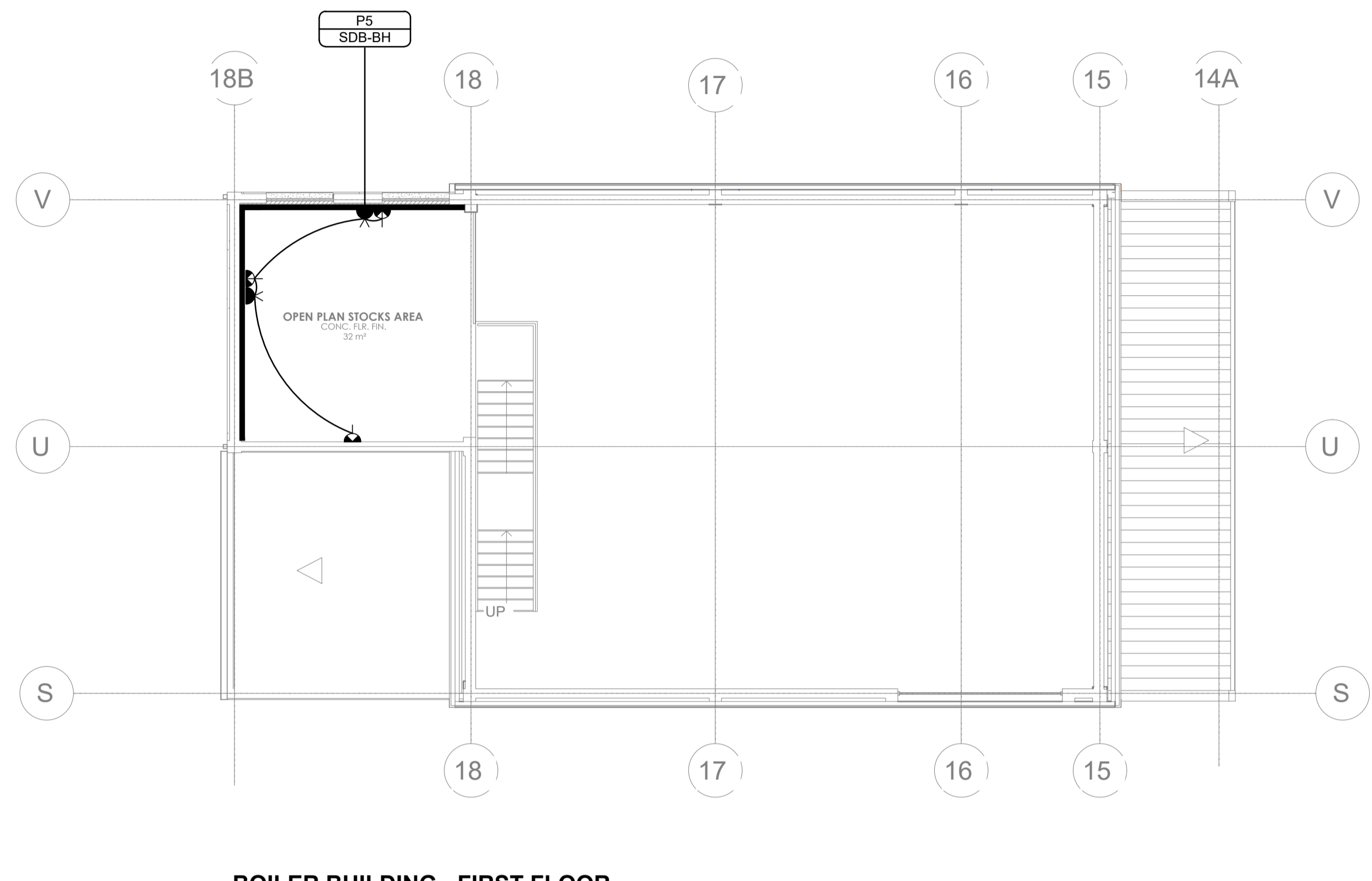
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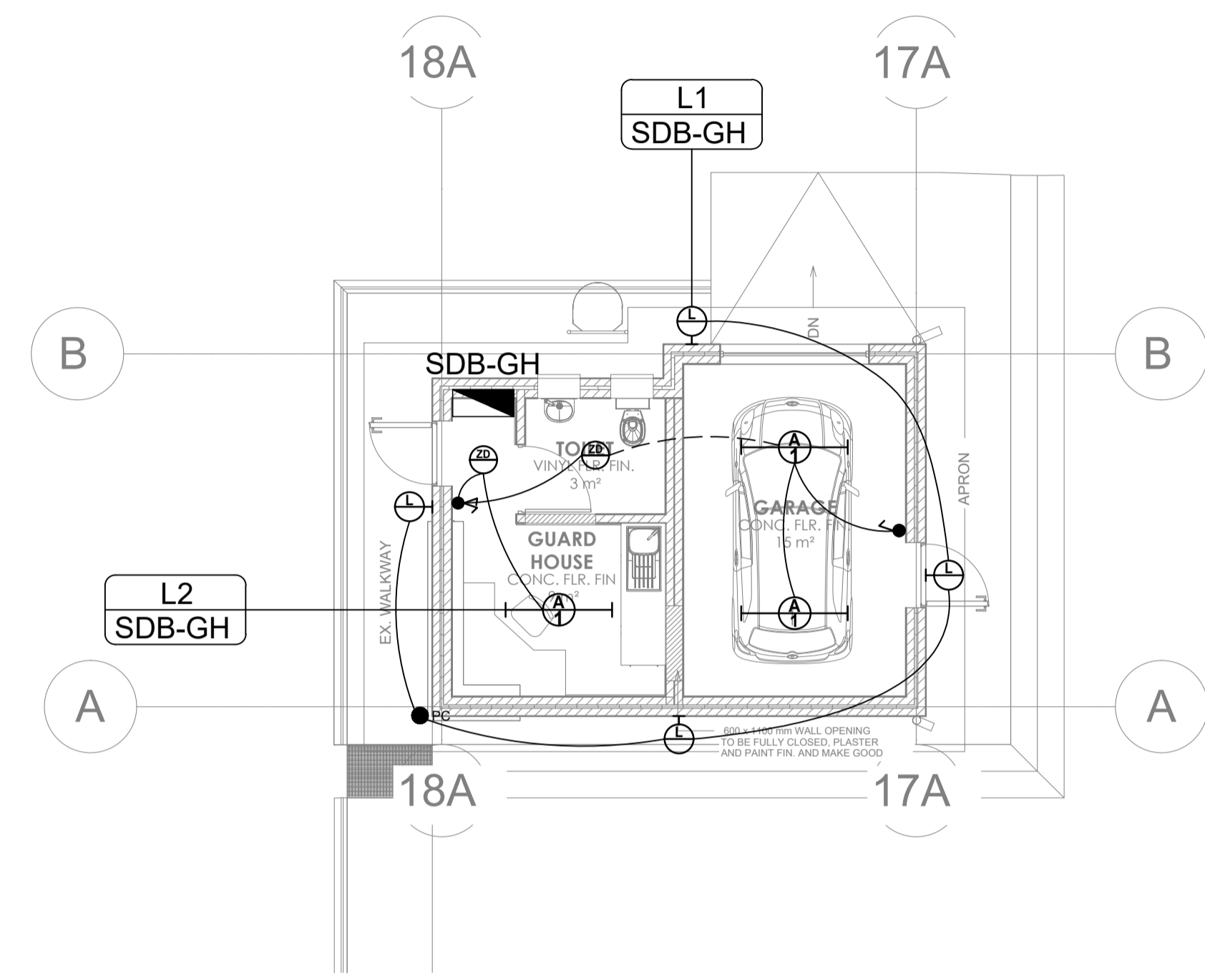
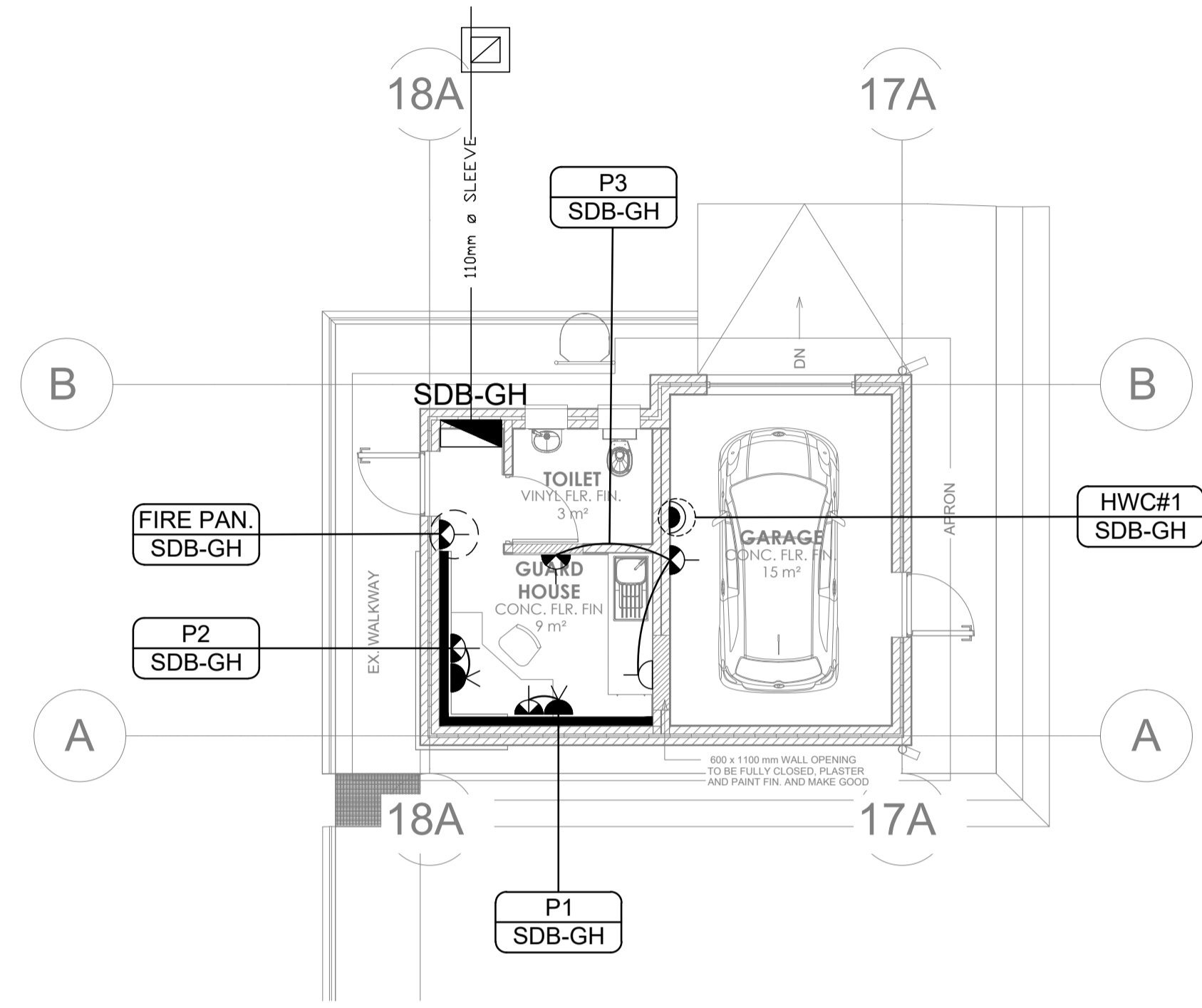


BOILER BUILDING - GROUND FLOOR



BOILER BUILDING - FIRST FLOOR

POWER LEGEND			
	WEATHERPROOF 16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (SANS 164-1)		2-CHANNEL PVC POWER SKIRTING RISER
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 450mm A.F.F.L		POWER CABLES MANHOLE (900mm x 900mm) WITH MEDIUM DUTY POLYMER COVER
	16A 3-PIN STANDARD SOCKET OUTLET (SANS 164-2-EURO) WITH SWITCH MOUNTED IN POWERSKIRTING OR WIRING CHANNEL		DATA CABLES MANHOLE (600mm x 600mm) WITH MEDIUM DUTY POLYMER COVER
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (SANS 164-1) WITH MOUNTED IN POWERSKIRTING OR WIRING CHANNEL		2x110mm \varnothing PVC UNDERGROUND SLEEVES
	2 x 16A 3-PIN STANDARD SWITCHED SOCKET OUTLETS (SANS 164-1) MOUNTED IN POWERSKIRTING		ASSUMED EXISTING UNDERGROUND SLEEVES FOR POWER CABLES
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 1200mm A.F.F.L		ELECTRICAL DISTRIBUTION BOARD
	2 POLE ISOLATOR MOUNTED UNDER WIRING CHANNEL		OUTDOOR WALL MOUNTED ELECTRICAL DISTRIBUTION KIOSK
	2 POLE ISOLATOR IN CEILING VOID		TELEPHONE DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)
	2-CHANNEL PVC POWER SKIRTING		



POWER LEGEND

	WEATHERPROOF 16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (SANS 164-1)		2-CHANNEL PVC POWER SKIRTING RISER
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET COMBO (SANS 164-1 & 164-2-EURO) AT 450mm A.F.F.L		POWER CABLES MANHOLE (900mm x 900mm) WITH MEDIUM DUTY POLYMER COVER
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	2 POLE ISOLATOR MOUNTED UNDER WIRING CHANNEL		OUTDOOR WALL MOUNTED ELECTRICAL DISTRIBUTION KIOSK
	2 POLE ISOLATOR IN CEILING VOID		TELEPHONE DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD (Note dimensions)
	2-CHANNEL PVC POWER SKIRTING		

LIGHTING LEGEND

	PHOTO CELL
	360° CEILING MOUNTED DUAL (MICROWAVE & PIR) IP65 MOTION (OCCUPANCY) SENSOR
	1 LEVER - 1 WAY SWITCH
	2 LEVER - 1 WAY SWITCH
	35W L.E.D SUSPENDED OR SURFACE MOUNTED LINEAR LUMINAIRE, 1150mm IN LENGTH & IP44 RATED
	9W LED WALL MOUNTED EMERGENCY EXIT SIGN WITH 1-HOUR BATTERY BACKUP
	15W L.E.D DECORATIVE WALL OR CEILING MOUNTED BULKHEAD LUMINAIRE & IP65 RATING
	SAME AS ABOVE, BUT WITH 1-HOUR BATTERY BACKUP
	50W OUTDOOR (IP65 RATED) WALL MOUNTED L.E.D FLOOD LIGHT
	20W L.E.D RECESSED MOUNTED DOWNLIGHTER WITH WHITE TRIM RING, 3m CABTYRE & 5Amp PLUGTOP
	ELECTRICAL DISTRIBUTION BOARD

- GENERAL NOTES:**
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 - CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
 - SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
 - NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
 - DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
 - ALLOW 4 x 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DBs)
 - IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
 - TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
 - IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
 - CIRCUITING: AC = AIR CONDITIONING
D = DEDICATED SSO
L = LIGHTING CIRCUIT
P = STANDARD SSO
XL = LIGHTING CIRCUIT ON STANDBY POWER
XP = STANDARD SSO ON STANDBY POWER
 - DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
- 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
- 1x200mm WIDE FOR POWER CABLES (MINIMUM).
 - ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
 - AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS

REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

GATEHOUSE BUILDING - LIGHTING & POWER LAYOUT

ARCHITECT




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East London, 5241
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P.O. Box 12359
Amalinda, 5252
Tel: (043) 742 0041



CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
DESIGNED BY:	NT NZUZA	SCALE
		1:75
DRAWN	DATE	PRINT DATE
NT NZUZA	21/10/2023	20/11/2023
CHECKED BY:	N.T. NZUZA	
REGISTRATION No.	201730103	
SIGNED:		
DRAWING NO.	2318-T-E-111-S03	REV No.
		00

NOTES:

- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
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 - L = LIGHTING CIRCUIT
 - P = STANDARD SSO
 - XL = LIGHTING CIRCUIT ON STANDBY POWER
 - XP = STANDARD SSO ON STANDBY POWER

REVISIONS			
REV	DATE	INIT.	DESCRIPTION



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

MAIN-LV PANEL - DB SCHEMATIC DIAGRAM

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Tel: (043) 742 0041



DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: **N.T. NZUZA**

SCALE: **NTS**

REVISED BY: **-**

DATE: **05/11/2023**

PRINT DATE: **21/11/2023**

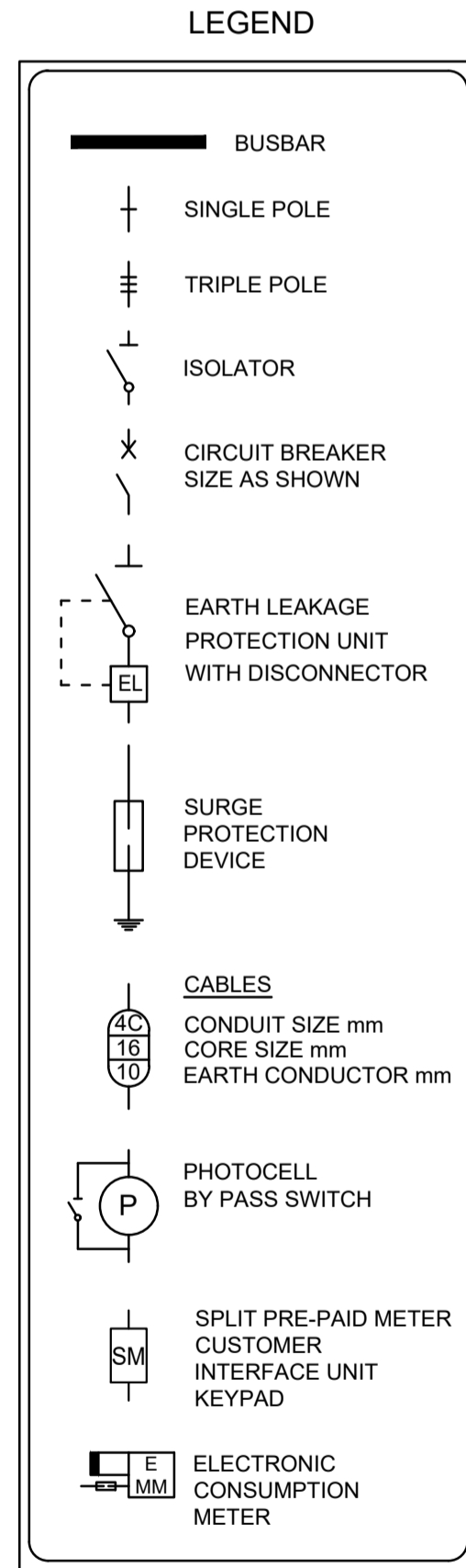
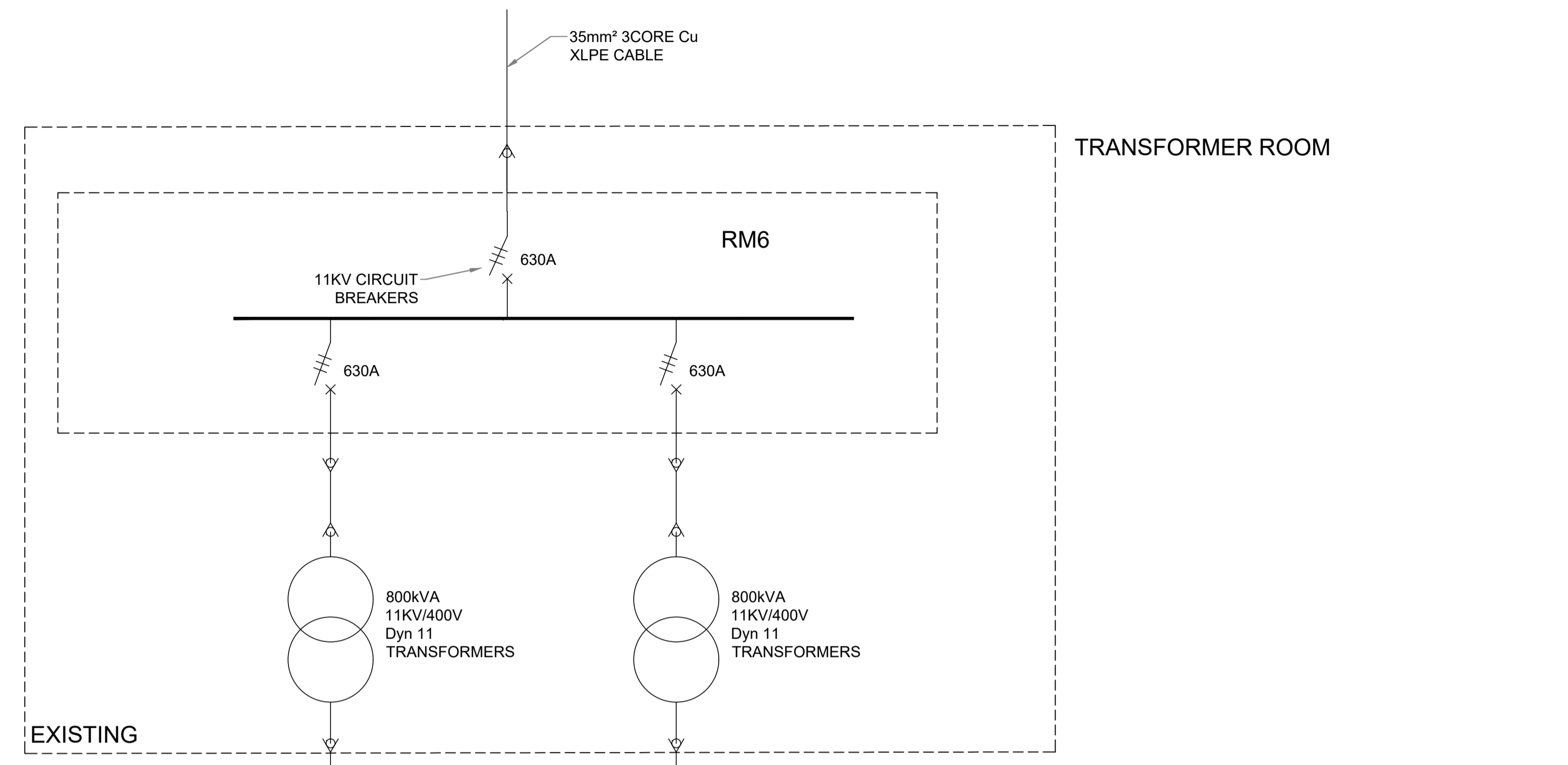
CHECKED BY: **N.T. NZUZA**

REGISTRATION No. **201730103**

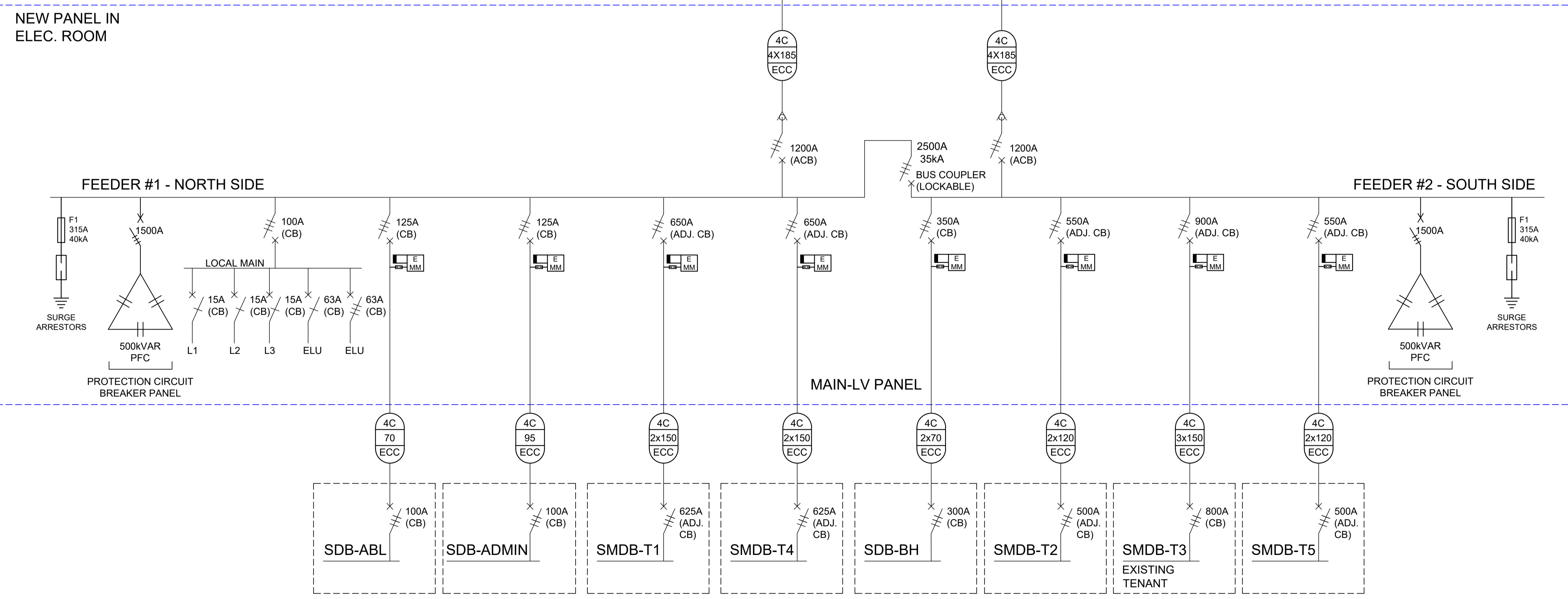
SIGNED: _____

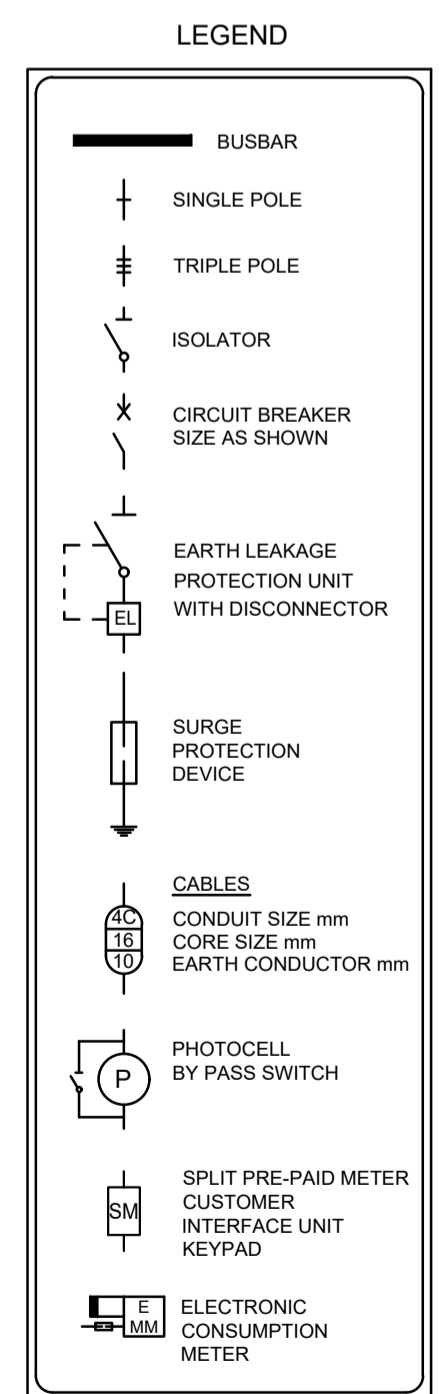
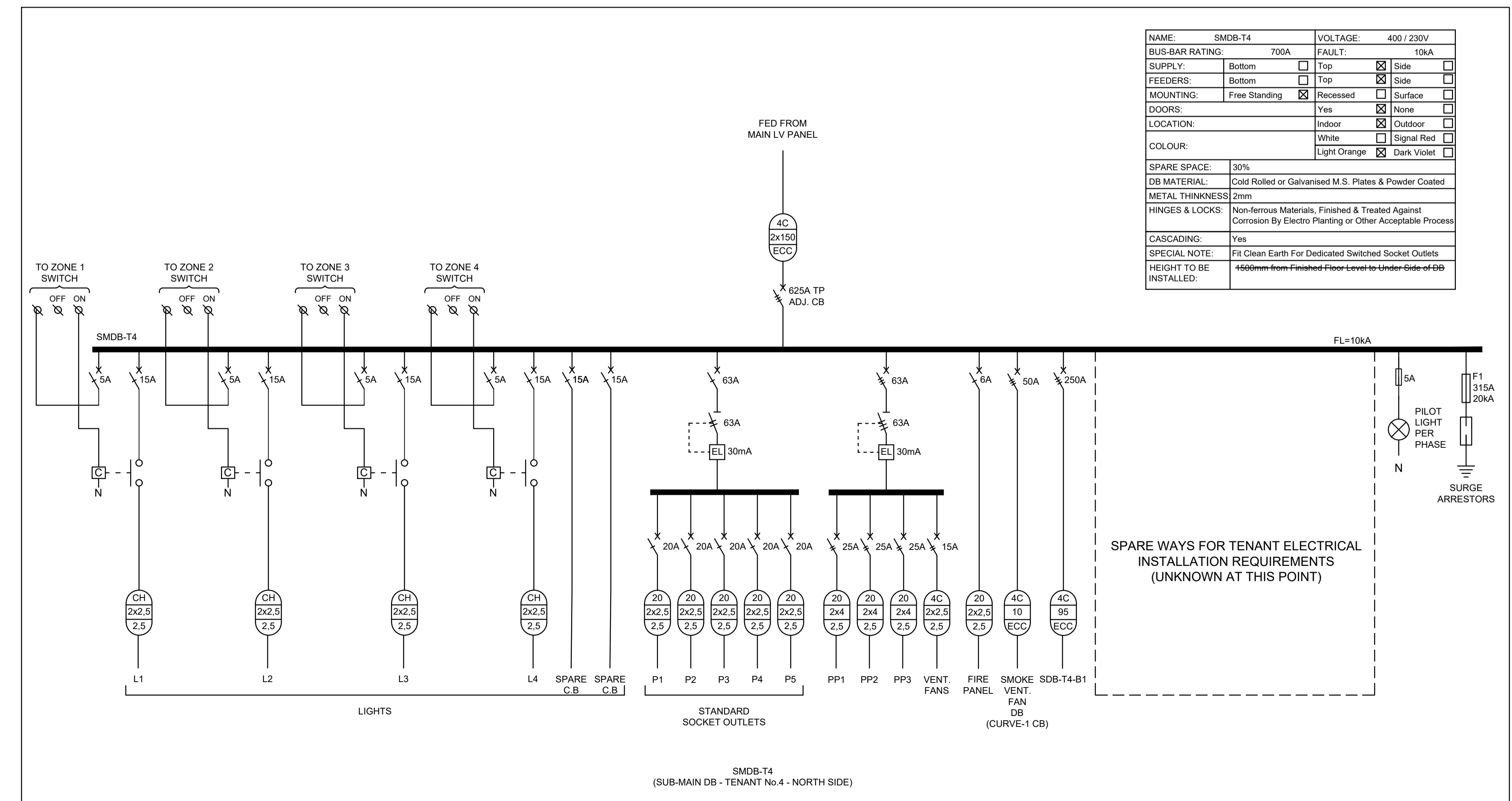
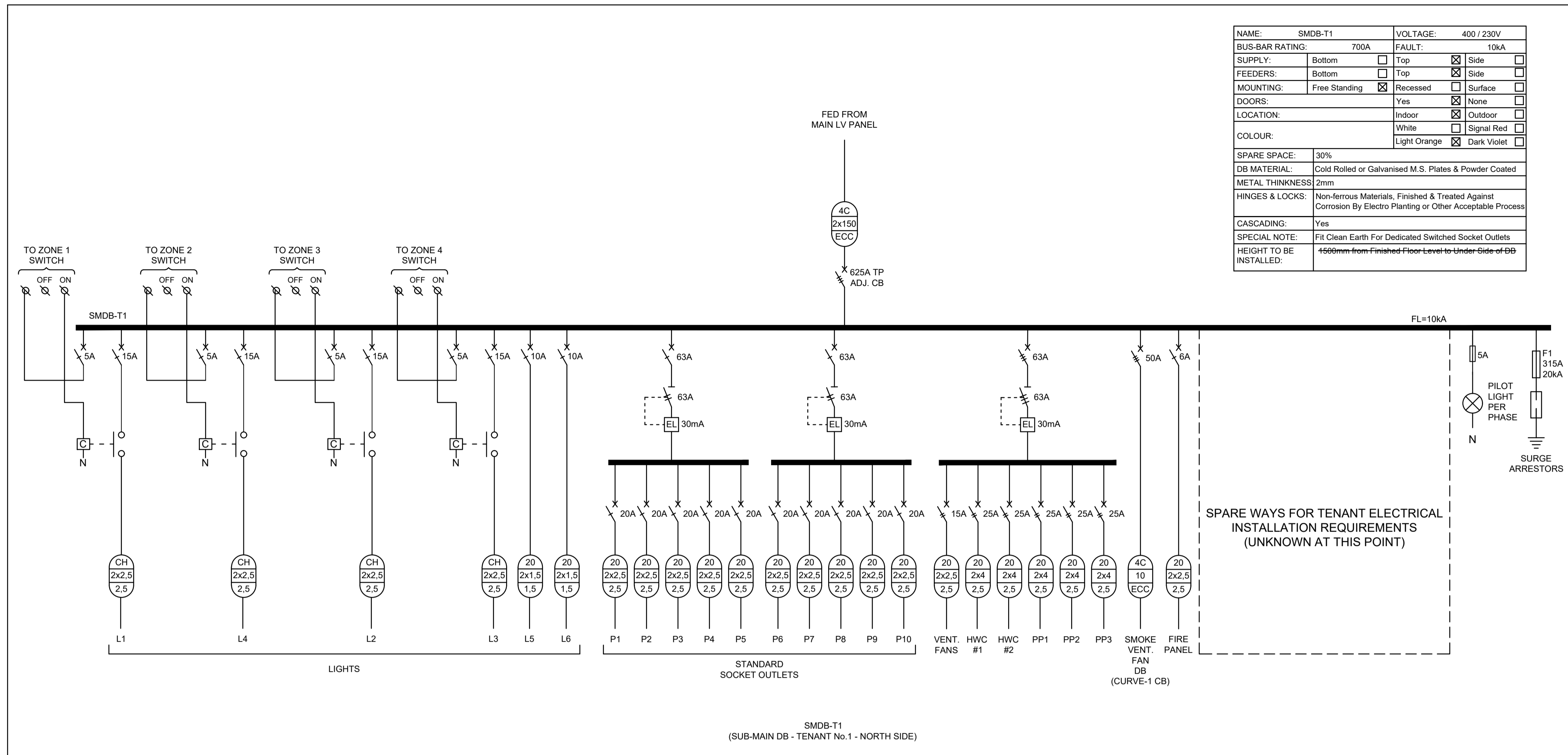
DRAWING NO. **2318-T-E-301-S03**

REV No. **00**



NAME:	MAIN-LV PANEL		VOLTAGE:	400 / 230V		
BUS-BAR RATING:	2500A		FAULT:	35kA		
SUPPLY:	Bottom	<input checked="" type="checkbox"/>	Top	<input type="checkbox"/>	Side	<input type="checkbox"/>
FEEDERS:	Bottom	<input type="checkbox"/>	Top	<input checked="" type="checkbox"/>	Side	<input type="checkbox"/>
MOUNTING:	Free Standing	<input checked="" type="checkbox"/>	Recessed	<input type="checkbox"/>	Surface	<input type="checkbox"/>
DOORS:	Yes	<input checked="" type="checkbox"/>	None	<input type="checkbox"/>		
LOCATION:	Indoor	<input checked="" type="checkbox"/>	Outdoor	<input type="checkbox"/>		
COLOUR:	White	<input type="checkbox"/>	Signal Red	<input type="checkbox"/>		
	Light Orange	<input checked="" type="checkbox"/>	Dark Violet	<input type="checkbox"/>		
SPARE SPACE:	30%					
DB MATERIAL:	Cold Rolled or Galvanised M.S. Plates & Powder Coated					
METAL THICKNESS:	2mm					
HINGES & LOCKS:	Non-ferrous Materials, Finished & Treated Against Corrosion By Electro Planting or Other Acceptable Process					
CASCADING:	Yes					
SPECIAL NOTE:	Fit Clean Earth For Dedicated Switched Socket Outlets					
HEIGHT TO BE INSTALLED:	1500mm from Finished Floor Level to Under Side of DB					





- NOTES:**
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 - D = DEDICATED SSO
 - L = LIGHTING CIRCUIT
 - P = STANDARD SSO
 - XL = LIGHTING CIRCUIT ON STANDBY POWER
 - XP = STANDARD SSO ON STANDBY POWER

REVISIONS			
REV	DATE	INIT.	DESCRIPTION



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

SMDB-T1 & T4 NORTH SIDE - DB SCHEMATIC DIAGRAMS

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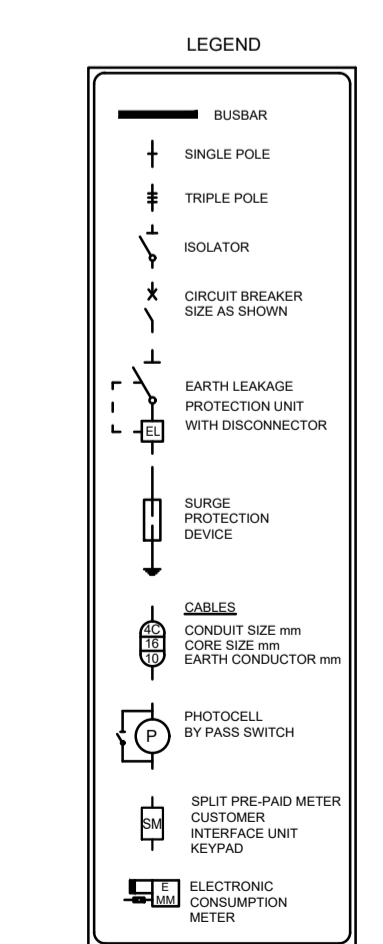
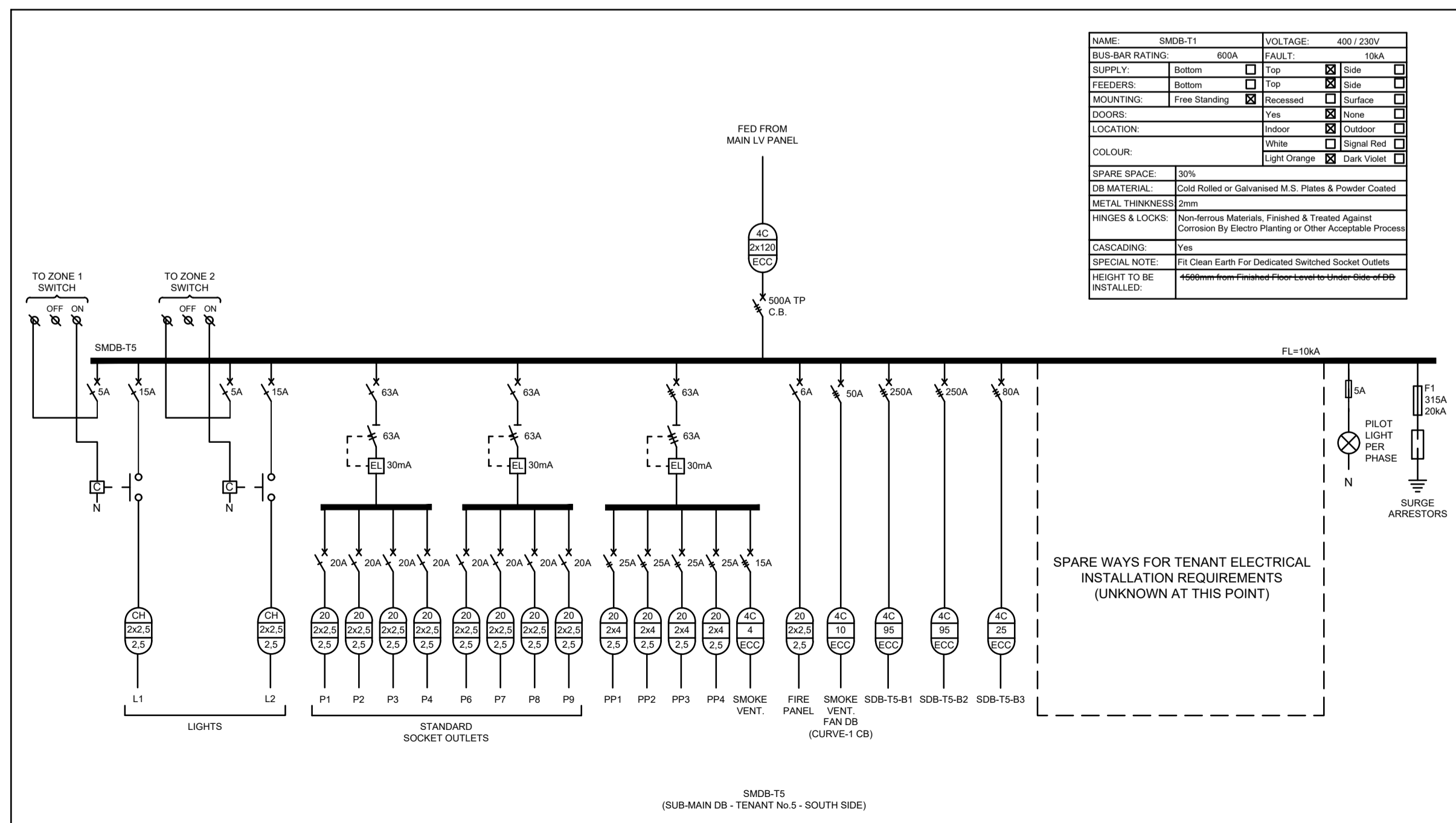
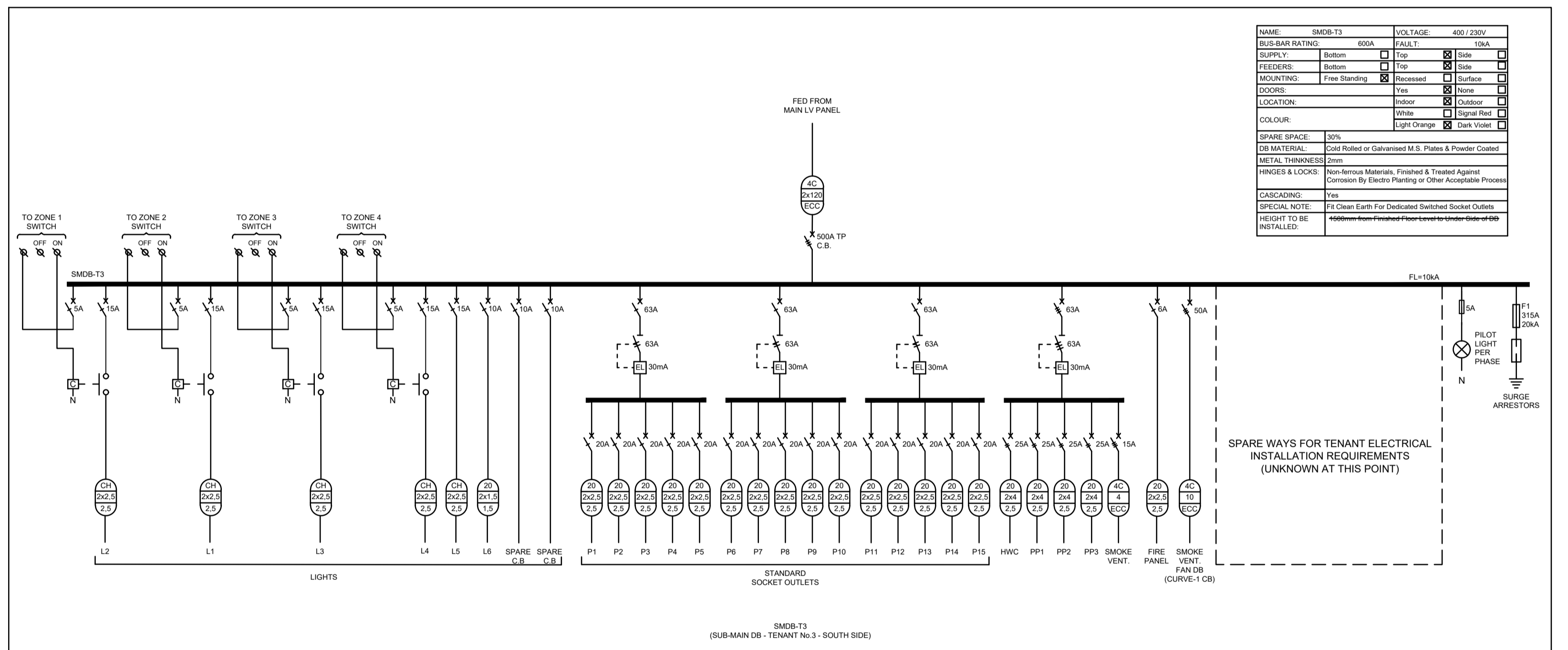
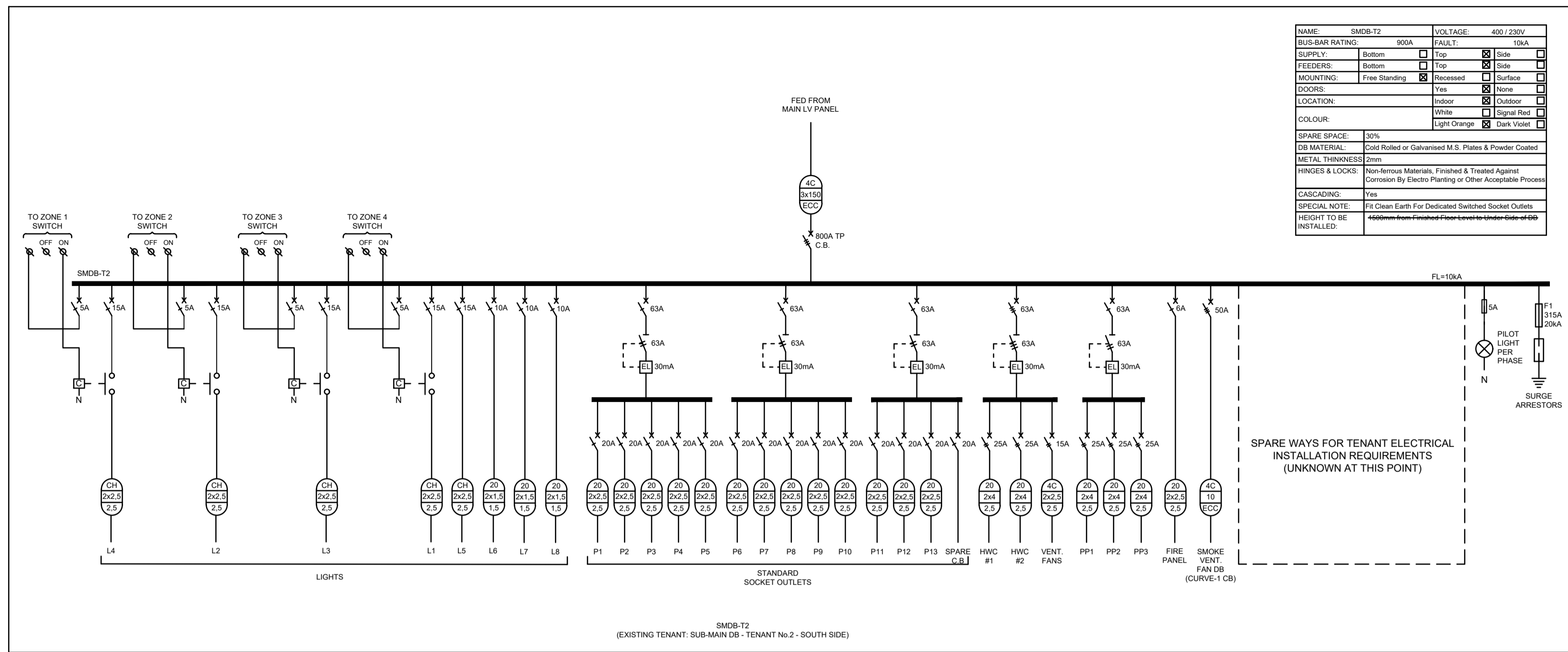
DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: **N.T. NZUZA** SCALE: **NTS**

REVISED BY: **-** DATE: **05/11/2023** PRINT DATE: **21/11/2023**

CHECKED BY: **N.T. NZUZA**
REGISTRATION No. **201730103**
SIGNED:


DRAWING No. **2318-T-E-302-S03** REV No. **00**



- NOTES:
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 - A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
 - CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
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 - D = DEDICATED SSO
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 - P = STANDARD SSO
 - XL = LIGHTING CIRCUIT ON STANDBY POWER
 - XP = STANDARD SSO ON STANDBY POWER

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

SMDB-T2, SMDB-T3 & SMDB-T5 SOUTH SIDE - DB SCHEMATIC DIAGRAMS

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Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: N.T. NZUZA

SCALE: NTS

REVISED BY: -

DATE: 05/11/2023

PRINT DATE: 21/11/2023

CHECKED BY: N.T. NZUZA

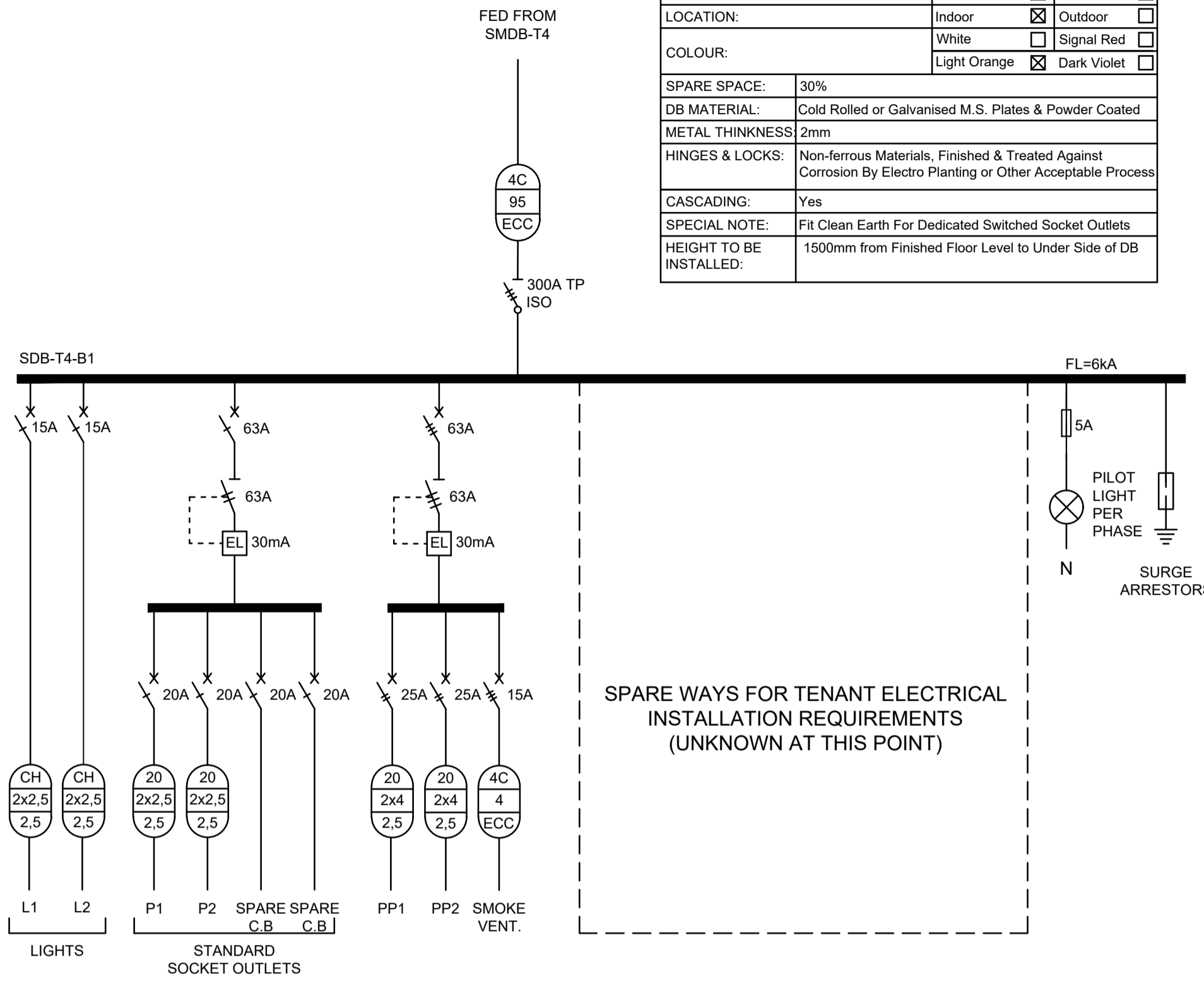
REGISTRATION No. 201730103

SIGNED: _____

DRAWING NO. 2318-T-E-303-S03

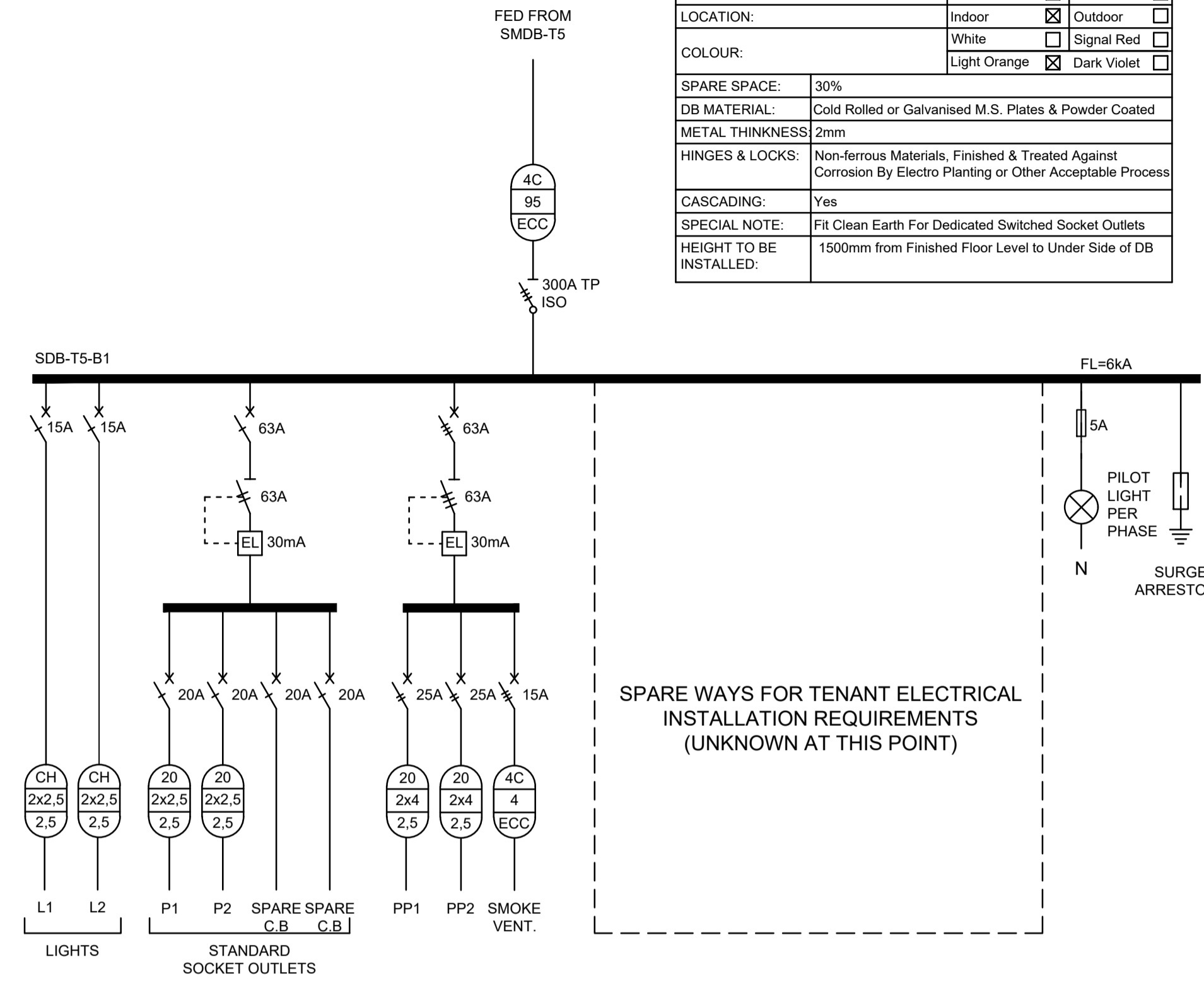
REV No. 00

NAME:	SDB-T4-B1	VOLTAGE:	400 / 230V
BUS-BAR RATING:	300A	FAULT:	6KA
SUPPLY:	Bottom <input type="checkbox"/> Top <input checked="" type="checkbox"/> Side <input type="checkbox"/>		
FEEDERS:	Bottom <input type="checkbox"/> Top <input checked="" type="checkbox"/> Side <input type="checkbox"/>		
MOUNTING:	Free Standing <input type="checkbox"/> Recessed <input type="checkbox"/> Surface <input checked="" type="checkbox"/>		
DOORS:	Yes <input checked="" type="checkbox"/> None <input type="checkbox"/>		
LOCATION:	Indoor <input checked="" type="checkbox"/> Outdoor <input type="checkbox"/>		
COLOUR:	White <input type="checkbox"/> Signal Red <input type="checkbox"/> Light Orange <input checked="" type="checkbox"/> Dark Violet <input type="checkbox"/>		
SPARE SPACE:	30%		
DB MATERIAL:	Cold Rolled or Galvanised M.S. Plates & Powder Coated		
METAL THICKNESS:	2mm		
HINGES & LOCKS:	Non-ferrous Materials, Finished & Treated Against Corrosion By Electro Planting or Other Acceptable Process		
CASCADING:	Yes		
SPECIAL NOTE:	Fit Clean Earth For Dedicated Switched Socket Outlets		
HEIGHT TO BE INSTALLED:	1500mm from Finished Floor Level to Under Side of DB		



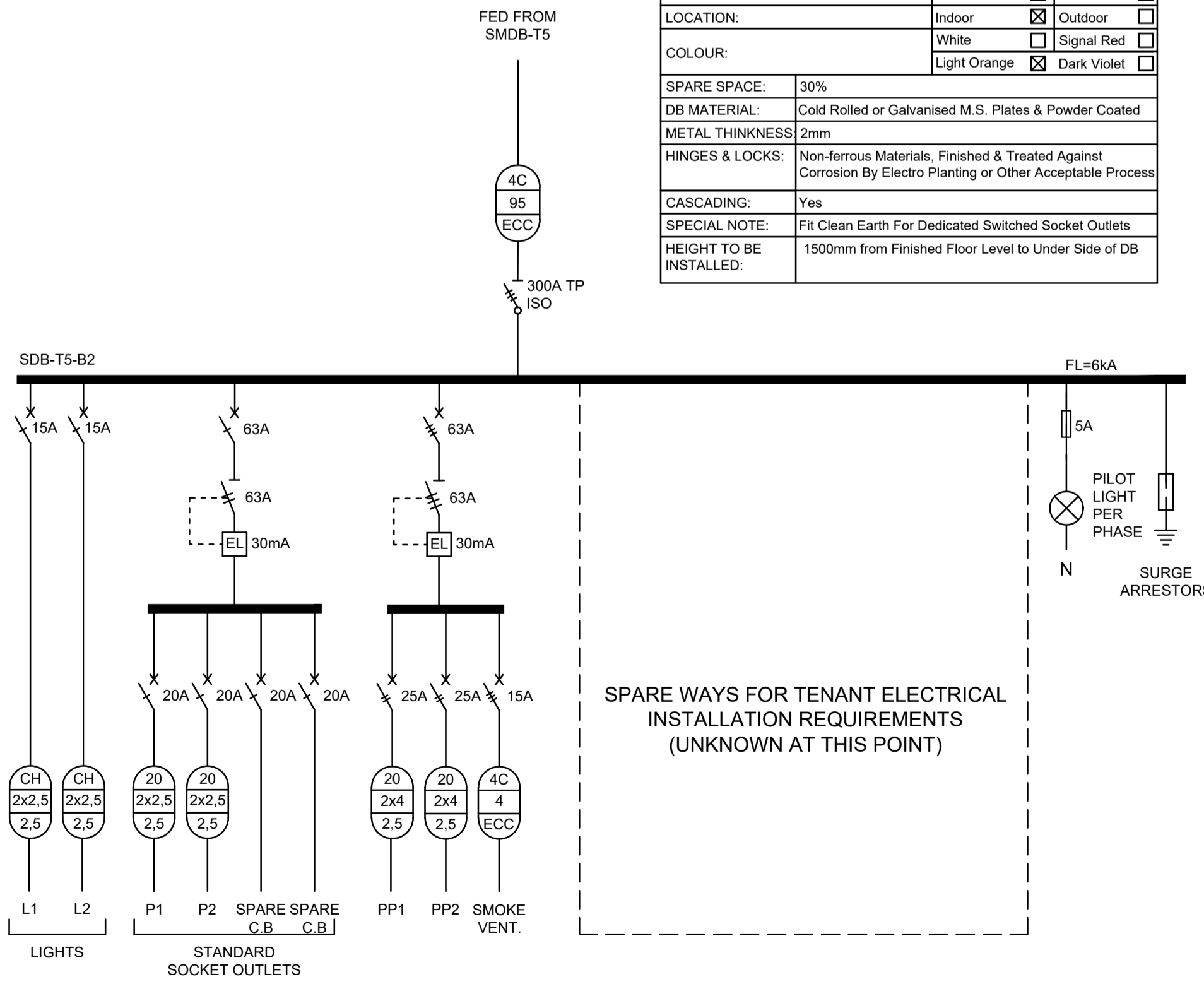
SDB-T4-B1
(SUB-DB - TENANT No.4 - BAY No.1 - NORTH SIDE)

NAME:	SDB-T5-B1	VOLTAGE:	400 / 230V
BUS-BAR RATING:	300A	FAULT:	6KA
SUPPLY:	Bottom <input type="checkbox"/> Top <input checked="" type="checkbox"/> Side <input type="checkbox"/>		
FEEDERS:	Bottom <input type="checkbox"/> Top <input checked="" type="checkbox"/> Side <input type="checkbox"/>		
MOUNTING:	Free Standing <input type="checkbox"/> Recessed <input type="checkbox"/> Surface <input checked="" type="checkbox"/>		
DOORS:	Yes <input checked="" type="checkbox"/> None <input type="checkbox"/>		
LOCATION:	Indoor <input checked="" type="checkbox"/> Outdoor <input type="checkbox"/>		
COLOUR:	White <input type="checkbox"/> Signal Red <input type="checkbox"/> Light Orange <input checked="" type="checkbox"/> Dark Violet <input type="checkbox"/>		
SPARE SPACE:	30%		
DB MATERIAL:	Cold Rolled or Galvanised M.S. Plates & Powder Coated		
METAL THICKNESS:	2mm		
HINGES & LOCKS:	Non-ferrous Materials, Finished & Treated Against Corrosion By Electro Planting or Other Acceptable Process		
CASCADING:	Yes		
SPECIAL NOTE:	Fit Clean Earth For Dedicated Switched Socket Outlets		
HEIGHT TO BE INSTALLED:	1500mm from Finished Floor Level to Under Side of DB		



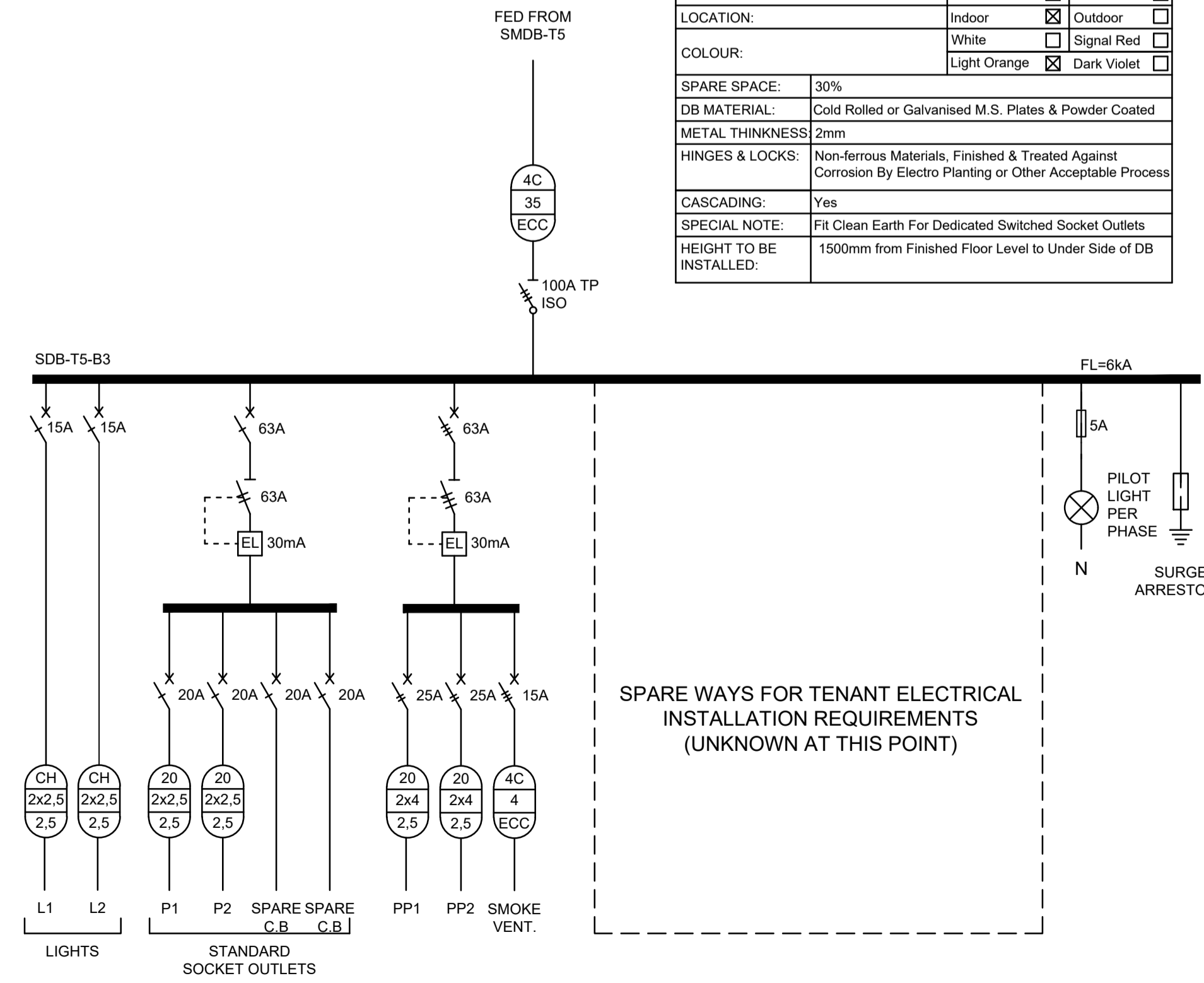
SDB-T5-B1
(SUB-DB - TENANT No.5 - BAY No.1)

NAME:	SDB-T5-B2	VOLTAGE:	400 / 230V
BUS-BAR RATING:	300A	FAULT:	6KA
SUPPLY:	Bottom <input type="checkbox"/> Top <input checked="" type="checkbox"/> Side <input type="checkbox"/>		
FEEDERS:	Bottom <input type="checkbox"/> Top <input checked="" type="checkbox"/> Side <input type="checkbox"/>		
MOUNTING:	Free Standing <input type="checkbox"/> Recessed <input type="checkbox"/> Surface <input checked="" type="checkbox"/>		
DOORS:	Yes <input checked="" type="checkbox"/> None <input type="checkbox"/>		
LOCATION:	Indoor <input checked="" type="checkbox"/> Outdoor <input type="checkbox"/>		
COLOUR:	White <input type="checkbox"/> Signal Red <input type="checkbox"/> Light Orange <input checked="" type="checkbox"/> Dark Violet <input type="checkbox"/>		
SPARE SPACE:	30%		
DB MATERIAL:	Cold Rolled or Galvanised M.S. Plates & Powder Coated		
METAL THICKNESS:	2mm		
HINGES & LOCKS:	Non-ferrous Materials, Finished & Treated Against Corrosion By Electro Planting or Other Acceptable Process		
CASCADING:	Yes		
SPECIAL NOTE:	Fit Clean Earth For Dedicated Switched Socket Outlets		
HEIGHT TO BE INSTALLED:	1500mm from Finished Floor Level to Under Side of DB		

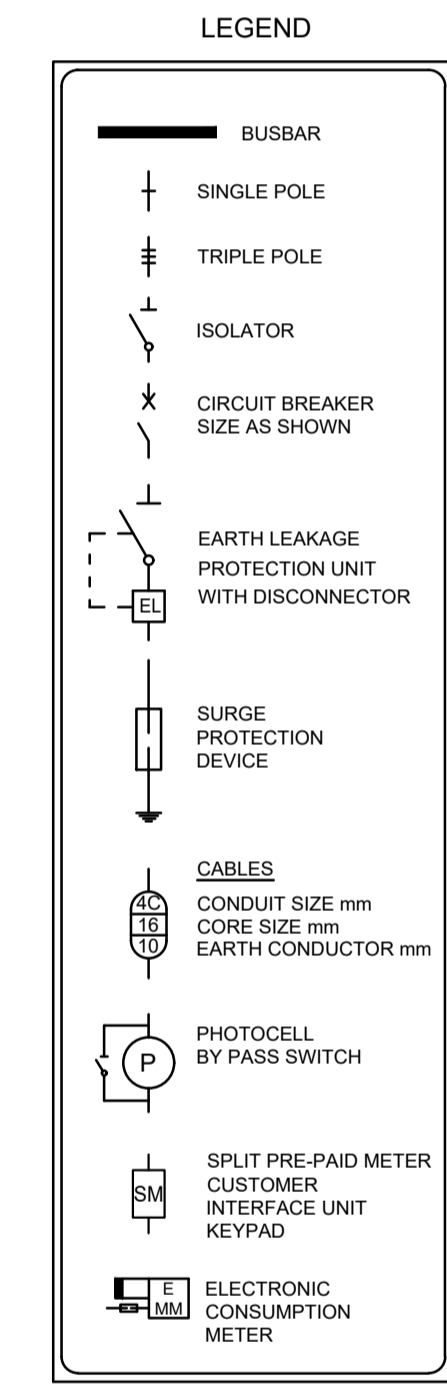


SDB-T5-B2
(SUB-DB - TENANT No.5 - BAY No.2)

NAME:	SDB-T5-B3	VOLTAGE:	400 / 230V
BUS-BAR RATING:	100A	FAULT:	6KA
SUPPLY:	Bottom <input type="checkbox"/> Top <input checked="" type="checkbox"/> Side <input type="checkbox"/>		
FEEDERS:	Bottom <input type="checkbox"/> Top <input checked="" type="checkbox"/> Side <input type="checkbox"/>		
MOUNTING:	Free Standing <input type="checkbox"/> Recessed <input type="checkbox"/> Surface <input checked="" type="checkbox"/>		
DOORS:	Yes <input checked="" type="checkbox"/> None <input type="checkbox"/>		
LOCATION:	Indoor <input checked="" type="checkbox"/> Outdoor <input type="checkbox"/>		
COLOUR:	White <input type="checkbox"/> Signal Red <input type="checkbox"/> Light Orange <input checked="" type="checkbox"/> Dark Violet <input type="checkbox"/>		
SPARE SPACE:	30%		
DB MATERIAL:	Cold Rolled or Galvanised M.S. Plates & Powder Coated		
METAL THICKNESS:	2mm		
HINGES & LOCKS:	Non-ferrous Materials, Finished & Treated Against Corrosion By Electro Planting or Other Acceptable Process		
CASCADING:	Yes		
SPECIAL NOTE:	Fit Clean Earth For Dedicated Switched Socket Outlets		
HEIGHT TO BE INSTALLED:	1500mm from Finished Floor Level to Under Side of DB		



SDB-T5-B3
(SUB-DB - TENANT No.5 - BAY No.3)



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REVISIONS			
REV	DATE	INIT	DESCRIPTION



PROJECT
**ECDC PROPERTIES - DIMBAZA
FACORIES - SITE 03**

TITLE
**SDB-T4-B1, SDB-T5-B1,
SDB-T5-B2 & SDB-T5-B3
TENANT SUB-DBs -
DB SCHEMATIC DIAGRAMS**

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Tel: (043) 742 0041



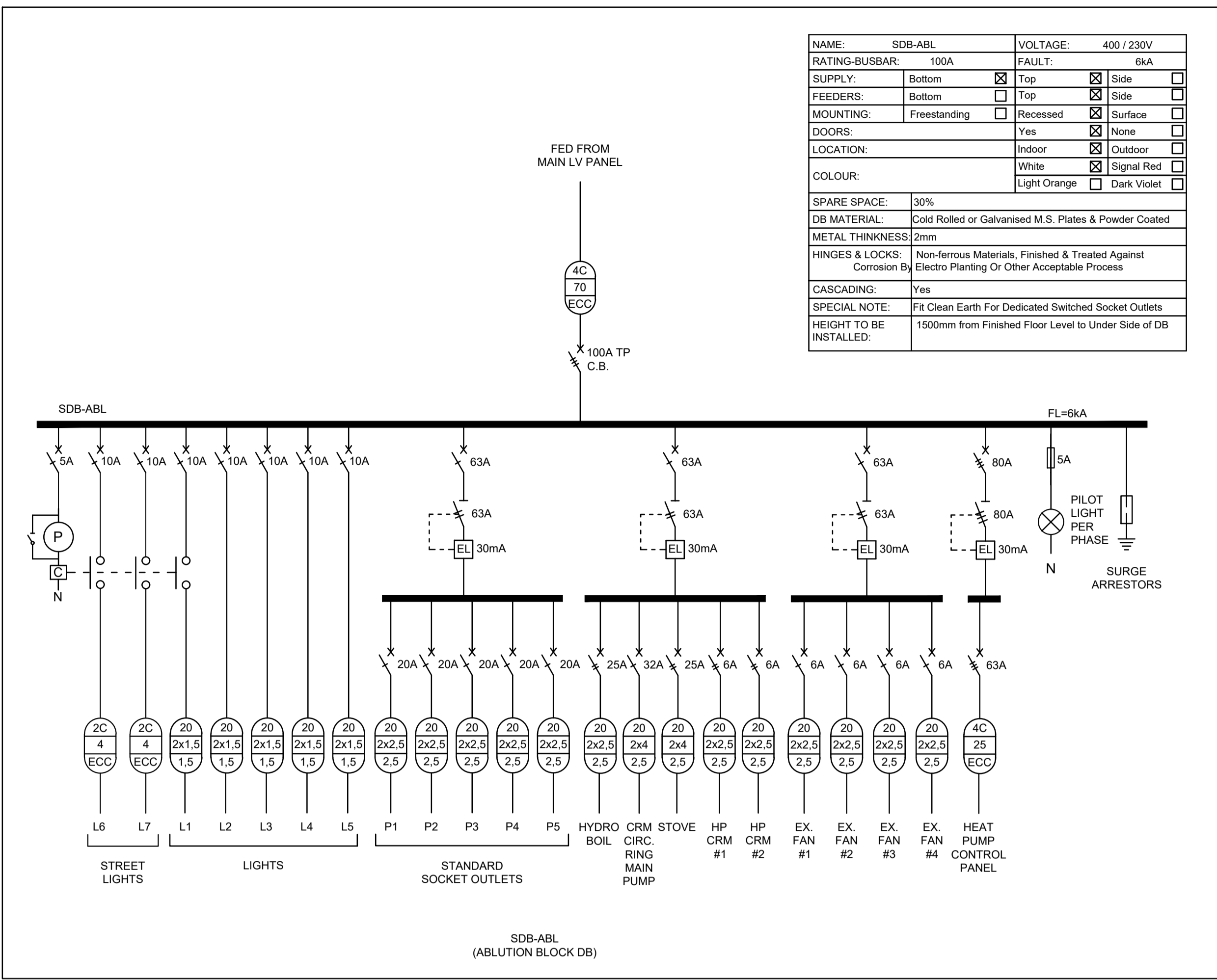
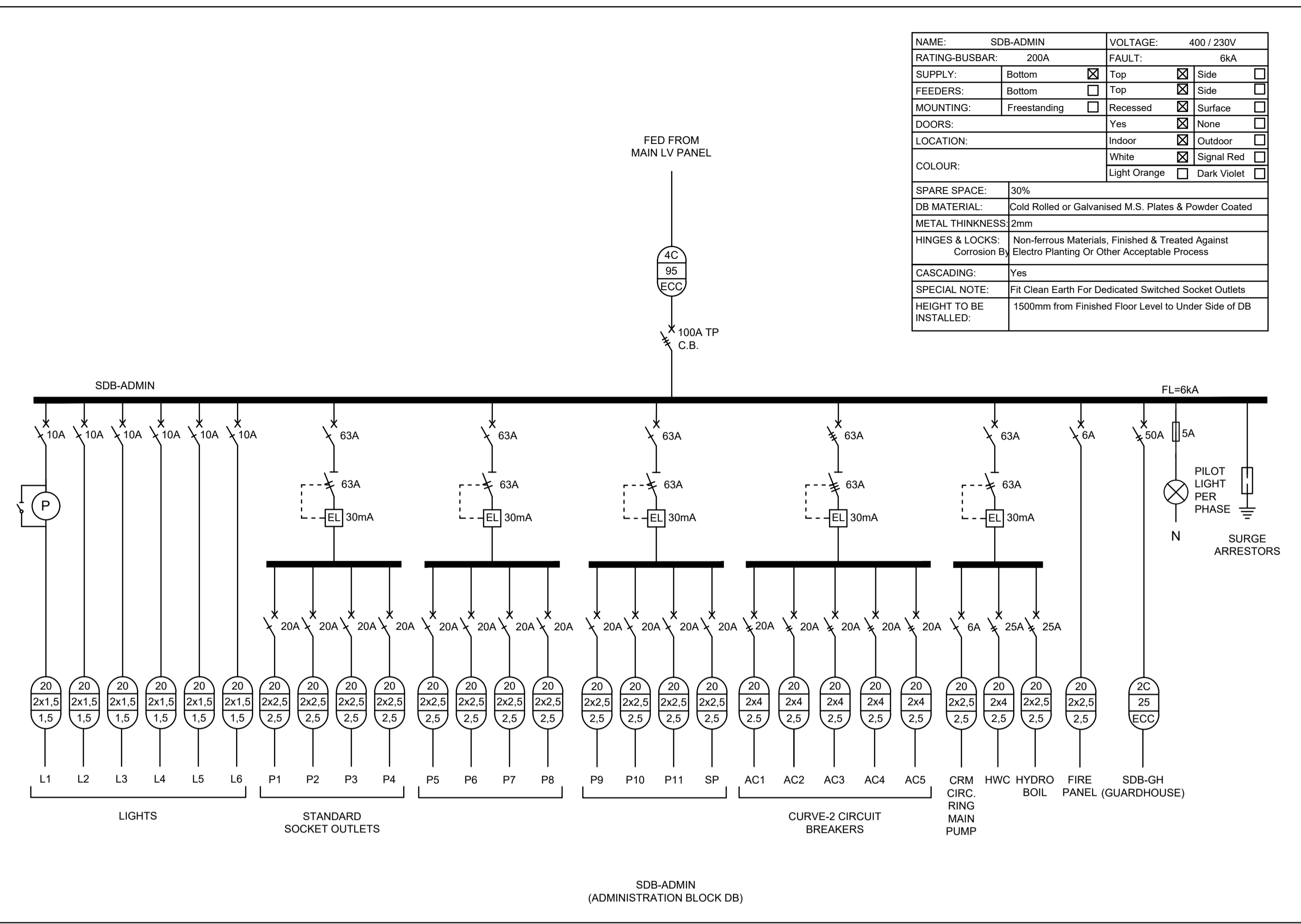
DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: N.T. NZUZA
SCALE: NTS

REVISED BY: -
DATE: 05/11/2023
PRINT DATE: 21/11/2023

CHECKED BY: N.T. NZUZA
REGISTRATION No. 201730103
SIGNED: _____

DRAWING No. 2318-T-E-304-S03
REV No. 00



- NOTES:**
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 - P = STANDARD SSO
 - XL = LIGHTING CIRCUIT ON STANDBY POWER
 - XP = STANDARD SSO ON STANDBY POWER

REVISIONS			
REV	DATE	INIT.	DESCRIPTION



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE

SDB-ADMIN, SDB-ABL, SDB-BH & SDB-GH DB SCHEMATIC DIAGRAMS

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Tel: (043) 742 0041



DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: **N.T. NZUZA** SCALE: **NTS**

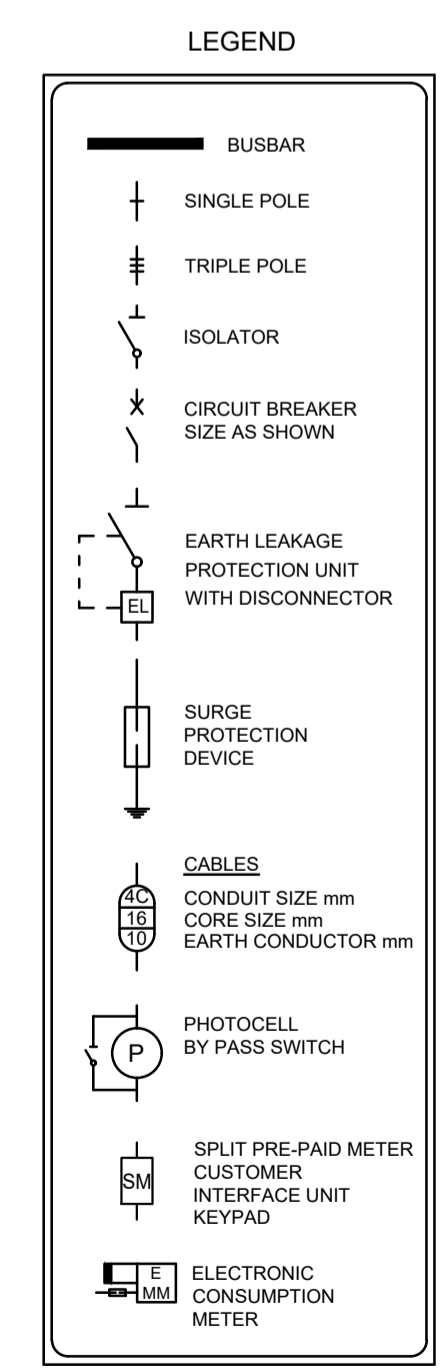
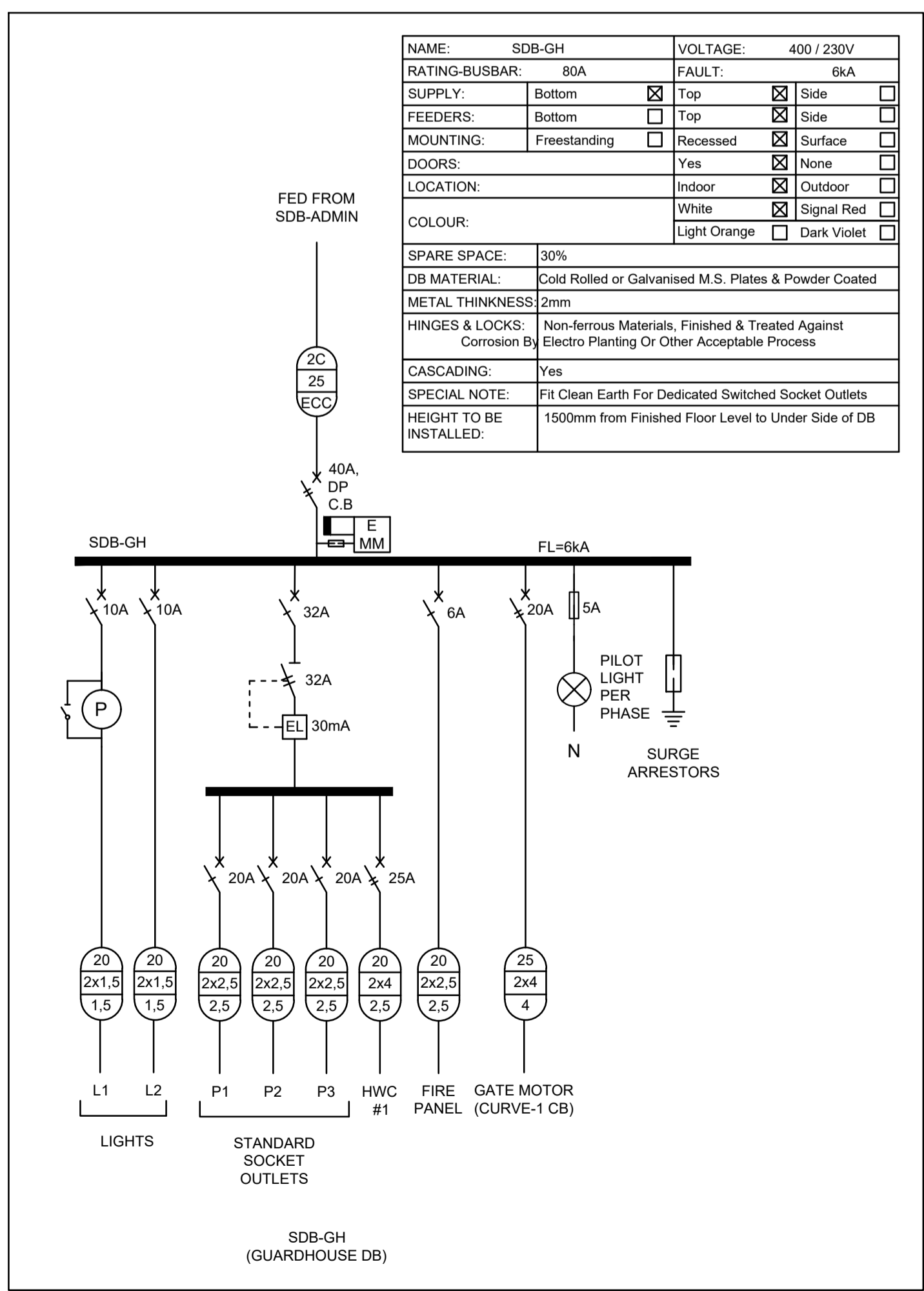
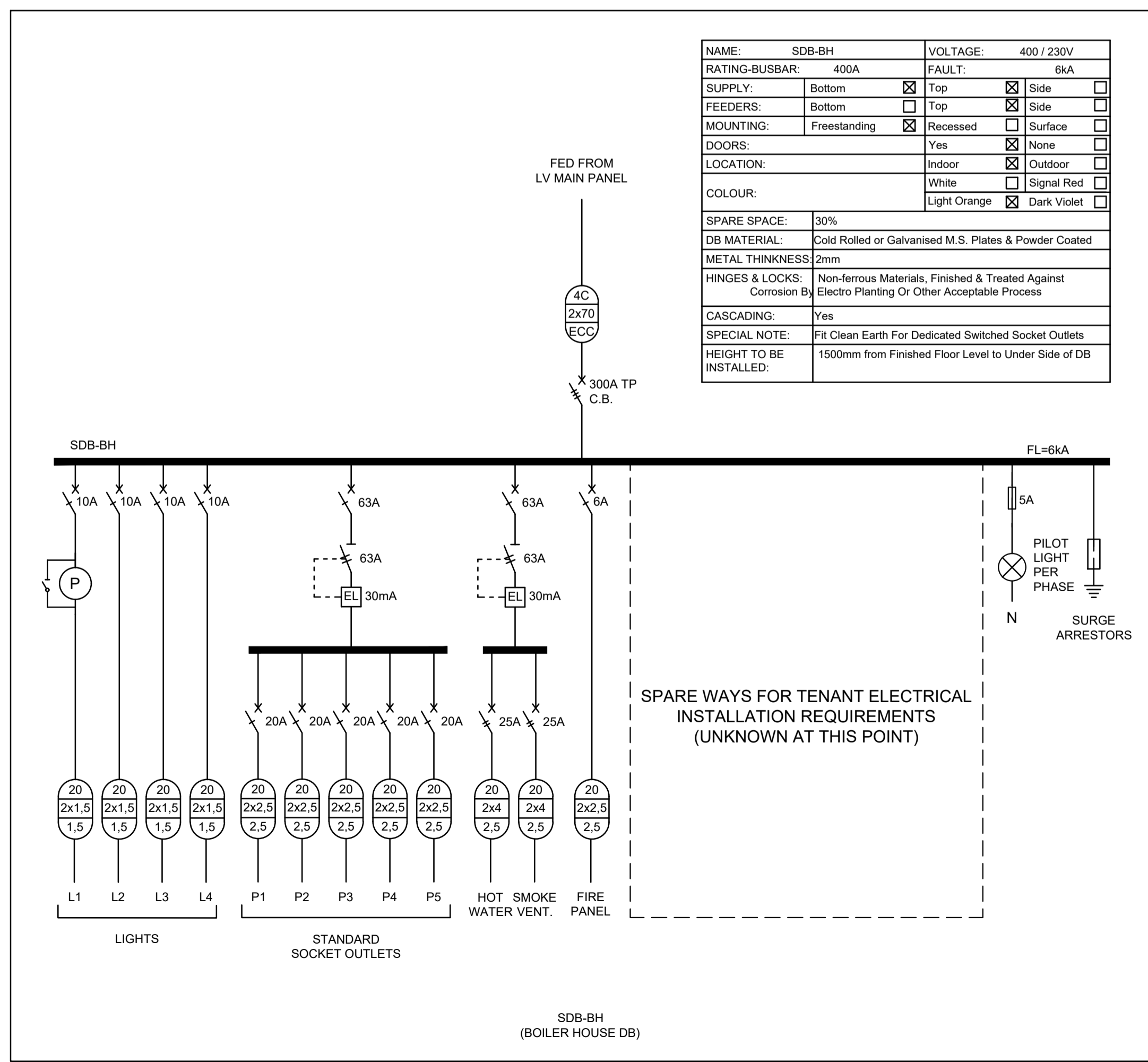
REVISED BY: - DATE: **05/11/2023** PRINT DATE: **20/11/2023**

CHECKED BY: **N.T. NZUZA**

REGISTRATION No. **201730103**

SIGNED: _____

DRAWING No. **2318-T-E-305-S03** REV No. **00**



- NOTES:**
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 - P = STANDARD SSO
 - XL = LIGHTING CIRCUIT ON STANDBY POWER
 - XP = STANDARD SSO ON STANDBY POWER

REVISIONS				
REV	DATE	INIT.	DESCRIPTION	



PROJECT

**ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03**

TITLE

**TYPICAL POWERSKIRTING
INSTALLATION & LIGHTNING
PROTECTION SYSTEM INSTALLATION
DETAILS**

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East London, 5241 Tel: (043) 742 0041
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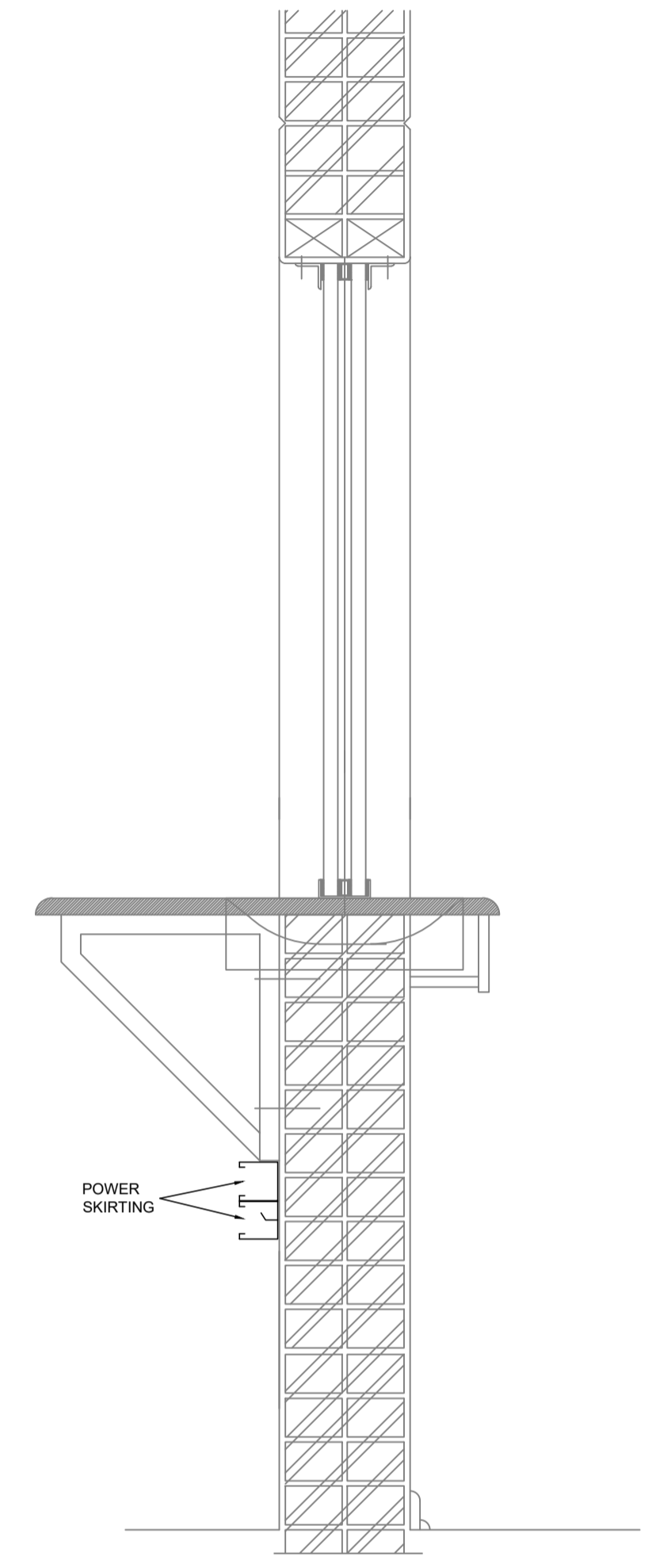
DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: **N.T. NZUZA** SCALE: **NTS**

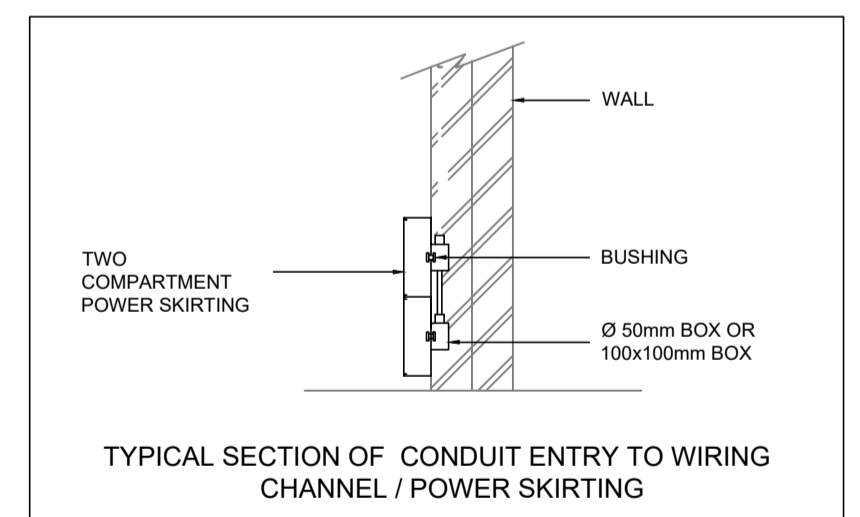
REVISED BY: **-** DATE: **21/08/2023** PRINT DATE: **14/11/2023**

CHECKED BY: **N.T. NZUZA**
REGISTRATION No. **201730103**
SIGNED: _____

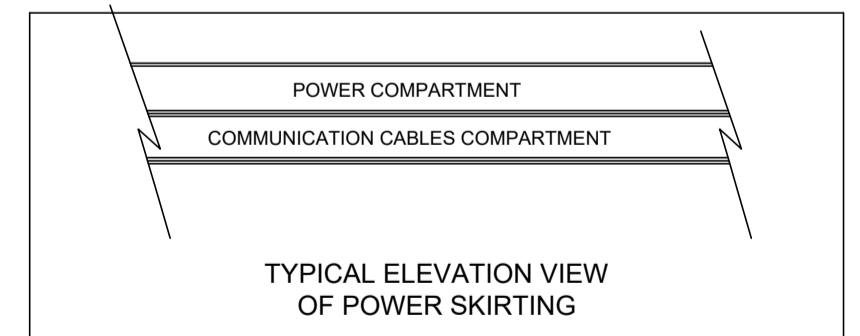
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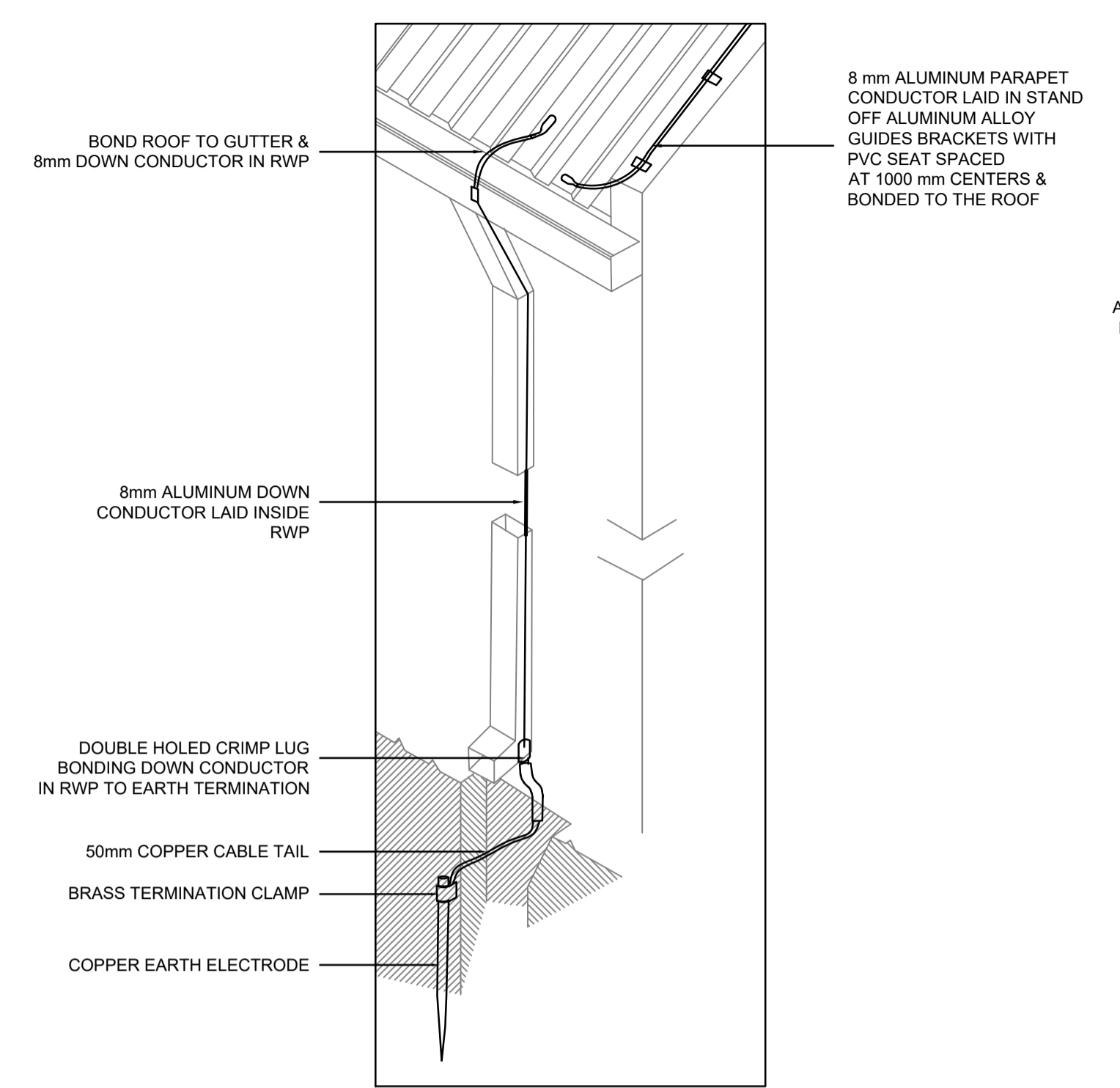
**DETAIL SECTION
CASH HALL**



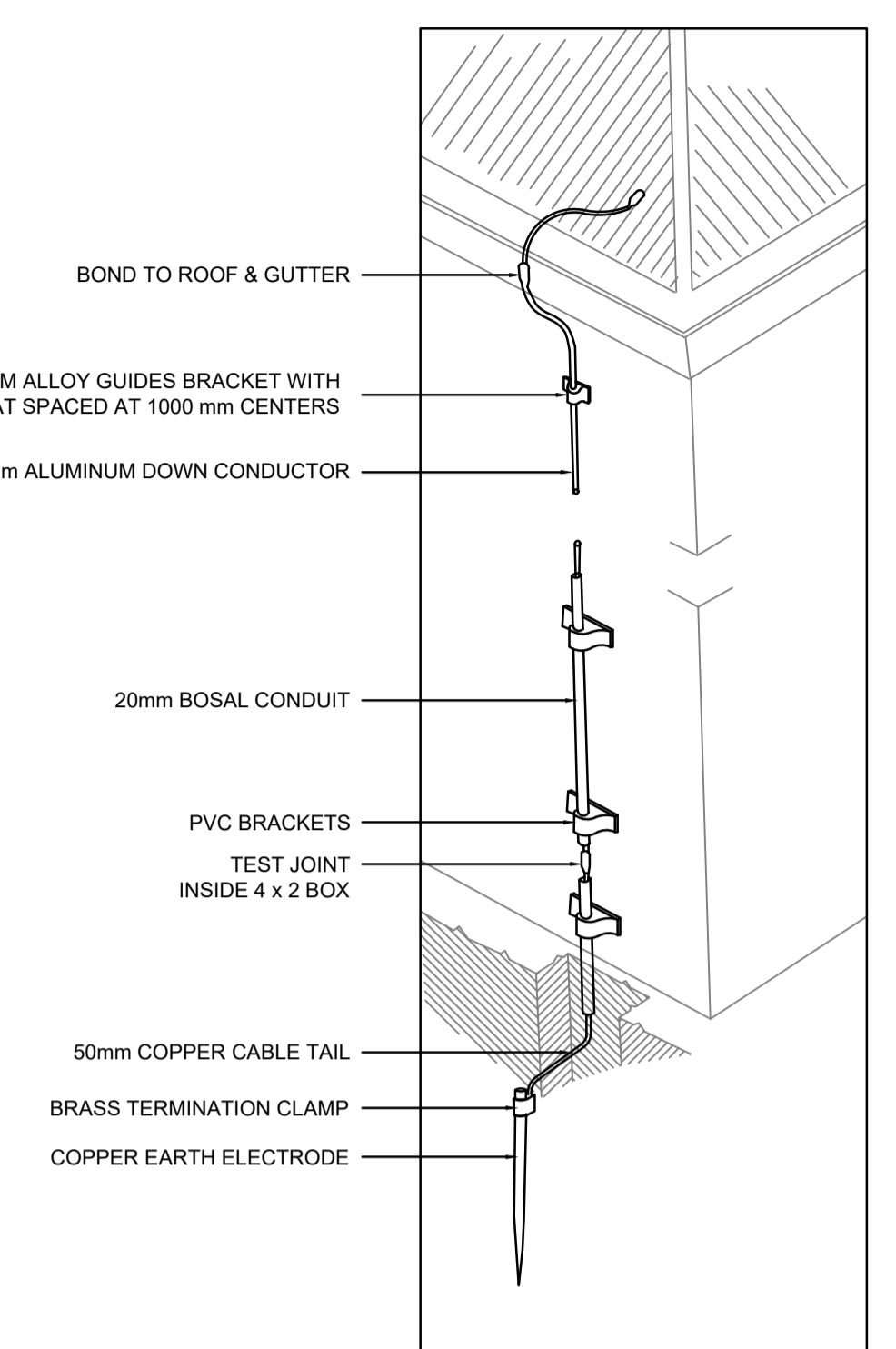
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CHANNEL / POWER SKIRTING**



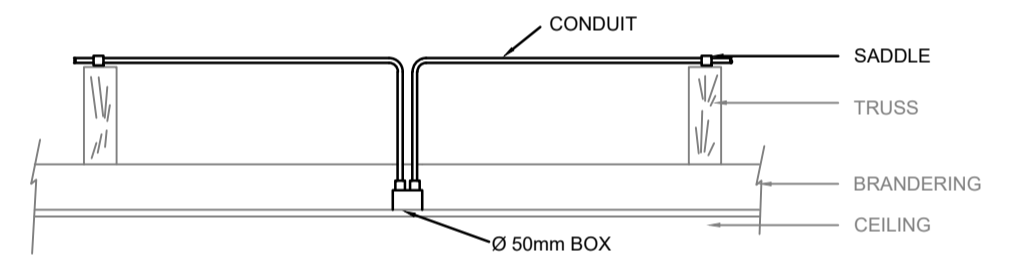
**SERVICE ALLOCATION OF
POWERSKIRTING COMPARTMENTS**



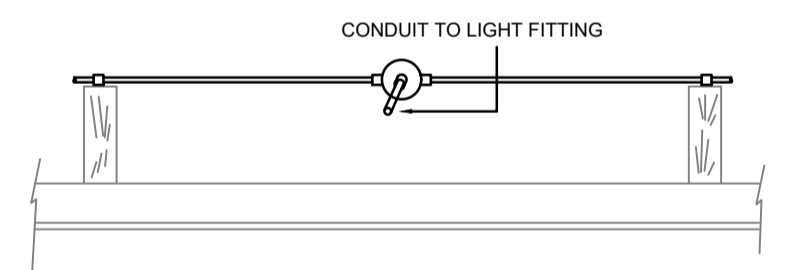
**DETAIL B TYPICAL AIR TO
EARTH TERMINATION METHOD**
(Where there are downpipes and/or parapet walls)



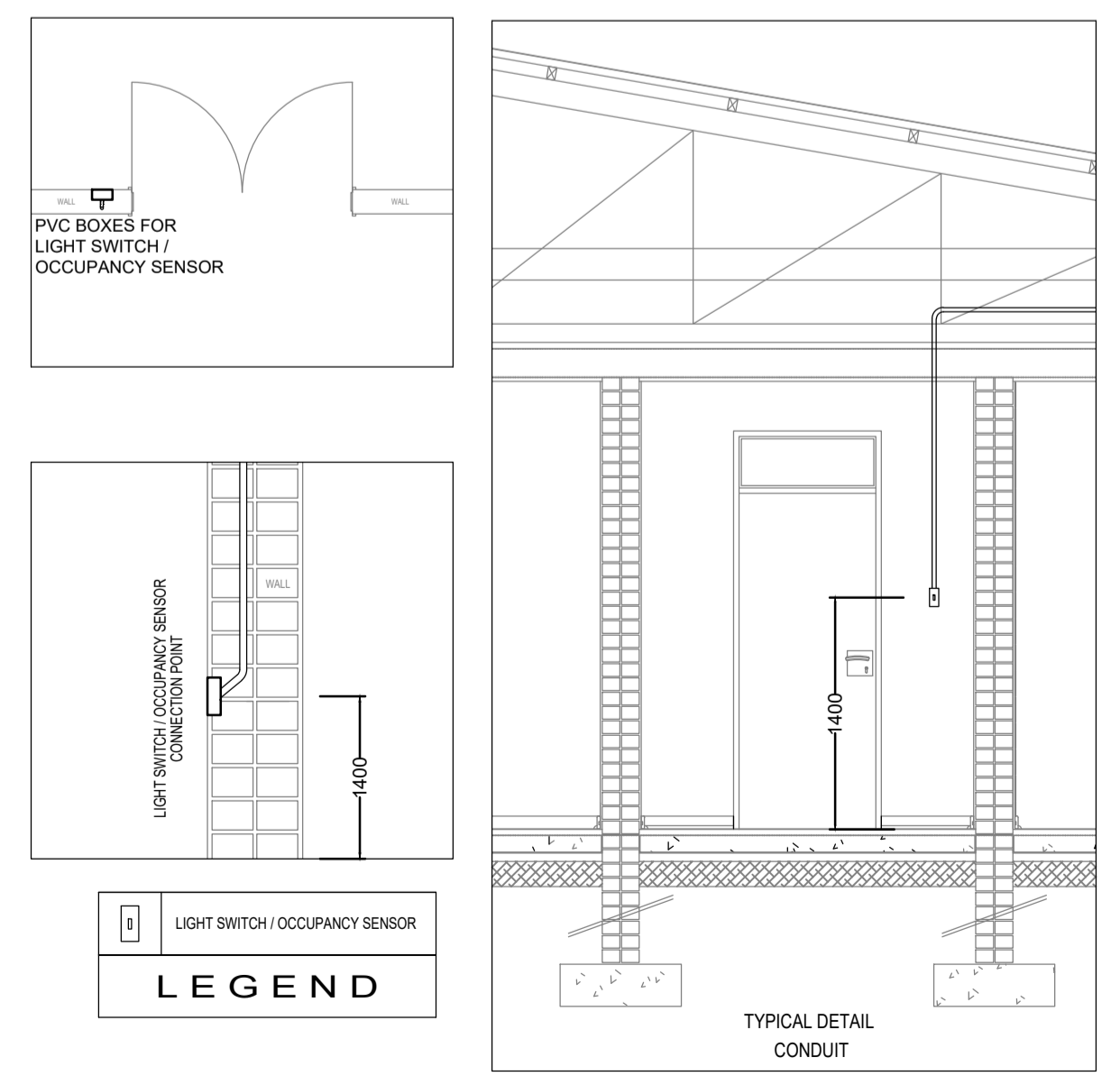
**DETAIL A TYPICAL AIR TO
EARTH TERMINATION METHOD**
(Where there are no downpipes)



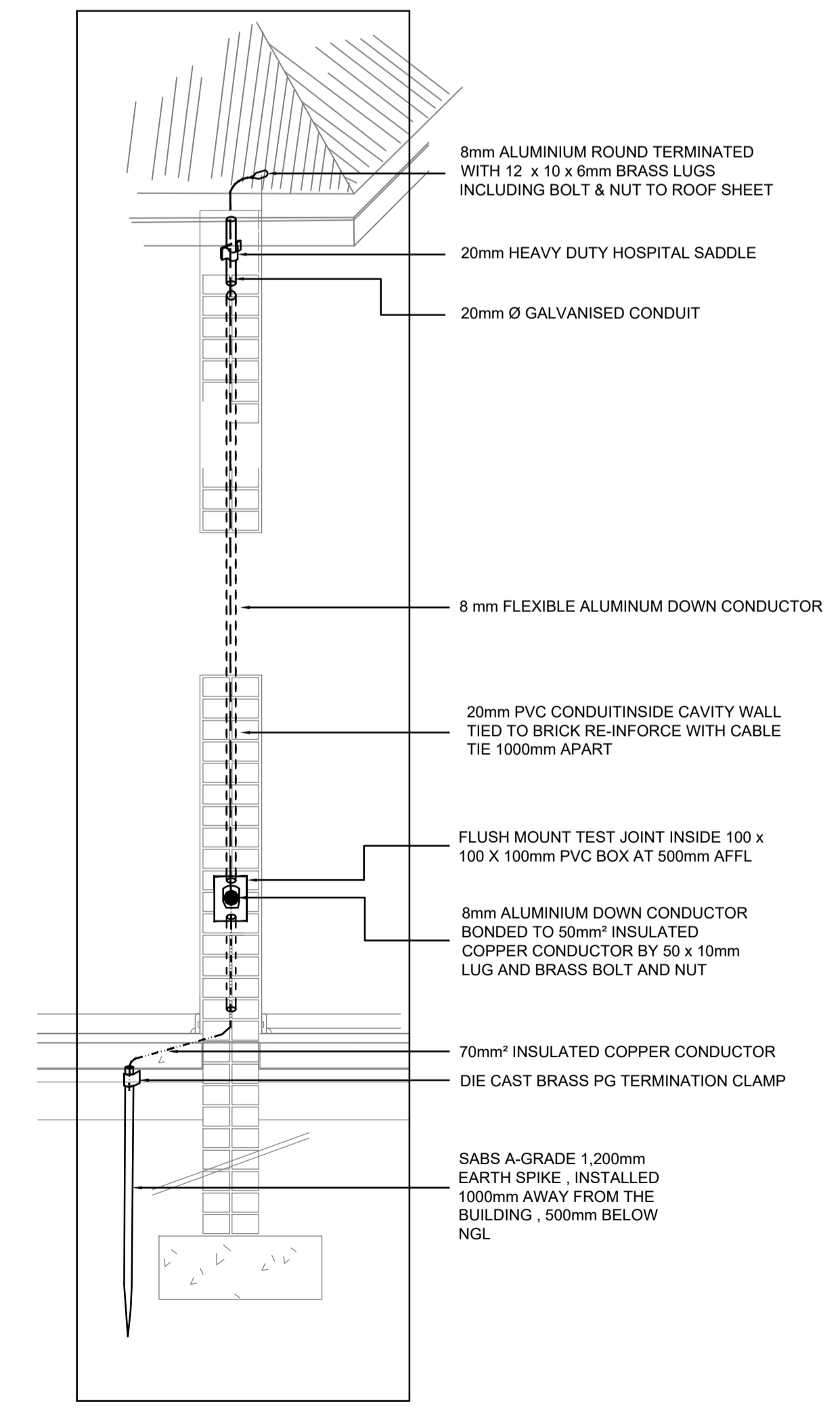
**TYPICAL CONDUITING FOR
CEILING MOUNTED LIGHT FITTING**



**TYPICAL CONDUITING FOR
OUTSIDE LIGHT FITTING**



LEGEND



**DETAIL A TYPICAL AIR TO
EARTH TERMINATION METHOD**

SITE 03

VOLUME 2.1 PART 1: FIRE PROTECTION EQUIPMENT - 1 SCOPE OF WORKS

FIRE PROTECTION EQUIPMENT INSTALLATIONS

1. **GENERAL**

- 1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. **THE CONTRACT**

2.1 **FIRE PROTECTION EQUIPMENT INSTALLATIONS**

The work to be carried out and commissioned by a SAQCC Fire approved installer:

- a. Installation of new hose reel, hydrant and extinguisher equipment, as per SANS 10400 Section T & SANS 10252,
- b. Installation of new galvanised steel water reticulation,
- c. Testing and Commissioning, as per SANS 10400 Section T and SANS 10139,
- d. Manuals, Drawings, OEM Literature,

2.2 **Existing**

All installations new. Building Existing.

2.3 **Order of The Works**

As per the building contractors' program of works.

SITE 03

VOLUME 2.1 PART 2: FIRE PROTECTION STANDARD SPECIFICATION

1.0 GENERAL

- 1.1 This standard specification applies to, and is to be read in conjunction with the particular technical specifications.
- 1.2 In so far as the conditions contained herein are at variance with anything contained in the particular specification, the contract shall be interpreted in terms of the particular specification for each particular service.
- 1.3 Equipment, materials and operational methods, shall comply with the relevant South African Bureau of Standards Specification or the British Standard Specification, wherever such specification exists, whether prescribed or not. Preference will be given to the latest issue of the SANS specification where both such specifications exist, unless otherwise prescribed in this or the particular specification.

2.0 OCCUPATIONAL HEALTH AND SAFETY ACT

- 2.1 All equipment supplied and installed under the contract shall meet the requirements of the Occupational Health and Safety Act (Act No 85 of 1994, (as amended) and all other relevant statutory requirements and the Contractor shall comply with the requirements laid down by the Inspector of Machinery under this Act.

3.0 DRAWINGS

- 3.1 The drawings issued with this specification do not purport to show the exact position, size or details of construction of equipment.
- 3.2 Tenderers must satisfy themselves that the equipment offered by them can be accommodated in the available space and positioned in such a way that access for maintenance, repairs or removal is not obstructed.
- 3.3 Drawings showing any alternative suggestions differing from the Engineer's design must be submitted with tenders.
- 3.4 Within four weeks of signing of the contract (or date of order) the successful tenderer shall submit to the Engineer or his duly appointed representative the following working drawings:
 - 3.4.1 Plant room lay-out showing total operating mass of equipment and the positions and sizes of the water and drain connections required.
 - 3.4.2 Construction details of all items manufactured by the air conditioning and/or ventilation Contractor, such as air plenums, duct work, bases etc.
 - 3.4.3 Dimensions and positions of all holes through walls, slabs, etc., and any amendments to the sizes or positions of return grilles, louvred openings, etc., indicated on the Engineer's drawings.
- 3.5 Approval by the Engineer of drawings submitted by the Contractor shall not relieve him of his liability to carry out the work in accordance with the requirements of the contract documents.
- 3.6 Positions and sizes of return air grilles, louvred openings, openings through reinforced concrete beams and slabs, etc., as indicated on the drawings shall be adhered to as far as possible. Amendments will only be considered if absolutely unavoidable.

4.0 MANUFACTURER'S RATINGS

- 4.1 All equipment such as fans, compressors, cooling towers, pumps, etc., shall be operated well within

- the manufacturer's ratings. Equipment offered for use beyond these limits will not be considered.
- 4.2 Tenderers must submit manufacturer's ratings of all equipment offered. Ratings shall be given in the SI system.
- 5.0 POWER, WATER AND DRAIN CONNECTIONS
- 5.1 Power, water and drain points in the plant rooms will be provided to a point by others.
- 5.2 All plumbing between equipment and water and drain points shall form part of the contract.
- 6.0 NOTICES
- 6.1 The Contractor shall supply and install all notices and warning signs that are required in terms of the Occupational Health and Safety Act, by local by-laws or regulations and by these documents. This includes notices prohibiting entry to un-authorized persons, etc.
- 6.2 A log-book and log-book stand must be provided for each plant room. This must take the form of an A5 size hard cover note book fixed by a light chain through the top left-hand corner to a writing surface.
- 7.0 WELDING
- 7.1 Welding shall be carried out in accordance with the current edition of SANS 044 Parts 1 to VII where applicable.
- 7.2 All welded fillet or butt joints shall be free from porosity, cavities and entrapped slag. Joints shall be ground smooth if required for aesthetic reasons only. If strength is required, they shall not be ground.
- 7.3 The joints in the weld run, where welding has been recommenced, shall be as smooth as possible and shall show no pronounced hump or crater in the weld surface.
- 7.4 The profile of the weld shall be uniform, of approximately equal leg length and free from overlap at the toe of the weld. Unless otherwise specified the surface shall be either flat or slightly convex in the case of fillet welds and with a reinforcement of not more than 3 mm in the case of butt welds.
- 7.5 The weld face shall be uniform in appearance throughout its length.
- 7.6 Filler metal electrodes shall be of an approved type for the material being used and shall be kept in a dry condition. All electrodes shall conform to SANS 455.
- 7.7 Only welders in possession of a valid approved competence certificate shall be employed.
- 7.8 When pipes are welded, tenderers must allow for pipe joints (where chosen by the Engineer's Representative) to be X-ray tested by the SANS or other approved body for sound welding at the Contractor's expense or for joints to be cut for examination purposes. After the removal of these joints, the piping must be made good by the Contractor. Should any of the welds prove unsatisfactory, the Contractor may be called upon, at his own expense, to have all welds examined by X-ray. The X-ray examination shall be carried out by the South African Bureau of Standards or other approved body.
- 7.9 All welds must show proper fusion.
- 8.0 GALVANISING
- 8.1 All hot dip galvanizing shall be carried out in accordance with SANS 934 and SANS 763 where applicable.
- 8.2 Mild steel plate and sections shall be of good commercial quality, or higher grades, best suited for galvanizing. The materials shall be free from slag or coarse laminations, fine fissures and rolled-in impurities.

- 8.3 Castings shall be sound, dense and clean, and free from distortion, porosity, carbon and slag enclosures, blow-holes, and other injurious conditions.
- 8.4 Welding flux shall be chipped away and all welds wire brushed before galvanizing.
- 8.5 The surfaces to be galvanised shall be free from paint, oil, grease, and similar impurities.
- 8.6 All exposed surfaces including welds shall be thoroughly sand blasted prior to galvanizing.
- 8.7 The Engineer shall have the right to inspect all steel components before galvanizing, and shall have the right to reject or ask for remedial treatment of any material which is considered to be unsuitable. This applies particularly to welds.
- 8.8 The galvanised coating shall be smooth, adherent, continuous and free from black spots or flux stains.
- 8.9 Globular extra-heavy deposits of zinc which interfere with the intended use of the material will not be acceptable. Excessively protuberant lumps and nodules shall be removed by hot wiping or by the skilful application of mechanical means, however, there shall remain a sufficient minimum thickness of unbroken zinc coating. Flaws on small parts and working surfaces shall be repaired only by stripping and re-dipping. The zinc bath shall contain not less than 98.5% pure zinc.
- 8.10 The deposits expected from galvanised coatings shall be as follows: -

MATERIAL THICKNESS	COATING GRAMS PER m2	APPROXIMATE THICKNESS
Bolts and Nuts	275 - 300	0,033 - 0,036 mm
1,25 mm to 2 mm	400	0,056 mm
2 mm to 5 mm	535	0,07 mm
5 mm and over	760	0,108 mm

9.0 COUPLINGS

Couplings shall be aligned by means of a clock gauge and the results entered in the commissioning data included in the Operating and Maintenance manuals.

10.0 BEARINGS

10.1 ANTI-FRICTION

10.1.1 Anti-friction bearings shall include all bearings which provide rolling contact between one or more sets of hardened steel balls or rollers and the hardened steel rings or raceways.

10.1.2 Anti-friction bearings shall be of approved manufacture.

10.1.3 To facilitate maintenance, spares inter-changeability and standardisation, anti-friction bearings of standard design and manufacture shall be employed. All anti-friction bearings shall be provided with greasing facilities in accordance with the manufacturer's requirements.

10.2 BUSHED BEARINGS

10.2.1 Only where specifically stated and in cases of low velocities and light loads in moisture free

conditions will bushed bearings be accepted. All bushed bearings shall be made of an approved bearing metal composition which has good anti-friction qualities and is capable of withstanding severe usage.

- 10.2.2 All bushed bearings shall be provided with lubrication facilities to ensure adequate lubrication and shall be properly grooved to distribute the lubricant uniformly over the bearing surfaces. Grooves shall not be cut into the journal, but always into the surrounding bush. The edges of all chambers and grooves shall be rounded to avoid sharp corners and to facilitate the introduction of the oil or grease between the journal and the bearing metal.

10.3 SELF-LUBRICATING OR OIL-LESS BEARINGS

- 10.3.1 Self-lubricating or oil-less bearings shall only be used on application of light loads and low velocities in moisture free and low humidity and conditions and where access to bearings is difficult and likely to be neglected during servicing.

- 10.3.2 The type of bearing metal composition used shall have friction and wear resistant properties akin to those of grease lubricated bushed bearings.

11.0 GENERAL MACHINERY PROTECTION

11.1 COUPLING AND SHAFT GUARDS

- 11.1.1 All high-speed couplings, projecting shaft ends and every dangerous moving part of machinery within normal reach of a person shall be protected by a guard manufactured from not less than 1,5 mm mild steel plate.

- 11.1.2 The guards shall be neatly formed and securely fixed in position.

11.2 BELT GUARDS

- 11.2.1 All belt or rope drives shall be adequately protected by a belt guard.

- 11.2.2 The guard shall be manufactured from 25 mm wire mesh or open type expanded metal, securely braced and stiffened with light rolled steel sections and bolted in position. They shall be in accordance with the Occupational Health and Safety Act of 1994 (as amended).

11.3 CHAIN DRIVES

- 11.3.1 All chain drives shall be fitted with sheet chain cases and lubrication facilities to the chain manufacturer's recommendations. All joints shall be dust tight and arranged for convenient installation and dismantling.

- 11.3.2 Each chain case shall be fitted with a hinged inspection door, drain hole and plug.

12.0 QUALITY OF MATERIALS

- 12.1 Only materials of high quality shall be used throughout and shall be subject to the approval of the Engineer.

- 12.2 All materials, where applicable, shall conform in respect of quality, manufacture, tests and performance, with the requirements of the SANS standards, or, where no such standards exist, they shall conform with the appropriate current specification of the British Standards Institution. Materials manufactured in South Africa shall be used wherever possible.

- 12.3 Imported materials shall comply with the requirements of the relevant SANS or BS Specifications, although these materials need not necessarily bear the SABS mark.

- 12.4 All materials shall be suitable for the site conditions. These conditions shall include weather conditions as well as prevailing conditions during installation and subsequent use.

- 12.5 Should the materials or components not be suitable for use under temporary site conditions the

Contractor shall provide at his own cost, suitable protection until these unfavorable site conditions cease to exist.

13.0 MAINTENANCE INSTRUCTIONS

13.1 As requested in the particular specification the Contractor shall provide operating and maintenance manuals/instructions at the time of hand-over of the installation.

13.2 The manuals shall include the following:

13.2.1 Maintenance instructions for all components of the plant which shall include maintenance items required over and above those included in the maintenance schedules attached to this specification, troubleshooting guide, part numbers of all replacement items, capacity curves of pumps, fans and compressors, belt sizes, types and lengths, serial numbers of all principal pieces of equipment, etc.

13.2.2 The names, addresses and telephone numbers of manufacturers or their agents.

13.2.3 Receiver test certificates.

13.2.4 A complete set of the "as built" drawings reduced in size to fit the manuals.

13.3 The operating and maintenance instructions specified above shall be obtained from the equipment manufacturer and where no such manuals exist, they shall be compiled by the Contractor to the best of his ability.

13.4 The contract shall be considered incomplete until all tests have been conducted to the satisfaction of the Engineer and all drawings and manuals have been handed over.

14.0 MAINTENANCE, SERVICING AND GUARANTEE

14.1 MAINTENANCE AND SERVICING

14.1.1 The Contractor shall be responsible for all maintenance and servicing of the installation during the 12-month guarantee period in accordance with the service schedules attached to this specification. Such additional items as required by the manufacturer of the equipment shall be included. (See also clause 13.2)

Four (4) services are required during this period on dates to be agreed at the first delivery inspection. The final service shall be carried out approximately 14 days before final delivery and expiry of the guarantee.

The contractor shall complete the service schedules and submit copies thereof together with his invoice for the servicing to the engineer after each service.

14.1.2 During the 12-month guarantee period the Contractor shall make good any defects due to inferior materials and workmanship and maintain all plant and equipment in perfect operating condition.

14.1.3 The Contractor shall maintain the plant log book on site in which he shall record, sign and date all work carried out at each inspection as well as log all temperature and pressure readings.

14.1.4 The Contractor shall allow for all expendable materials necessary for servicing such as lubricating oils, grease, refrigerant, cleaning materials etc.

14.2 GUARANTEE PERIOD

14.2.1 The CONTRACTOR shall unconditionally guarantee all new plant and equipment (machinery) for a minimum period of twelve (12) months from the date of hand over to the Engineer.

If the CONTRACTOR or his supplier has a standard guarantee which exceeds the minimum warranty called for, the remaining portion of such extended warranty must be ceded to the client.

14.2.2 The guarantee shall cover the performance of the WORKS and any defects due to inferior materials and/or workmanship, fair wear and tear excepted, and the CONTRACTOR shall repair any such defects without delay.

This guarantee shall include malfunction, and water, refrigerant gas, oil, or air leaks, and all adjustments.

14.2.3 Should the performance of any part of the complete WORKS become unsatisfactory so as to become detrimental to its functional use, the CONTRACTOR shall replace any such part or the complete WORKS with equipment as prescribed by the Engineer.

14.2.4 If any such defects are not remedied without delay, the Engineer reserves the right to have such defect repaired at the risk and cost of the CONTRACTOR by another CONTRACTOR whom the Engineer deems to be proficient in the WORK. this to be without prejudice to any rights the Engineer has against the installation CONTRACTOR. The Engineer will give written notice to the installation CONTRACTOR of such instances where he appoints another CONTRACTOR to remedy defects in the WORKS.

14.3 PREVENTIVE MAINTENANCE SERVICES.

Preventive maintenance servicing of plant and equipment shall be carried out in accordance with the maintenance schedules and programs to be supplied by the Engineer. Copies must be made as required of these schedules.

15.0 ELECTRICAL EQUIPMENT AND INSTALLATION

15.1 Unless otherwise stated in the particular specification tenderers must allow in their price for the complete electrical installation and wiring.

15.2 All electrical equipment and wiring shall be in accordance with the current issue of the Standard Wiring Regulations (SANS1 0142) (as amended).

15.3 Three phase power will be provided by others in the plant room.

15.4 Ammeters and pilot lights shall be provided for electric heaters.

15.5 All motors over 5 kW shall be provided with an approved electronic type motor protection unit.

15.6 In conventional field assembled plants lighting shall be provided for filter, coil and fan chambers, etc and shall comprise of bulk-head fittings permanently fixed to the walls or ceiling and earthed directly to the main earthing bar of the switchboard by means of a 4 mm² bare copper earth continuity conductor, in addition to being earthed by means of the continuity of the conduit as specified.

15.7 A single phase power point will be provided in the plant room by others for this lighting.

16.0 AUTOMATIC CONTROL SYSTEMS

16.1 Unless otherwise specified either electric or electronic controls may be offered. All control devices shall perform the functions indicated and operate in the required sequence.

16.2 The performance of controllers shall be stable under all conditions and shall be such that an aperiodic recovery of the controlled variable is obtained following a disturbance. Means of adjusting the control loop stability, such as adjustable proportional bands, adjustable reset rates etc., shall be provided on controllers when applicable.

17. DRIVES

17.1 Compressors and pumps shall be direct coupled to their driving motors.

17.2 The drives between centrifugal fans and motors shall be by means of grooved pulleys and V-belts.

- 17.3 V-belt drives shall be designed in accordance with CKS 332. Motors shall be mounted on slide rails for adequate belt tensioning and replacement.
- 17.4 All drives shall be protected by stout 25 mm wire mesh guards and shall be in accordance with the Occupational Health and Safety Act of 1994 (as amended).
- 18.0 EQUIPMENT BASES
- 18.1 Bases for centrifugal fans, compressors, air cooled condensers, air compressors, pumps and motors etc., shall consist of reinforced concrete cast into sheet metal formers at least 150 mm deep.
- 18.2 Bases shall be reinforced with at least 13 mm reinforcing bars located at 150 mm centers each way.
- 18.3 The mass ratio between bases and equipment shall be at least 1:1 for fans and 1.5:1 for pumps.
- 18.4 Concrete bases for the pumps shall be large enough to support pipes and fittings between the pumps and flexible connections.
- 18.5 Bases generally shall be large enough to accommodate the motors and driven equipment. Equipment shall be bolted onto the concrete inertia base.
- 18.6 Spring isolators shall be installed between concrete inertia bases and floor plinths and between the cooling towers or evaporative condensers and floor plinths.
- 18.7 Structural steel bases shall be provided for the cooling towers and evaporative condensers if their framework does not permit point support.
- 18.8 Either free standing stable spring or caged spring with snubber may be used. Spring isolators shall be installed with leveling bolts and shall incorporate 6 mm thick ribbed neoprene acoustical pads bonded to the base.
- 18.9 Spring diameters shall be large enough to prevent excessive rocking of equipment during start-up and normal operation.
- 18.10 Isolators shall be chosen to give a static deflection corresponding to a ratio of 3:1 of the lowest disturbing frequency to the natural frequency of the mounting.
- 18.11 Bases and spring isolators shall be arranged to give a clearance of approximately 25 mm between the underside of the bases and floor plinths.
- 18.12 Floor plinths of sufficient height shall be installed under all equipment by the air conditioning contractor. The plinths shall be large enough to accommodate the concrete inertia bases and spring isolators. Floor plinths shall also be provided under items of equipment which do not require concrete inertia bases such as cooling towers, air plenums, etc. The plinths under the air plenum shall be at least 100 mm higher than the finished floor level in the plant room.
- 19.0 RUNNING OF PIPES
- 19.1 Pipes and ducts shall be installed in accordance with the drawings issued with the supplementary specification.
- 19.2 The drawings are schematic and do not purport to show the exact positions of pipes nor the details of construction and installation. All final dimensions must be checked on site before the fabrication of piping sections.
- 19.3 Pipe sleeves with at least 6 mm clearance filled with a resilient material shall be provided where refrigerant tubing or water piping passes through walls or slabs.
- 19.4 Where beams, stanchions or other obstructions interfere with the straight running of pipes or ducts, suitable offsets shall be provided or changes in the section of the duct made, without altering

the cross-sectional area.

- 19.5 Tenderers should make themselves conversant with complete drawings of the building in order to determine the number of such offsets or changes in section and the positions in which they will be required. Due allowance for these shall be made in the tendered price.
- 19.6 A complete set of drawings of the building may be inspected at the office of the Architect.
- 20.0 PAINTING
- 20.1 All exposed galvanised sheet metal work in plant rooms, air conditioned and ventilated spaces, basements, corridors etc., shall be painted.
- 20.2 Ducts shall be identified by coloured symbols as specified in clause 6 of SANS 0173-1980.
- 20.3 The temporary white rust preventative compound on new galvanised sheet metal shall be removed by means of washing, brushing and if necessary, abrasion with a special solvent or compound used for this purpose. The surface shall be well rinsed and dried. It shall then be painted with one coat of zinc dust/zinc oxide paint to SANS 910 or one coat of calcium plumbate primer to SANS 912 followed by one under coat to SANS 681 type II and one coat high gloss enamel paint to SANS 630, Grade I, as top coat, the colour of which will be determined by the Engineer.
- 20.4 The entire air-conditioning unit casing, including galvanised iron eliminators, sumps, drip pans, fans etc., shall be painted internally with two coats of epoxy-tar paint to SANS 801, type II. The white rust preventative compound on galvanised iron shall be removed as specified above before the paint is applied. Angle iron framework shall be similarly painted with epoxy paint before side covers are fitted.
- 20.5 Ferrous cooling tower and evaporative condenser casings, including galvanised iron eliminators sumps and fans and internal areas of connecting ductwork shall be internally painted as specified above. Externally the casings shall be painted as specified in clause 48.3. Factory painted equipment will also be acceptable.
- 20.6 Exposed hot water piping with canvas covered insulation shall be painted two coats of bitumen aluminium paint to SANS 802.
- 20.7 Exposed uninsulated galvanised piping shall be thoroughly degreased. In case a detergent is used, the surfaces shall be well rinsed and dried. It shall then be painted with one coat of zinc dust/zinc oxide paint to SANS 910, or one coat of calcium plumbate primer to SANS 912, followed by either one undercoat to SANS 681, type II, and one coat high gloss enamel paint to SANS 630, Grade I, as topcoat or two coats of PVA to SANS 634, Grade I.
- 20.8 Uninsulated black piping, flat-iron, angle-iron and rods for supports, brackets, duct stiffeners, etc., shall be painted on all sides with a zinc chromate primer to SANS 679, Type I followed by two coats of enamel paint to SANS 630, Grade I.
- 20.9 Where specified in the supplementary specification aluminium shall be painted with a wash primer to SANS 723, followed by a zinc chromate primer to SANS 679, Type I, and two coats of enamel paint to SANS 630, Grade I.
- 20.10 Motors, compressors, pumps etc., shall be painted light grey. Belt guards shall be painted bright red.
- 20.11 Before any painting is applied the steel surfaces shall be prepared according to SANS 064, (Code for preparation of steel surfaces for painting.)
- 20.12 Where specified in the particular specification steel surfaces shall be cleaned and then treated by the hot phosphate process to a minimum weight of 1,6 gr/m² coating followed by two coats of baking enamel to SANS 783, Type I.
- 21.0 GENERAL REQUIREMENTS FOR FIRE INSTALLATIONS

All fire pipe installations shall adhere to the technical and particular specifications of the Employer, and shall include the following general requirements:

- 21.1 Piping shall conform to the requirements of SANS.
- 21.2 Pipes shall be cut accurately to measurements established on site and installed without springing or forcing and properly clear of windows, doors and other openings. All piping shall be reamed after cutting and shall be clean, straight and free of defects.
- 21.3 Drawings are generally diagrammatic and indicative of work to be installed. Routing and arrangement of piping shall be as indicated, subject to site conditions and the appropriate requirements of SANS rules.

Clashes with other trades shall be avoided and fittings, valves, drain points, etc shall be located so as to ease access, maintenance and operation of the system. Note that required offsets, fittings, valves, drains, etc are not necessarily indicated.
- 21.4 Pipe runs shall be straight and direct as possible, in general forming right angles with or parallel to walls or other piping, and neatly spaced. Piping shall be installed so that there is sufficient clearance between finished coverings of piping, fittings and adjoining work. Sleeves shall be provided where piping passes through partitions, beams, slabs, etc.
- 21.5 Valved and capped drain points shall be provided at all low points in the piping network. Unions or flanged connections shall be provided to aid dismantling of the piping should it be required.
- 21.6 No cold springing shall be allowed. Pipe sections shall be fabricated/cut to length accurately in order to avoid cold springing.
- 21.7 Where necessary, adequate temporary supports shall be installed during erection so as not to overstress piping or equipment to which piping is connected.
- 21.8 All supports shall conform to the requirements of SANS, and no perforated straps or strip steel shall be used.
- 21.9 Piping which is subject to vertical movements shall be provided with springs or other suitable supports.
- 21.10 Hangers shall be installed in such a manner that they cannot be disengaged by any pipe or support steel movement.
- 21.11 No pipe shall be suspended from another pipe except if specifically called for on the drawings or in the particular specification (Part 3).
- 21.12 The Contractor shall be responsible for selecting the sizes and types of pipe hangers, supports and support devices not shown on the drawings, but which are necessary for the completion of the installation. Support spacing shall be as specified in paragraph 23.0 The Contractor shall supply details of all calculations to the Engineer for scrutiny together with two marked up prints showing the location and types of all supports/pipe hangers to be installed prior to ordering and commencing installation.
- 21.13 During construction all pipe ends shall be kept plugged to prevent any ingress of dirt, rubble etc.

22.0 PIPING

- 22.1 Steel piping shall be solid drawn, heavy grade steam quality piping conforming to ASTM/A106 Schedule 40 or to B.S. 1387/1967 (heavy quality) or SANS 62/1971. In all instances the latest editions and amendments to these specifications shall apply.

In plant rooms piping may be welded, prefabricated off-site to aid in installation and connection to pumps, storage tanks, etc. Welding shall be carried out as specified in paragraph 7.0 of this specification.

Generally, pipe sections shall be screwed together using malleable iron threaded fittings, class 150 and 300 in accordance with ASME B 16.3. Only eccentric fittings shall be used at changes in pipe size. No bushing shall be used in lieu of reducing fittings. Screwed joints shall be screwed up tightly using an approved jointing compound such as PTFE tape. Hemp joints will not be accepted.

Pipes joined with grooved fittings (e.g., Klambon or Victaulic) shall be joined by a listed combination of fittings, gaskets, and grooves. Grooves cut or rolled on pipe shall be dimensionally compatible with the fittings and pressure at which the system is to operate.

Where flanges are used, they shall be in accordance with ASME B16.5. Steel slip-on boss flanges for welding shall have a nominal pressure at least 10% in excess of the maximum fluid pressure. Where equipment is supplied complete with flanges not in accordance with the above specification, a matching weld-on flange is to be used for connecting up such equipment. Bolts in flanges are to be high tensile steel and of the correct length such that no more than 1,5 clear threads protrude beyond the nuts after tightening to the correct torque. In flanged joints new gaskets shall be used for every assembly operation unless such an assembly is intended solely for initial fitting. Gasket material shall be fibre composition or similar material suitable for the system operating pressure and temperature.

22.2 Underground piping shall be class 16 HDPE piping and weld-on flanges in accordance with SANS 0533-2

Pipes shall be laid on a 100 mm sand-bedding cradle and covered with 300 mm sand before backfilling. The total cover over the piping shall be a minimum of 900mm generally and 1100mm under roadways. All backfilling shall be to the Engineers approval.

Where required thrust blocks shall be cast between the pipe and the undisturbed trench material. At thrust blocks the pipe bend shall be wrapped with a "Densopol 80 HT Tape" (or equal and approved) so that no concrete comes into direct contact with the HDPE piping.

23.0 All underground piping shall be pressure tested prior to it being covered.
PIPE SUPPORTS AND HANGERS

All necessary pipe hangers, brackets, supports, stanchions and anchors shall be designed, supplied and installed by the Contractor, in accordance with SANS.

23.1 Maximum pipe support spacing shall be as follows:

Pipe Diameter	Max support Spacing
20 mm	3 m
25 mm	3.6 m
32 mm	3.6 m
40 mm	4.5 m
50 mm	4.5 m
65 mm	4.5 m
80 mm	4.5 m
100 mm	4.5 m
150 mm	6 m
200 mm	6 m

The contractor will be required to ensure that the hangers/supports selected are conservatively rated for the carrying capacity required. (Refer to paragraph 21.12).

23.2 There shall be at least one pipe support for each mechanical pipe joint .

23.4 Components of any pipe support shall be securely attached to each other by means of bolts or threaded rod with nuts and washers.

23.5 All components of all pipe supports shall be galvanized.

24 VALVES AND FITTINGS

All valves, check valves, shut-off valves, etc. shall be of a pressure class greater than or equal to pressure class of the piping.

All valves controlling water supplies for fire systems or portions thereof, should be accessible to authorized persons during emergencies. Permanent ladders, chain-operated hand wheels, or other acceptable means should be provided where necessary.

Outside control valves shall be located within a fenced enclosure under the control of the owner, sealed in the open position, and inspected weekly as part of an approved maintenance and safety procedure.

- 24.1 Valves greater than 50mm diameter shall be of the butterfly type with resilient rubber seats. 100 mm and 150 mm diameter valves shall be equipped with gear operated closing mechanism. Valves shall conform to BS 5155 and shall be KERR fig. no 104A or similar or equal and approved.
- 24.2 Valves up to and including 50mm diameter shall be of the screwed and socketed type with bronze body and gated with non- rising spindle.
- 24.3 Valves shall be labelled as follows:
- (a) Main stop valves, control valves, etc shall be labeled by means of rust-free metal tags indicating their purpose and the section they isolate, if isolating valves.
 - (b) The tags shall be securely fixed to the valve and shall be clearly legible.
 - (c) All letters on labels shall be engraved or punched. No painted or plastic embossed labels will be accepted.
- 24.4 Strainers shall be of the Y-type with cast iron body, stainless steel or bronze strainer element and shall be equipped with flanged ends. The hole sizes of the strainer element shall be maximum 1 mm \varnothing and be removable without dismantling of pipe-work. Strainers shall be suitable for a temperature of up to 90°C at a 1 600 kPa pressure rating and installed with the element facing downwards or a maximum of 45° sideways.
- 24.4 Non-return valves shall be of the spring-loaded wafer dual flap plate type fitted between two flanges. They shall be equipped with a cast iron body, aluminium bronze plates, stainless steel springs and neoprene seals on the plates. The valves shall be suitable for working pressures of up to 1 600 kPa.

25 PUMPS

26.1 Pump sets shall conform and be installed as detailed in SANS and these specifications. The number and type of pump sets will be detailed in the Particular Specification (Part 3) and will comprise some or all of the following

- (a) Electrical driven jockey pump set
- (b) Electrical driven main sprinkler/fire pump and drive.
- (c) Diesel driven main sprinkler/fire pump and drive.
- (d) Sprinkler/fire pump starting arrangement.
- (e) Electric and Engine drive controllers and ancillary equipment.
- (f) Water flow test devices.
- (g) Fuel storage and piping

The pump sets shall be, installed, tested, commissioned and certified in accordance with SANS and the Local Authority's requirements.

26.2 Prior to ordering and installation, the Contractor shall provide a full set of plans and detailed data describing the following for scrutiny and/or approval by the Engineer and Local Authority:

- (a) Pumps
- (b) Pump drivers
- (c) Drive controllers
- (d) Power supply
- (e) Starting arrangements
- (f) Piping and fittings
- (g) Suction and discharge connections
- (h) Water supply and/or storage conditions

Each pump unit shall be provided with certified test curves from the manufacturer showing brake horsepower, flow and head capacities. The Contractor shall provide this information to the Engineer and Local Authorities for approval.

- 26.3 The Contractor shall perform and certify a full field acceptance test on the completed installation in accordance with SANS. This test shall be witnessed by the Engineer and Local Authority.
- 26.4 The following information shall be embossed on a plate fixed to each pump:
- (i) flow capacity (l/sec);
 - (ii) pump head (metres water gauge);
 - (iii) impeller size;
 - (iv) pump speed
 - (v) required motor power;
 - (vi) make of pump;
 - (vii) model;
 - (viii) date of purchase.
- 26.5 Pumps shall be of the centrifugal end-suction type listed for fire protection service. It shall be possible to remove the impellers without removing the pump from its mountings.
- Pumps shall comply with the following requirements:
- (a) Impellers shall be double entry radial types of bronze or cast iron.
 - (b) Casings shall be of cast iron with renewable casing wear rings. The casing wear rings shall be made of cast chrome steel.
 - (c) Shaft seals shall be of the mechanical type.
 - (d) Bearings shall be grease lubricated anti friction types.
 - (e) Pump shafts shall be of stainless steel.
 - (f) An auto priming system shall be provided.
 - (g) Pump cooling devices shall be provided to prevent over heating of pumps when operating at closed head.
- 26.6 Characteristic curves showing capacity, head, efficiency NPSH, power required and operating range shall be submitted to the Engineer at tender stage. Prior to installation, a complete set of test certificates shall be submitted for approval to the Engineer and Local Authority indicating all performance characteristics of the pump to be installed.
- 26.7 A pressure gauge must be provided downstream of the pump outlet backpressure valve and on the pump suction side.
- 26.8 An approved flow test device and pipe connection shall be provided in the delivery line downstream of the non-return valve, in order to carry out a running flow/pressure test on the pump at approximately full load when the test valve is fully open. The test pipe shall be piped back to the water tank.
- 26.9 Pumps shall be mounted on mild steel bases, adequately corrosion protected by hot dip galvanizing after manufacture. Pump bases shall be filled in with concrete and properly secured to the floor.
- 27.0 DRIVE MOTORS

- 27.1 Electric drive motors shall be drip proof conforming to BS 2613 and BS 170. Windings shall at least be according IP55 of IEC 144. High temperature permanent sealed bearings shall be used. Motor speeds shall preferably be limited to 1450 rpm but shall not exceed 2950 rpm.
- 27.2 Diesel engines shall be naturally aspirated air cooled types capable of being started without the use of wicks, cartridges, heater plugs or ether, at an engine room temperature of 4°C. They must be capable of accepting full load within 15 seconds from receipt of the signal to start.
- 27.3 Engines shall be capable of operating continuously at full load at the site conditions for a period of 8 hours. The Contractor supplying the pumping set shall supply to the Engineer and Local Authority a statement giving the 8-hour power rating of the engine at speeds of 1000 rpm, 1400 rpm, 1800 rpm, 2 200 rpm, 2600 rpm and the maximum speed. Any of the speeds quoted which are in excess of the maximum speed rating of the engine may be omitted and the maximum speed and corresponding rating shall be given.
- 27.4 Speed and Number of Strokes
- The engine must be of the solid injection, compression ignition type, with a running speed for reciprocating engines up to 750 kW not exceeding 1500 rpm. Generally, engines of the four stroke, industrial type, designed for stationary operation are preferred. Two-stroke engines of the pump assisted uniflow scavenged type will be considered if their specific fuel consumption (kg fuel used per kW hour) is equivalent to or better than that of the equivalent four stroke engine.
- 27.5 Fuel Classification
- The engine shall be rated for diesel fuel as normally available in South Africa and in compliance with SABS 342 -1969 or B.S.2869 -1970, Class A1 , (as amended) for diesel fuel with a minimum octane rating of 40 and nett calorific value of 10000 kcal/kg (39600 kJ/kg).
- 27.6 Rating of Plant
- The rating of the engine shall take cognisance of the site conditions, site altitude and include all auxiliary equipment such as radiator and fan, oil pump, water pump, air filter, governor, battery charger (generator) etc. The output stated shall only be the nett available, after the above have been allowed for.
- The engine output must be de-rated in accordance with BS 5514 for the site conditions stated in the particular specification.
- 27.7 Overload Facility
- The engine shall be capable of delivering 10% overload for one (1) hour in any 12-hour period of continuous running.
- 27.8 Engine Appearance
- The engine shall be of neat appearance and all water, lubricating and diesel oil lines, filters and stop cocks shall be of top quality and completely leak free.
- 27.9 Service Connections
- All service connections to the engine shall be flexible to prevent vibration being transmitted between plant and building, and to prevent damage to these lines and connections.
- 27.10 Supporting Framework
- The engine and pump shall be mounted on one common steel supporting frame manufactured of channel iron or other equivalent steel work to provide a rigid and solid foundation. The main frame shall be of the "skid" base type. If no "skid" base is provided, suitable for free standing,

holding down bolts and vibration eliminators to the generator set manufacturer's specification must be provided. This subframe shall be supported from a main frame by anti-vibration mountings. Duplex anti-vibration mounts shall be used.

The inner frame and its supports shall be of sufficient height above floor level to permit installation of a drip tray and for draining of engine oil.

The drip tray must be sloped and made of mild steel. It must be fixed in the frame beneath the engine and alternator and a drain pipe fitted with a plug must be extended from the lowest point of the drip tray to beyond the frame in an easily accessible position.

27.11 Heat Protection

All engine piping, whether flexible or rigid, shall either be of the heat resistant type or adequately protected against damage by radiant heat. This also applies to any wiring attached to the engine.

27.12 Crankcase Vent Pipe

The crankcase vent pipe shall be taken to the drip tray to collect oil condensate.

27.13 Bearings

Engine bearings for the crankshaft and connecting rods, big and small ends shall be of the bush type, split sleeve type, or roller type. The bearing types and metals shall be suitable for operating in the worst site conditions.

27.14 Lubrication

The lubrication shall be by means of a force-fed pressure system supplying circulating oil to all bearings, gear trains and important moving parts. A gear driven oil pump shall be incorporated with an oil cooler if necessary. The oil cooler shall have a thermostatically controlled oil bypass valve to control the oil inlet temperature by proportionate bypassing. 250 hour running time, full flow oil filters with automatic bypass and replaceable elements shall be fitted.

An isolating valve shall be fitted in the oil line from the make up tank to the sump in order to facilitate sump draining without the loss of new oil from the make up tank.

27.15 Cooling

27.15.1 General

Cooling of engines may be either by air or by water.

27.15.2 Water Cooling

Where radiators are used, they shall be of the heavy-duty industrial air blast type, pressurised and sized for continuous full load operation.

The fan shall be designed and run in a direction such that cool air is drawn across the generator, engine and radiator in that order.

Removable ducting shall be provided between the radiator and the louvre in the wall opening.

Fans must be liberally sized to enable engines to operate well within their maximum temperature limits (but without running too cool) at the ambient site conditions stated in the particular specification or at a plant room temperature of 40 deg C whichever is the higher.

In water cooled engines water circulation shall be pump driven by means of an integral engine mounted centrifugal pump.

If under exceptional circumstances cooling towers are required these will be specified separately in the particular specification. It will be required that they be of stainless steel or fibre glass and that particular attention be paid to plant room ventilation under these circumstances.

27.15.3 Air Cooling

In air cooled engines air ducts shall be provided to positively exhaust hot air and to prevent re-circulation. Integral engine mounted fans are required to ensure air flow across the various components in the order listed above.

Discharge ducting must be taken straight up through the roof of the plant room and must be made with strategically placed flanged joints, etc to enable it to be easily removed for servicing and maintenance purposes (if required), and/or to permit removal of the set without having to remove the ducting. Quick action type lock nuts or screws to enable quick and easy dismantling of ductwork are required. Self tapping screws are unacceptable.

The ducting must be fixed to the roof structure, must be flashed to render the exit point waterproof and must be fitted with an expanded metal bird screen at the discharge end(s).

The ducting must be made in such a way that expansion and contraction of the ducting will be taken up by sliding joints or similar.

The discharge end of the ducting must be fitted with a cover to prevent the ingress of rain water at times when the set is not running. Over and above, a drain point for accumulated moisture must be provided at the lowest point of the ducting. This drain must be piped to just outside the plant room door. Drainage of moisture from the ducting must be such as to prevent the diesel engine from getting wet.

Ducting must be made of 16-gauge galvanised iron suitably cross braced to prevent drumming.

27.16 Speed Control

The engine shall be provided with a suitable governor to control the engine speed to within 10% of its rated speed under any condition of load up to the full load rating. The governor shall be field adjustable.

27.17 Air System

The air system shall consist of two items, viz. the incoming combustion air and the exhaust gas.

27.17.1 Combustion Air

Combustion air filtration shall be by means of dry type, cartridge, high efficiency air filters fitted and sized for 500-hour operation and supplied complete with a service indicator. Oil bath air filters may be fitted and used in existing plant only. Air filters must be of Donaldson manufacture or similar, equal and approved.

27.17.2 Exhaust Gas

Exhaust gas shall be piped, the piping being fitted with expansion joints, silencer and discharged to atmosphere.

The expansion joints shall be of the stainless steel, concertina type, flexible, flanged and bolted to the exhaust manifold or turbo-charger outlet as applicable. Stainless steel bolts and nuts of the appropriate size must be used. Care must be exercised that exhaust pipe and silencer supports at the expansion joints are so positioned that no strain is placed on the manifold joint, turbo-charger, piping or silencer.

The silencer shall be of stainless steel, of the baffle or absorption type of a size and construction such that a sound level of 75 dB absolute is not exceeded within two meters of the exhaust. The exhaust pipe shall be of stainless steel, insulated and of sufficient size to ensure that the back pressure is acceptable within the limits of the engine manufacturer. The exhaust system shall be offset from the centre line of the plant to allow for hoists or cranes to remove the engine.

The piping shall have bends with a minimum radius of 2,5 times the pipe diameter, insulated with 25 mm thick insulating rope and cloth or similar suitable approved insulating material, and be wrapped and sealed in bright polished class 430 stainless steel sheeting.

Stainless steel nuts and bolts must be used in assembling the exhaust system. Flanged joints are required to aid dismantling.

Exhaust piping over 100mm diameter must have a minimum thickness of 1,6mm.

Once the exhaust is external to the building, no insulation is necessary. The entire system shall be supported with flexible hangers, brackets, clamps, etc.

27.18 Engine Fuelling

Engine fuelling shall be by means of an engine mounted pump with the governor-controlled fuel injection pump(s) and injectors all arranged for easy access and maintenance.

A fuel filter with replaceable elements shall be fitted between the lift pump and the injection pump, suitable for the full flow of fuel at full load. The filter must take out particles down to 5 microns in size, or less, and be of Donaldson or similar, equal and approved manufacture.

A primary, heavy-duty filter/water separator shall be fitted before the lift pump in the fuel line from the tank. This water separator shall be of Donaldson or similar, equal and approved manufacture, shall be suitable for 250-hour operation and be easily maintained.

Copper tubing shall be used from the sludge filter to the engine components, but steel tubing may be used on the overflow from the injectors to the fuel tank. Note that galvanised piping is not acceptable. All piping shall be neatly run and securely fixed with saddles and clamps taking cognisance of flexibility to prevent vibration damage as stated in Clause 27.9 .

27.19 Starter Motor

Starting of the plant shall be by means of an engine mounted, electric starter motor on sets up to 500 KVA. Above this size two motors will be required. The starter motor(s) shall be suitably sized to easily spin the plant under "cold start" Winter / Summer conditions without the use of special starting equipment.

Two interlocks shall be incorporated, one electrical and one mechanical, preventing the starter motor engaging unless the engine is at rest.

The starter motor(s) shall be 12- or 24-volts D.C. fitted with an approved device for positive engagement. The starter motor shall be controlled from the plant panel.

27.20 Jacket Water Heaters

Water cooled engines shall be fitted with immersion heaters of a minimum of 1,5 kW up to 5 kW capacity in order to ensure that the jacket water temperature is warm enough for the engine to start easily from cold and under severe cold conditions. Heaters must be so situated as to promote thermo-syphoning of the water with the piping connections installed in such a manner that the cooling system thermostat does not impede the free flow of this thermosyphoning water. The temperature shall be thermostatically controlled via a relay and the elements fed at 220 volts with M.C.B. protection at the panel.

27.21 Battery

The battery shall consist of a number of cells to form a 12- or 24-volt D.C. supply suitably sized to start the engine. These cells shall be of the lead acid type with flat terminals, rated at 1,5 volts/cell and mounted on a suitable frame with a timber base. The battery shall be as close as is practical to the starter motor, but separate from any vibrating parts of the set.

The battery discharge capacity with full cranking current for 60 seconds at a temperature of 5 deg C shall not fall below a cell voltage of 1,5 volts. This voltage is considered the minimum to satisfactorily operate the 12 or 24 V. D.C. control equipment on the control panel (i.e., after three starting attempts, each of 10 seconds, the panel control voltage shall not be below 20 volts D.C.)

The battery under normal conditions shall be continually trickle charged from the Control Panel charger (reference must be made to clause 28.9).

Under running conditions, the battery shall be charged from an engine driven brushless Alternator/Rectifier complete with auto rate control.

The battery cables must be run clear of all exhaust piping and other hot surfaces and must be fixed in position so as to ensure correct reconnection of the cables in the event of the battery being changed or removed. The cables must be liberally sized in order to minimize the voltage drop to the starter motor.

27.22 Protection Equipment on Engine

The protection of the set is covered under paragraph 28.0 but the following monitoring equipment is required as listed hereunder:

27.22.1 Alarm signal system in wall mounted or floor standing control board for indicating "shut down" of the following items:

- a) Fail to start / starter circuit lockout
- b) High water temperature (sensed on engine side of the thermostat) or high head temperature in the case of air-cooled engines
- c) Low oil pressure
- d) High oil temperature (if required)
- e) Low fuel pressure (if required)
- f) Engine over/under speed

27.22.2 Gauges in the wall mounted or floor standing control panel showing:

- a) Fuel oil pressure (if required)
- b) Lubricating oil pressure
- c) Lubricating oil temperature (if required)
- d) Jacket water temperature

27.22.3 All necessary sensors for alarm circuits.

27.22.4 All necessary fuel cut off solenoids

27.22.5 A manual shut off valve before the lift pump in the fuel line at the day tank.

27.23 Coupling

The engine/pump coupling shall be by means of a flange adaptor ring or bell housing incorporating a shock absorbing coupling. The flexible coupling shall be direct coupled to the engine and

alternator with no gears so that the engine and alternator run at 1500 rpm or the regular engine speed compatible with 50Hz power generation.

27.24 Fuel Tanks and Pumps

27.24.1 Day Tank

A combined fuel storage and day service tank shall be supplied with each set. The tank shall be mounted on a self-supporting floor standing steel frame at a minimum height of 400 mm above floor level (to provide a gravity feed to the engine) or integral with the engine/pump support base. This service tank shall be mounted close to the plant, within the plant room, hold a minimum of 150 litres and a maximum of 200 litres. A full height transparent gauge tube shall be fitted to the service tank. The gauge tubing must be similar or equal to that supplied by Lister diesel engines. (Plastic tubing will not be permitted). If called for in the particular specification a dip stick may be supplied and fitted in lieu of the gauge glass.

The service tank shall be so designed and mounted such that water and sludge can collect at the lowest point and be easily drained off by means of a stop cock. The lower gauge tube connection must be fitted with a shut-off valve.

A manual ball type shut off valve between the service tank and the lift pump shall be incorporated in the steel or copper fuel feed pipeline.

27.24.2 Fuel Piping

In principle the fuel lines shall all be medium class steel to SABS 62 or BS 1387 (but not galvanised) with appropriate bends to provide an expansion facility. Copper shall only be used from the primary filter to the engine pumps.

A fusible link mounted directly above the set and connected to a dead weight operated fuel shut-off valve will be required in instances where the day tank is situated in a separate room to the generating set.

27.24.3 Fuel Pumps

One diesel fuel pump suitably sized, shall be fitted adjacent to the service tank.

It shall be a centrifugal pump complete with electric motor, starter, isolator and float switches. Level control and float switches for control of the pump(s) shall be mounted within the service tank.

Float switches shall be "REMEX" level controllers (or similar and equal and approved). Three float switches will be required, one to operate the pump (on/off), one for a low-level alarm and the other for an extra low level engine cut-out. A facility for running the pump manually is required.

It must be possible to mute all alarms but the indicator light(s) must remain on until the tank has been refilled at which time they should cancel automatically.

The float switches shall be of such a type that they can be tested manually without opening the tank. They must further be installed in such a manner that they do not foul each other.

28 CONTROL PANEL

28.1 General

The control system may consist of plug in, low voltage relays of the octal base type or solid-state PC control. The panel shall provide full protection for the diesel pump set.

28.2 Sheet Metal Work

The control panel and components shall be of approved design, manufacture and construction and shall be complete in all respects with all necessary equipment, bars, connections, wiring and

accessories. The panel shall be robustly constructed, shall be in accordance with standard accepted practice, comply to the relevant S.A.B.S. Code of Practice and/or BSS 162/1961, and shall have an attractive appearance.

The panel shall be totally enclosed, dust and moisture proof as well as rodent and insect proof with full gland plates fitted at appropriate heights. The panel shall be floor standing and have a steel plinth. Doors shall be of folded and welded construction, with suitable bracing to eliminate buckling, and all doors and cover plates shall have rubber seals and grommets.

A construction of angle iron and loose sheets will not be acceptable, neither will pop-rivets or self tapping screws.

All steel work shall be thoroughly de-rusted. Millscale shall be removed by shot blast or other approved means and the steel work then degreased, followed by bonderising or similar phosphoric inhibitive treatment. A zinc chromate primer shall be applied, followed by two coats of best quality white enamel inside and three coats of enamel (Electric Orange) on the outside, sprayed and baked on. Bolt heads or thumb screws securing the panels shall be chromium plated. The latches securing the doors shall have positive locking devices and no spring-loaded ball latches or similar will be accepted.

28.3 Approvals

Before commencement of manufacture of the panel, full working drawings must be submitted for approval by the Engineer. When the panel is under construction, and again upon completion but prior to delivery to site, the manufacturer must notify the Engineer so that the panel can be inspected and approved.

28.4 Components

All components where possible shall bear the SABS mark or if not available the equivalent B.S. or DIN mark.

All components shall be entirely suitable for their application and the switchgear shall be suitable for the site and location. Space shall be provided for the incoming and outgoing cable circuits.

All cut edges and drilled holes of Bakelite or similar insulation board must be treated with electrical varnish. All equipment, levers, handles, keys, etc. required for operation of the panel must be included together with suitable clips or trays to store these when not in use.

28.5 Guarantee

The whole of the panel and components shall be guaranteed for a period of 12 months from the date of hand-over to the Owner

28.6 Equipment

The following equipment shall be included on the panel:

- (a) 1 meter (220 V AC) to indicate the total running hours the plant has been in operation.
- (b) 1 voltmeter (as per BS 89), approximately 125 mm scale to read 0 to 415 volts.
- (c) Control relays, start relays, three crank start relays, start failure relay, fuel supply relay (solenoid), continually rated alarm relay, oil pressure relay, oil temperature relay, overspeed relay, water overheat relay, jacket water heater relay, alarm relay, low fuel relay.
- (d) Illuminated resettable fault indicators, coupled to a common continuously rated hooter or low current electronic type yodel alarm for: low oil pressure, high oil temperature, high water temperature, engine overspeed, failure to start, pump overload, low fuel level, extra low fuel level engine trip

- (e) Auto/Test/Manual/ off selector key switch
- (f) Battery charger
- (g) MCB's for:- Battery Charger, Jacket water heater, fuel pump
- (h) Lamp and alarm test facility.

28.7 Sequence of Operation

The control panel shall be so designed to provide the following:

28.7.1 A water pressure sensing relay which in the event of a fall in pressure the timing sequence shall be :

28.7.1.1 An immediate command to the engine to start.

28.7.1.2 Once the command to start has been given, three start attempts shall be allowed each of 10 seconds with a 10 second delay between each attempt. In the event of failure to start within these 3 initial attempts, the starting system shall switch off and a L.V. alarm shall be initiated. Any further start attempts may only be carried out when the plant is in the "manual" position.

28.7.1.3 Fault reset after identification and rectification of same shall be by switching the selector to the "off" position and then back to the desired mode.

28.8 Protection of Plant

The panel shall automatically provide the following protection with the alarm circuiting and tripping devices operating off the 12- or 24-volt D.C. Battery as applicable.

	Hooter or Siren	Visual Light Indicator	Lock out	Fuel Solenoid off
Overspeed	X	X	X	X
Under speed or overload	X	X	X	X
High Temperature	X	X	X	X
Low Oil Pressure	X	X	X	X
3 Starts Failure	X	X	X	X
Low Fuel Alarm	X	X		
Battery Charger Failure	X	X		
Extra Low Fuel Cut-out	X	X	X	

All the above shall have the necessary re-set buttons.

28.9 Battery Charger

28.9.1 The charger module shall be a mains (220 V) operated unit to continuously trickle charge the engine starter battery.

It must be of the modulating type similar or equal to those supplied by Messrs Vaal, Romberg, Semi-Conductor Services, or P & S Power Products or be as further specified here.

28.9.2 A "loss of charge" alarm relay shall be provided to indicate failure of the charger. This should be a current monitor.

28.9.3 The output voltage (27,6 volts D.C. or 13,8 volts if applicable) shall be via full wave rectification and be kept within 1% of the float charge voltage.

- 28.9.4 The 220-volt input voltage may vary between 200/240 volts and the equipment, (transformer etc) must be capable of handling this discrepancy.
- 28.9.5 During the "cranking/start" period and during running of the diesel engine the battery charger shall be disconnected via a relay. Charging of the battery shall then be by means of an engine mounted alternator.
- 28.9.6 The charger shall be equipped with:
- (a) Overload protection on the 24 (12) volt side
 - (b) One 72 x 72 mm shielded type ammeter showing the charging rate
 - (c) One 72 x 72 mm shielded type voltmeter with a spring return, normally open, push-button switch for indicating battery voltage
 - (d) Relays for "failure alarms" and "running/start"
 - (e) Transformer and full wave solid state rectifier complete with capacitors where applicable.
 - (f) HRC fuses or fast acting MCB's on the secondary side
- 28.9.7 The battery charger shall be fully incorporated into the main control panel and be built to the same general specification (see paragraph 28.1) Relays shall preferably be of the "Octal" base type or equal and approved.
- 28.9.8 Ventilation.
- The position of the battery charger shall allow for good ventilation and not be below any of the other switch gear or relays.
- 28.10 Log Book
- A plastic covered log book shall be supplied for each plant room.
- 28.11 Emergency Lighting
- A 24 (12) Volt emergency light must be incorporated into the top section of the control panel in order to provide sufficient illumination for the safe operation and checking of the control panel. This light must switch on automatically in the event of a mains failure.
- 29.0 COMMISSIONING OF PLANT & EQUIPMENT
- 29.1 All instruments used shall be provided by the Contractor and shall be accurately calibrated and maintained in good working order.
- 29.2 Testing and balancing shall not begin until the system has been completed and is in full working order.
- 29.3 Tests shall be conducted by the Contractor in the presence of a Representative of the Engineer.
- 29.4 Two copies of the complete test reports shall be submitted to the Engineer prior to the first delivery of the project. Reports shall cover test and balance analysis for all air distribution and hydraulic systems. Sound tests for room type air conditioning equipment and all diffusers in occupied areas shall be included in the report. Reports shall be neatly typed.

SITE 03

VOLUME 2.1 PART 3 FIRE PROTECTION TECHNICAL SPECIFICATION

1.0 Introduction and General

This detail specification complements and qualifies the foregoing standard specifications of material & workmanship. The standard specification should be regarded as a basis and guideline, with this detailed specification taking preference where any ambiguity is concerned.

In the event of any further technical ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority (unless stated elsewhere in Conditions of Contract).

- Schedule of quantities
- Detailed specification
- Drawings
- Standard specification

2.0 Scope of Work

This subcontract calls for the supply, installation, testing and commissioning of the specified Fire Protection Installation for the refurbishment of Site 03 Dimbaza Factories.

2.1 The following sections of work are included:

- a. Supply and Installation of complete:
 - Fire protection installation, complete with all pipework, holderbats, isolating valves, hose reels, hydrants (were indicated) and the connection of the reticulation to the underground civil fire mains connection, either within a valve box or a saddle.
 - Handheld fire extinguishers.
 - Signage.
 - All installed by SAQCC approved installer.
- b. Testing and certification:
 - Performing and submission of test records (as per SANS requirement) and certificates.
 - Issuing of SAQCC Fire Certificate of Compliance
 - Supply of Operators and Maintenance Manuals
 - Basic maintenance training for building maintenance staff
 - Provision of a twelve-month guarantee for the installation including a full service prior to expiry.
 - All other materials and labour necessary to complete the Works in full accordance with the specification and design contained or referred to in this document.

2.2 The following sections of work are excluded:

- Builder's work e.g., cut-outs in walls to Tenderer's specifications, including chasing and making good of walls.

3.0 Site Conditions

3.1 General

The equipment specified herein shall be designed to operate at the environmental parameters particular to Dimbaza, and surrounds.

4.0 Fire Mains Service Connection

4.1 New Fire mains bulk supply line to be installed by specialist SAQCC certified contractor.

5.0 Pipe Locations, Materials and Specifications

For steel piping of 75 mm diameter and larger (i.e. flanged) the hot dip galvanising to SANS 763, 1977 (when required) shall be after fabrication.

6.0 Pipe Jointing and Fittings

Mild Steel Piping and/or Galvanised:

- 6.1 Mild steel piping shall be joined by means of screwed sockets, navy unions or flanges. Red lead jointing or other approved jointing compounds may be used sparingly and exposed threads shall be painted with zinc chromate primer or equivalent paint to prevent rusting.
- 6.2 Where it is required to remove sections of pipe or where pipe joints will need to be tightened after installation and testing, unions or flanges must be provided to facilitate the work,
- 6.3 Welding construction is only permitted for pipes of 50 mm diameter or larger and then only when prefabricated and welded in the workshop of the installing engineers whose welding procedures, pre-approved by the Insurance Council of South Africa.

NO WELDING OR HEAT CUTTING IS PERMITTED ON ANY SITE OF ERECTION

The edges of pipe to be welded shall be machine bevelled wherever possible. Gas cuts shall be true and free of all burned material. Before welding the surfaces shall be thoroughly cleaned and degreased. Piping shall be carefully aligned. No metal shall project within the pipe. Mitred joints will not be allowed.

Only welded fittings prefabricated by recognised manufacturers will be permitted. No other prefabricated welding fittings will be permitted without the express approval of the Engineer.

For branch piping sixty five millimetres (65 minimum) in size or larger, use welding tees, with flanged outlet. For piping 200 mm and larger use shaped spigots and welding neck flanges. Cracks, pinholes, excessive undercutting etc. shall be removed and the joints rewelded. Welders and welding processes shall meet the requirements of the SANS Code for welders.

- 6.4 Jointing of mild steel and galvanised piping using grooved pipe fittings and couplings may be used provided they have been approved by SANS. Proper gaskets, designed for the applications shall always be used. Approval by the consulting Engineers must in all cases be obtained prior to the utilisation of such fittings.

7.0 INSTALLATION OF PIPING

All piping shall be installed in an approved manner to meet structural and architectural requirements, to avoid interference with the work of other trades and be finished in a neat and workmanlike manner with true alignments and grades. Piping shall be run to ensure sufficient access for inspection, testing, servicing, etc.

7.1 Storage

Deliver and store to Suppliers recommendations with plugged ends. Clean pipes thoroughly. In addition it is required that pipes are stored off the ground and under cover.

Keep the ends closed during erection with temporary caps. Before any pipe is installed it shall be upended and pounded to remove any foreign matters present.

7.2 Installation

Slope of Pipes

In order to prevent air being lodged, the pipe lines shall have a proper inclination throughout the work.

Also the sloping shall be such that the system can be thoroughly drained.

7.3 Underground Piping

- a) Unless otherwise specified, the Contractor shall not be responsible for the digging and backfilling of pipe trenches for underground piping in his contract. He is however to ensure that the excavations and laying of piping is in accordance with SANS 1 200 06, LD and LD, and that this specification is adhered to so that his installation can be correctly installed.
- b) The trenches shall be of such depth that when properly laid at least 750 mm of soil shall cover the top of the pipe.
- c) The pipes shall be laid on a clean, soft soil bed not less than 750 mm deep. When backfilling the trench, it shall firstly be filled to approximately 150 mm above the pipe again with clean soft soil and then compacted after which the final filling is to be made and again compacted (care shall be taken to ensure that no large stones or debris occur in the filling material).

- d) In the case of cement and uPVC piping the Contractor must ensure that the trenches are recessed where couplings or fittings are positioned such that the pipe lies flat on the bed. This is to prevent the fittings supporting the length of pipe. The Contractor is also to allow for any pipe movements, such as thrust at bends etc. Concrete blocks in accordance with manufacturer's specifications shall be provided at these points. Where asbestos cement piping cross roads etc., the pipe shall be protected by casting into concrete not less than 100 mm over the top of the pipe.
- e) Where steel or uPVC pipes are to cross roadways, under connecting corridors, etc., the Contractor shall provide PVC sleeves through which the pipes will pass. It shall be at a depth of not less than 750 mm below the surface and shall be encased in concrete not less than 150 mm all round. These sleeves are to be two pipe sizes above the size of the water pipe to permit the removal and the replacement of the pipe should the need arise.

7.4 Internal Pipe Runs

All piping shall be installed parallel to, or at right angles with building walls and partitions.

In general, all pipes shall be supported from the building structure in a neat and workmanlike manner, and whenever possible, parallel runs of piping shall be grouped together.

- a) Where pipes pass through walls, floors, ceilings, etc., they shall be sleeved. The sleeves shall be of PVC material and allow for pipe thermal reactions.
- c) Where pipe sizes are reduced, proper reducing fittings shall be used. On no account will bushes be accepted.
- d) Horizontal take-offs from vertical pipes shall be long enough before the next fixing to take up any movements or shall have an expansion loop to provide this facility.
- e) Every tube section shall be installed to have the possibility of expansion and contraction without restriction. It shall be anticipated that no deflection acts on very short tube section. Expansion loops or expansion joints and anchors shall be fitted in order to reduce the displacement of individual line elements and to deflect them to the points where they can act without damage.

7.5 Concealment of Pipework

Pipework must not be embedded in the concrete floors of a building, nor should it be concealed in any other situation where difficulty or undue expense would be involved in making alterations or additions which may subsequently be necessary. Concealment of pipework is particularly to be deprecated in the case of buildings in multiple tenure where erection of partitions to suit tenants may impair the effective distribution of water from the sprinklers and necessitate alterations in the positioning of sprinklers.

7.6 Pipe Hangers and Supports

- a) All pipes shall be supported from the building structure in a neat and workmanlike manner and, wherever possible, parallel runs of horizontal piping shall be grouped together on trapeze hangars.
- b) Vertical risers shall be supported at each floor line with pipe clamps. The use of wire, perforated metal straps, nails and so forth, to support pipes will not be permitted. Hanging of pipes from other pipes will also not be permitted.
- c) Vertical runs shall be secured by means of rustless holderbats or other clamps. Duckfoot supports shall be provided at the bottom of a vertical section of large piping (100 mm and above) to support the weight of the pipe and the water.

Under no circumstances shall a vertical pipe be supported from its highest point. Should any fittings be installed in the vertical sections, care shall be taken to ensure that these fittings are not in a state of tension through the combined weight of the pipe and the water.
- d) Horizontal pipes shall be supported by means of galvanised hangers at close enough centres to prevent sagging. The minimum recommended spacings for supports and hanger rod size shall be set out below:
- e) The hangers shall be protected against rust and adjustable in height. They shall be manufactured from rods of the diameter as specified above, one end threaded and bolted to an angle iron cleat or Unistrut section suitably secured to the structure. The other end shall be formed into an eye and bolted to the pipe clamp.

7.7 Changes in Material

Where piping material changes occur (i.e. copper to steel etc.) dielectric unions must be furnished and installed.

7.8 Threaded Pipe

The pipe connection shall be cut square and full threaded with clean cut tapering threads and shall be reamed after threading. All threaded connections shall be made with approved thread compound applied to male threads only, and shall be so made up that not more than two (2) threads will be exposed.

7.9 Testing of Water Piping

All piping installed on the project shall be hydraulically tested as specified herein. The Contractor shall provide all equipment required to make these tests.

Piping may be tested a section at a time in order to facilitate the construction programme.

The Contractor shall fill the section of the pipe to be tested with water and bring the section up to test pressure with a positive displacement type test pump. The tests shall be conducted by the Contractor in the presence of the Engineer or his representative. Gauges used in the tests shall have been recently calibrated with a dead weight tester.

All tests shall have full test pressure applied to the piping for a minimum of twenty-four (24) hours

The test pressure at any section of the system shall not be less than one and a half times the system working pressure or 1 500 kPa (Maximum) unless otherwise stated under Part Four of the specification. When the test pressure has fallen over 6 percent (%) during the twenty-four (24) hour test period, the point of leakage shall be found, repaired and the test repeated. This procedure shall be followed until the piping system has been proven absolutely tight.

The use of chemicals or so-called "stop-leak" compounds will not be permitted at any time.

When instruments or gauges are installed in the piping system, they shall be removed during the tests if subject to damage from shock or excessive pressure. This does not apply to control valves.

Leaks shall not be repaired by mastic or other temporary means. All leaks shall be repaired by removal of the section that is leaking and reinstalling new material with joints as specified herein before.

7.10 Flushing of System Pipework

There must be a 50 mm diam. flushing connection fitted on the incoming main below each installation control valve. These flushing points must be plugged to prevent misuse.

7.11 Terminal Drain Valve

25 mm drain valves must be fitted at the extremity of the distribution pipe at each level of protection. This is to indicate that there is water at this point and that no blank flanges are left in the installation. The valve should be positioned at hand level and must be normally strapped closed.

8.0 **Fittings**

8.1 All fittings, including safety devices are to be placed and sized.

9.0 **Safety Devices**

9.1 Where applicable.

10.0 **Handling And Storage Of Materials, Fittings And Components**

10.1 Pipes, fittings and components shall be handled carefully to obviate damage

10.2 Manufacturers' advice shall be followed as to how their products should be loaded, transported, unloaded and sorted

11.0 **Identification**

11.1 Colour Coding

11.1.1 General

All equipment shall be colour-coded in accordance with standards recognised, and where possible to comply with relevant SANS colour codes unless specified otherwise.

11.1.2 Colour Coding of Pipes

Identification of the contents of pipes shall either be by painting a 100 mm wide primary colour band or by using self-adhesive PVC coloured tape. The colour of the paint or tape shall comply with SANS 0140 Identification Colour Marking, Part III, Contents of Pipelines, as detailed below.

The colour names referred to in the table s are specified in SANS 1091.

TABLE OF COLOUR CODING FOR PIPELINES AS PER SANS 0140 PART III - 1978

CONTENTS OF PIPE PRIMARY COLOUR BANDS

FIRE FIGHTING

- All Pipes Signal Red

12.0 **Sterilization**

12.1 N/A

13.0 **Builders Work**

13.1 The Engineer will prepare details showing where all sleeves are to be positioned before any structural concrete is cast.

13.2 The Engineer's approval, in writing, must be obtained before any holes or chases are cut in any structural component i.e. brickwork, concrete, steel or timber.

13.3 The Contractor shall be responsible for cutting chases and holes in walls and slabs to accommodate his services which must be coordinated in liaison with the Main Contractor who will be responsible for making good.

14.0 **Excavation**

14.1 General:

Tenderers are to note that excavation shall be carried out by the main contractor.

15.0 **Operating And Maintenance Details**

15.1 Two complete sets of operating manuals complete with spares schedules, as-fitted layout drawings, schematic diagrams and operating and general maintenance information, bound in hardcover ring binders shall be prepared by the Contractor and delivered to the Engineer 14 days prior to practical completion for approval, at or before final handover.

15.2 A full "RECORD" set of drawings shall also be submitted to the engineer for record purposes.

16.0 **Schedules Of Information**

16.1 The schedules of information contained in this document consists of 2 sections :

- a. Information supplied by the Engineer (schedules of drawings, sleeves etc. as applicable.)
- b. Information to be supplied by the Contractor at tender stage

(tender form, information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable.)

16.2 Tenderers are required to enter, at the time of tendering, in the "Schedule of Equipment and Material Offered", sufficient details to enable the equipment concerned to be identified without ambiguity.

16.3 It is not sufficient for a tender to state "as specified" in the schedules.

16.4 Failure to complete these schedules (if applicable) may render a tender invalid.

17.0 **Samples And Alternatives**

17.1 Tenderers may be required to submit for approval, comment or records samples of materials, apparatus or components, and also drawings, schematic diagrams or technical details, including calculations, upon which their design and/or offer is based before any contract is awarded. Such details may also be called for during the course of the Contract prior to installation. Any approvals given or comments made shall be on the generality of the scheme and shall not relieve the Contractor of his responsibility to ensure the full compliance with all performance and regulatory criteria.

NOTE : A request for submission of samples or drawings does not imply that the Tenderer's quotation will necessarily be accepted.

17.2 Any particular make or model of equipment referred to in the Documentation is for guidance purposes only in setting standards / types / performances required; equipment that is equal or superior in all respects, and to the approval of the Engineer, may be offered by Tenderers. No reference to any particular make of any equipment shall be construed as that equipment having been selected by the Engineer or Client and the Contractor shall be fully responsible for the guarantee and performance of such equipment.

18.0 **Certification On Completion Of Guarantee And Maintenance Period**

18.1 In the month prior to the expiry of the guarantee and first twelve months maintenance period the Engineer shall inspect and, if necessary, retest the installation so as to be able to provide the Tenant with a certificate, within fourteen days of the guarantee expiry date, to confirm that the guarantee has been honoured and that the installation has been properly serviced at required regular intervals by the sub-contractor.

18.2 The cylinders shall be guaranteed from date of take over for a period of three years on the tank, insulation and outer casing and for one year on the electrical components

19.0 **Supervision Of Workmanship And Details**

19.1 The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the subcontractor, who must be able and authorized to receive and execute instructions on behalf of the Mechanical Subcontractor.

19.2 In the event that inferior materials or bad workmanship, on the part of the subcontractor, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the Subcontractor.

19.3 Similarly, should delays in the contract be caused by poor performance on the part of the Contractor causing the Engineer to spend extraordinary time on the project, the extra costs incurred shall be borne by the Contractor.

These costs will be based on the SAACE hourly rates and will be deducted from claims due or claims which will become due to the Contractor.

20.0 **Making Good**

20.1 The subcontractor will carry out in all instances any work to be made good such as damage to, or disturbances of the building installations caused by himself or his employees during the execution of the contract, at his own cost.

21.0 **Test And Inspections - Pressure Testing And Quality Control**

21.1 The Contractor shall, at no extra cost to the contract, provide all the necessary equipment and facilities to conduct all tests as directed by the Engineer and or Supply Authorities.

22.0 **Commissioning And Testing**

22.1 Commissioning:

A documented method shall be followed whereby the mechanical subcontractor shall ensure that his installation is correctly constructed in accordance with the manufacturers' specifications, consultant's specification, consultant's design and all codes of practice and international design codes.

The commissioning procedure must allow for signing off of the major items of equipment by a qualified person in terms of the codes. These signed off documents will form part of the record drawings.

22.2 Performance Tests:

The mechanical subcontractor shall be responsible for the physical testing, in the manufacturing works, or on site, of the items of plant or systems as required by the Engineer. These tests shall be performed by the mechanical subcontractor or supplier of the equipment, and where called for, the Engineer shall witness such tests. The Engineer may also only witness a representative sample of the equipment tests. In any event, the mechanical subcontractor will supply documentary proof of full performance tests of all relevant equipment.

22.3 Acceptance Tests:

All brass fittings and valves shall be certified by the manufacturers to be free From de-zincification and will be subjected to check tests as set out in the Detailed Specification

Acceptance tests will be performed on site of the working system or sub system, to show that the works, as installed, is functioning according to the specifications and design. The onus for the correct functioning of the systems is still on the mechanical subcontractor irrespective of whether the Engineer has witnessed the acceptance tests or not. Prior to the system being connected, a test certificate must be issued by / given to the local electricity supply authorities.

23.0 **Compliance With Regulations, Standards And Codes**

23.1 The subcontractor will arrange for all inspections and testing of the installation after completion, including the issuing of the Certificate of Compliance. All notices, fees, including inspection and re-inspection are the responsibility of the subcontractor and all the relevant costs shall be borne by him.

23.2 The workmanship throughout the Works will be to the satisfaction of the Employer. Any materials or workmanship considered as faulty or incorrectly or inadequately erected or repaired, will be substituted, altered or rectified to the satisfaction of the Employer, without additional cost to the Employer.

23.3 The Works will be executed in strict accordance with the following:-

- a. All relevant by-laws and regulations of local authorities.
- b. All relevant SANS, BS and other international standards of the latest revision, where applicable.
- c. The Occupational Health and Safety Act of 1993 as amended.

24.0 **Monthly Certificates**

24.1 Pro forma claim forms are available from the Engineer. These are available in a blank copied format or as a computer file in Excel. This is the preferred method of submitting payment claims. Should the subcontractor have developed his own method of claiming, this may be submitted to the Engineer for consideration.

25.0 **Programme**

25.1 The subcontractor must conform to the programme as submitted by the principal Contractor. The estimated period for completion, as tendered, is as per the builders programme. The cost of overtime, additional labour and plant for the completion of the works, in accordance with the programme, must be included in the Tenderer's price for the project. The cost of any work outside the requirements of the programme or necessary under exceptional circumstances will be for the Employers' account only if covered under a variation order.

25.0 **Drawings**

25.1 Tender Drawings

All drawings, those supplied loose, as well as those bound in, form part of this enquiry and are listed below:

- 2318-T-M-101 FP S21 RevA Fire Protection Equipment
- 2318-T-M-101 FS S21 RevA Fire Escape Signage

It is the Tenderer's responsibility to inform the Engineer as to the absence of any of these drawings.

26.0 **Sufficiency Of Tender**

26.1 The Tenderer's offer shall be for the supply, delivery, installation and commissioning of the complete installation as detailed, described or implied in this document and on the accompanying drawings.

26.2 The Tenderer's offer shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the Works and that the rates and prices he has entered in the schedules shall cover all his obligations under the contract for the proper completion of the Works.

27.0 **Measurement**

27.1 The Tenderer shall not make any assumption regarding the installation. If there is any doubt or ambiguity, the Engineer must be consulted. The Tenderer shall take cognisance of the fact that the schedule of quantities is re-measurable and the quantities may be adjusted at the end of the contract.

27.2 All measurements are nett, unless otherwise stated, and Tenderers must allow in the rate for wastage.

**RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
FIRE FIGHTING EQUIPMENT INSTALLATIONS**

SCHEDULE NO 1: PRELIMINARY & GENERAL

ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	SUPPLY RATE	AMOUNT
1,0	<u>CONTRACTUAL CONDITIONS</u>				
1.1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.				
1.2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.3	Tools and equipment, Communication, transport.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month)				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
	Attendance at site meetings	Sum	1		
1.5	Provision of all drawings and manuals as specified including As-Installed drawings	Item	1		
1.6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations	Item	1		
1.7	<u>DAYWORK SCHEDULE</u>				
	Personnel				
	Coded welder	hr			Rate only
	Registered electrician	hr			N/A
	Registered HVAC technician	hr			N/A
	Apprentice	hr			Rate only
	Labourer	hr			Rate only
Carried forward					

SCHEDULE NO 1: PRELIMINARY & GENERAL

ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
Brought forward					
1.9	<p><u>GUARANTEE</u></p> <p>12 month guarantee of plant and equipment as specified</p> <p>Allowance for servicing the plant during the guarantee period</p> <p>Monthly service calls to check plant operation, clean filters, etc</p> <p>3 monthly minor service as specified</p> <p>Annual major service at the end of the guarantee period</p>	Sum	1		
1.10	<p><u>Additional Tests</u></p> <p>Allow for additional tests as direct by the Consulting Engineer</p>	Item			
1.11	<p><u>Additional items</u></p> <p>Any additional items the contractor wishes to allow for: (Specify)</p>				
TOTAL SCHEDULE NO 1 - CARRIED TO SUMMARY					

RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
FIRE FIGHTING EQUIPMENT INSTALLATIONS

SCHEDULE NO 2: FIRE FIGHTING EQUIPMENT INSTALLATION

ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	SUPPLY RATE	AMOUNT
2,0	BILL NO 2: FIRE FIGHTING EQUIPMENT				
2,1	<u>Piping</u> Supply and install steel piping to ASTM A106 #40 or SANS 62 as specified (heavy quality)				
.01	150 mm	m	150		
.02	125 mm	m	680		
.03	100 mm	m	243		
.04	80 mm	m	35		
.05	65mm	m	70		
.06	50mm	m	140		
.07	40mm	m	25		
.08	32mm	m	80		
0,09	25mm	m	345		
0,10	Thrust Block 2,4 Ton/m ²	m ²	8		
	Supply and install uPVC Class 16 pipe				
	125mm Pipe laid in trenches not exceeding 2m deep, including couplings in the running length, laid to falls on a 100mm thick selected granular bedding material as per SABS 1200LB, including all necessary excavations, back filling and and compacting to 93% Modified AASHTO density and all necessary risk of collapse and de-watering of trenches.				
0,11		m	150		
2,2	<u>Pipe Hangers & Brackets(steel piping)</u> Supply and install as specified				
.01	150 mm	no	50		
.02	125 mm	no	227		
.03	100 mm	no	81		
.04	80 mm	no	12		
.05	65mm	no	23		
.06	50mm	no	70		
.07	40mm	no	13		
.08	32mm	no	40		
.09	25mm	no	173		
2,30	<u>Pipe Fittings</u> <u>Bends</u> Supply and install as specified				
.01	150 mm	no	14		
.02	125 mm	no	23		
.03	100 mm	no	21		
.04	80 mm	no	4		
.05	65mm	no	8		
.06	50mm	no	16		
.07	40mm	no	24		
.08	32mm	no	36		
.09	25mm	no	123		
Carried forward					

SCHEDULE NO 2: SPRINKLER INSTALLATION

ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	SUPPLY RATE	AMOUNT
Brought forward					
2,4	<u>Tees Equal</u> Supply and install as specified				
	.01 150 mm	no	4		
	.02 125 mm	no	24		
	.03 100 mm	no	50		
	.04 80 mm	no	20		
	.05 65mm	no	40		
	.06 50mm	no	60		
	.07 40mm	no	80		
	.08 32mm	no	40		
	.09 25mm	no	20		
2,5	<u>Reducers</u> Supply and install as specified				
	.01 150 - 125 mm	no	40		
	.02 125 - 100 mm	no	68		
	.03 125 - 80 mm	no	20		
	.04 125 - 65 mm	no	40		
	.05 125 - 32 mm	no	125		
	.06 125 - 25 mm	no	40		
	.07 100 - 32 mm	no	40		
	.08 100 - 25 mm	no	50		
2,6	<u>Clamp On</u> Supply and install as specified				
	.01 150 mm	no	95		
	.02 125 mm	no	360		
	.03 100 mm	no	142		
	.04 80 mm	no	38		
	.05 65mm	no	55		
	.06 50mm	no	90		
	.07 40mm	no	33		
	.08 32mm	no	60		
	.09 25mm	no	193		
2,7	<u>Isolating Valves</u> Supply and install as specified				
	.01 150 mm	no	2		
	.02 125 mm	no	2		
	.03 100 mm	no	18		
	.04 80 mm	no	1		
	.05 65mm	no	1		
	.06 50mm	no	1		
	.07 40mm	no	1		
	.08 32mm	no	25		
	.09 25mm	no	31		
Carried forward					

SCHEDULE NO 2: SPRINKLER INSTALLATION

ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	SUPPLY RATE	AMOUNT
Brought forward					
2,8	<p><u>Painting and Finishing</u></p> <p>Allow for painting sprinkler and fire hose reel piping as follows</p> <p>.01 Etching primer coat</p> <p>.02 Undercoat (different colour to primer)</p> <p>.03 Final coat - colour as specified by architect</p> <p>Testing and Commissioning</p> <p>Allow for testing and commissioning of the systems</p> <p><u>Valve Chamber</u> Supply and install as specified</p> <p>Bulk Valve Chamber - Cover Dimension 400 x 324 mm; Frame Dimension 533 x 458 x 152 mm, clear opening 380 x 305 mm</p>	sum	5		
		sum	5		
		sum	5		
		sum	4		
2,9	<p><u>Fire Hose Reels</u> Supply and install as specified</p> <p>Fire hose reels to comply with requirements contained in SANS 543 and maintained in accordance with the requirements as given in SANS 1475-2.</p> <p>Supply, install, test and commission:</p>	no	8		
2,10	30 m length of fibre braid reinforced neoprene mm internal diameter	no	33		
2,11	Tamper seals	no	33		
	<p><u>Fire Extinguishers</u> Supply and install as specified</p> <p>Hand held fire extinguishers shall comply with the requirements contained in SANS 1910 or SANS 1151, and shall be installed, maintained and serviced in accordance with SANS 10105-1 and SANS 1475-1.</p>				
2,12	10 kg CO2 hand held fire extinguisher.	no	40		
2,13	9 kg DCP hand held fire extinguisher.	no	40		
2,14	Tamper seals	no	80		
	<p><u>Waterproof Tape</u> Supply and install as specified</p>				
2,15	Self adhesive waterproof tape 2,5 mm	m	750		
Carried forward					

SCHEDULE NO 2: SPRINKLER INSTALLATION					
ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	SUPPLY RATE	AMOUNT
Brought forward					
2,16	<p>Hydrant Supply and install as specified</p> <p>80 x 65mm "Woodlands Type" or equally approved brass right-angle hydrant valve with cap and chain</p>	no	18		
2,17	<p>Hydrant Pedestal Supply and install as specified</p> <p>Unreinforced concrete hydrant pedestal 1.1m high overall cast around vertical pipe with bottom 600mm below ground, 340 x 340mm square at base and tapering to 210 x 210mm overall octagonal shaped top, finished in all exposed faces in 1:3 cement plaster with all angles rounded including formwork and setting 600mm deep in ground, excavation in all material, backfilling, carting away surplus material, risk of collapse, dewatering, backfilling, compaction, and two coats of approved golden yellow paint to exposed surfaces, as per Engineer's drawing.</p>	no	2		
2,18	Twin Booster Fire Conection	no	2		
Carried forward to summary					

RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
FIRE FIGHTING EQUIPMENT INSTALLATIONS

SCHEDULE NO 3: FIRE SIGNAGE INSTALLATION

ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	SUPPLY RATE	AMOUNT
3,0	<p>BILL NO 3: FIRE SIGNAGE EQUIPMENT</p> <p><u>Fire Signage</u></p> <p>Aluminium Framed Wall Mounted Brackets ABS PVC 150 mm Signs</p> <p>ALL "E" TYPE SIGNS IS WHITE FIGURES AND BORDER ON GREEN BACKGROUND</p> <p>ALL "F" TYPE SIGNS ARE RED REVERSE ENGRAVED ON ON WHITE BACKGROUND WITH 4mm RED BORDER LINE</p> <p>All internal signage to be SANS 1186/5</p> <p>Supply and install the following:</p>				
3,1	2 compartment Type F1 (Arrow & Extinguisher)	No	68		
3,2	3 compartment Type F4 (Arrow; Extinguisher & Hose Reel)	No	44		
3,3	4 compartment Type F7 (Arrow; Extinguisher; Hose Reel & Hydrant)	No	36		
3,4	1 Compartment Type E1 (EXIT sign)	No	28		
3,5	2 compartment Type E1 (Arrow & Running Man)	No	28		
Carried forward to summary					

RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
FIRE FIGHTING EQUIPMENT INSTALLATIONS

SCHEDULE NO 4: EXCAVATION

ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	SUPPLY RATE	AMOUNT
4,0	<p><u>BILL NO 4: EXCAVATION</u></p> <p><u>Trenches for 100 mm uPVC pipe not</u></p> <p>Trenches for 100 mm uPVC pipe not exceeding 1m deep, including excavation in running length, laid on 100mm thick selected granular bedding material (SABS 1200 LB), filled with 460mm high selected fill material (SABS 1200 LB) and backfilling the rest of the trenches with suitable material compacted to 93% Mod ASHTO density including carting away surplus excavated material, risk of collapse, keeping excavations free of water, etc.</p>	Metre	260		
4,1					
Carried forward to summary					

RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
FIRE FIGHTING EQUIPMENT INSTALLATIONS

SCHEDULE NO 4: EXCAVATION

ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	SUPPLY RATE	AMOUNT
5,00	<u>BILL NO 5: SCAFFOLD</u>				
	<u>Mobile Scaffold</u>				
5,1	Mobile Scaffold, for working at heights of 6m,	Sum	1		
	<u>OHS</u>				
5,2	Occupantional Health & Safety File for	Sum	1		
Carried forward to summary					

RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
FIRE FIGHTING EQUIPMENT INSTALLATIONS

FINAL SUMMARY PAGE

Item No.	Description	Amount
1	SCHEDULE NO 1: PRELIMINARY & GENERAL	
2	SCHEDULE NO 2: FIRE FIGHTING EQUIPMENT INSTALLATION	
3	SCHEDULE NO 3: FIRE SIGNAGE INSTALLATION	
4	SCHEDULE NO 4: EXCAVATION	
5	BILL NO 5: SCAFFOLD	
6	Carried to Main Contractors Final Summary (Ex VAT)	

REMINDER NOTE

The **Total Price** including Main Contractor's Mark-up **which excludes VAT**, must be carried over to the final summary in **Volume 1** and all fixed amounts shown in the price schedule must be included therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in the **Total Price** for this particular installation.

SUB-CONTRACTOR'S NAME:

DATE:

SIGNATURE:

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up **BUT** Exclude the VAT when transferring price to Volume 2.1 of the Final Summary Total of the Main Contractor's

SITE 03
VOLUME 2.1 PART 5 SCHEDULE OF MATERIALS OFFERED

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

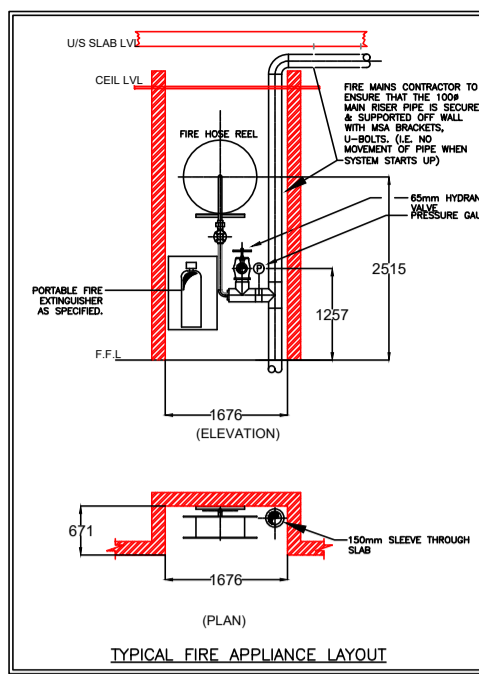
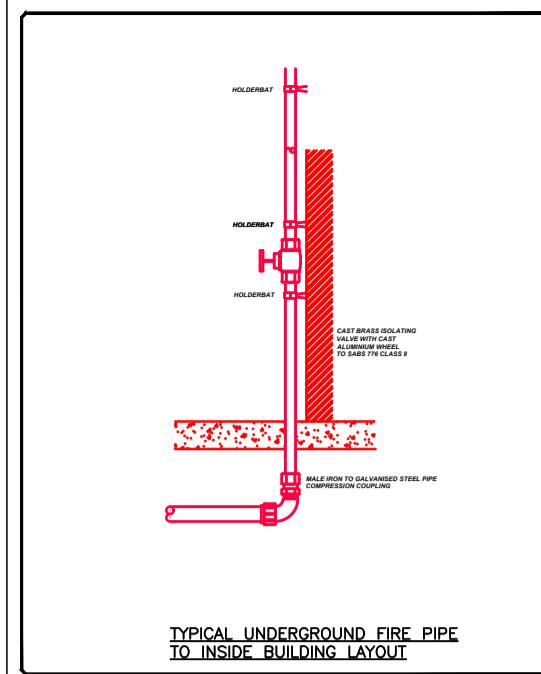
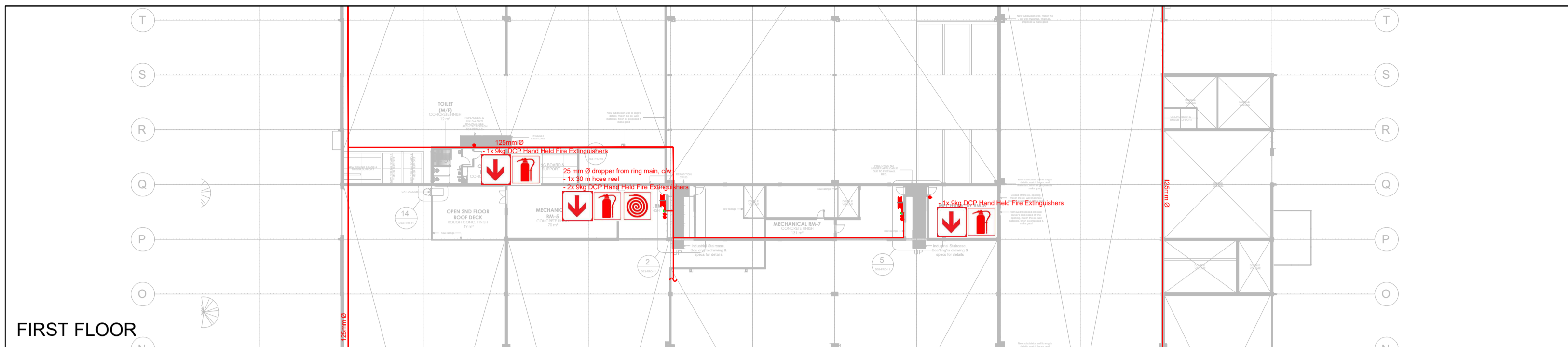
The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB : Only one manufacturer's name to be inserted for each item.

Item	Material	Make or trade name	Country of Origin
1.	Gavanised steel pipe		
2.	Non-Return Valves		
3.	Isolating valves		
4.	Strainers		
5.	Angle valves		
6.	Manholes		
7.	30m Hose Reels		
8.	Hand Held Fire Extinguishers		
9.	Pressure Gauges		
10.	Hydrant Connections		

NOTE : Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor.

Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.



Installation Notes

1. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT ON SITE.
2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND OTHER DRAWINGS.
3. ALL FIXINGS TO BE MILDSTEEL GALVANISED.
4. REGULATION SIGNAGE WILL BE ACCOMPANIED WITH ALL FIRE EXTINGUISHERS & HOSE REELS.
5. ALL SERVICES TO HANG FROM TRUSSES AND PERLINS ONLY. NO

FIRE PROTECTION EQUIPMENT	Qty
65 mm Ø HYDRANT CONNECTION	15
30 m HOSE REEL	28
4.5 kg DCP HANDHELD EXTINGUISHER	67

FIRE ESCAPE SIGNAGE INSTALLATION NOTE:
FIRE EXTINGUISHERS/HOSE REEL SIGNAGE TO BE PLACED AT FIRE EXTINGUISHERS/HOSE REEL EQUIPMENT AS INDICATED ON THE SIGNING PLAN, BY THE SYMBOLS SHOWN BELOW.

SYMBOL	DESCRIPTION
	9.0 kg DCP FIRE EXTINGUISHER
	FIRE HOSE REEL
	NON RETURN VALVE
	ISOLATING VALVE
	30m FIRE HOSE REEL (25# CONN.)
	45m FIRE HYDRANT (100# CONN.) COMPLETE WITH 45 m FIRE HOSE, COUPLINGS AND OUPBOARD
	FIRE PUMP CONTROL PANEL
	PRESSURE VESSEL
	PRESSURE SWITCH
	PRESSURE GAUGE - 2500 KPA
	PRESSURE REDUCING VALVE

GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT

 PROJECT
ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 03

TITLE
SITE 03 - FIRE PROTECTION EQUIPMENT LAYOUT

ARCHITECT

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 P.O. Box 12359 Amalinda, 5252
 Tel: (043) 742 0041
 E-Mail: office@rnaconsulteng.co.za

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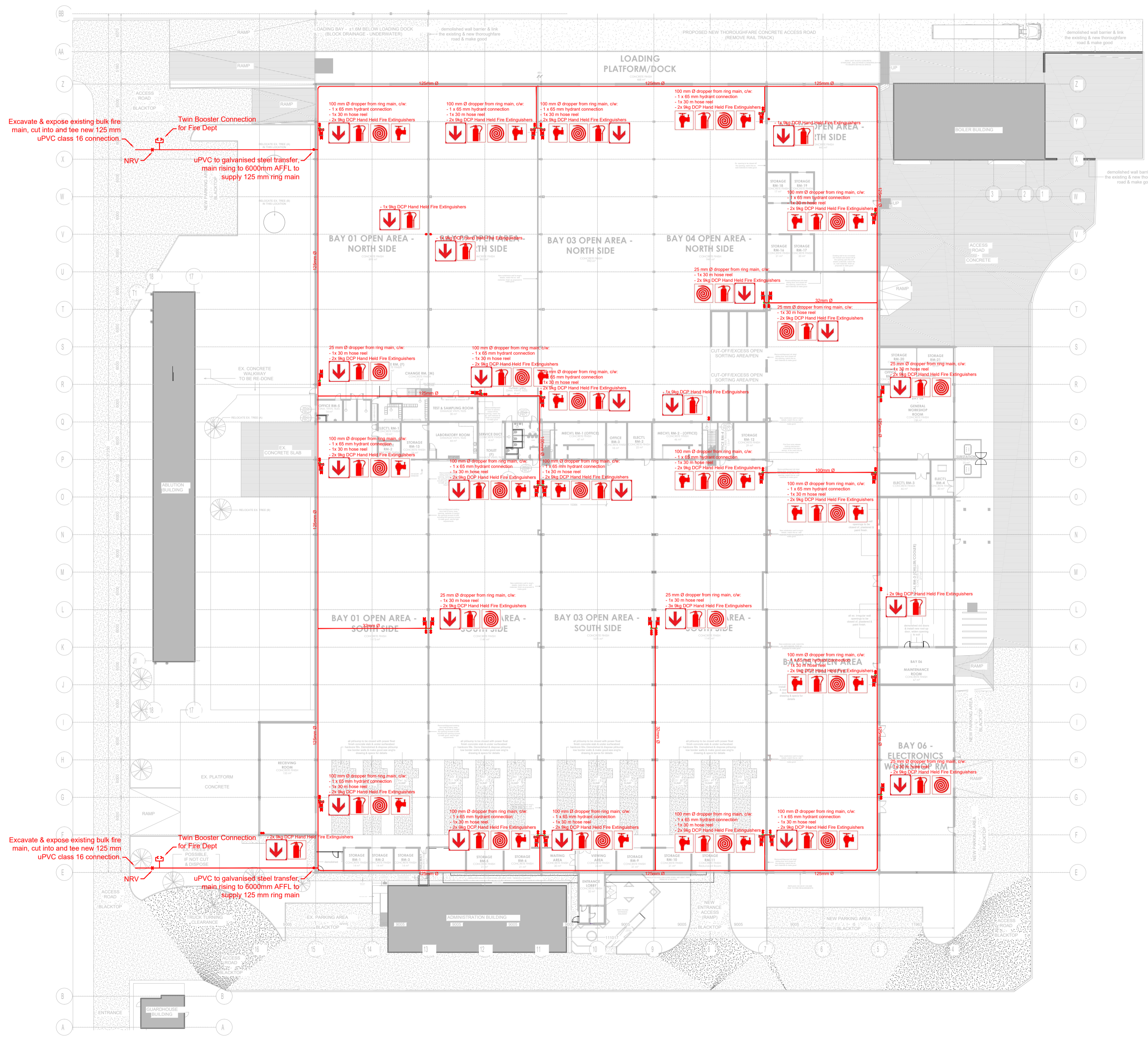
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 SCALE: 1:250

DRAWN: T. Warne
 DATE: 31/08/2023
 PRINT DATE: 20/11/2023

CHECKED BY: Travis Warne
 REGISTRATION No.: 201770017

SIGNED:

DRAWING NO.: 2318-T-M-101 FP S03
 REV No.: B



TYPICAL UNDERGROUND FIRE PIPE TO INSIDE BUILDING LAYOUT

TYPICAL FIRE APPLIANCE LAYOUT

Installation Notes

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2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND OTHER DRAWINGS.
3. ALL PIPING TO BE MILDSTEEL GALVANISED.
4. REGULATION SIGNAGE WILL BE ACCOMPANIED WITH ALL FIRE EXTINGUISHERS & HOSE REELS.
5. ALL SERVICES TO HANG FROM TRUSSES AND PERLINS ONLY. NO

FIRE PROTECTION EQUIPMENT	Qty
65 mm Ø HYDRANT CONNECTION	15
30 m HOSE REEL	28
4.5 kg DCP HANDHELD EXTINGUISHER	67

FIRE ESCAPE SIGNAGE INSTALLATION NOTE:
FIRE EXTINGUISHER/HOSE REEL SIGNAGE TO BE PLACED AT FIRE EXTINGUISHER/HOSE REEL EQUIPMENT AS INDICATED ON THE SIGNING PLAN BY THE SYMBOLS SHOWN BELOW

Legend

SYMBOL	DESCRIPTION
	9.0 kg DCP FIRE EXTINGUISHER
	FIRE MAINS PIPING
	NON RETURN VALVE
	ISOLATING VALVE
	30m FIRE HOSE REEL (25# CONN.)
	45m FIRE HYDRANT (100# CONN.) COMPLETE WITH 45 m FIRE HOSE, COUPLINGS AND COUPLEBOARD
	FIRE PUMP CONTROL PANEL
	PRESSURE VESSEL
	PRESSURE SWITCH
	PRESSURE GAUGE - 2500 KPA
	PRESSURE REDUCING VALVE

GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

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PROJECT
ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03

TITLE
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LAYOUT

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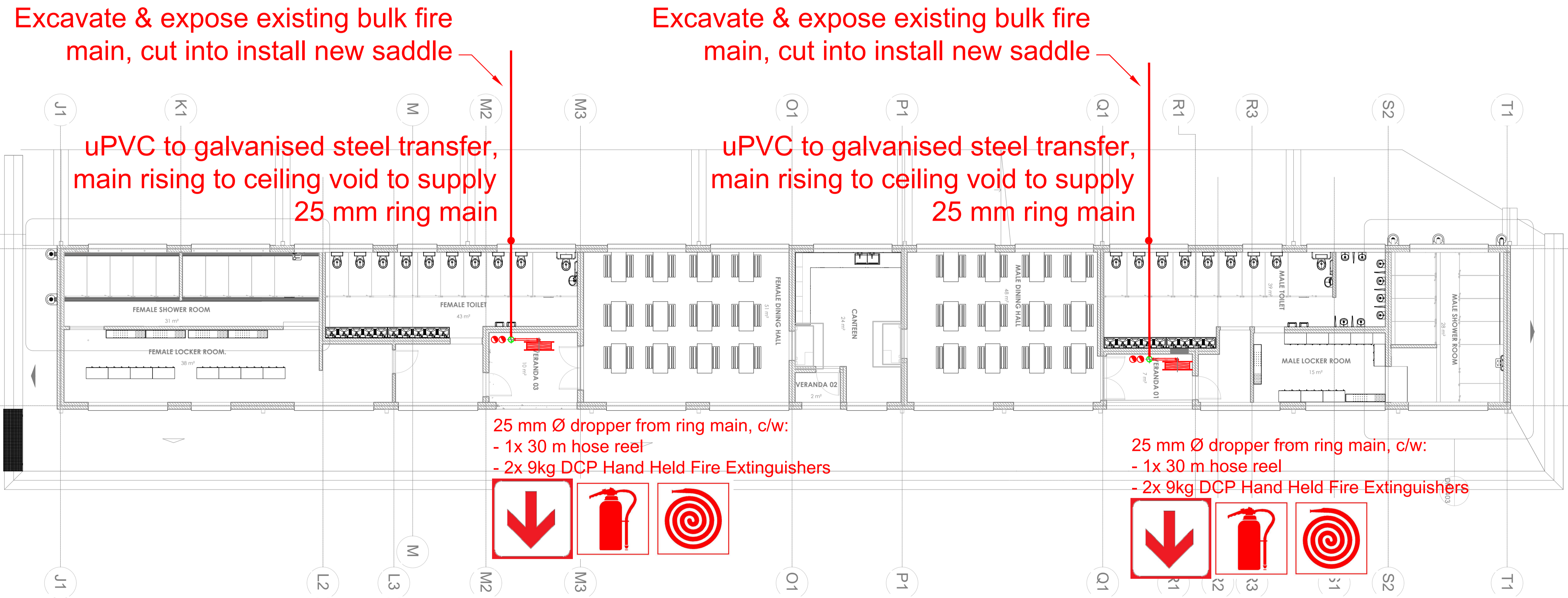
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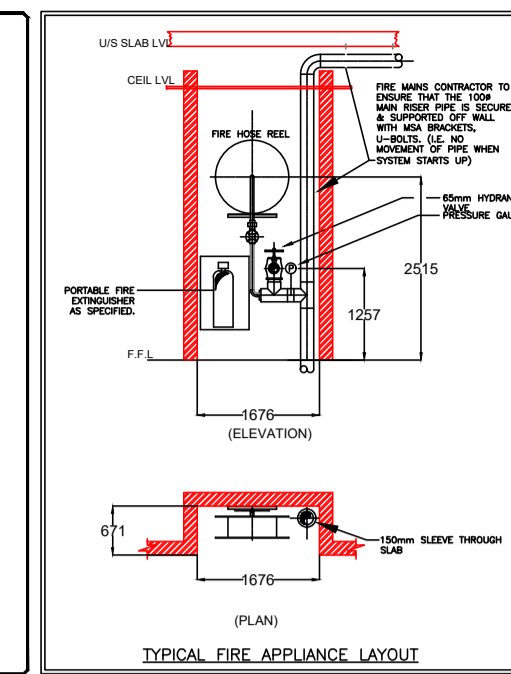
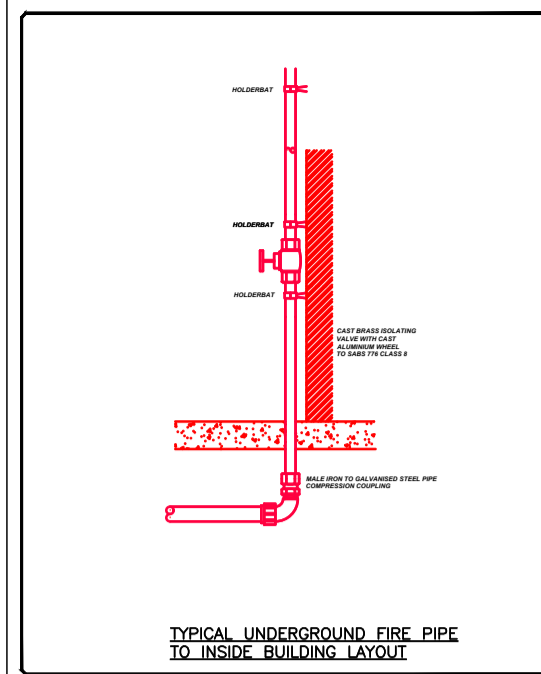
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SCALE: 1:100

DRAWN: T. Warne
DATE: 31/08/2023
PRINT DATE: 13/11/2023

CHECKED BY: Travis Warne
REGISTRATION No.: 201770017
SIGNED:

DRAWING NO.: 2318-T-M-102 FP S03
REV No.: A





Installation Notes

1. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT ON SITE.
2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND OTHER DRAWINGS.
3. ALL PIPING TO BE MILDSTEEL GALVANISED.
4. REGULATION SIGNAGE WILL BE ACCOMPANIED WITH ALL FIRE EXTINGUISHERS & HOSE REELS.
5. ALL SERVICES TO HANG FROM TRUSSES AND PERLINS ONLY. NO WALLS.

FIRE PROTECTION EQUIPMENT	Qty
65 mm Ø HYDRANT CONNECTION	15
30 m HOSE REEL	28
4.5 kg DCP HANDHELD EXTINGUISHER	67

FIRE ESCAPE SIGNAGE INSTALLATION NOTE:
FIRE EXTINGUISHER/HOSE REEL SIGNAGE TO BE PLACED AT FIRE EXTINGUISHER/HOSE REEL EQUIPMENT AS INDICATED ON THE SIGNING PLAN BY THE SYMBOLS SHOWN BELOW.

SYMBOL	DESCRIPTION
	9.0 kg DCP FIRE EXTINGUISHER
	FIRE MAINS PIPING
	NON RETURN VALVE
	ISOLATING VALVE
	30m FIRE HOSE REEL (25# CONN.)
	45m FIRE HYDRANT (100# CONN.) COMPLETE WITH 45 m FIRE HOSE, COUPLINGS AND COUPLERBOARD
	FIRE PUMP CONTROL PANEL
	PRESSURE VESSEL
	PRESSURE SWITCH
	PRESSURE GAUGE - 2500 KPA
	PRESSURE REDUCING VALVE

GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT

PROJECT
ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03

TITLE
SITE 03 -
FIRE PROTECTION EQUIPMENT
LAYOUT

ARCHITECT

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DESIGN	TENDER	CONSTRUCTION
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DESIGNED BY: Travis Warne
SCALE: 1:100

DRAWN: T. Warne
DATE: 31/08/2023
PRINT DATE: 13/11/2023

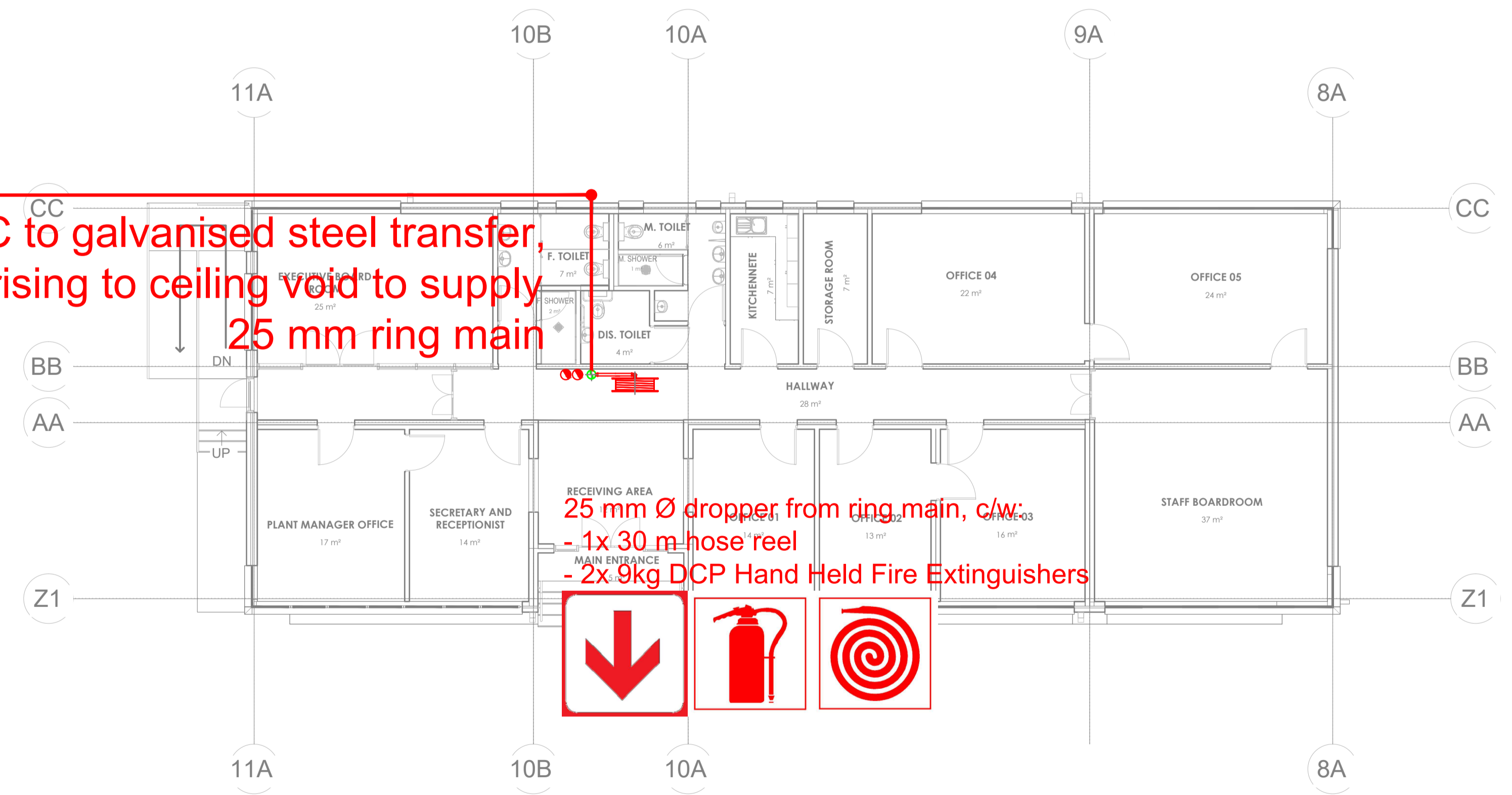
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REGISTRATION No. 201770017
SIGNED:

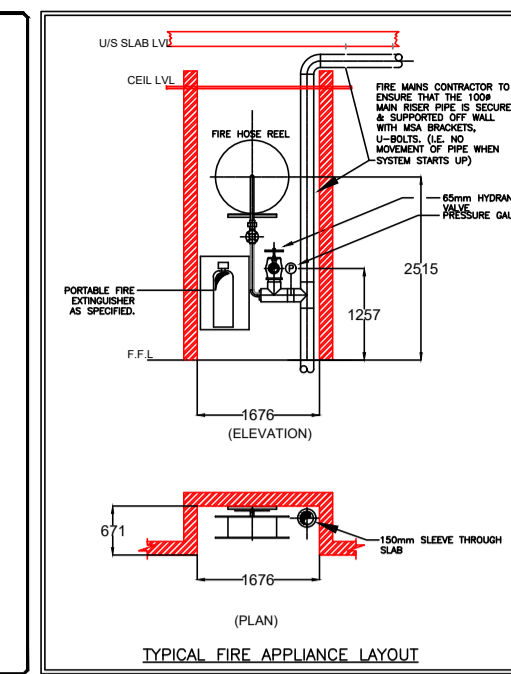
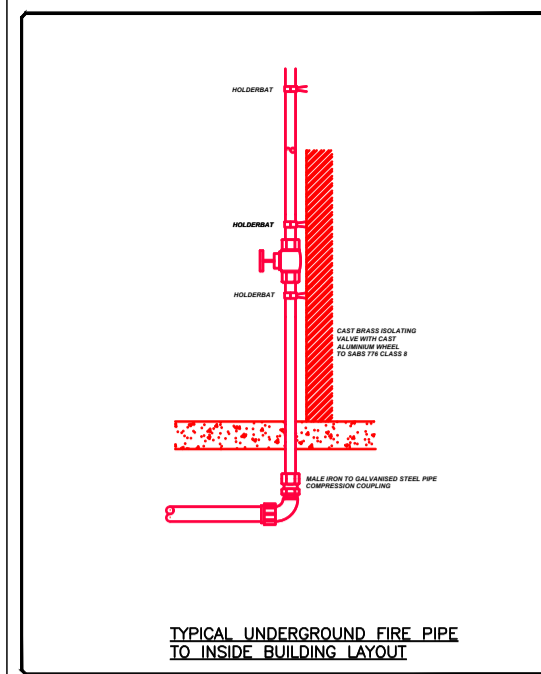
DRAWING NO. 2318-T-M-103 FP S03
REV No. A

Excavate & expose existing bulk fire main, cut into and install new saddle.

uPVC to galvanised steel transfer, main rising to ceiling void to supply 25 mm ring main

25 mm Ø dropper from ring main, c/w:
- 1x 30 m hose reel
- 2x 9kg DCP Hand Held Fire Extinguishers





Installation Notes

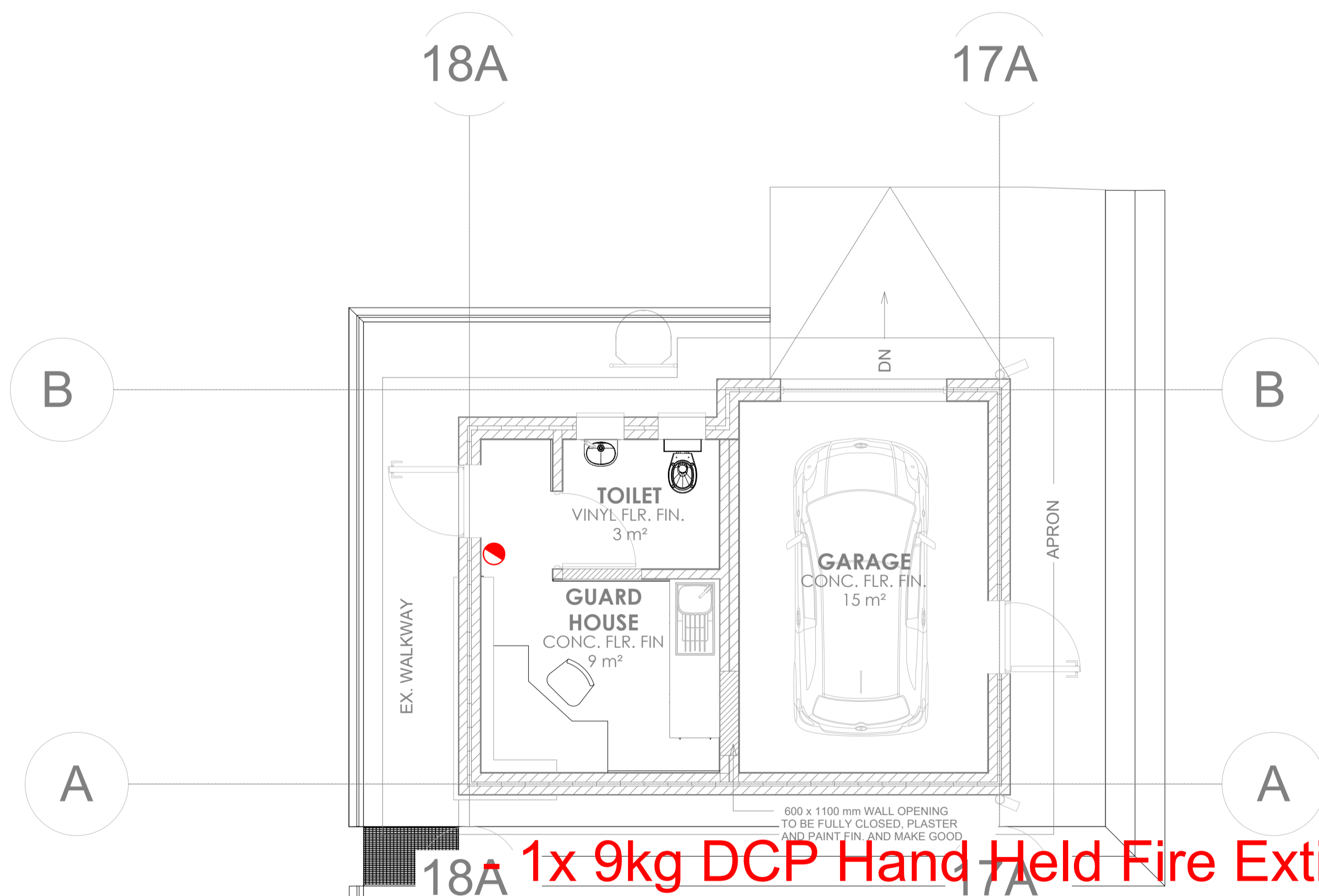
1. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT ON SITE.
2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND OTHER DRAWINGS.
3. ALL PIPING TO BE MOUNTED GALVANISED.
4. REGULATION SIGNAGE WILL BE ACCOMPANIED WITH ALL FIRE EXTINGUISHERS & HOSE REELS.
5. ALL SERVICES TO HANG FROM TRUSSES AND PERLINS ONLY. NO

FIRE PROTECTION EQUIPMENT	Qty
65 mm Ø HYDRANT CONNECTION	15
30 m HOSE REEL	28
4.5 kg DCP HANDHELD EXTINGUISHER	67

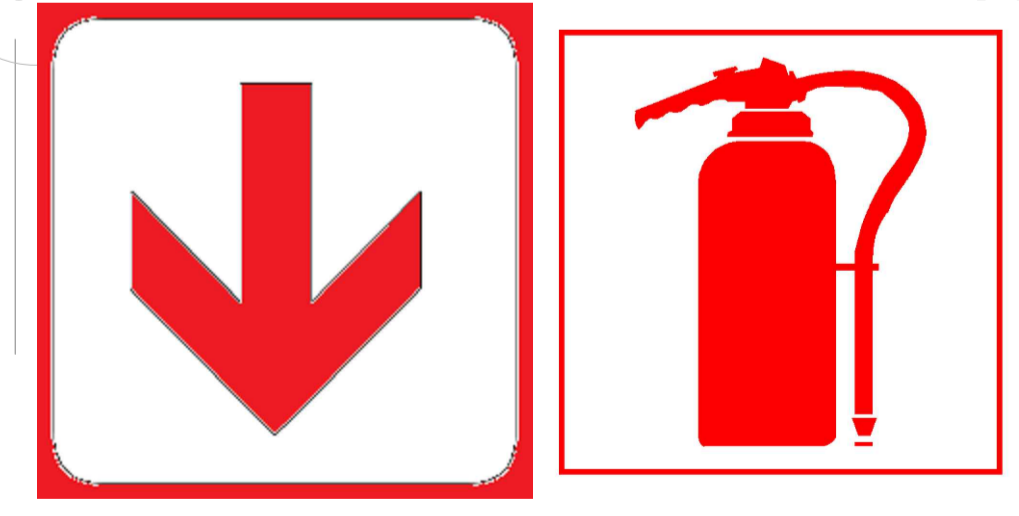
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	ISOLATING VALVE
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	45m FIRE HYDRANT (100# CONN.) COMPLETE WITH 45 m FIRE HOSE, COUPLINGS AND OUTBOARD
	FIRE PUMP CONTROL PANEL
	PRESSURE VESSEL
	PRESSURE SWITCH
	PRESSURE GAUGE - 2500 KPA
	PRESSURE REDUCING VALVE

GENERAL NOTES:




1x 9kg DCP Hand Held Fire Extinguishers



REVISIONS			
REV	DATE	INIT.	DESCRIPTION

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PROJECT
ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03

TITLE
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FIRE PROTECTION EQUIPMENT
LAYOUT

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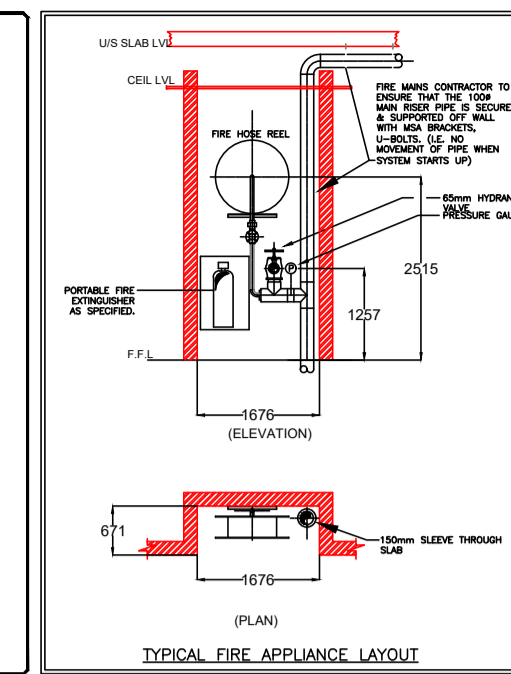
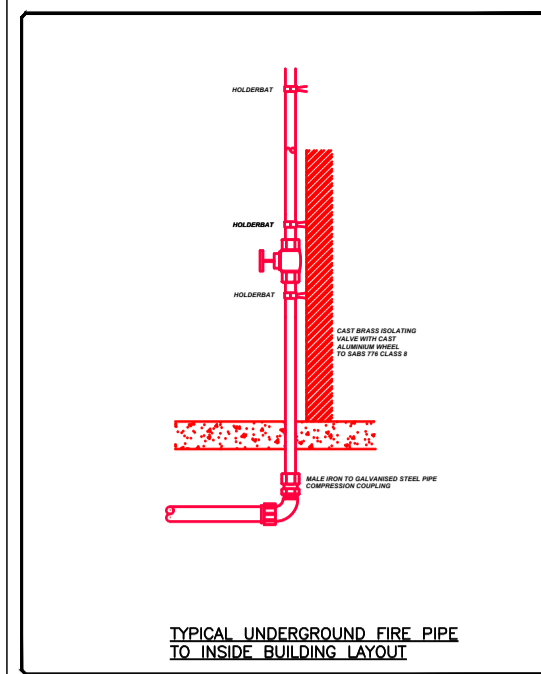
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DESIGNED BY: Travis Warne
SCALE: 1:50

DRAWN: T. Warne
DATE: 31/08/2023
PRINT DATE: 13/11/2023

CHECKED BY: Travis Warne
REGISTRATION No. 201770017
SIGNED:

DRAWING NO. 2318-T-M-104 FP S03
REV No. A



Installation Notes

1. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT ON SITE.
2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND OTHER DRAWINGS.
3. ALL PIPING TO BE MILDSTEEL GALVANISED.
4. REGULATION SIGNAGE WILL BE ACCOMPANIED WITH ALL FIRE EXTINGUISHERS & HOSE REELS.
5. ALL SERVICES TO HANG FROM TRUSSES AND PERLINS ONLY. NO BRICKS.

FIRE PROTECTION EQUIPMENT	Qty
65 mm Ø HYDRANT CONNECTION	15
30 m HOSE REEL	28
4.5 kg DCP HANDHELD EXTINGUISHER	67

FIRE ESCAPE SIGNAGE INSTALLATION NOTE:
FIRE EXTINGUISHER/HOSE REEL SIGNAGE TO BE PLACED AT FIRE EXTINGUISHER/HOSE REEL EQUIPMENT AS INDICATED ON THE SIGNING PLAN BY THE SYMBOLS SHOWN BELOW.

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	FIRE MAINS PIPING
	NON RETURN VALVE
	ISOLATING VALVE
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	FIRE PUMP CONTROL PANEL
	PRESSURE VESSEL
	PRESSURE SWITCH
	PRESSURE GAUGE - 2500 KPA
	PRESSURE REDUCING VALVE

GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT

PROJECT
ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03

TITLE
SITE 03 -
FIRE PROTECTION EQUIPMENT
LAYOUT

ARCHITECT

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DESIGN	TENDER	CONSTRUCTION
✓		

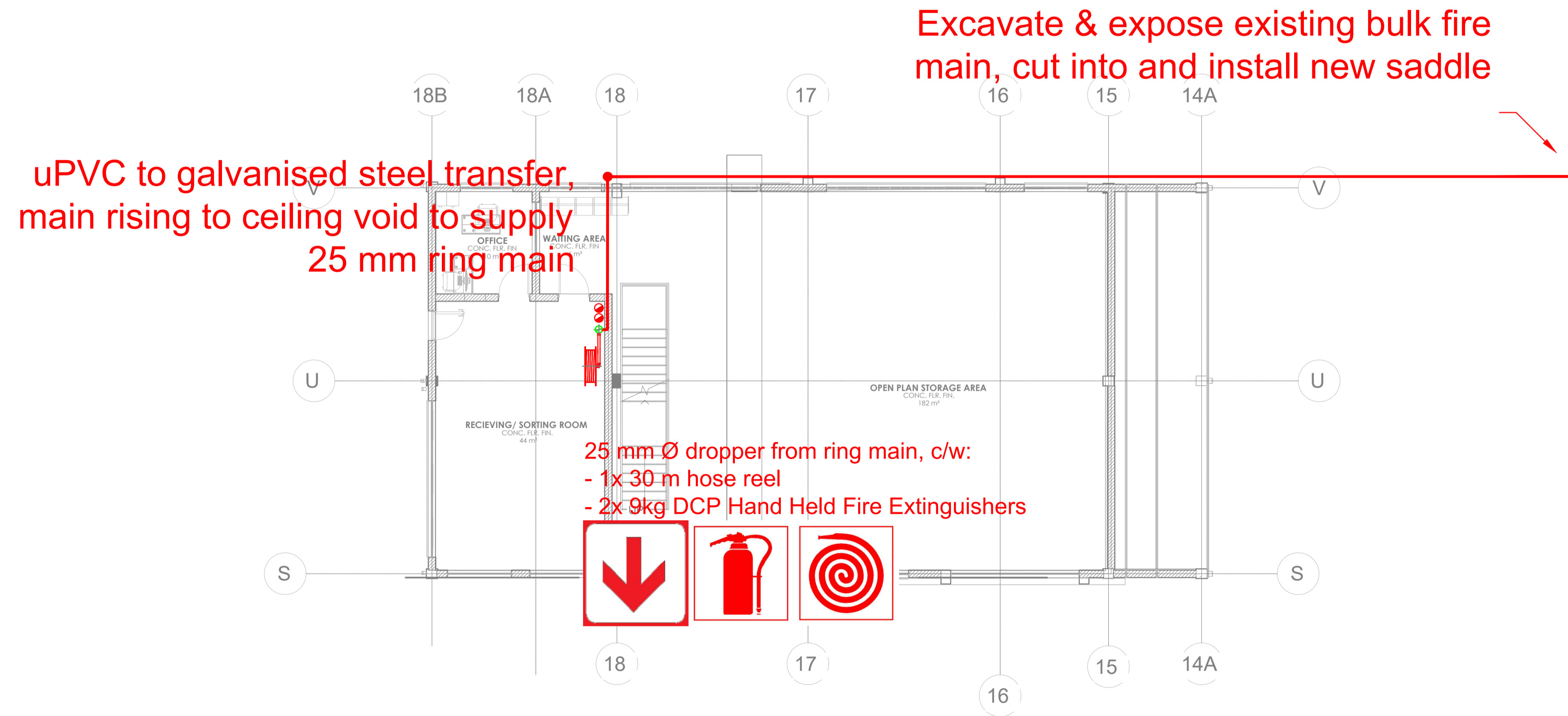
DESIGNED BY: Travis Warne
SCALE: 1:100

DRAWN: T. Warne
DATE: 31/08/2023
PRINT DATE: 13/11/2023

CHECKED BY: Travis Warne

REGISTRATION No. 201770017

DRAWING NO. 2318-T-M-105 FP S03
REV No. A



SITE 03

VOLUME 2.2 PART 1: VENTILATION - SCOPE OF WORKS

HEATING VENTILATION AND AIR CONDITIONING EQUIPMENT

1. **GENERAL**

- 1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. **THE CONTRACT**

2.1 **HEATING VENTILATION AND AIR CONDITIONING EQUIPMENT**

The work to be carried out and commissioned by a SAQCC gas approved installer:

- a. Fresh air and extraction ventilation systems,
- b. Natural Ventilation Ridge Ventilators,
- c. Forced Mechanical Smoke Extraction Systems,
- d. Testing and Commissioning, as per SANS 10400 Part O & T,
- e. Manuals, Drawings, OEM Literature,

2.2 **Existing**

All installations new. Building is Existing.

2.3 **Order of The Works**

As per the building contractors' program of works.

SITE 03

VOLUME 2.2 PART 2: VENTILATION - STANDARD SPECIFICATION

1.0 GENERAL

The scope of Work is as stated in 1.0

The system shall offer the best possible compromise between the initial expenditure and the long term interest and redemption charges and running/operating costs.

The design and installation shall comply with the codes of practice and standards promulgated by recognized authorities in the fields of air-conditioning, refrigeration, ventilation, piping, electrical technology and all other branches of engineering science applicable, such as the S.A.N.S., B.S.S., A.S.H.R.A.E., SMACNA and A.S.M.E.

All workmanship and materials used in the execution of the works shall conform to modern practice and the entire installation shall comply fully with all relevant requirements of governmental and the Local Authority whose jurisdiction embraces the location of the site.

2.0 BIDS

2.1 Conditions of bid

The attention of bidders is drawn to the conditions of bid as indicated on the official bid form.

2.2 Modifications

Bidders are at liberty to submit modifications based on their standard practice and such modifications, with reasons therefore, shall be clearly stated in the bid. The price for this shall not be included in the net bid price but shall be stated separately as an extra or an omission.

2.3 Checking of bid documents

On receipt of the bid documents, the bidder must, prior to submitting his bid, check all the bid documents and should any difference or discrepancy between or in the Drawings and Specification be detected by the bidder, he shall seek in writing a decision also in writing of the Representative/Agent on the true intent and meaning of the bid documents as the East London Industrial Development Zone cannot be held liable for the additional cost of extra work that may be caused as a result thereof.

2.4 Scope of bid price

The bid price and all prices and/or rates which are inserted into the price schedules in the Specification and transferred to the bid form, must be for the execution and completion of the Works in accordance with the Drawings, Specifications and Conditions of Contract, as well as for the provision of all labour, materials, workmanship, machinery, plant and everything that is or may become necessary.

If there are or may be any exemptions from levies, customs duties, tax, etc applicable on materials, goods or work, the bidder must make his own arrangements therefore, as the bid price shall be regarded as comprehensive.

2.5 Value Added Tax

The bid price shall include Value Added Tax payable in terms of the Value Added Tax act, 1991 (Act 89 of 1991).

2.6 Information required with bids

Bidders shall supply with their bids a full specification where necessary, including dimensioned drawings or sketches of the plant, and a complete wiring diagram of any automatic controls.

Particulars shall be given as set out in the schedule concerned which shall be filled in by the bidder. Failure to comply with these requirements may render the bid liable to disqualification.

2.7 Proof that materials are available

A bidder may be required, before acceptance of his bid, to furnish proof to the satisfaction of the Representative/Agent that he is in a position to secure all the materials required to complete the Contract within the contract period stated in the contract documents.

2.8 Bid documents and ownership thereof

The bid documents consisting of the official bid form, the specifications and the drawings (if any) scheduled in the Specification, and which have been made available to bidders, are the property of the East London Industrial Development Zone and shall be returned to the East London Industrial Development Zone, whether or not a bid is submitted.

3.0 THE SITE

3.1 Definition of Site

<u>Location:</u>	Dimbaza, Eastern Cape	
<u>External:</u>	Summer Max. Average	: 26°C
	Winter Min. Average	: 6°C

3.2 Inspection of Site

Bidders shall visit the Site before bidding and satisfy themselves as to the local conditions, the accessibility of the Site, the full extent and nature of the work to be done and the conditions affecting the execution of the Contract generally. Claims on the grounds of lack of knowledge in such respects or otherwise will not be entertained.

3.3 The Site

The Site to be occupied by the Contractor will be clearly defined on the site plan, or will be pointed out to him by the Representative/Agent. The Contractor will on no account be allowed to extend his operations beyond the boundaries of the Site.

3.4 Procedure of work (Site in occupation)

If the site will be in occupation during the course of the Contract, the Works shall be carried out at such times and in such manner as will cause the least inconvenience to the occupants, and still allow the work to be proceeded with expeditiously. The instruction of the Representative/Agent shall be complied with in regard to the carrying out of any portion of the works which in his opinion requires to be expedited and priority shall be given to such work as and when directed.

(Site not in occupation)

If the Site will not be in occupation during the course of the Contract, the Works shall be proceeded with expeditiously. Priority shall be given to any portion of the Works as indicated in the Specification.

3.5 Existing services

If the Contractor encounters any existing services such as cables, pipes or sewers during the execution of the works, he must immediately notify the Representative/Agent, halting all work in the vicinity thereof, until instructions to proceed have been given by the Representative/Agent. Electric wires, telephone wires, pipes, etc., shall not be interfered with during the course of the Contract, but should it be necessary to disconnect or cut any such wires or pipes the Representative/Agent shall be advised thereof and his instructions awaited.

3.6 Protection of trees, shrubs and plants

The Contractor will be held responsible for any damage to trees, shrubs and plants on the Site and shall make good such damage at his own expense.

Trees, shrubs and plants may only be removed as indicated on the Drawings. The remaining trees, shrubs and plants may not be removed, cut back or disturbed in any way without the written consent of the Representative/Agent.

3.7 Water for the Works

The contractor shall provide all water he may require for the execution of the Works at his own expense.

3.8 Electricity for the Works

The Contractor shall provide all electricity for the execution of the Works at his own expense.

3.9 Recoverable materials property of Contractor

Items specified to be removed, taken out, demolished or dismantled and which are not specified for re-use, or for handing over to the Representative/Agent or others, become the property of the Contractor and must be removed from the Site immediately.

4.0 ADMISSION TO SITE

4.1 Permission for admission to and establishment on Site

Before the Site is visited by bidders or before the successful bidder (Contractor) establishes himself on the Site, the Representative/Agent's prior approval must be obtained. The Representative/Agent will, in the case of a Site located in defence or other security areas, make arrangements with the unit commander, or in the case of other Government sites, with the officer-in-charge, for permits for inspection of the Site for bidding purposes.

5.0 PAINTING

Painting shall only be necessary to those items which would normally be visible or visible when serviced, all mild steel or other components which would otherwise suffer corrosion if unpainted, however, shall be painted with two coats of rust-proof paint whether such components are normally visible or not.

Items which are factory-painted need not be repainted other than any making good which may be necessary. All plants requiring painting shall be correctly prepared and painted. No untreated metal surfaces shall be permitted on the project.

Items which are not galvanized or similarly protected against rust and corrosion shall be painted, as later detailed herein. No equipment, hanger brackets, etc., shall be permitted to be delivered on site in unprotected form; they shall be factory-coated with an approved zinc-rich prime coat before dispatch from their place of manufacture.

Painting shall comprise the following consecutive processes. First thoroughly clean, descale and degrease all surfaces, in accordance with acknowledged good practice, follow with a good coating of approved zinc-rich primer and finish with two coats of quality high-gloss enamel of an acceptable make. Final finish shall be to the full approval of the Engineer.

With the exception of ducting and piping, items with a galvanized finish, such as cable trays, need not be painted but shall be properly cleaned with a suitable proprietary galvanized iron cleaning fluid.

Particular care shall be taken that appropriate primers be used as a basis for painting and that paint be of high quality manufacture, all to provide a completely satisfactory finish to the approval of the Engineer. It shall be noted that galvanized surfaces are to be treated to ensure proper bonding of paint.

Whereas it would not be necessary to paint any ductwork conduits or pipe work installed in roof voids, shafts masonry ducts, etc., or where not normally visible, it is a requirement that such equipment be properly cleaned, treated with two coats of rust proofing paint if not galvanized or not metal subject otherwise to rust.

All equipment on the project shall be colour-coded in accordance with standards recognized in the Republic of South Africa and, where possible, to comply with relevant South African National Standard Colour Codes. (SANS. 01091-1975).

6.0 PIPEWORK

Refrigeration pipe work shall be carried out in seamless refrigeration quality copper tubing, suitable provision being made that the piping is not subjected to any stresses by vibration from the compressors.

7.0 EQUIPMENT SUPPORTS

Where equipment supports, stands, platforms and suspension brackets are indicated, specified or necessary for ductwork, pipe work, etc., the Sub-contractor shall provide supporting structures capable of carrying the load without distortion, affixed to the building structure in such a manner as not to subject it to undue stress.

Supporting of any rotating equipment shall incorporate vibration mountings of the type and selection specified in the applicable clauses referring to equipment bases herein.

All methods of suspension or supports shall be submitted to the Engineer for approval and for reference to the Structural Engineer where necessary prior to manufacture or installation.

Generally, supports shall preferably be proprietary products such as Unistrut or failing this, shall be of mild steel sections, purpose fabricated for their application. Under no circumstances whatever will sheet metal straps or plastic tie-wraps be accepted as a supporting method.

All supports shall cradle the item to be supported; shall not be riveted or welded to the equipment to be carried except in exceptional circumstances approved by the Engineer. Rod hangers shall not exceed one meter in length and be of minimum diameter 12 mm. For longer suspensions use mild steel angles. Angel iron supports shall be of 25 mm x 3 mm minimum. All supporting structures for equipment shall be dip galvanized.

Fastening methods shall employ REDHEAD or RAMSET anchor bolts or their equivalent for fixing supports to the building structure, it not being permissible to utilize gunpowder shot-driven bolts for this purpose unless prior approval be obtained.

Pipe work supporting holder bats shall be the product of a recognized manufacturer of such equipment, shop-fabricated saddles or similar devices being unacceptable unless limited space available necessitates their use. On insulated pipe work, hardwood inserts consisting of two-round machine cut pieces of timber shall be clamped around the pipe, insulation being cut away at such points, to allow proper support fitting. Wooden inserts shall be of the same thickness as adjoining insulation and 50 mm longer than the width of the holder bat support, to permit correct finishing of the insulation of vapour sealing to them.

Cable and flexible pipes shall be supported on Unistrut or equivalent perforated galvanized cable trays, manufactured by specialists, shop-fabricated trays or racks not being acceptable. The cable tray shall be suspended or bracketed using suitable mild steel angles.

8.0 DRAINS

The sub-contractor to provide all necessary drain piping laid to suitable falls from every item requiring such drainage. Such drains shall be run to the adjacent relevant drain points shown on the Drawings.

Drainage pipe work shall be adequately sized and carried out generally in medium grade galvanized piping and secured to wall (where applicable), all connections to equipment being effected with conical faced unions or flanged.

Drainage pipe work of longer than 4,5m run shall be provided with cleaning eyes on all bends to facilitate maintenance.

All condensate drainage is to terminate to the nearest drain.

9.0 ASSEMBLY OF COMPONENTS

9.1 It is essential that all mating components such as couplings, taper lock bushes, machined faces, etc., be thoroughly cleaned with a suitable solvent before assembly. All surfaces must be free from burrs or irregularities, which may prevent the correct mating of the surfaces.

9.2 A molybdenum-disulphide lubricant similar or equivalent to Mobil-grease Super shall be used on the threads of all bolts and between the mating surfaces of all parts closely fitted together, such as shafts and couplings, keys and base plates. PTFE tape shall be used in all screwed pipe connections.

10.0 WELDING

10.1 Welding shall be carried out in accordance with the current edition of SANS 044 Parts I to VII where applicable.

- 10.2 All welded filler or butt joints shall be free from porosity, cavities and entrapped slag. Joints shall be ground smooth, if required for aesthetic reasons only, without effecting weld strength.
- 10.3 The joints in the weld run, where welding has been recommended, shall be as smooth as possible and shall show no pronounced hump or crater in the weld surface.
- 10.4 The profile of the weld shall be uniform, of approximately equal leg length and free from overlap at the toe of the weld. Unless otherwise specified the surface shall be either flat or slightly convex in the case of fillet welds and with reinforcement of not more than 3mm in the case of butt welds. The weld face shall be uniform in appearance throughout its length.
- 10.5 Filler metal electrodes shall be of an approved type for the material being used and shall be kept in a dry condition. All electrodes shall conform to SANS 0455.
- 10.6 Only welders in possession of a valid approved competence certificate shall be employed.
- 10.7 All welds must show proper fusion.
- 10.8 Where welding is contemplated in pipe work systems, Tenderers shall allow for the removal and testing by an approved body of 5% of the welded joints in the system. These will be removed at random as indicated by the Engineer and tested. Should faulty welding be discovered, all other joints shall be X-ray tested by the SANS or an approved body, all at the expense of the Contractor.

11.0 GALVANISING

- 11.1 Unless otherwise specified in the Detailed Specification the following items shall always be galvanised:
- a) Fabricated mild steel sections exposed to the weather.
 - b) Steel grilles and louvers exposed to the weather.
- 11.2 Where hot dip galvanising is called for, items to be galvanised shall be entirely pre-fabricated and then dismantled in sections for galvanising. No cutting of threads or welding will be accepted after galvanising.
- 11.3 All hot dip galvanising shall be carried out in accordance with SANS 0934 and SANS 0763 where applicable, including preparation for galvanising.
- 11.4 Mild steel plate and sections shall be of good commercial quality, or higher grades, best suited for galvanising. The materials shall be free from slag or coarse laminations, fine fissures and rolled-in impurities.
- 11.5 Castings shall be sound, dense and clean, and free from distortion, porosity, carbon and slag enclosures, blowholes, and other injurious conditions.
- 11.6 Welding flux shall be chipped away and all welds wire brushed before galvanising.
- 11.7 The surface to be galvanised shall be free from paint, oil, grease and similar impurities.
- 11.8 All exposed surfaces including welds shall be thoroughly sand blasted prior to galvanising.
- 11.9 The Engineer reserves the right to inspect all steel components before galvanising, and shall have the right to reject or ask for remedial treatment of any material which is considered to be unsuitable. This applies particularly to welds.
- 11.10 The galvanising coating shall be smooth, adherent, continuous and free from black spots or flux stains.
- 11.11 Globular extra-heavy deposits of zinc, which interfere with the intended use of the material, will not be acceptable. Excessively protuberant lumps and nodules shall be removed by hot wiping or by the skilful application of mechanical means, however there shall remain a sufficient minimum thickness of unbroken zinc coating. Flaws on small parts and working surfaces shall be repaired only by stripping and re-dipping.
- 11.12 Repairs to galvanised coatings will not be accepted. Items damaged will need to be re-galvanised.

- 11.13 Coating thickness shall be as per table 1 of SANS 0763 unless otherwise specified in the Detailed Specification.
- 11.14 The SANS requirement for uniformity shall apply.
- 11.15 Galvanised surfaces specified with paint finishing shall not be passivated.

12.0 BEARINGS

12.1 Anti-friction

Anti-friction bearings shall include all bearings, which provide rolling contact between one or more sets of hardened steel balls or rollers and hardened steel rings or raceways.

Anti-friction bearings shall be of approved manufacture and available throughout South Africa.

To facilitate maintenance, spares interchangeability and standardisation, anti-friction bearings of standard design and manufacture shall be employed. All anti-friction bearings shall be provided with greasing facilities in accordance with manufacturer's requirements.

12.2 Bushed Bearings

Only where specifically stated in the Detailed Specification and in the case of low velocities and light loads in moisture free conditions will bushed bearings be accepted. All bushed bearings shall be made of an approved bearing metal composition, which has good anti-friction qualities and is capable of withstanding severe usage in the specific application.

All bushed bearings shall be provided with lubrication facilities to ensure adequate lubrication and shall be properly grooved to distribute the lubricant uniformly over the bearing surfaces. Grooves shall not be cut into the journal, but always into the surrounding bush. The edges of all chambers and grooves shall be rounded to avoid sharp corners and to facilitate the introduction of the oil or grease between the journal and the bearing metal.

12.3 Self-lubricating or oil less bearings

Self-lubricating or oil less bearings shall only be used on application of light and low velocities in moisture free and low humidity conditions and where access to bearings is difficult and likely to be neglected during servicing.

The type of bearing metal composition used shall have frictional and wear resistant properties akin to those of grease lubricated bushed bearings.

13.0 NOISE AND VIBRATION CONTROL

13.1 General

Unless otherwise specified in the Detailed Specification the design, Manufacture and installation of all the mechanical and electrical equipment shall be such as to ensure compliance with the relevant sections of SANS 0103 of 1983 "The Measurement and Rating of Environmental Noise with Respect to Annoyance and Speech Communications", as amended.

Any installation where the measured residual sound level exceeds the maximum desired residual sound level as per SANS 0103 shall be rectified to comply with SANS 0103 at the Contractor's own expense.

In all plant room applications where airborne noise cannot be limited or comply with the set standards, provision shall be made for acoustical treatment of the equipment involved or, alternatively, total enclosure thereof with acoustical panelling to comply with requirements laid down in this specification.

Such provisions shall be included in the tender price and no claims for payment to comply with this requirement will be entertained.

13.2 Vibration Isolation

Proper provisions shall be made in the foundations and mountings of all equipment capable of transmitting vibration forces to its environment, whether local or remote, (As is the case with pipes) for vibration isolation.

14.0 DAMPING

- 14.1 Where static deflections in excess of 8mm are indicated, steel springs shall be employed incorporating acoustic sound pads in series with the spring.

The horizontal stiffness of the springs shall not exceed that in the vertical, in particular for systems mounted at vertical frequencies below 5Hz.

Low frequency mounts shall incorporate rubber snubbers to accommodate extreme horizontal or vertical motions such as can occur near resonance during start up.

The snubbers shall however not be relied upon to provide the necessary horizontal stability of the machine in normal operational conditions.

Spring layouts and inertia blocks shall be employed to avoid this situation.

For static deflections below 8mm, rubber in shear mounts may be used provided the frequency is above 6Hz.

For small static deflections less than 4mm and particularly for high-speed machines and general acoustic isolation, ribbed rubber neoprene composite pads may be employed subject to the specified requirements.

No equipment shall be installed in critical areas without correct and approved vibration isolation. Sufficient stability and damping shall be incorporated in the mountings to minimise the movement of the machine during start up or changes in the operating conditions.

The selection of mounts shall take proper cognisance of unequal distribution of the mounting weight of equipment and rotational and/or pressure forces acting thereon.

15 PUMPS

Where condensate pumps are required, the pumps shall be totally enclosed in the corner of the surface mounted trunking, and shall be specified to pump the maximum condensate generated by the unit.

16.0 FANS

- 16.1 Centrifugal Fans

No centrifugal fan shall be selected in a class range other than Class 1 or 2 and the rotating speed of the fan at duty point shall not exceed 1 440 r/min.

Centrifugal fans in critical areas and fans above 7,5kW shall in all cases be mounted together with the drive motor on anti-vibration mountings together with the correct inertia mass.

- 16.2 Propeller Fans

Propeller fans shall comply with the criteria already laid down and shall be carefully selected for the highest possible efficiency with due regard for the noise criteria.

Propeller fans in excess of 0,5kW and of rotational speed higher than 800 r/min shall, in addition to the requirements already laid down, be mounted on correctly selected and installed anti-vibration mountings to reduce possible vibration transmission to surrounding structures.

- 16.3 Axial Flow Fans

Axial flow fans shall be selected for the highest possible efficiency and comply with the noise criteria specified. In critical areas no fan shall be installed without attenuators on inlet and outlet sides.

In addition it will be required that the fan as a whole be mounted on anti-vibration mountings and where specified in the Detailed specification, it may be required for the fan to be enclosed in acoustic

panelling.

No axial flow fan may be installed without anti-vibration mountings to match the fan characteristics and in critical areas it may be required for the axial fan to be provided with inertia mass to match.

Fan rotational speeds specified in the Detailed Specification shall not be exceeded.

17.0 PIPING

17.1 General

Under no circumstances may any piping be directly connected to noise generating equipment such as pumps, chillers, cooling towers etc.

Connections to such equipment shall be made with correctly selected flexible rubber type connectors of the spherical type.

In critical areas double spherical rubber type isolators immediately adjacent to the noise generating machine will be required.

17.2 Pipe Penetrations Through Walls

Under no circumstances will pipe penetrations through walls be permitted where the pipe comes in direct contact with the surrounding wall or structure.

At such penetrations it is required that a sleeve of 25mm thick soft neoprene, or other approved material, be provided around the piping at the penetration and, where plastering is applied, plastering shall be cut back to the outer edge of this sleeve.

Rubber links similar to the LINK-SEAL bolted type are preferred.

17.3 Pipe Supports

In all critical applications and within the first ten meters of all equipment, it is required that pipe supports shall be of the flexible type, correctly selected for the application and with the correct static deflection.

Any other areas and applications at risk of noise or vibration transmission to the surrounding structure similarly require pipe mountings isolated from the structure.
Pipe supports fixed to sensitive building elements will not be permitted.

17.4 Refrigerant Piping

Refrigerant piping in critical applications shall similarly be supported on anti-vibration mountings and in addition, delivery and suction piping at compressors and air handling units shall be provided with at least two braided flexible connections installed at 90° to each other and in close proximity of each other.

18.0 SOUND ATTENUATORS

18.1 Where required, in order to comply with the noise and vibration criteria already laid down, or where specified in the Detailed specification, sound attenuators shall be provided for ventilation, air conditioning and all other plant (Duct mounted and/or as applicable).

Primary sound attenuators shall be installed near or in the plant room.

The attenuators selected shall match the specific fan or plant characteristics to ensure the correct insertion loss to meet the sound criteria laid down.

Unless otherwise specified, sound attenuators shall be installed with flexible connections at the inlet and outlet connections.

The sound attenuators shall in addition be selected to produce the minimum pressure loss across the attenuator coupled to the least re-generated noise level produced by the flow through the attenuator.

18.2 Unless otherwise specified, air path sound attenuators shall be manufactured from galvanised sheet

steel with the sound absorption material moisture repellent and erosion resistant up to 20 m/s air speed, and preferably flange connected.

Wherever possible attenuators shall be proprietary type supplied by the same manufacturer as the plant manufacturer to ensure complete compatibility.

Where not clearly indicated on the drawings, attenuators shall in all cases be provided at points where supply and return air ducting leaves the plant room and shall be installed to prevent noise breakout from the plant room via the ductwork.

Where specified in the Detailed Specification and indicated on the drawings, additional cross talk attenuators shall be installed in the air conditioning or ventilation ductwork.

The internal free area of sound absorbers shall be not less than the cross sectional area of the connecting duct as indicated on the drawings.

18.3 Field fabricated type sound absorbers shall be made as follows:-

All sides of rectangular ducting shall be double walled with the inner walls perforated with 10mm holes at 25mm centres. The space between the two sidewalls shall be divided into 3 unequal sections by means of 25mm thick cement fibre panel strips and filled with glass wool. The lining thickness shall be at least 80mm. Circular ducts shall be lined as specified above except that the lining thickness shall not be less than 100mm.

19.0 AIR FILTERS

19.1 General

Filters of the type, size and quantity as specified in the Detailed Specification shall be provided.

Filter efficiency and arrestance shall be in accordance with ASHRAE Test Standard 52-76.

Filters and filter holding frames shall be of approved manufacture with standardised dimensions to enable replacement with equivalent filters of all recognised manufacturers.

Construction and manufacture of all components shall be such that under no circumstances any unfiltered air can by-pass filters or filter banks.

Sufficient space shall be allowed in front or behind filters, as applicable, to enable inspection and servicing.

Proper access doors shall be fitted to filter service areas.

Filters installed close to exposed air inlets shall be weather protected with weather louvers and a wire mesh screen.

Tubes for the measuring of the pressure drop across each filter bank shall be fitted as standard to enable connecting a manometer or other instrument as specified.

All filters and filter banks, including two-stage high efficiency and final filters shall be fitted with inclined pressure differential manometer gauges, clearly marked with filters clean (green) and filters dirty (red) indicators of a permanent type.

A separate manometer shall be fitted for each filter stage.

Fan and system selection shall allow for expected final filter resistance to ensure a supply air quantity in excess of 90% of design air quantity immediately prior to filter replacement.

Unless otherwise specified in the Detailed Specification only dry media filters are required. Where specified, pressure monitoring across a filter bank or banks shall be fitted for alarm purposes using differential pressure switches to activate the warning alarm or indicator required.

Where air filters of the washable type are specified in the Detailed Specification a suitable filter wash tank and stand complete with a drying rack shall be provided in each plant room.

The wash tank and stand shall be manufactured from galvanised steel and epoxy powder coated. The wash tank shall be connected to mains water and a suitable overflow and drain piped to the building drain fitted. The drying rack shall hold at least 20 filters. Where washable filters are specified one

complete set of spare filters shall be provided.

19.2 Panel Filters

Panel filters shall be of the pleated type and not less than 50mm thick.
The filter shall be washable or disposable as specified.

Synthetic media shall be used bounded together with galvanised wire for reinforcing and bonded in the frame ensuring no air bypass.

The frame shall be galvanised steel or a distortion and corrosion free moulding.
Initial synthetic dust arrestance shall be not less than 70% with dust holding capacity needed in excess of 300g per square meter nominal face area.
Initial dust spot efficiency shall be not less than 20%.

Nominal filter face velocity shall not exceed 1,5m/s with initial clean filter resistance 60Pa or less and recommended resistance at specified arrestance not more than 250Pa.

19.3 Pad Type Panel Filters

Pad type panel filters shall make use of disposable replacement media of thickness as specified, but generally not less than 25mm thick.
Disposable media supplied and the filter in general shall comply with 24.1 above, unless otherwise specified.

The media shall be held in galvanised steel frames with galvanised steel screen supports on both sides. The downstream screen shall be fixed in the frame with the upstream screen removable.

19.4 Extended Surface Intermediate Efficiency Filters

Filter media shall be self-supporting, leak-free and stable under all airflow conditions.
Front frames shall be of aluminium, galvanised steel or reinforced high-density hard polyurethane foam with a continuous foam rubber gasket.
"Slide-in" type of arrangements will not be accepted for filters in this class.
Filter depths less than 150mm will not be accepted.

Galvanised protection screens shall be fitted to match the airflow arrangement.
Initial synthetic dust arrestance shall be not less than 85% with dust holding capacity not less than 1500g per square meter nominal face area.

Nominal filter face velocity shall not exceed 2,5m/s with initial clean filter resistance 60Pa or less and recommended resistance at specified arrestance not more than 250Pa.

19.5 High Efficiency Particulate Air Filters (HEPA)

Filter media shall be self-supporting leak-free and stable under all airflow conditions.

The media shall be bonded in to a pressed and sealed particle board housing.
Unless otherwise specified in the Detailed Specification filters shall be provided with silicone filled channel seals.

"Slide-in" type of arrangements will not be accepted for filters in this class.
Filters shall be arranged in two or three stage configuration with the primary filters complying with clauses above as specified in the Detailed Specification.

Filter depths less than 300mm will not be accepted and effective filter media surface area shall exceed 50m per square meter nominal face area.

Each filter shall be individually tested in the factory for leakage with a DOP aerosol and supplied to site in completely sealed protection containers.

Corrugated media separators shall be of aluminium or Kraft paper.
Filter efficiency shall be not less than 99,9% when tested with 0,3 micrometer Dioctylphthalate smoke.

Dust holding capacity shall not be less than 2 000g per square meter nominal face area.

Nominal filter face velocity shall not exceed 1,5m/s with initial clean filter resistance to be 250Pa or less and final resistance not to exceed 500Pa.

Pressure monitoring across the HEPA filters is required with warning light and/or alarm as specified.

19.6 Filter Holding Frames

Filter holding frames shall be the manufacturer's standard product installed and used in accordance with his recommendations.

Holding frames shall be manufactured from at least 16 gauge galvanised or epoxy powder coated steel. Holding frames may be bolted or riveted together and shall be suitably reinforced in larger arrangements to withstand all possible operating conditions.

Fasteners shall be positive sealing type and a minimum of four fasteners per filter is required. Fasteners shall match the particular filter, filter arrangement and frame.

20.0 **MEASUREMENT OF COMPLETED WORK**

The attached Bills of Quantities is provisional, which means that the Bill does not represent the exact scope of work to be performed and completed and that every piece of completed work will be measured and agreed with the Contractor before payment is processed.

21.0 **UNAUTHORISED EXPENDITURE**

Although the Engineer has conducted the audit of the buildings installations other items may have degraded in the intervening period up to site handover. It is therefore very imperative for the Contractor to bring to the Engineer's attention as soon as he / she realises that the work measured in the Bill of Quantities may be appreciably exceeded. Failure to observe this procedure where the Contractor proceeds with excessive additional work without authorisation will be tantamount to unauthorised expenditure which may lead to non-payment for unauthorised work.

22.0 **SPECIFICATIONS & STANDARDS**

The works carried out under this Contract shall be governed by the:

- (i) The latest issue of SANS 10142: "Code of Practice for the Wiring of Premises"
- (ii) The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended

23.0 **SCHEDULE OF MATERIALS**

In all instances where schedule of materials are attached or included on the drawings, these schedules are to be regarded as forming part of the specification.

24.0 **QUALITY OF MATERIALS**

Materials are to comply with the relevant South African National Standards (SANS), or to IEC specifications, where no SANS specifications exist. All materials used shall bear the SANS mark of approval as applicable.

25.0 **PROGRAMME AND PLANNING**

The sequence, in which the work must be carried out, must be established in consultation with the Main Contractors construction programme, Sub-contractors and their respective Domestic contractors. The Engineer must be kept informed on the progress all the time.

26.0 **SUPERVISION**

The work shall, at all times be carried out under the supervision of a skilled and competent representative of the Contractor, who will be able and be authorised to receive and carry out instructions on behalf of the Contractor.

27.0 **WORKMANSHIP**

All inferior work shall, on indication by the Engineer, immediately be removed and rectified by and at the expense of the Contractor.

28.0 SUPPLY OF MATERIAL

The Employer reserves the right to supply any items of material or equipment to the Contractor for installation. The Contractor must arrange for taking delivery of and providing safe storage for these materials and he will be held responsible for all damages to or loss of such materials while they are in his custody.

29.0 COMPLETION

Completion shall take place only after the whole installation has been accepted by the Engineer and

- (a) All damage that may have been done by the Contractor in the process of the installation has been repaired and made good
- (b) All tests of the Mechanical installation has been done and tests results have been submitted to the Engineer,
- (c) The completed Certificate of Compliance as specified has been submitted to the Engineer,
- (d) All equipment guarantees, if any have been submitted to the Engineer,
- (e) The work site has been cleared of all debris and waste materials and left in a neat and tidy condition.

SITE 03

VOLUME 2.2 PART 3: VENTILATION - DETAILED SPECIFICATIONS

1.0 INTRODUCTION & GENERAL

This Detail Specification complements & qualifies the foregoing standard specifications of material & workmanship. The Standard Specification should be regarded as a basis and guideline, with this Detailed Specification taking preference where any ambiguity is concerned.

In the event of any further technical ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority:

- a) Schedule of quantities
- b) Project specification
- c) Drawings (loose and bound-in)
- d) Standard specification

2.0 SITE CONDITIONS

Location: Dimbaza, Eastern Cape

3.0 SCOPE OF WORK

General

The standard specification shall apply unless otherwise indicated in this section.

The drawings issued herewith and listed in the relevant section are to be read in conjunction with the specification and all items mentioned, together with all ancillary equipment necessary for the correct installation, operation and full compliance with the Standards and codes must be provided, notwithstanding the fact that they may not have been included in detail in these documents.

The bidder shall, at the time of bidding, draw the Engineer's attention to any omissions or discrepancy between the specification and the drawings and request from him clarification of details or responsibilities.

If a limited allowance or special conditions are made for the Bid Sum for the supply or erection of any item of the installation, the limit or special conditions shall be defined at the time of bidding.

It is the sole responsibility of the bidder to ensure that all quotations obtained from manufactures and suppliers are complete in their entirety and must include all equipment and accessories necessary for compliance with current practice and the efficient and proper functioning of the installation.

If any such items of equipment, brackets and accessories, etc., have been omitted from a supplier's quotation, or incidental work is necessary, the bidder must include for all such items and work in the bid.

The whole installation shall be in accordance with the latest edition of the Occupational Health and Safety Act: No. 85 of 1993. All regulations framed therein, shall be carried out to the satisfaction of the Engineer.

All equipment offered by the bidder shall be to the approval of the duly appointed Engineer, prior to installation. This standard specification and the supplementary specification with drawings shall be carefully adhered to by the bidder. Equipment installed without the approval of the Engineer will have to be removed at the Contractor's expense and be replaced with officially approved listed items.

The successful bidder will be required to prove to the Engineer that he has qualified personnel on

his staff establishment as well as recognised test equipment for the successful completion of a safe working installation.

The contractor shall employ only skilled artisans and technicians approved by the Engineer who are competent in this type of work. The work shall be carried out in accordance with the standards laid down by the Engineer.

The contracting firm shall be recognised contractor specialising in this field and approved by the Engineer.

The work performed shall comprise the supply, delivery, off-loading, interim storage, installation, testing, commissioning and leaving in good working order of the complete electric access goods only lift installation inclusive of all guarantees as specified herein and the supply of 'AS IS' installation record drawings, Maintenance and Operating Manuals for:

Heating Ventilation and Air Conditioning Systems Overview:

- Fresh air and extraction ventilation systems,
- Natural Ventilation Ridge Ventilators,
- Forced Mechanical Smoke Extraction Systems,
- Testing and Commissioning, as per SANS 10400 Part O & T,

The liaison with a Building/Principal Contractor, Electrical Subcontractor, and their Domestic Subcontractors if and when required

Testing and commissioning of all air-conditioning and ventilation system equipment in conjunction with the Fire Detection and Alarm Evacuation Systems Sub-contractor.

This Sub Contract also includes all electrical work for the installations but excludes the power supply to the isolator provided by others.

Notwithstanding any omission in this specification the installations shall be complete in all respects. This condition shall be recognised in the preparation of all working drawings submitted for approval. Further, despite any approval of working drawings given by and on behalf of the Main Contractor the responsibility for correct functioning of the plant during tests, inspection and the maintenance period shall rest entirely with the successful bidder.

The installation shall be strictly in accordance with the approved drawings or such further drawings, modifications, or instructions as may be given by the Engineer concerned, or that are found to be necessary, and such modifications or instructions shall be deemed to be within the specification for the purpose of the bid, and shall not vitiate the contract.

Payment for such modifications will only be made on certification by the Engineer to the effect that such modifications have involved additional expense to the Sub-Contractor.

4.0 PROGRAM

The Sub Contractor shall complete the installation within the time stipulated. The Sub Contractor will be required to report to the Principal Contractor, generally on a weekly basis (or more often if required by the Principal Contractor), progress of work and any difficulties arising, to enable the Principal Contractor to update the programme or forward plan any changes.

The sequence in which the work is to be carried out shall be decided upon in consultation with the Principal Contractor. The Sub Contractor shall thereafter submit an adequately detailed Sub Contractor's installation programme for approval within two (2) weeks of the Sub Contract being awarded unless otherwise indicated herein after.

This programme must be periodically updated as the work progresses and as may be necessary to meet changing site conditions and alterations to the overall installation programme.

Programmes shall take the form of bar charts, network diagrams and schedules as may be required by the Main Contractor or as applicable, and shall reflect quantities of work as required for supervision purposes and measurements.

As a minimum the programme shall reflect:

- sequence and timing of installation activities.
- sequence and latest event times of major equipment ordering, manufacture and delivery dates.
- sequence and dates for the submission of drawings and samples for approval.
- sequence and dates for factory and site inspections and tests.
- target and achieved work quantities on a weekly, fortnightly and monthly basis.

In preference all work is to be undertaken by staff in the full time employ of the bidder.

All work which is to be undertaken by "Domestic Sub Contractors" of the Sub Contractor will be clearly identified in the bid submission and the Sub Contractors to be used subject to prior approval of the Client and/or Engineer and/or Principal Contractor; failure to comply with this requirement may result in the "Domestic Sub Contractors" being removed from site.

All costs in replacing the undesirable "Domestic Sub Contractor" or any delays incurred as a consequence of this will be entirely for the Sub Contractor's account.

5.0 DESIGN CONDITIONS

Indoor: 24°C 50% RH

Outdoor: 31°C DB; 22.8 °C DB

6.0 VENTILATION SYSTEM DESCRIPTION

6.1 General

The bidder shall allow for programming the work in such a manner as to not disrupt the Main Contractor's programme. Sequence of work to suit the Sub Contractor's requirements will not be guaranteed nor accepted.

Claims from Sub Contractors arising out of broken work sequences or agreed programmes changed due to contingent requirements, will not be considered unless full motivations for the extra costs are submitted; the motivation for extra costs must justify costs in terms of the accepted programme and any unforeseen and justifiable additional staffing levels required to meet targets revised with insufficient notice. Reallocation of staff and/or acceleration of work will not be reason enough to claim for extra costs unless the Sub Contractor can prove that he has indeed had to pay for staff's idle time which was not or could not be envisaged at the time of bidding and/or drawing up the installation programme and sequence. When claiming for extra cost all out of town cost will be disallowed as it is assumed that the Sub Contractor has fully staffed premises in the vicinity of the site.

The Subcontractor must also assume that work may be required to continue uninterrupted outside of normal working hours and/or for an extended and/or unbroken period of time.

6.2 EQUIPMENT SPECIFICATION

6.2.1 All standard off the shelf ventilation equipment will be natural anodised aluminium unless otherwise specified.

6.2.2 DESIGN CONSTRAINTS

Refer to the drawings provided with this specification for:

Heating, Air Conditioning & Ventilation:

- 2318-T-M-101 VENT S03
- 2318-T-M-102 VENT S03

7.0 ELECTRICAL

Overloads shall be adjustable to approximately 25% higher than the relevant motor overload current.

Wiring in panels shall be neatly run in vertical or horizontal lines and each terminal shall be numbered to accord with the relevant wiring and control diagram. Circuit breakers, timers, relays, etc. shall be labelled in accordance with the wiring diagram and the item of plant served.

8.0 OPERATING AND MAINTENANCE MANUALS

8.1 Operating Manuals

Three complete sets of operating manuals shall be supplied by the Contractor, two sets to the Engineer for onward forwarding to the Employer and one for the User Department's use.

Manuals must be compiled in layman's language.

At least one month before commissioning, one draft copy shall be submitted to the Department/Engineer for comments and approval.

Operating manuals shall give a clear description of and the purpose of the installation.

- (a) Paper copies of all approved drawings and diagrams.
- (b) Detailed description of the different components used in the installation.
- (c) On- and off switching procedures.
- (d) Guidelines for routine-test to be carried out by the User Department inclusive of the periods during which tests are to be undertaken.
- (e) Detailed instructions for procedures to be followed during a fault

The following drawings are required:

- Layout drawings
- Wiring drawings showing wire colour codes and numbers as well as all connections onto terminal strips (markers to be approved by the Engineer) of all plant new and existing.

The following documents are required:

- Full description of the system.
- Operating instructions.

- Installation instructions.
- Commissioning instructions.
- Maintenance instructions, maintenance schedule and trouble shooting guide.

8.2 Maintenance Manuals

Two complete sets of maintenance manuals (Technical) prepared in English, shall be supplied by the Contractor.

At least one month before commissioning a draft copy shall be submitted to the Department/Engineer for comments and approval.

Maintenance manuals shall consist of the following:

- (a) A general description of the system.
- (b) A general description of the controls.
- (c) Schedule of equipment, model numbers, optional extras, modifications, electrical power requirements, etc.
- (d) Detailed monthly, quarterly, semi annually and annual preventative maintenance procedures.
- (e) Manufacturer's catalogues clearly indicating type, size and model of equipment supplied.
- (f) Tabulated commissioning data of all equipment and the system, indicating- as measured and according to specification - requirements.
- (g) List of suppliers, addresses and telephone numbers.
- (h) List of spare parts for all equipment.
- (i) Fault tracing/finding procedures.

The following drawings are required:

- Layout drawings
- Wiring drawings showing wire colour codes and numbers as well as all connections onto terminal strips (markers to be approved by the Engineer) of all plant new and existing.

The following documents are required:

- Full description of the system.
- Operating instructions.
- Installation instructions.
- Commissioning instructions.
- Maintenance instructions, maintenance schedule and trouble shooting guide.

Manuals shall be bound in a firm hard cover.

The information shall be clear and readable and supplied with an index.

The above-mentioned manuals shall be available at first delivery. Delivery of the installation will

not be accepted without the manuals.

9.0 TRAINING OF STAFF

The bidder shall allow for sufficient time for instructing the User's appointed responsible persons in the correct operation of all plant and equipment, procedures to be followed in the event of faults etc.

Two sets of instruction manuals shall be provided. Each manual shall comprise of the following sections, bound in a vinyl plastic covered folder with the name of the project typewritten on a card inserted into a clear plastic covered cardholder on the front cover and spine and shall be handed to the Main Contractor on completion of the installation:

- Table of Contents
- Functional Description of Plant (as installed)
- Operation of Plant (as installed – step by step instructions for setting temperatures, etc.)
- Plant and Equipment (a scheduled list of all major plant to include description, make, model number and supplier's name and address).
- Performance Testing Procedures including Test Report
- Maintenance Instructions (in schedule form setting out each item of plant, the description and frequency of maintenance operations required).
- Spare Parts (list of spare parts that shall be required, with detailed description of each part, make, model or part number and supplier's name and address).
- Descriptive Literature (for all items of plant and equipment).
- Record Drawings (of plant as installed to include plant layout drawings showing component location, control and wiring diagrams and schematic piping diagrams).

10.0 GUARANTEE

The entire air-conditioning and ventilation / extraction installation shall be fully guaranteed for twelve calendar months from date of acceptance by the Engineer and contract practical completion date.

During the guarantee period, the Tenderer shall be responsible for the making good of any defects reported by the Tenant. The guarantee shall be ceded to the Superintendent following acceptance of the installation.

11.0 MAINTENANCE

The air-conditioning Tenderer shall be responsible for the maintenance of the entire plant during the guarantee period, as specified in this document. During this period the plant shall be serviced quarterly including filter cleaning and the Superintendent undertakes to provide access to the plant at suitable times during trading hours. Record of all services shall be kept and copies signed by the Superintendent.

12.0 CERTIFICATION ON COMPLETION OF GUARANTEE & MAINTENANCE PERIOD

Included in the pricing for the installation of the package plant is a 12 month quarterly service plan.

In the month prior to the expiry of the guarantee / first twelve months maintenance period, the Engineer shall inspect and, if necessary, retest the installation so as to be able to provide the Superintendent with a certificate, within fourteen days of the guarantee expiry date. This is to confirm that the guarantee has been honoured and that the installation has been properly serviced at required regular intervals by the air-conditioning Tenderer.

13.0 SAMPLES & ALTERNATIVES

Samples (within reason) will be requested by the Engineer and are to be made available on-site for inspection / approval.

The tender prices shall be based on the equipment as specified and not on any alternatives. Should the Tenderer wish to submit prices for alternatives, he shall do so separately, in a letter or similar correspondence, attached to the tender. The use of any alternative equipment, if any, will be evaluated and decided on after tender award, when the costs, etc. will be negotiated with the successful Tenderer.

The Engineer reserves the right to call for prices on alternative equipment subsequent to tender submission.

14.0 SCHEDULES OF INFORMATION

The schedules of information contained in this document consists of 2 sections:

Information supplied by the Engineer (schedules of drawings, etc. as applicable).

Information to be supplied by the Tenderer at tender stage (tender form, information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable).

Tenderers must provide, at the time of tendering, in the "Schedule of Material Offered", sufficient details to enable the equipment concerned to be identified without ambiguity.

It is not sufficient for a Tenderer to state "as specified" in the schedules.

Failure to complete these schedules may render a tender invalid.

15.0 DRAWINGS

15.1 General

Generally, the term "detail" shall mean that the drawing is exact in all aspects to what shall be provided. Where the term "illustration" is used, however, it shall be construed that the drawing is to be regarded as a proposal or guideline as to what is to be provided, manufactured or supplied.

15.2 Tender Drawings

Refer to the tender drawing as provided with this document.

15.3 Construction / Workshop Drawings

The successful Tenderer shall submit construction drawings (or detailed catalogues) of the manufactured equipment, such as mounting details, etc., for consideration by the Engineer prior to manufacture/supply thereof.

The Engineer's approval of construction or workmanship drawings does not relieve the Tenderer of his responsibility with regards to any of the deviations from the requirements of this contract unless the Engineer has been clearly informed, in writing, of such deviations at the time of submission and the Engineer subsequently gives written approval for the specific deviation. Similarly, the Engineer's approval shall not relieve the Tenderer of responsibility for errors or omissions in the

construction / workmanship drawings.

15.4 Record Drawings

The Tenderer must prepare record drawings of the completed installation as constructed, indicating cable runs, equipment mounting details, circuiting & distribution board details, sleeve pipe positions, etc.

The contract shall not be deemed as complete until these drawings have been submitted.

16.0 **SUPERVISION, WORKMANSHIP AND DELAYS**

The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the Tenderer, who must be able and authorized to receive and execute instructions on behalf of the Tenderer. This person must be a registered and accredited person, as described by the OHS Act. It must be noted that the staff complement of the Tenderer shall remain similar throughout the duration of the contract, for all sections of the Works.

In the event that inferior materials or bad workmanship, on the part of the Tenderer, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the Tenderer.

Similarly, should delays in the contract be caused by poor performance on the part of the Tenderer causing the engineer to spend extraordinary time on the project, the extra costs incurred shall be borne by the Tenderer.

These costs will be based on the CESA hourly rate and will be deducted from claims due to from claims which will become due to the Tenderer.

17.0 **COMPLIANCE WITH REGULATIONS, STANDARDS AND CODES**

The Tenderer shall arrange for all inspections and testing of the installation as required. All notices, fees, including inspection and re-inspection, are the responsibility of the Tenderer and all the relevant costs shall be borne by him.

The workmanship throughout the Works will be to the satisfaction of the Employer. Any materials or workmanship considered as faulty or incorrectly or inadequately erected or repaired, will be substituted, altered or rectified to the satisfaction of the Employer, without additional cost to the Employer.

The Works will be executed in strict accordance with the following:

- All relevant by-laws and regulations of local authorities.
- All relevant SANS, BS and other international standards.
- The Occupational Health and Safety Act of 1993.

18.0 **COMMISSIONING AND TESTING**

18.1 General

Upon practical completion of this Sub Contract the Sub Contractor shall allow for providing the Engineer with a complete commissioning schedule indicating the actual test results and measurement of all the design or specified data/variables.

Tests to demonstrate the capacity specified and general operating characteristics of all plant shall be made under the direction of the Engineer at any time before the practical completion inspection under conditions imposed by him.

The Sub Contractor shall be responsible for supplying test equipment which is to the Engineer's satisfaction; any costs incurred by the Sub Contractor in supplying adequate instrumentation will be entirely for his account. Test instruments shall be tested for accuracy by an approved laboratory or by the manufacturer and certificates showing the degree of accuracy shall be furnished to the Engineer if required.

On satisfactory completion of all tests and after the completed installation has been inspected and passed as satisfactory by the Engineer, the installation will be accepted as being practically complete and be handed over to the Employer.

The Sub-Contractor shall be responsible for supplying an itemised set of test results for the Engineer's approval; the Engineer may at his discretion request the Sub-Contractor to re run at the Sub Contractor's expense any test which he has not witnessed or with which he feels not satisfied.

The following shall be recorded/measured for each separate installation as specified and installed under this contract:

Description of installation tested;

Date and time of test;

Ambient temperature conditions (measured in the shade):

(a) Dry bulb temperature

(b) Wet bulb temperature

(c) % RH

19.0 BUILDER'S WORK

The onus is on the Tenderer to point out and check the requirements for and positioning and correctness of all builder's work for his services.

20.0 MAKING GOOD

The builder is to be made aware of all works, timeously, relating to the impact of this installation(s). The Tenderer will carry out, in all instances any work to be made good such as damage to, or disturbance of the building installations caused by himself or his employees during the execution of the contract at his own cost.

21.0 SITE MEETINGS

The Tenderer's representative shall be expected to attend an official site meeting at the onset of the project including scheduled technical and site meetings during the contract period. For meetings termed as "technical or site", a site representative for the nominated Tenderer is required to attend and this person must be competent and able to interpret and receive and act on instructions on behalf of the Tenderer.

The Tenderer shall price all relevant P & G costs, overheads, travelling, etc. for these meetings.

RNA CONSULTING ENGINEERS

DIMBAZA FACTORIES SITE 03

VENTILATION: FRESH AIR SUPPLY; EXTRACTION; NATURAL AND FORCED SMOKE VENTILATION

PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	AMOUNT
<u>Bill No. 1 : Preliminary and General</u>					
1.1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.3	Tools and equipment, Communication, transport.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month)				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.5	Provision of all drawings and manuals as specified including As-Installed drawings	Item	1		
1.6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations	Item	1		
1.7	Any additional item not specifically mentioned or included in the Bills of Quantities which the Tenderer may wish to detail. (Specify)	Item	1		
Total Carried forward to Summary Page					

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DIMBAZA FACTORIES SITE 03
VENTILATION: FRESH AIR SUPPLY; EXTRACTION; NATURAL AND FORCED SMOKE VENTILATION
PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
2,0	<u>Bill No. 2 : Fresh Air Ventilation Equipment Installation</u>					
	<u>Weather Louvers</u>					
2,1	Supply and install 450 x 450 mm external weather louvre, powder coated to Architect's approval colour with concealed fixing, all as specified.	no.	0			
2,2	Supply and install 250 x 250 mm external weather louvre, powder coated to Architect's approval colour with concealed fixing, all as specified.	no.	7			
2,3	Supply and install 150 x 150 mm external weather louvre, powder coated to Architect's approval colour with concealed fixing, all as specified.	no.	0			
	<u>Galvanised Sheet Metal Transfer</u>					
2,2	400 x 450 mm rectangular to 200 mm diam round fan transfer.	no.	0			
2,4	250 x 250 mm rectangular to 160 mm diam round fan transfer.	no.	7			
2,5	150 x 150 mm rectangular to 100 mm diam round fan transfer.	no.	0			
2,6	200 mm rectangular to 300 mm diam round fan transfer.	no.	0			
2,7	300 mm rectangular to 200 mm diam round fan transfer.	no.	0			
2,8	160 mm rectangular to 250 mm diam round fan transfer.	no.	7			
	<u>In Line Axial Fans</u>					
2,9	FAF 1 Axial in line silent fan, 1000 / 200; Q = 230 l/s @ 145 Pa & 21 dB.	no.	0			
2,10	FAF 2 Axial in line silent fan, 500 / 160; Q = 100 l/s @ 75 Pa & 21 dB.	no.	7			
2,11	FAF 3 Axial in line silent fan, 250 / 100; Q = 45 l/s @ 70 Pa & 21 dB.	no.	0			
2,12	FAF 4 Axial in line silent fan, 500 / 160; Q = 100 l/s @ 42 Pa & 21 dB.	no.	0			
2,12	FAF 5 Axial in line silent fan, 160 / 100; Q = 15 l/s @ 42 Pa & 21 dB.	no.	0			
	<u>Galvanised Sheet Metal Ducting</u>					
2,14	300 mm diam round sheet metal ducting, c/w externally insulated with two layer bubble pack reflective insulation.	m	60			
2,15	250 mm diam round sheet metal ducting, c/w externally insulated with two layer bubble pack reflective insulation.	m	0			
2,16	200 mm diam round sheet metal ducting, c/w externally insulated with two layer bubble pack reflective insulation.	m	0			
2,17	160 mm diam round sheet metal ducting, c/w externally insulated with two layer bubble pack reflective insulation.	m	42			
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DIMBAZA FACTORIES SITE 03

VENTILATION: FRESH AIR SUPPLY; EXTRACTION; NATURAL AND FORCED SMOKE VENTILATION

PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
Carried forward from Previous Page						
	<u>Flexible Ducting</u>					
2,18	250 mm diameter Insulated Flexible Ducting	m	0			
2,19	160 mm diameter Insulated Flexible Ducting	m	14			
	<u>Galvanised Sheet Metal Spigot</u>					
2,20	45 deg shoe spigot to 250 mm outlet, c/w externally insulated with two layer bubble pack reflective insulation.	No	0			
2,21	45 deg shoe spigot to 160 mm outlet, c/w externally insulated with two layer bubble pack reflective insulation.	No	14			
	<u>Galvanised Sheet Metal End Cap</u>					
2,22	300 mm galvanised steel end cap, c/w externally insulated with two layer bubble pack reflective insulation.	No	7			
2,22	160 mm galvanised steel end cap, c/w externally insulated with two layer bubble pack reflective insulation.	No	0			
	<u>Diffusers</u>					
2,24	250 mm diam. supply air ceiling disc diffuser. Pressed steel construction powder coated white, c/w mouting brackets.	No	0			
2,25	160 mm diam. supply air ceiling disc diffuser. Pressed steel construction powder coated white, c/w mouting brackets.	No	14			
	<u>Fan Controller</u>					
2,26	2 pole fan controller, on / off wired remotely and installed in conduit and round box provided by others.	No	7			
	<u>Sleeve</u>					
2,27	Supply and install 450 x 450 mm internal sleeve for weather louvre.	no.	0			
2,28	Supply and install 250 x 200 mm internal sleeve for weather louvre.	no.	7			
2,29	Supply and install 150 x 150 mm internal sleeve for weather louvre.	no.	0			
	<u>12 Month Service Plan</u>					
2,30	Supply 12 month service plan, for each ventilation system, consisting of 3 quarterly minor services, and 1 final major service at 12 months from Practical Completion	No	7			
	<u>Training</u>					
2,31	Training of staff on operation of units; ; location of equipment and basic day to day maintenance.	No	3			
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VENTILATION: FRESH AIR SUPPLY; EXTRACTION; NATURAL AND FORCED SMOKE VENTILATION
PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
3,0	<u>Bill No. 3 : Extract Air Ventilation Equipment Installation</u>					
	<u>Weather Louvers</u> Supply and install:					
3,1	WL 1 700 x 500 mm external weather louvre, powder coated to Architect's approval colour with concealed fixing, all as specified.	no.	2			
3,3	WL2 250 x 250 mm external weather louvre, powder coated to Architect's approval colour with concealed fixing, all as specified.	no.	3			
3,2	WL3 150 x 150 mm external weather louvre, powder coated to Architect's approval colour with concealed fixing, all as specified.	no.	0			
	<u>Galvanised Sheet Metal Transfer</u> Supply and install:					
3,3	700 x 500 mm rectangular to 315 mm diam round fan transfer.	no.	4			
3,4	400 mm to 300 mm diam round fan transfer.	no.	4			
3,5	250 x 250 mm rectangular to 160 mm diam round fan transfer.	no.	3			
3,6	200 mm rectangular to 300 mm diam round fan transfer.	no.	0			
3,7	300 mm rectangular to 200 mm diam round fan transfer.	no.	0			
3,8	160 mm rectangular to 250 mm diam round fan transfer.	no.	3			
	<u>In Line Axial Fans</u> Supply and install:					
3,9	EAF 1 Axial in line silent fan, 1000 / 200; Q = 230 l/s @ 145 Pa & 21 dB.	no.	3			
3,10	EAF 2 Axial in line silent fan, 500 / 160; Q = 100 l/s @ 75 Pa & 21 dB.	no.	3			
3,11	EAF 3 315 Diam, Q = 700 l/s @ 135 Pa	no.	2			
3,13	EAF 4 Axial in line silent fan, 500 / 160; Q = 100 l/s @ 42 Pa & 21 dB.	no.	0			
3,13	EAF 5 Axial in line silent fan, 160 / 100; Q = 15 l/s @ 42 Pa & 21 dB.	no.	0			
	<u>Galvanised Sheet Metal Ducting</u> Supply and install:					
3,14	400 mm diam round sheet metal ducting, c/w externally insulated with two layer bubble pack reflective insulation.	m	20			
3,15	300 mm diam round sheet metal ducting, c/w externally insulated with two layer bubble pack reflective insulation.	m	100			
3,16	200 mm diam round sheet metal ducting, c/w externally insulated with two layer bubble pack reflective insulation.	m	0			
3,17	150 mm diam round sheet metal ducting, c/w externally insulated with two layer bubble pack reflective insulation.	m	59			
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DIMBAZA FACTORIES SITE 03
VENTILATION: FRESH AIR SUPPLY; EXTRACTION; NATURAL AND FORCED SMOKE VENTILATION
PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
Carried forward from Previous Page						
3,18	Flexible Ducting Supply and install: 250 mm diameter Insulated Flexible Ducting	m	0			
3,19	150 mm diameter Insulated Flexible Ducting	m	37			
Galvanised Sheet Metal Spigot Supply and install:						
3,20	45 deg shoe spigot to 250 mm outlet, c/w externally insulated with two layer bubble pack reflective insulation.	No	0			
3,21	45 deg shoe spigot to 150 mm outlet, c/w externally insulated with two layer bubble pack reflective insulation.	No	37			
Galvanised Sheet Metal End Cap Supply and install:						
3,22	300 mm galvanised steel end cap, c/w externally insulated with two layer bubble pack reflective insulation.	No	8			
3,23	150 mm galvanised steel end cap, c/w externally insulated with two layer bubble pack reflective insulation.	No	0			
Diffusers Supply and install:						
3,24	250 mm diam. supply air ceiling disc diffuser. Pressed steel construction powder coated white, c/w mouting brackets.	No	3			
3,25	150 mm diam. supply air ceiling disc diffuser. Pressed steel construction powder coated white, c/w mouting brackets.	No	34			
Fan Controller Supply and install:						
3,26	2 pole fan controller, on / off wired remotely and installed in conduit and round box provided by others.	No	5			
Sleeve Supply and install:						
3,27	700 x 500 mm internal sleeve for weather louvre.	no.	2			
3,28	250 x 200 mm internal sleeve for weather louvre.	no.	3			
3,29	150 x 150 mm internal sleeve for weather louvre.	no.	0			
Door Grill Supply and install:						
3,30	Aluminium Double side door grill 600 x 600 mm					
3,31	Aluminium Double side door grill 300 x 300 mm					
12 Month Service Plan						
3,32	Supply 12 month service plan, for each ventilation system, consisting of 3 quarterly minor services, and 1 final major service at 12 months from Practical Completion	No	5			
Training						
3,33	Training of staff on operation of units; ; location of equipment and basic day to day maintenance.	No	3			
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PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	AMOUNT
4,0	<u>Bill No. 4 : Natural & Smoke Ventilation Equipment Installation</u>				
	<u>Ridge Vent</u>				
	Supply and install:				
4,1	Ridge Mounted Ventilator: FK600RC or Similar Natural Ridge Ventilator. Free Throat Area 1.37 m ² Total Width 1210 mm Total Length 2400 mm Total Weight 38 kg Purlin Spacing Required 600mm	no.	36		
4,2	Ridge Mounted Ventilator: FK750RC or Similar Natural Ridge Ventilator. Free Throat Area 1.71 m ² Total Width 1530 mm Total Length 2400 mm Total Weight 73 kg Purlin Spacing Required 750 mm	no.	63		
	<u>Bird Guards</u>				
	Supply and install:				
4,3	Bird Guards to fit 600 mm FK600RC	no.	36		
4,4	Bird Guards to fit 750 mm FK750RC	no.	63		
	<u>Dust Seals</u>				
	Supply and install:				
4,5	Dust Seals to fit 600 mm FK600RC	no.	36		
4,6	Dust Seals to fit 750 mm FK750RC	no.	63		
	<u>MISC</u>				
4,7	Delivery of Ventilators.	no.	1		
4,8	Travelling Installation.	no.	1		
4,9	Site Visits, Handover & Commissioning.	no.	1		
4,10	12 Month System Inspection & Guarantee	no.	1		
4,11	Hoist Ventilators to Working Height.	no.	1		
4,12	O&M Manuals, including Laminated Block Diagrams.	no.	1		
4,13	Health & Safety File.	no.	1		
4,14	Scaffolding for Reticulation Installation.	no.	1		
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ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	AMOUNT
5,0	<u>Bill No. 5 : Smoke Ventilation Equipment Installation</u>				
	<u>Goose Neck</u> Supply and install:				
5,1	Galvanised sheet metal goose neck, medium radius, 1900 x 1000 mm x 1,2 mm thick, incl. galvanised sheet metal sleeve through roof sheeting. Steel flange, bolted at 350 mm centres, and additional tie rod stiffener to each transverse joint.	no.	3		
	<u>Galvanised Sheet Metal Ducting</u> Galvanised sheet metal ducting, steel flange, bolted at 350 mm centres, and additional tie rod stiffener to each transverse joint. Supply and install:				
5,2	1900 x 1000 mm x 1,2 mm thick	m	78		
5,3	1100 x 1000 mm x 1,2 mm thick	m	0		
	<u>Galvanised Sheet Metal Transfer</u> Galvanised sheet metal ducting, steel flange, bolted at 350 mm centres, and additional tie rod stiffener to each transverse joint. Supply and install:				
5,4	1900 x 1000 mm x 1,2 mm thick to 1000 mm Diam	no.	6		
5,5	1900 x 1000 mm x 1,2 mm thick to 1100 x 1000 mm x 1 mm thick.	no.	0		
	<u>Galvanised Sheet Metal Elbow</u> Galvanised sheet metal ducting, Incl. steel flange, bolted at 350 mm centres, and additional tie rod stiffener to each transverse joint. Supply and install:				
5,6	1900 x 1000 mm x 1,2 mm thick medium radius	no.	3		
	<u>Galvanised Sheet Metal Tee</u> Galvanised sheet metal ducting, steel flange, bolted at 350 mm centres, and additional tie rod stiffener to each transverse joint. Supply and install:				
5,7	1900 x 1000 mm x 1,2 mm thick Tee.	no.	3		
	<u>Galvanised Sheet Metal Spigot</u> Galvanised sheet metal ducting, steel flange, bolted at 350 mm centres, and additional tie rod stiffener to each transverse joint. Supply and install:				
5,8	1000 x 800 mm x 1,2 mm thick Tee.	no.	12		
	<u>Galvanised Sheet Metal End Cap</u> Galvanised sheet metal ducting, steel flange, bolted at 350 mm centres, and additional tie rod stiffener to each transverse joint. Supply and install:				
5,9	1900 x 1000 mm x 1,2 mm thick.	no.	5		
5,10	1100 x 1000 mm x 1,2 mm thick.	no.	0		
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DIMBAZA FACTORIES SITE 03
VENTILATION: FRESH AIR SUPPLY; EXTRACTION; NATURAL AND FORCED SMOKE VENTILATION
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ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	AMOUNT
Carried forward from Previous Page					
5,11	<p>Fire Damper Supply and install: Smoke control damper for duct installation, galvanised sheet metal, 1000 w x 800 h mm, multi blade, with fusible link & spring to safety open position, incl motorised actuator operation, to comply with EN regulations, 600 deg C for 60 min fire rated. Incl. single sided grill & intumescent sealing.</p>	no.	12		
5,12	<p>Expansion Joints Galvanised sheet metal fabric expansion joints (silicon free), with self-sealing flanges, 600 Deg C rated for 60 min. Axial compression = 50 mm Lateral displacement= 20 mm Supply and install: 1900 x 1000 mm</p>	no.	95		
5,13	1000 mm diam	no.	6		
5,14	<p>Controller Supply and install: Variable Speed Fan Control Panel operating fan arrangement.</p> <p>The Variable Speed Fan Control Panel has the following features: Industrial PLC logic driven system Duty and standby fan control Multiple fan speed control enabling smoke and forced ventilation Inputs for external fire fighters key switch control (auto/off, auto/boost) Pressure sensor monitoring to prevent excessive negative pressure in the activated zone Ductwork damper(s) control System state indication on panel face via LED's Activation/healthy volt free contacts for BMS monitoring</p>	no.	3		
5,15	<p>Cable Supply and install: PH120 fire rated reticulation between control panel and each smoke ventilator. Including Galvanized Conduit to roof eve.</p>	no.	770		
5,16	<p>Sound Attenuator Axial ducted fan silencer, acoustic material in mienral wool 70kg/m³, 1.2 mm fire rated for 600 Deq for 60 min. Supply and install: 1000 mm diam x 2240 mm</p>	no.	9		
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ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	AMOUNT
Carried forward from Previous Page					
5,16	<p>Smoke Extract Fan Supply and install: Axial smoke fan, Q = 20 000 l/s @ 370 Pa, rated at 600 Deg C rated for 60 min - Impellers with profiled blades made of cast aluminum alloy. - Dynamically balanced according to ISO 21940-11 and ISO 14694, balancing quality G6,3. Casing: - Manufactured from hot-dip galvanized sheet steel according to ISO 1461. - Pre-drilled, rolled Eurovent 1/2 flanges pressed on both sides provide additional stability. - Pre-wired terminal box on fan casing, IP65 (IEC 60034-5). Motor: - High efficiency three-phase asynchronous motor with squirrel cage rotor. - Protection class IP55 (IEC 60034-5), insulation class F. - PTC thermistors for motor protection. - Speed controllable via frequency converter, suitable for turn down to 10 Hz. Electrical: - Incl all fire resistant cable, connections, isolators etc. 60 min fire</p>	no.	3		
5,17	<p>Burglar Bars Supply and install: Buglar Bars to fit ducting.</p>	no.	3		
5,18	<p>Bird Guards Supply and install: Bird Guards</p>	no.	3		
5,18	<p>Weather Louvers & Grills Supply and install: 1100 x 1100 mm external weather louvre, powder coated to Architect's approval colour with concealed fixing, all as specified.</p>	no.	81		
5,19	<p>1100 x 1100 mm Transfer Grill, powder coated to Architect's approval colour with concealed fixing, all as specified.</p>	no.	81		
5,20	Buglar Bars to fit weather louvers.	no.	81		
5,20	<p>MISC Delivery of Ventilators.</p>	no.	1		
5,21	Travelling Installation.	no.	1		
5,22	Site Visits, Handover & Commissioning.	no.	1		
5,23	12 Month System Inspection & Guarantee	no.	1		
5,24	Hoist Ventilators to Working Height.	no.	1		
5,25	O&M Manuals, including Laminated Block Diagrams.	no.	1		
5,26	Health & Safety File.	no.	1		
5,27	Scaffolding for Reticulation Installation.	no.	1		
5,28	<p>Training Training of staff on operation of units; ; location of equipment and basic day to day maintenance.</p>	No	1,00		
5,29	<p>Fire Sealing PC Sum for fire sealing</p>	PC SUM			150 000,00
Total Carried forward to Summary Page					

RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
VENTILATION: FRESH AIR SUPPLY; EXTRACTION; NATURAL AND FORCED SMOKE VENTILATION
PROVISIONAL BILL OF QUANTITIES

PRICE SUMMARY

BILL NO.	DESCRIPTION	AMOUNT
1	Bill No. 1 : Preliminary and General	
2	Bill No. 2 : Fresh Air Ventilation Equipment Installation	
3	Bill No. 3 : Extract Air Ventilation Equipment Installation	
4	Bill No. 4 : Natural & Smoke Ventilation Equipment Installation	
5	Bill No. 5 : Smoke Ventilation Equipment Installation	
6	PC SUM : REMOVAL OF REDUNDANT EQUIPMENT	500 000,00
7	Carried to Main Contractors Final Summary (Ex VAT)	

REMINDER NOTE

The **Total Price** including Main Contractor's Mark-up **which excludes VAT**, must be carried over to the final summary in **Volume 1** and all fixed amounts shown in the price schedule must be included therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in the **Total Price** for this particular installation.

SUB-CONTRACTOR'S NAME:

DATE:

SIGNATURE:

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up **BUT** Exclude the VAT when transferring price to Volume 2.2 of the Final Summary Total of the Main Contractor's

SITE 03**VOLUME 2.2 PART 5: HVAC - SCHEDULE OF MATERIALS OFFERED**

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB : **Only one manufacturer's name to be inserted for each item.**

Item	Material	Make or trade name	Country of Origin
1.	Weather louvers		
2.	Axial silent fans		
3.	Flexible ducting		
4.	Diffusers		
5.	Fan controllers		
6.	Ridge ventilators		
7.	Fire dampers		
8.	Expansion joints		
9.	Smoke fan control		
10.	PH120 cable		
11.	Smoke extractor fan		
12.	Weather louvers		
13.	Transfer grills		
14.	Fire rated power supply cable; connectors; isolators etc.		
15.			
16.			
17.			
18.			

NOTE : Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor.

Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.

EXTRACT AIR VENTILATION EQUIPMENT		QTY
WLE 1	Exhaust unit with 700 l/s @ 700x500mm	2
EAD1	1200mm dia 100 l/s @ 1200x500mm	2
SAU1	1200mm dia 100 l/s @ 1200x500mm	8
EAD1	600mm dia 50 l/s @ 600x500mm	23
DG1	1200mm dia 100 l/s @ 1200x500mm	3


LEGEND	
	Ceiling Concealed Split Unit
	Ceiling Concealed Split Unit
	Mechanical Split Unit
	Concealing Pipe
	VRF Outdoor Unit
	Branch Selector Box
	Flexible Duct
	Concealed Vulture Diffuser
	Electrical Distribution Board
	100 l/s Concealed outdoor unit
	50 l/s Concealed outdoor unit
	Double pipe ceiling by Electrical Contractor
	Triple pipe ceiling by Electrical Contractor
	Wood veneer ceiling and Perimeter
	Door grille
	Blowing Draper
	Back Draught Shutter
	Filter fan
	Reverse fan

1. ALL CONTROL WIRING FOR ROOF VENTILATION UNITS TO BE ROUTED IN CONDUIT PROVIDED BY ELECTRICAL SUBCONTRACTOR.
2. ALL APERTURES FOR FANS AND PIPING INCLUDING PUNCHING THROUGH ROOF AND CONCRETE CONTRACTOR TO PROVIDE BUILDER'S WORK DETAILS.
3. ALL DOOR GRILLES TO BE SUPPLIED BY A/C CONTRACTOR AND INSTALLED BY BUILDER.
4. EXTERNAL LOUNGES AND OTHER GRILLES COLOUR FINISHES TO BE NATURAL ANODISED ALUMINIUM.
5. ALL WALL MOUNTED EXTRACTOR A/C CEILING MOUNTED AND CEILING VENT MOUNTED AIR FANS ARE TO BE CONTROLLED BY A LIGHT SWITCH.
6. THE CONTRACTOR TO MAKE ALL ALLOWANCE AND TO CO-ORDINATE WITH OTHER SERVICES AS REQUIRED. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELATED DRAWINGS FOR CO-ORDINATION PURPOSES.
7. MECHANICAL CONTRACTOR TO MARK ALL BUILDER'S WORK OPERATIONAL AND CONFORM TO THE MAIN CONTRACTOR. ALL BUILDER'S WORK APERTURES ETC TO BE CHECKED WITH EQUIPMENT SUPPLIER PRIOR TO INSTALLATION TO AVOID ANY DISCREPANCIES OR UNNECESSARY WORK.
8. ALL SQUARE STRUCTURAL HOLES THROUGH SLAB TO HAVE A REINFORCING & MADE GOOD AT THE MECHANICAL INSTALLATION BY BUILDER.
9. THE COLOUR OF ALL EXTERNAL LOUNGES & GRILLES TO BE AS PER ARCHITECTURE REQUIREMENTS.
10. THE A/C CONTRACTOR MUST MAKE ALLOWANCE FOR CO-ORDINATION WITH OTHER SERVICES AS REQUIRED, ALSO DUE TO ALL ALLOWANCE MUST BE MADE ON FLEXIBLE DUCTING FOR DIFFERENCE TO BE MADE TO 1%.
11. DOWN PIPES TO BE CORE DRILLED AT EACH LOCATION WHERE NECESSARY PIPE FROM ROOF AND PIPING THROUGH CEILING VOID BEAMS AND/OR BRICK WALLS.
12. ALL CONDENSATE DRAIN CONNECTION INTO WAST PIPES TO BE FITTED WITH WATER PIPES TRAP COMPLETE WITH REMOVABLE JUNCTION.

GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

ECDC PROPERTIES - DIMBAZA FACTORIES - SITE 08, 12, 21

TITLE

SITE 03 - VENTILATION EQUIPMENT LAYOUT

ARCHITECT

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CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: Travis Warne SCALE: 1:100

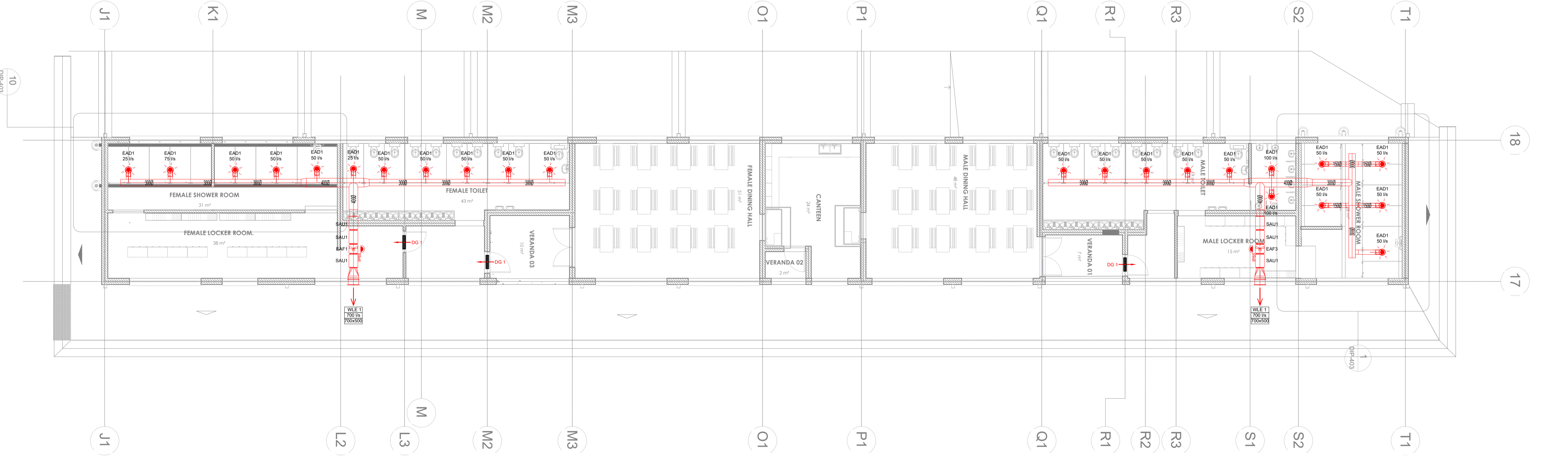
DRAWN: NT NZUZA DATE: 31/08/2023 PRINT DATE: 20/11/2023

CHECKED BY: Travis Warne

REGISTRATION No. 201770017

SIGNED: _____

DRAWING NO. 2318-T-M-103 VENT S03 REV No. A



SITE 03

VOLUME 2.3 PART 1: EARLY WARNING FIRE DETECTION - 1 SCOPE OF WORKS

EARLY WARNING SMOKE DETECTION & SUPPRESSION EQUIPMENT INSTALLATIONS

1. **GENERAL**

- 1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. **THE CONTRACT**

2.1 **EARLY WARNING SMOKE DETECTION & SUPPRESSION INSTALLATIONS**

The work to be carried out and commissioned by a SAQCC Fire approved installer:

- a. Installation of new early warning fire detection & suppression equipment, as per SANS 10400 Section T; SANS 10139,
- b. Testing and Commissioning, as per SANS 10400 Section T; SANS 10139,
- c. Manuals, Drawings, OEM Literature,

2.2 **Existing**

All installations new. Building Existing.

2.3 **Order of The Works**

As per the building contractors' program of works.

AUTOMATIC FIRE DETECTION INSTALLATIONS

1.0 INTRODUCTION AND GENERAL

The system shall offer the best possible compromise between the initial expenditure and the long term interest and redemption charges and running / operating costs.

All workmanship and materials used in the execution of the works shall conform with modern practice and the entire installation shall comply fully with all relevant requirements of governmental and the Local Authority whose jurisdiction embraces the location of the site.

2.0 REFERENCES

The work shall be carried out strictly in accordance with:

- a. The Machinery and Occupational Safety Act of 1984.
- b. All relevant Regulations and Bylaws of the Municipal Council and Fire Department concerned.
- c. The National Fire Protection Association (NFPA) No 12.
- d. SANS 0139-1981 -Code of Practice for The Prevention, Automatic Detection and Extinguishing of Fire in Buildings.
- e. BS 5839 and European Standard EN 54, Parts' 2 and 4.

Where no Building, Municipal, Health or Fire Department Act, Regulation, Bylaw or other requirement exist, nor any SANS standard or detailed requirement by the Engineers then the Contractor's terms of reference shall always be the current editions of NFPA handbook.

3.0 INSTALLATION GENERAL PRACTICES

- a. All electrical equipment shall comply with the relevant SANS or BSS where applicable, and to SANS 10142, Code of Practice for the Wiring of Premises.
- b. Material shall be subject to the approval of the Engineer, to whom samples shall be submitted upon request.
- c. Cable sizes for each circuit shall be selected to ensure that the current carrying capacity will be adequate and that the voltage drop at the equipment served will comply with the Code of Practice for the Wiring of Premises.
- d. Wiring shall be carried out in PVC insulated cables enclosed in Class B conduit or approved trunking. Alternatively, M.I.M.S., fire resistant cable, or PVCSWAPVC cable may be used where convenient, and where permitted under the section Wiring between Detection Zones hereunder.
- e. All cables, cable trays, conduits (other than those encased in concrete or chased into walls), and cable trays shall run parallel with, or at right angles to the structure or walls. Their routes shall be co-ordinated with piping and duct systems. They may run on the surface of walls and ceilings in all plantrooms, in ceiling voids and in underfloor voids where permitted by the clause Wiring between Detection Zones. Elsewhere they shall be concealed in an approved manner.
- f. No cable or electrical shall be routed within 75 mm of a hot water pipe.

4.0 WIRING BETWEEN DETECTION ZONES

The control wires or power cables between the control panel, the battery pack, a detection zone or where the wiring of a detector circuit passes through any other detector zone, shall be one of the following:-

- a. Mineral insulated metal sheathed cable which shall complying with all SANS and BS EN codes. The Contractor may be required to demonstrate to the Engineer that he is proficient in making off these types of cables.
- b. PVC insulated annealed copper wire complying with SANS 150, housed within conduits which are buried into cement or brickwork. Surface conduits between zones will not be permitted.
- c. Fire resistant cables in compliance with SANS 150 and SANS Method 494 Resistance of cables to Fire Propagation.
- d. PVCSWAPVC cables and terminations complying with SANS 150.
- e. Aluminium cables will not be permitted.

5.0 CABLES AND WIRING

5.1 MIMS Cables

- a. MIMS cables shall be mineral insulated copper sheathed and copper core cables equal to pyrotenax of not less than 600 volt grade. Aluminium cables will not be permitted.
- b. Minimum sizes for MIMS cables shall be 1,5 mm² for power and 1,00 mm² for control wiring.
- c. Tails shall be sleeved with silicone rubber insulation in appropriate colour.
- d. All cable fixings shall tie by means of factory manufactured brass or copper saddles or clips, secured by brass or cadmium plated screws.
- e. Clips or saddles shall be provided within 150 mm of fittings, accessories or bends, and not more than 600 mm apart elsewhere. No more than 4 cables shall be secured by a single saddle.
- f. A straight length of cable shall be left adjacent to termination glands to enable the glands to be readily withdrawn. The cables shall be made-off with approved standard pot-type seals and accessories as applicable.
- g. The minimum bending radius of cables shall be 6 times the cable diameter.
- h. Where a number of cables run parallel they shall be dressed into a neat symmetrical arrangement without sagging or distortion. Care shall be taken to avoid flattening or indentation of cable sheaths.
- i. Where cables come into contact with dissimilar metals, which may give rise to corrosion, the Contractor shall adequately separate the surfaces with PVC tape or by other approved means.
- j. Where cables pass through holes in metal-work, the holes shall be neatly bushed to prevent damage to the sheath.
- k. Cables shall not be buried directly in plaster, concrete or similar materials.
- l. Where installation in these materials is necessary, the cables shall be enclosed in a suitable duct, pipe or conduit, which is provided with bushed ends to prevent damage to the cable sheath.
- m. Cables shall be mechanically protected where they rise from floors in exposed positions and where they may be exposed to accidental damage.

5.2 PVC Insulated Wire

- a. PVC insulated copper wire conductors shall be of South African origin, manufactured to comply with SANS 150.
- b. Where PVC insulated wires are used, the installation shall comprise PVC insulated copper conductors drawn into duct or conduit. Where such wires are drawn into conduits it shall be carried out in accordance with standard electrical practice, and shall be subject to the approval of the Engineer.
- c. No joints in the PVC wires between terminal points will be permitted under any circumstances.

5.3 Fire Resistant Cables

- a. The fire resistant cable shall be constructed of silicon rubber insulated copper conductors housed in a protective PVC sheath bonded to coated aluminium foil. This shall be as per PH120 Fire Resistant Cable Fire Resistant Cable or similar approved.
- b. These cables shall be installed in the manner prescribed for MIMS cables, with attention being paid to any special requirements regarding terminations, radius of bends, etc., as prescribed by the manufacture.
- c. No joints in this cable will be permitted.

5.4 Armoured Cables

- a. PVC/SWAPVC cables and cable terminations shall comply with SANS 150 and shall be of 660 volt grade.
- b. These armoured cables where permitted, may:
 - Lay flat on cable trays, fixed with approved ties.
 - Where the cable tray is vertical, the armoured cables are to be held in position by approved straps.
 - Fixing with wire is not permitted.
 - Be fixed to the masonry with saddles.
 - Be fixed to unistrut with the approved fixing saddles.
- c. Where the cable is in a ventilation air path (other than the underfloor void of a computer room) the outer PVC sheath is to be removed after fixing if so demanded by the local authorities.

- d. No joints in PVC cables will be permitted under any circumstances.
- e. The PVC cable glands shall consist of the brass cone type with waterproof seal, equal to "DESCO", and shall be suitable for PVCSWAPVC general purpose 660 volt grade cable.

6.0 CONDUITS

- a. Conduit shall be heavy gauge welded screwed steel conduit to SANS 162 and powder coated yellow.
- b. Conduit shall be clean, true and free from internal obstructions.
- c. Burrs shall be removed with taper reamer. All free ends shall be fitted with approved bushes.
- d. No conduit shall be less than 25 mm nominal diameter.
- e. No surface conduits, PVC conduit or box trunking will be permitted between two separate detection zones or between detection and non-detection zone. They can however be used within a single detection or gas protected zone to interconnect the detectors and other equipment housed within that zone.
- f. The entire conduit system shall be watertight, electrically and mechanically continuous.
- g. During installation, the ends of conduit shall be temporarily plugged to prevent the ingress of dirt and moisture.
- h. Conduits shall be securely saddled along the length of the run and saddles shall be provided within 500 mm of all fittings or terminations.
- i. Sets and bends shall be made cold with approved bending machines in such a manner that there is no damage to or distortion of the conduit. In locations where it is not practicable to use sets for changes in direction, such changes shall be made by the use of approved screwed fittings.
- j. All sets and bends shall be such that they permit cables to be drawn easily into the conduits after installation.
- k. All junction boxes provided to facilitate the drawing-in of cables shall be located in positions which will be readily accessible in the completed project.
- l. Inspection fittings shall not be used as "Loop-in" points.
- m. The whole conduit installation shall be a "Loop-in" installation.
- n. Conduits shall be installed in such a manner that they are free from mechanical stress.
- o. No threads shall be visible after erection, other than at running joints.
- p. Running threads shall be thoroughly painted.
- q. Final connections to plant (other than in cases where the items can be mounted directly to termination boxes) shall be run to a junction box adjacent to the item of equipment.
- r. Flexible conduit connections are to be installed between the round terminal box adjacent to a ceiling void detector and its ceiling mounted remote indication lamp. The flexible conduit plus the PVC wires contained therein shall be left sufficiently long to allow for the indication of the lamp in the centre of a ceiling tile (which may not fall directly beneath the terminal box). There shall be no stress imposed on the flexible conduit.
- s. Before the drawing in of any conductors the conduit installation shall be complete with lock-nuts, bushes and all other accessories in accordance with standard electrical practice. Conduits shall be cleaned out and swabbed dry internally.

7.0 CABLE TRAYS

- a. Cable trays shall be of Pyrotenax, unistrut or other approved manufacture.
- b. The size and gauge of all trays shall be chosen to suit each particular application. They shall be adequately stiffened and braced both transversely and longitudinally, ensuring a true finished run.
- c. All screws, washers, nuts, etc. used in the installation of the trays shall be cadmium plated.
- d. All trays, fittings, brackets, etc. shall be galvanised or electro-tinned and where exposed shall be painted after erection in accordance with the details as specified herein.
- e. All trays shall be supported by brackets at intervals sufficiently small to produce a robust installation and to ensure that there is no perceptible deflection of the finished tray and its associated supports.
- f. All bends, tee-offs, changes in section and changes in direction shall be made with factory finished fittings.
- g. All joints shall be made with approved jointing plates. Lapped joints will not be permitted.

8.0 TRUNKING

- a. Trunking shall be manufactured from galvanised sheet metal of a thickness not less than 1 mm for runs, and 1,6 mm for bends, off-sets, reducing pieces, etc.
- b. Trunking shall comply with BS 4678.
- c. Covers shall be of the same material as the trunking and shall not exceed 1,2m in length.
- d. All screws, nuts, washers, etc. shall be cadmium plated.
- e. The trunking and covers shall be braced as necessary to ensure rigidity, and the open side of the trunking shall be provided with right angled returns to receive the covers.
- f. The covers shall be securely fixed to the trunking by means of approved clips or fasteners.
- g. The trunking shall be supported to brackets at intervals sufficiently small to produce a robust rigid installation and to ensure that there is no perceptible deflection of the trunking between supports.

- h. All bends, tee-offs, changes in section and changes in direction shall be made in factory-manufactured fittings.
- i. All joints shall be butt joints, made with internal fishplates.
- j. Lapped joints will not be permitted.
- k. Screws shall be cut off flush with the top of the nuts after erection, and shall be filed smooth and painted.
- l. The trunking is to be cut square where cutting is necessary for jointing etc. Cut edges shall be smoothed off with a file.
- m. Plastic trunking may be permitted at the Engineers discretion and subject to his approval of the specific material offered.

9.0 CONTROL PANELS

9.1 General

- a. The control panel shall be wired in the factory and not on site. The only connections to be made in the panel on site shall be the interconnection with the field wiring.
- b. All outgoing circuits shall terminate on numbered terminals with approved lugs where the numbers correspond to those reflected on the as-built drawings.
- c. Wires within the cubicle shall bear an identification number at both ends. Numbering shall be by approved wiring ferrules securely attached so that they will not slip off when the wire is removed from its terminal.
- d. The numbering shall correspond to the drawings. Handwritten numbers or adhesive tape bearing numbers will not be acceptable.
- e. When a device is removed from the loop, it must be reflected on the panel as a faulty device and it must be clear once the device has been re-installed.

10.0 ZONE PANEL

10.1 General

- a. Allow to supply and install a zone layout with a building plan and line unit numbers located adjacent each fire control panel.

11.0 NETWORKING

11.1 General

- a. The networking capabilities of the system shall be such that all control panels may be connected via optical medium. The system shall ensure rugged and reliable "peer to peer" operation. It shall be possible to remove and add to the network to allow for easy expansion of the system.
- b. The network shall use an industry standard protocol such as ARCNET or ETHERNET to ensure that no data is corrupted.
- c. The network is to feature:
 - Inter-panel Input/Output programming.
 - Remote uploading/downloading of system configurations to individual panels.
 - Remote maintenance.
 - RS232 nodes for connection to graphics packages, building management systems and modems.
 - Global repeater panel.
 - LCD repeaters.

12.0 LINE ISOLATORS

Loop isolators are to be connected in to the loop circuit and monitor for short circuit. In the event of a short circuit occurring the loop isolators on each side of the short circuit are to disconnect and isolate that portion of the loop from the system, enabling the remainder of the system to function normally.

A light emitting diode (LED) must illuminate when a loop/line isolator is in an open condition.

SITE 03

VOLUME 2.1 PART 3: EARLY WARNING FIRE DETECTION - DETAILED SPECIFICATION

AUTOMATIC FIRE DETECTION INSTALLATIONS

1.0 INTRODUCTION & GENERAL

This Detail Specification complements & qualifies the foregoing standard specifications of material & workmanship. The Standard Specification should be regarded as a basis and guideline, with this Detailed Specification taking preference where any ambiguity is concerned.

In the event of any further technical ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority:

- a) Schedule of quantities
- b) Project specification
- c) Drawings (loose and bound-in)
- d) Standard specification

2.0 SITE CONDITIONS

Location: Dimbaza, Eastern Cape

3.0 SCOPE OF WORK

The standard specification shall apply unless otherwise indicated in this section.

The drawings issued herewith and listed in the relevant section are to be read in conjunction with the specification and all items mentioned, together with all ancillary equipment necessary for the correct installation, operation and full compliance with the Standards and codes must be provided, notwithstanding the fact that they may not have been included in detail in these documents.

The bidder shall, at the time of bidding, draw the Engineer's attention to any omissions or discrepancy between the specification and the drawings and request from him clarification of details or responsibilities.

If a limited allowance or special conditions are made for the Bid Sum for the supply or erection of any item of the installation, the limit or special conditions shall be defined at the time of bidding.

It is the sole responsibility of the bidder to ensure that all quotations obtained from manufactures and suppliers are complete in their entirety and must include all equipment and accessories necessary for compliance with current practice and the efficient and proper functioning of the installation.

If any such items of equipment, brackets and accessories, etc., have been omitted from a supplier's quotation, or incidental work is necessary, the bidder must include for all such items and work in the bid.

The whole installation shall be in accordance with the latest edition of the Occupational Health and Safety Act: No. 85 of 1993. All regulations framed therein, shall be carried out to the satisfaction of the Engineer.

All equipment offered by the bidder shall be to the approval of the duly appointed Engineer, prior to installation. This Standard Specification and the Detailed Specification with drawings shall be carefully adhered to by the bidder. Equipment installed without the approval of the Engineer will have to be removed at the Contractor's expense and be replaced with officially approved listed items.

The successful bidder will be required to prove to the Engineer that he has qualified personnel on his staff establishment as well as recognised test equipment for the successful completion of a safe working installation.

The contractor shall employ only skilled artisans and technicians approved by the Engineer who are competent in this type of work. The work shall be carried out in accordance with the standards laid down by the Engineer.

The contracting firm shall be recognised contractor specialising in this field and approved by the Engineer.

The work performed shall comprise the supply, delivery, off-loading, interim storage, installation, testing, commissioning and leaving in good working order of the complete fire detection and evacuation system installation inclusive of all guarantees as specified herein and the supply of 'AS IS' installation record drawings, Maintenance and Operating Manuals for:

- Supply and installation of a Category L2 automatic fire detection and alarm evacuation system equipment.
- Supply and installation of PVC conduit and galvanised steel trunking.
- The liaison with:
 - Building/Principal Contractor, and their Domestic Sub-contractors,
 - Electrical Sub-contractor,
 - Air Conditioning Sub-contractor,
- Testing and commissioning (SAQCC Commissioner) of all equipment in the fire protected areas with and in conjunction with the Air Conditioning Sub-contractor.

This Sub Contract also includes all electrical works for the installation but excludes the power supply to the Main Panel which will be provided by others.

Notwithstanding any omission in this specification the installations shall be complete in all respects. This condition shall be recognised in the preparation of all working drawings submitted for approval. Further, despite any approval of working drawings given by and on behalf of the Main Contractor the responsibility for correct functioning of the plant during tests, inspection and the maintenance period shall rest entirely with the successful bidder.

The installation shall be strictly in accordance with the approved drawings or such further drawings, modifications, or instructions as may be given by the Engineer concerned, or that are found to be necessary, and such modifications or instructions shall be deemed to be within the specification for the purpose of the bid, and shall not vitiate the contract.

Payment for such modifications will only be made on certification by the Engineer to the effect that such modifications have involved additional expense to the Sub-Contractor.

The following sections of Work are excluded:

- Builder's work e.g. cut-outs in walls to Tenderer's specifications, including chasing and making good of walls.
- The cutting of holes in suspended ceilings and ceiling tiles for the fixing of detector heads, sirens and other fire devices.
- Tiling, painting or decorating after installation
- Provision of suitable 220 V / 1 phase power supply for Control Panel.

3.0 SITE CONDITIONS

The site shall be serviced as far as electricity services are concerned, although Tenderers must make provision for an alternative electricity supply during installation.

The equipment specified herein shall be designed to operate at the environmental parameters as follows:

Location: Dimbaza, Eastern Cape

4.0 PROGRAMME

The Sub Contractor shall complete the installation within the time stipulated. The Sub Contractor will be required to report to the Principal Contractor, generally on a weekly basis (or more often if required by the Principal Contractor), progress of work and any difficulties arising, to enable the Principal Contractor to update the programme.

The sequence in which the work is to be carried out shall be decided upon in consultation with the Principal Contractor. The Sub Contractor shall thereafter submit an adequately detailed Sub Contractor's installation programme for approval within two (2) weeks of the Sub Contract being awarded unless otherwise indicated herein after.

This programme must be periodically updated as the work progresses and as may be necessary to meet changing site conditions and alterations to the overall installation programme.

Programmes shall take the form of bar charts, network diagrams and schedules as may be required by the Main Contractor or as applicable, and shall reflect quantities of work as required for supervision purposes and measurements.

As a minimum the programme shall reflect:

- sequence and timing of installation activities.
- sequence and latest event times of major equipment ordering, manufacture and delivery dates.
- sequence and dates for the submission of drawings and samples for approval.
- sequence and dates for factory and site inspections and tests.
- target and achieved work quantities on a weekly, fortnightly and monthly basis.

In preference all work is to be undertaken by staff in the full time employ of the bidder.

All work which is to be undertaken by "Domestic Sub Contractors" of the Sub Contractor will be clearly identified in the bid submission and the Sub Contractors to be used subject to prior approval of the Client and/or Engineer and/or Principal Contractor; failure to comply with this requirement may result in the "Domestic Sub Contractors" being removed from site.

All costs in replacing the undesirable "Domestic Sub Contractor" or any delays incurred as a consequence of this will be entirely for the Sub Contractor's account.

5.0 PROJECT TECHNICAL SPECIFICATION

The bidder shall allow for programming the work in such a manner as to not disrupt the Main Contractor's programme. Sequence of work to suit the Sub Contractor's requirements will not be guaranteed nor accepted.

Claims from Sub Contractors arising out of broken work sequences or agreed programmes changed due to contingent requirements, will not be considered unless full motivations for the extra costs are submitted; the motivation for extra costs must justify costs in terms of the accepted programme and any unforeseen and justifiable additional staffing levels required to meet targets revised with insufficient notice. Reallocation of staff and/or acceleration of work will not be reason enough to claim for extra costs unless the Sub Contractor can prove that he has indeed had to pay for staff's idle time which was not or could not be envisaged at the time of bidding and/or drawing up the installation programme and sequence. When claiming for extra cost all out of town cost will be disallowed as it is assumed that the Sub Contractor has fully staffed premises in the vicinity of the site.

The Subcontractor must also assume that work may be required to continue uninterrupted outside of normal working hours and/or for an extended and/or unbroken period of time.

5.1 Automatic Fire Detection System

The building is to be constructed, the system will have a new analogue addressable fire detection system with corresponding line devices as specified in the bill of quantities and drawings provided.

All fire signals received by a sensor are to be confirmed by a sensor in a zone or any break glass unit; all confirmed signals will be automatically relayed to the Main Fire Alarm Panel unit. If not cancelled (reset) within a specified time (less than four minutes) all signals which are not confirmed will be automatically relayed via the GSM unit to the pre-programmed contact numbers and/or Fire Brigade. The person attending to the alarm can call for more time by pressing the "More Time" push button in which instance the clock will be reset to zero and a new cycle (programmable between 0 and 999 seconds) will be initiated. During such cycle the attendant must be capable of investigating the source of the alarm and cancel it (by pushing the reset button) at any panel in the event of a false alarm or confirm it (by pushing the accept button) at any panel or by breaking the glass of any break glass unit.

It must be noted that operation of the "More Time" push button shall be overridden by the triggering of a second sensor/device in the same zone or via a break glass unit.

The fire detection and alarm evacuation installation shall operate as follows:

In the event of a confirmed fire condition the fire alarm system is to automatically:

- Sound the evacuation sounders located in the building (a pulsing tone)
- Isolate the power supplies to fresh air fans, extraction fans, kitchen canopy systems fans in the specific zones and activate the appurtenant fire dampers

These functions will be grouped differently depending on what zone the signal originates from. The device address and location, as defined on the drawings, shall be indicated on the L.C.D. display of the fire control panel.

Information relating to the alarm (or fault condition) shall pass to the C.P.U. and in turn be displayed on the display terminal.

The generation of a fire alarm shall immediately initiate the following, within the affected fire zone only.

- In public, areas where sounders have been located at ceiling level, these shall operate in the affected zone only. However, facility shall be incorporated at the Main Fire control Panel to manually override the immediate activation of such devices if so required, and then to manually activate such sounders by zone. (a pulsing tone)
- All interface signals to other services within the affected zone, shall be initiated.
- Isolate the power supplies to ventilation fans in the specific zones and activate the appurtenant fire dampers
- Failure of a single fire control panel shall not affect the proper functioning of other fire control panels within the network, and the devices and equipment linked to them.
- The panel shall also incorporate a "Commission" key switch and a "Day/Night" key switch.

6.0 **EQUIPMENT SPECIFICATIONS**

6.1 General

The following description details the design parameters for the operation, control, dimensions, finishes, etc. for the Fire Detection unit installation. These parameters are the minimum requirements, and the sub-contractor may offer equipment that exceeds these specifications. All relevant technical information to be submitted with tender.

6.2 Optical Smoke Detectors and Bases

The location of optical smoke detectors are indicated on the drawing provided with this document and the Tenderer shall supply and install units that shall meet or better the following specifications:

- a. The detectors shall operate on a 24 V d.c. power supply, and be suitable for connection in the circuit to the control panel using two wire system.
- b. The detector base section shall be suitable for easy removal and replacement of the detectors, and shall allow for the interchanging of the different types of detectors without any modifications being necessary.
- c. The base to be employed shall depend on the special mounting conditions required, and shall be suitable for one or more of the following:
 - surface / wall mounting
 - mounting in damp / plant rooms
 - suspended mounting
 - underside of ceiling
 - explosion proof mounting, with intrinsic safety
- d. A visual alarm detection indication lamp shall be incorporated on each detector which shall illuminate or flash on the detector activated. If not visible over 360° the detector shall be orientated so that the indication light faces towards the entrance to the room, or to where it can easily be visible on entry to the space in an emergency.
- e. Unit is to feature:
 - Measure of smoke density from 0.5 to 10 particle range.
 - Active output proportional to the amount of smoke present in the chamber.
 - Output value of the sensor to provide data regarding contamination levels in sensor and electronic circuit.
 - Comply with Standard EN54 Part 7.

6.3 Manual Call Points Units

Breakglass / Manual call point units are to be provided for each zone as indicated on the drawings. These are to be suitable for manual initiation of an alarm for their respective zones.

The Tenderer shall provide and install equipment that meet or better the following specifications:

Each of the different types of mechanical / electrical breakglass units shall be:

- have a well illustrated front
- where specifically called for, a stainless steel or anodised aluminium lift flap, suitably illustrated on its face shall be provided to cover the unit to offer additional protection against accidental breakage.

The types of acceptable mechanical call point units are:

a. Press-to-Activate

The electrical circuit will be activated on the button (housed behind the breakglass front) being pressed. This unit should generally be employed in preference to the break-to-activate type.

The unit shall be fire engine red with the front of the unit clearly displaying the words "FIRE / BRAND"

Recessed / chased-in round dia. 63 galvanised boxes shall be provided and installed by the electrical sub-contractor for mounting of the breakglass units, unless measured elsewhere.

6.4 Ceiling Mounted Sirens and Bases

The Tenderer shall provide and install sirens and bases that are under ceiling mounted as indicated on the drawing provided with this document. The units shall meet or better the following specification:

- a. Operate on 24 V d.c.
- b. Feature a shallow base as they are under ceiling mounted.
- c. Be fire engine red in colour.
- d. Be a compact high volume warning sounder and emit a sound level greater than 85 Db at 3 m.

Round dia. 63 galvanised boxes shall be provided and installed by the electrical sub-contractor, for the sirens unless measured elsewhere.

6.5 Line Devices

All line devices shall comply with the standard specification. The type and location of line devices are shown on the drawings.

Line Relays:

The Sub Contractor will provide the line relay and connect to a 24V contactor coil. The contactor and wiring to its contacts to be carried out under this contract but as part of the Air Conditioning installation.

Interface Units:

The interface units used shall be with Normally Open contacts either of the 'fire' or 'non-fire' types; an end of line resistors shall be provided with each interface unit.

The Sub Contractor will be expected to provide the interface units and connect to voltage free contacts which are to be monitored as follows:

- Contact open Normal
- Contact closed Alarm
- Wiring open Fault
- Wiring shorted Fault

6.6 Flashing Strobe / Beacon

Flashing Strobes / Beacons must use high efficiency LED's as their light source. In areas with high back ground noise, visual indicators accompany sounders to ensure that the alarm is recognised. Depending on the colour and flash rate, beacons can provide additional information about the nature of the alarm.

Features:

- IP Rating: IP65 (Standard)
- Operating Temp: -20°C to +70°C
- Construction: UV Stabilised Polycarbonate Weight: 0.14kg

Units are to be programmed to operate in the zone were a line device has activated only.

6.7 Sounder Drivers

A dual monitored line output unit (Sounder drivers) shall monitor and switch two separate 24V dc lines to sounder devices. The Sub Contractor shall provide all necessary components and interface units for the proper operation of the sounder devices by the sounder drivers.

The Sounders shall operate independently in zones or generally all together.

7.0 OPERATING AND MAINTENANCE INSTRUCTIONS

Three sets of instruction manuals shall be provided. Each manual shall comprise of the following sections, bound in a vinyl plastic covered folder with the name of the project typewritten on a card inserted into a clear plastic covered cardholder on the front cover and spine and shall be handed to the Main Contractor on completion of the installation:

- Table of Contents
- Functional Description of Plant (as installed)
- Operation of Plant (as installed – step by step instructions).
- Performance Testing Procedures including Test Report
- Maintenance Instructions (in schedule form setting out each item of plant, the description and frequency of maintenance operations required). Instructions on testing fire detection system must also be provided.
- Spare Parts (list of spare parts that shall be required, with detailed description of each part, make, model or part number and supplier's name and address).
- Descriptive Literature (for all items of plant and equipment).
- Record Drawings (of plant as installed to include plant layout drawings showing component location, control and wiring diagrams and schematic piping diagrams).

8.0 GUARANTEE

The entire fire detection and alarm evacuation system installation shall be fully guaranteed for 12 (twelve) calendar months from date of acceptance by the Engineer. During the guarantee period, the sub-contractor shall be responsible for the making good of any defects reported by the Tenant. The guarantee shall be ceded to the Superintendent following acceptance of the installation.

9.0 MAINTENANCE

The fire detection sub-contractor shall be responsible for the maintenance of the entire plant during the guarantee period, as specified in this document. Record of all services are to be kept and copies signed by the Superintendent.

The maintenance of the plant shall be undertaken by the Maintenance Staff after expiry of the guarantee period(s).

A hand-over to the Maintenance Staff representative is to be carried out on the plant 4 weeks before expiry of the guarantee period(s).

10.0 CERTIFICATION ON COMPLETION OF GUARANTEE & MAINTENANCE PERIOD

In the month prior to the expiry of the guarantee and first twelve months maintenance period the Engineer shall inspect and, if necessary, retest the installation so as to be able to provide the Tenant with a certificate, within fourteen days of the guarantee expiry date, to confirm that the guarantee has been honoured and that the installation has been properly serviced at required regular intervals by the fire detection sub-contractor.

11.0 SAMPLES & ALTERNATIVES

Samples will be requested where and when required.

The tender prices shall be based on the equipment as specified and not on any alternatives. Should the tenderer wish to submit prices for alternatives, he shall do so separately, in a letter or similar correspondence, attached to the tender. The use of any alternative equipment, if any, will be evaluated and decided on after tender award, when the costs, etc. will be negotiated with the successful tenderer

The Engineer reserves the right to call for prices on alternative equipment subsequent to tender submission.

12.0 SCHEDULES OF INFORMATION

The schedules of information contained in this document consists of 2 sections:

- Information supplied by the Engineer (schedules of drawings, cables, distribution boards, etc. as applicable).
- Information to be supplied by the sub-contractor at tender stage (tender form, information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable).

Tenderers must complete, at the time of tendering, the "Schedule of Material Offered", and provide sufficient technical details to enable the equipment concerned to be identified without ambiguity.

It is not sufficient for a Tenderer to state "as specified" in the schedules.

Failure to complete these schedules (if applicable) may render a tender invalid.

13.0 DRAWINGS

13.1 General

Generally, the term "detail" shall mean that the drawing is exact in all aspects to what shall be provided. Where the term "illustration" is used, however, it shall be construed that the drawing is to be regarded as a proposal or guideline as to what is to be provided, manufactured or supplied.

13.2 Tender Drawings

Refer to the proposed Fire Detection and Alarm Evacuation Installation as provided with this document.

13.3 Construction / Workshop Drawings

The successful tenderer shall submit construction drawings (or detailed catalogues) of the manufactured equipment, such as mounting details, etc., for consideration by the Engineer prior to manufacture/supply thereof.

The Engineer's approval of construction or workmanship drawings does not relieve the sub-contractor of his responsibility with regards to any of the deviations from the requirements of this contract unless the Engineer has been clearly informed, in writing, of such deviations at the time of submission and the Engineer subsequently gives written approval for the specific deviation. Similarly, the Engineer's approval shall not relieve the sub-contractor of responsibility for errors or omissions in the construction / workmanship drawings.

13.4 Record Drawings

The sub-contractor must prepare record drawings of the completed installation as constructed, indicating cable runs, equipment mounting details, circuiting & distribution board details, sleeve pipe positions, etc.

The contract shall not be deemed as complete until these drawings have been submitted.

13.5 Fire Detection System

The following drawings are required:

- Layout drawings
- Schematic circuit drawings
- Internal circuit drawings of all panels, etc.
- Wiring drawings showing wire colour codes and numbers as well as all connections onto terminal strips (markers to be approved by the Engineer).

The following documents are required:

- Full description of the system.
- Operating instructions.
- Installation instructions.
- Commissioning instructions.
- Maintenance instructions, maintenance schedule and trouble shooting guide.
- Programme printout

14.0 **SUPERVISION, WORKMANSHIP AND DELAYS**

The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the sub-contractor, who must be able and authorised to receive and execute instructions on behalf of the sub-contractor. This person must be a registered and accredited person, as described by the OHS Act. It must be noted that the staff complement of the sub-contractor shall remain similar throughout the duration of the contract, for all sections of the Works.

In the event that inferior materials or bad workmanship, on the part of the sub-contractor, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the sub-contractor.

Similarly, should delays in the contract be caused by poor performance on the part of the sub-contractor causing the engineer to spend extra-ordinary time on the project, the extra costs incurred shall be borne by the sub-contractor.

These costs will be based on the SAACE hourly rate and will be deducted from claims due to from claims which will become due to the sub-contractor.

15.0 **COMPLIANCE WITH REGULATIONS, STANDARDS AND CODES**

The sub-contractor shall arrange for all inspections and testing of the installation as required. All notices, fees, including inspection and re-inspection, are the responsibility of the sub-contractor and all the relevant costs shall be borne by him.

The workmanship throughout the Works will be to the satisfaction of the Employer. Any materials or workmanship considered as faulty or incorrectly or inadequately erected or repaired, will be substituted, altered or rectified to the satisfaction of the Employer, without additional cost to the Employer.

The Works will be executed in strict accordance with the following:

- All relevant by-laws and regulations of local authorities.
- All relevant SANS, BS and other international standards.
- The Occupational Health and Safety Act of 1993.

16.0 COMMISSIONING AND TESTING

16.1 Commissioning

A documented method shall be followed whereby the sub-contractor shall ensure that his installation is correctly constructed in accordance with the manufacturers' specifications, consultant's specification, consultant's design and all Codes of Practice and International Design Codes.

The commissioning procedure must allow for signing off of the major items of equipment by a qualified person in terms of the codes. These signed off documents will form part of the record drawings.

16.2 Performance Tests

The sub-contractor shall be responsible for the physical testing, in the manufacturing works, or on site, of the items of plant or systems as required by the Engineer. These tests shall be performed by the sub-contractor or supplier of the equipment, and where called for, the Engineer shall witness such tests. The Engineer may also only witness a representative sample of the equipment tests. In any event, the sub-contractor will supply documentary proof of full performance tests of all relevant equipment.

16.3 Acceptance Tests

Acceptance tests will be performed on site of the working system or sub system, to show that the Works, as installed, is functioning according to the specifications and design. The onus for the correct functioning of the systems is still on the sub-contractor irrespective of whether the Engineer has witnessed the acceptance tests or not.

Prior to the system being taken into use, a certificate of compliance must be provided. The works shall not be deemed complete without this certificate.

16.4 Fire Detection and Alarm Evacuation System Testing Equipment

Testing equipment required for the successful commissioning of the Works described herein is to be made available by the sub-contractor.

All arrangements for this equipment or instructing of testing specialists to undertake this work and all associated costs, including professional fees shall be deducted from money due to the sub-contractor.

17.0 BUILDER'S WORK

The onus is on the sub-contractor to point out and check the requirements for and positioning and correctness of all builder's work for his services.

18.0 MAKING GOOD

With exception of making good to the cut-outs and drilled holes for piping, the sub-contractor will carry out, in all instances any work to be made good such as damage to, or disturbance of the building installations caused by himself or his employees during the execution of the contract at his own cost.

19.0 SITE MEETINGS

The sub-contractor's representative shall be expected to attend an official site meeting at the onset of the project including scheduled technical and site meetings during the contract period. For meetings termed as "technical and site", a site representative is required and must be competent and able to interpret and receive and act on instructions on behalf of the sub-contractor. The tenderer shall price all relevant P & G costs, overheads, travelling, etc. for these meetings.

RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
FIRE DETECTION AND ALARM EVACUATION INSTALLATION
PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
	<u>BILL NO. 1 : PRELIMINARY AND GENERAL</u>					
1,1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.					
	Fixed	Item	1			
	Value Related	Item	1			
	Time Related	Item	1			
1,2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract.					
	Fixed	Item	1			
	Value Related	Item	1			
	Time Related	Item	1			
1,3	Tools and equipment, Communication, transport.					
	Fixed	Item	1			
	Value Related	Item	1			
	Time Related	Item	1			
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month).					
	Fixed	Item	1			
	Value Related	Item	1			
	Time Related	Item	1			
1,5	Provision of all drawings and manuals as specified including As-Installed drawings.	Item	1			
1,6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations .	Item	1			
1,7	Provision of Training of Client's representative (s) at "practical completion" and at "end of defects liability period".	Item	1			
1,8	Status Quo report on existing fire detection system, with indepth investigation of exsting system	Item	1			
Total Carried forward to Summary Page						

RNA CONSULTING ENGINEERS
DIMBAZA FACTORIES SITE 03
FIRE DETECTION AND ALARM EVACUATION INSTALLATION
PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
	BILL NO. 2 : FIRE DETECTION EQUIPMENT PHASE 1					
2,1	ADDRESSABLE FIRE CONTROL PANEL Supply, Install, test, commission and provide 12 month guarantee for Fire Control and Alarm Panel c/w loop card, 12Vdc 12AH battery back-up , charger. (4 Loop Panel)	no.	8			
2,2	ADDRESSABLE OPTICAL SMOKE DETECTORS Supply, Install, test, commission and provide 12 month guarantee for Optical Smoke Detectors c/w bases.	no.	73			
2,3	ADDRESSABLE REMOTE LIGHT EMITTING DIODE (LED) Supply, Install, test, commission and provide 12 month guarantee for Remote Light Emitting Diode (LED) to suit detection device detailed c/w bases.	no.	13			
2,4	ADDRESSABLE HEAT DETECTORS Supply, Install, test, commission and provide 12 month guarantee for Heat Detectors c/w bases.	no.	13			
2,5	Open Area Dual Ended Smoke Imaging Detection Imager Supply, Install, test, commission and provide 12 month guarantee for open-area smoke imaging detection imager, 7° Coverage, 24Vdc.	no.	23			
2,6	Open Area Smoke Imaging Detection Emitter Supply, Install, test, commission and provide 12 month guarantee for open-area smoke imaging detection emitter, std power, battery version	no.	23			
2,7	Boxed Power Supply Unit Supply, Install, test, commission and provide 12 month guarantee for boxed power supply unit, 100 -	no.	22			
2,8	ADDRESSABLE MANUAL CALL POINTS Supply, Install, test, commission and provide 12 month guarantee for Breakglass Units - Type 1 c/w bases.	no.	26			
2,9	ADDRESSABLE SIREN WITH BUILT-IN FLASHING STROBE WARNING LIGHT Supply, Install, test, commission and provide 12 month guarantee for Siren with build-in Smoke Detectors c/w bases.	no.	54			
Subtotal Carried forward to Next Page						

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FIRE DETECTION AND ALARM EVACUATION INSTALLATION
PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
Subtotal Brought forward from Previous Page						
2,10	ADDRESSABLE FLASHING STROBE WARNING LIGHT Supply, Install, test, commission and provide 12 month guarantee for flashing strobe with range of 30 to 130 flashes per minute, 3Hz or less, c/w bases and labelling.	no.	35			
2,11	ADDRESSABLE 96t dB SIREN Supply, Install, test, commission and provide 12 month guarantee c/w bases.	no.	30			
2,12	DOOR SWITCHES Supply, Install, test, commission and provide 12 month guarantee for Read Switches linked to Main Fire Control Panel and/or Repeater Fire Control Panel.	Sets	0			
2,13	BATTERIES Supply, install, test, commision and provide a 12 month guarantee for 12 Vdc 7.5AH battery	no.	16			
2,14	Intelligent Mains Interphase Relay for Switching Input / Output Unit Supply, install, test, commission and provide a 12 month guarantee for intelligent mains switching input / output unit. Providing single line tolerant circuit with minimum one normally open contacts, conencted to single pair of cables.	no.	13			
2,15	Intelligent Input / Output Unit Supply, install, test, commission and provide a 12 month guarantee for intelligent input / output unit. Pair of normally open contacts connected with single pair of cables, c/w a st of changeover relay output contacts.	no.	36			
2,16	NETWORK CARD Supply, install, test, commission and provide a 12 month guarantee for two (2x) Westermo Converters ODW732 Single Mode, Fibre to 485, for connection of fire detection system to IDZ control room	no.	9			
2,17	REMOTE DISPLAY UNIT Supply, install, test, commission and provide a 12 month guarantee for remote display unit	no.	1			
2,18	FIRE PROOF CABLE Supply, install, test, commission and provide a 12 month guarantee for fire proof cable with a fire rating of 30 minutes or higher, all as specified.	m	1960			
Subtotal Carried forward to Next Page						

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PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
Subtotal Brought forward from Previous Page						
2,19	INTER-LOCKING SYSTEM Supply, install, test, commission and provide a 12 month guarantee for inter-locking of fire detection system with Ventilation Systems.	no.	6			
2,20	A3 FRAMED FIRE ZONE PANEL Supply and install an A3 frame fire zone panel indicating all zones on that floor with devices numbering. Zones to be in different colour for easy readability. All frames to be installed next to the panels (Main / Repeater panels and etc.).	no.	8			
2,21	SPRAGUE CONDUIT Supply, Install, test, commission and provide 12 month guarantee for Sprague Conduit c/w bases, couplings (include all mounting brackets & boxes etc all as specified).	m	351			
2,22	PVC CONDUIT Supply, Install, test, commission and provide 12 month guarantee for PVC conduit chased into brickwork, cast into concrete or fixed onto trusses including cutting, bending, steel saddles, bushes, etc.					
2.22.1	25mm diameter conduit	m	1960			
2.22.2	32mm diameter conduit	m	980			
2,23	PVC CONDUIT ROUND BOXES					
2.23.1	Supply, Install, test, commission and provide 12 month guarantee for round box for 25mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed onto trusses including couplings bushes, cover plates and fixing materials.	no.	92			
2.23.2	Supply, Install, test, commission and provide 12 month guarantee for 75 x 75 x 50 box (for manual call points) for 25mm conduit, chased into brickwork or cast into concrete.	no.	15			
2,24	WIRING CHANNEL (P2000) Supply, Install, test, commission and provide 12 month guarantee for P2000 wiring channel, galvanised channel with cover including suspension hangers, end caps and etc.	m	975			
2,25	PROGRAMING Update existing fire detection protocols, sequencing etc.	no.	8			
2,25	TESTING Testing of entire system to ensure all modifications; additions to system intergrate, to ensure 100% operational status	no.	8			
Subtotal Carried forward to Next Page						

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PROVISIONAL BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	AMOUNT
Subtotal Brought forward from Previous Page						
	<p>RS485</p> <p>Supply, Install, test, commission and provide 12 month for RS485 cable, in sleeve provided by others.</p> <p><u>Electrical</u></p> <p>Connect equipment to isolator or connect cable to isolator,</p> <p><u>12 Month Service Plan</u></p> <p>Supply 12 month service plan, consisting of 3 quarterly minor</p> <p><u>Training</u></p> <p>Training of staff on operation of units; location of equipment and</p>	<p>m</p> <p>no.</p> <p>No</p> <p>No</p>	<p>975</p> <p>9</p> <p>7</p> <p>8</p>			
Total Carried forward to Summary Page						

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FIRE DETECTION AND ALARM EVACUATION INSTALLATION
PROVISIONAL BILL OF QUANTITIES

FINAL SUMMARY PAGE

Item No.	Description	Total Amount
1	TOTAL BILL NO 1: PRELIMINARY & GENERAL	
2	BILL NO. 2 : FIRE DETECTION EQUIPMENT PHASE 1	
3	PC SUM : NETWORKING	R 150 000,00
Total carried to Form of Offer and Acceptance (Ex VAT)		

REMINDER NOTE

The **Total Price** including Main Contractor's Mark-up **which excludes VAT**, must be carried over to the final summary in **Volume 1** and all fixed amounts shown in the price schedule must be included therein. No adjustments will be made for any failure by Tenderers to include the fixed amounts in the **Total Price** for this particular installation.

SUB-CONTRACTOR'S NAME:

DATE:

SIGNATURE:

N.B. The above-named Sub-Contractor is to be employed on this contract. Substitute Sub-Contractors are not acceptable.

The price submitted include all Main Contractor's 'Profit and Mark up **BUT** Exclude the VAT when transferring price to Volume 2.3 of the Final Summary

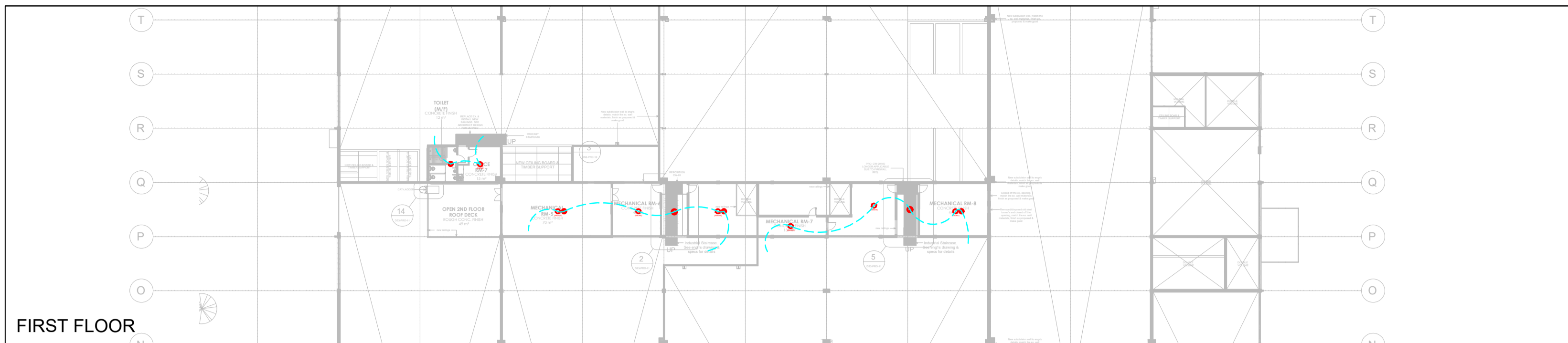
AUTOMATIC FIRE DETECTION INSTALLATIONS

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities. The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB : Only one manufacturer's name to be inserted for each item.

Item	Material	Make or trade name	Country of Origin
1.	ADDRESSABLE FIRE CONTROL PANEL		
2.	ADDRESSABLE OPTICAL SMOKE DETECTORS		
3.	ADDRESSABLE REMOTE LIGHT EMITTING DIODE (LED)		
4.	ADDRESSABLE OPTICAL HEAT DETECTORS		
5.	ADDRESSABLE MANUAL CALL POINTS		
6.	WEATHER PROOF ADDRESSABLE MANUAL CALL POINTS		
7.	ADDRESSABLE SIREN		
8.	ADDRESSABLE FLASHING STROBE WARNING LIGHT		
9.	FIRE RESISTANT CABLE		
10.	ITERPHASE / RELAY UNITS		
11.			
12.			
13.			

NOTE : Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor. Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.



GENERAL NOTES:

1. All work shall be in accordance with the relevant parts of the SANS 10400 series of standards.

2. The Contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities.

3. The Contractor shall ensure that all work is completed in accordance with the approved drawings and specifications.

4. The Contractor shall ensure that all work is completed in a timely manner and within the agreed budget.

5. The Contractor shall ensure that all work is completed in a safe and sound manner.

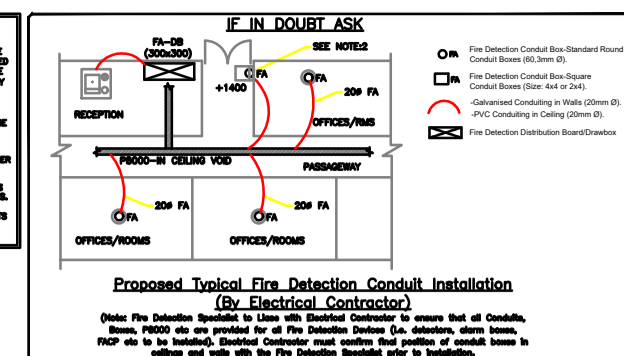
6. The Contractor shall ensure that all work is completed in a professional and ethical manner.

7. The Contractor shall ensure that all work is completed in a sustainable manner.

8. The Contractor shall ensure that all work is completed in a socially responsible manner.

9. The Contractor shall ensure that all work is completed in a transparent manner.

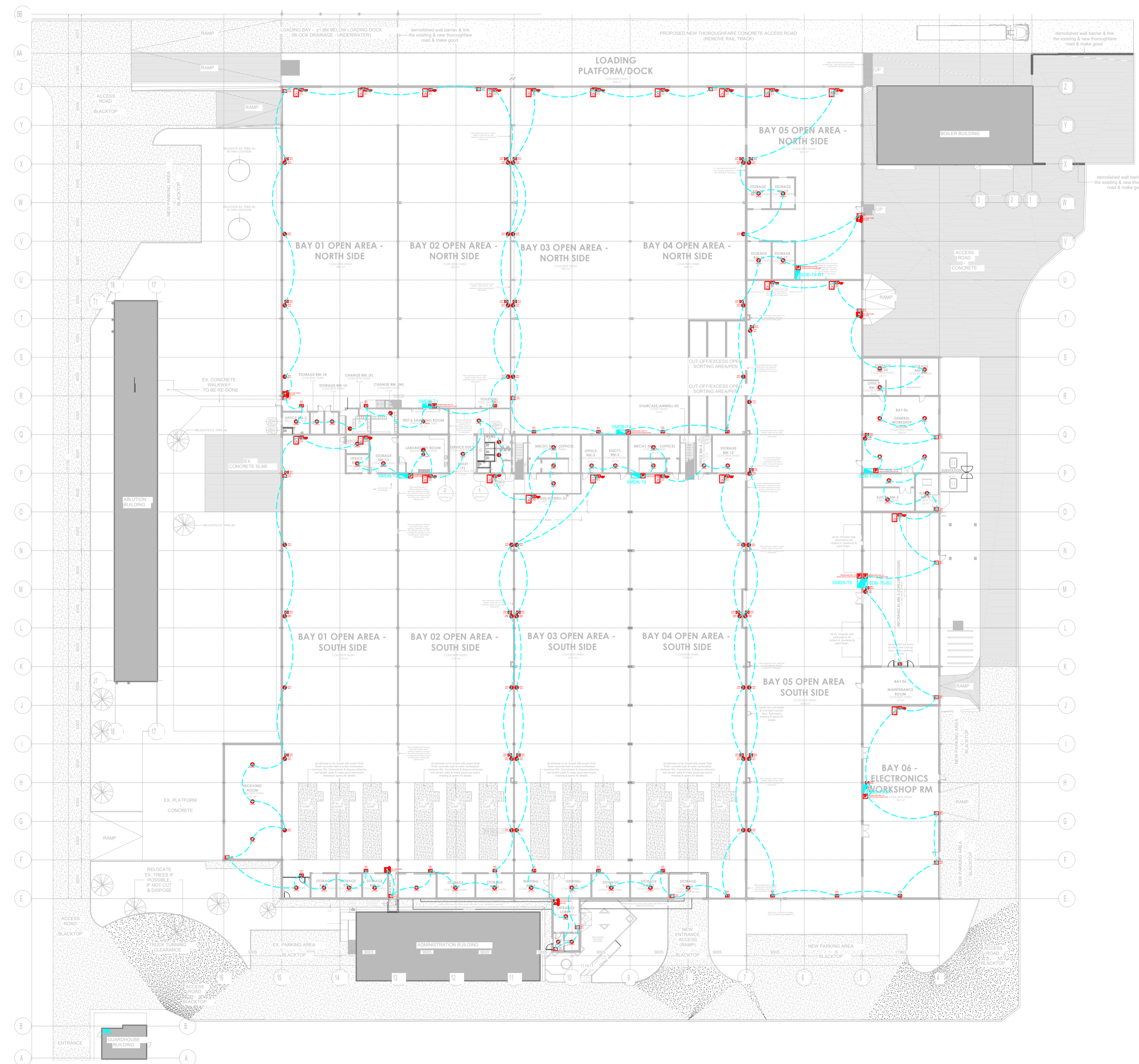
10. The Contractor shall ensure that all work is completed in a accountable manner.



LEGEND

SYMBOL	DESCRIPTION
○	ADDRESSABLE SMOKE SENSOR DEVICES
●	ADDRESSABLE HEAT SENSOR DEVICES
○	ADDRESSABLE COULING VIBRATOR SENSOR DEVICES
○	ADDRESSABLE EXTERIOR GAS PIPED
○	ADDRESSABLE EXTERIOR TUBE DEVICE
○	ADDRESSABLE FIRE CONTROL PANEL L1 + FLOOR PANELS
○	ADDRESSABLE FIRE CONTROL PANEL L2 + FLOOR PANELS
○	ADDRESSABLE FIRE CONTROL PANEL L3 + FLOOR PANELS
○	ADDRESSABLE FIRE CONTROL PANEL L4 + FLOOR PANELS
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FIRST FLOOR



REVISIONS

REV	DATE	INIT.	DESCRIPTION

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PROJECT

ECDC PROPERTIES - DIMBAZA
 FACTORIES - SITE 03

TITLE

SITE 03 -
 EARLY WARNING SMOKE DETECTION
 EQUIPMENT LAYOUT

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DESIGN	TENDER	CONSTRUCTION
✓		

DESIGNED BY: Travis Warne

SCALE: 1:250

DRAWN: T. Warne

DATE: 31/08/2023

PRINT DATE: 14/11/2023

CHECKED BY: Travis Warne

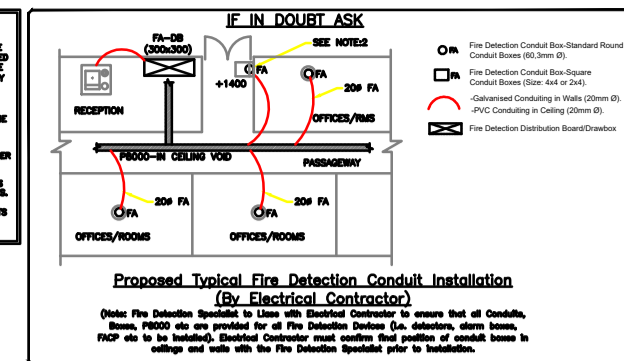
REGISTRATION No.: 201770017

SIGNED:

DRAWING NO.: 2318-T-M-101 EWD S03

REV No.: A

SECTOR SPREAD REQUIREMENTS
 Section 4 of the Fire Protection Act, 1987 (Act No. 101 of 1987) requires that the fire alarm system shall be designed and installed in accordance with the requirements of the Fire Protection Act, 1987 (Act No. 101 of 1987) and the Regulations thereunder.




LEGEND

SYMBOL	DESCRIPTION
○	ADDRESSABLE SMOKE SENSOR DEVICES
●	ADDRESSABLE HEAT SENSOR DEVICES
⊗	ADDRESSABLE MANUAL CALL POINT DEVICES
⊕	ADDRESSABLE MANUAL CALL POINT DEVICES
⊙	ADDRESSABLE FIRE CONTROL PANEL L1 + LOOP PANELS
⊚	ADDRESSABLE FIRE CONTROL PANEL L2 + LOOP PANELS
⊛	ADDRESSABLE FIRE CONTROL PANEL L3 + LOOP PANELS
⊜	ADDRESSABLE FIRE CONTROL PANEL L4 + LOOP PANELS
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⊽	ADDRESSABLE FIRE CONTROL PANEL L50 + LOOP PANELS

GENERAL NOTES:

REVISIONS

REV	DATE	INIT.	DESCRIPTION

CLIENT

PROJECT
 ECDC PROPERTIES - DIMBAZA
 FACTORIES - SITE 03

TITLE
 SITE 03 -
 EARLY WARNING SMOKE DETECTION
 EQUIPMENT LAYOUT

ARCHITECT

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DESIGN	TENDER	CONSTRUCTION
✓		

DESIGNED BY: Travis Warne
SCALE: 1:50

DRAWN: T. Warne
DATE: 31/08/2023
PRINT DATE: 13/11/2023

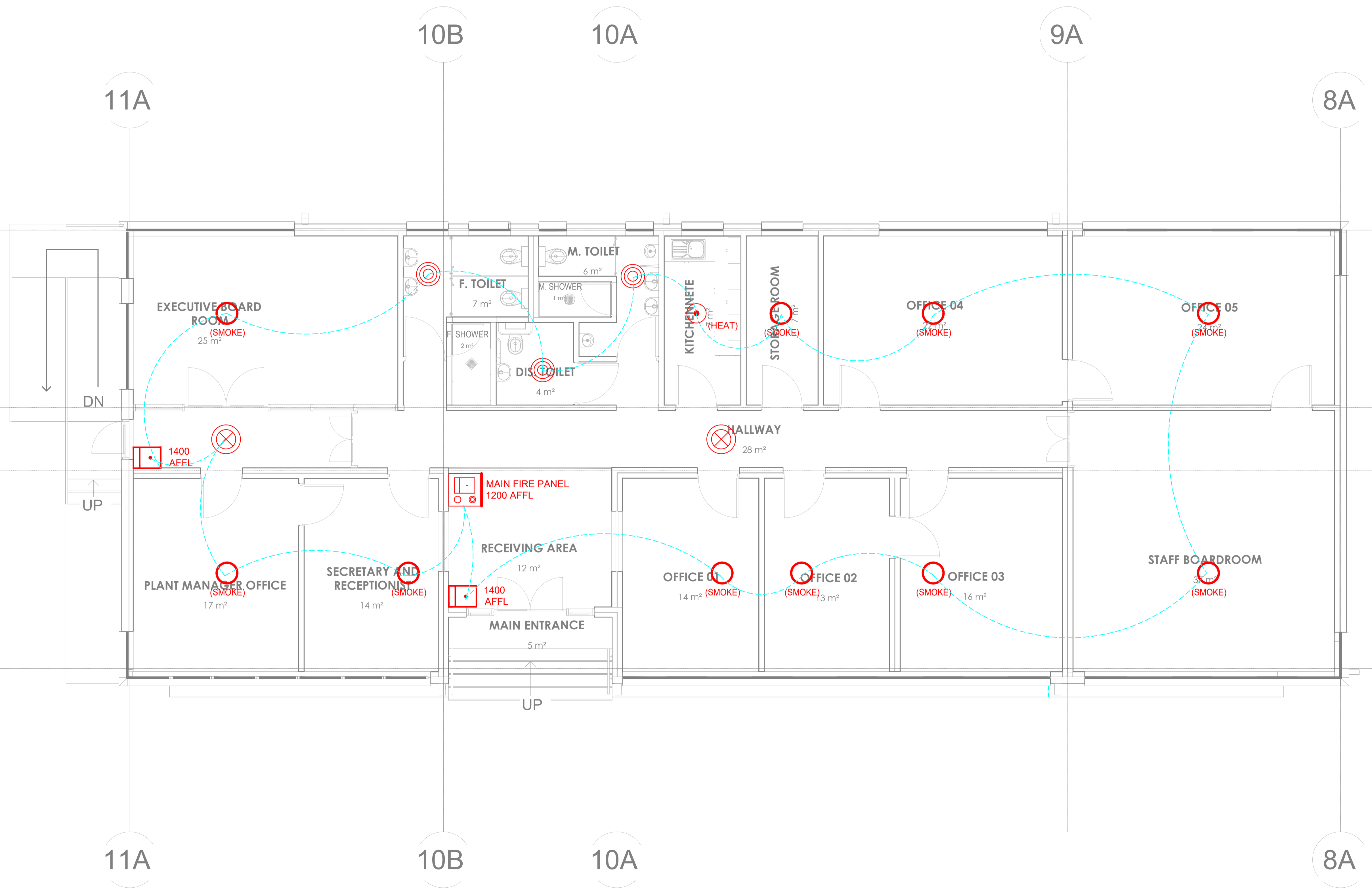
CHECKED BY: Travis Warne

REGISTRATION No.: 201770017

SIGNED:

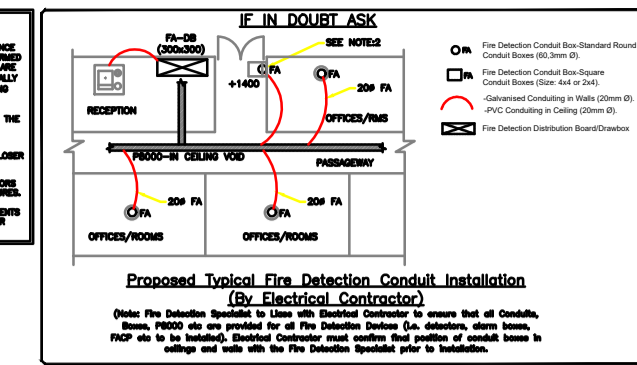
DRAWING NO.: 2318-T-M-102 EWD S03
REV No.: A

FIRST FLOOR



SENSOR SPACING REQUIREMENTS

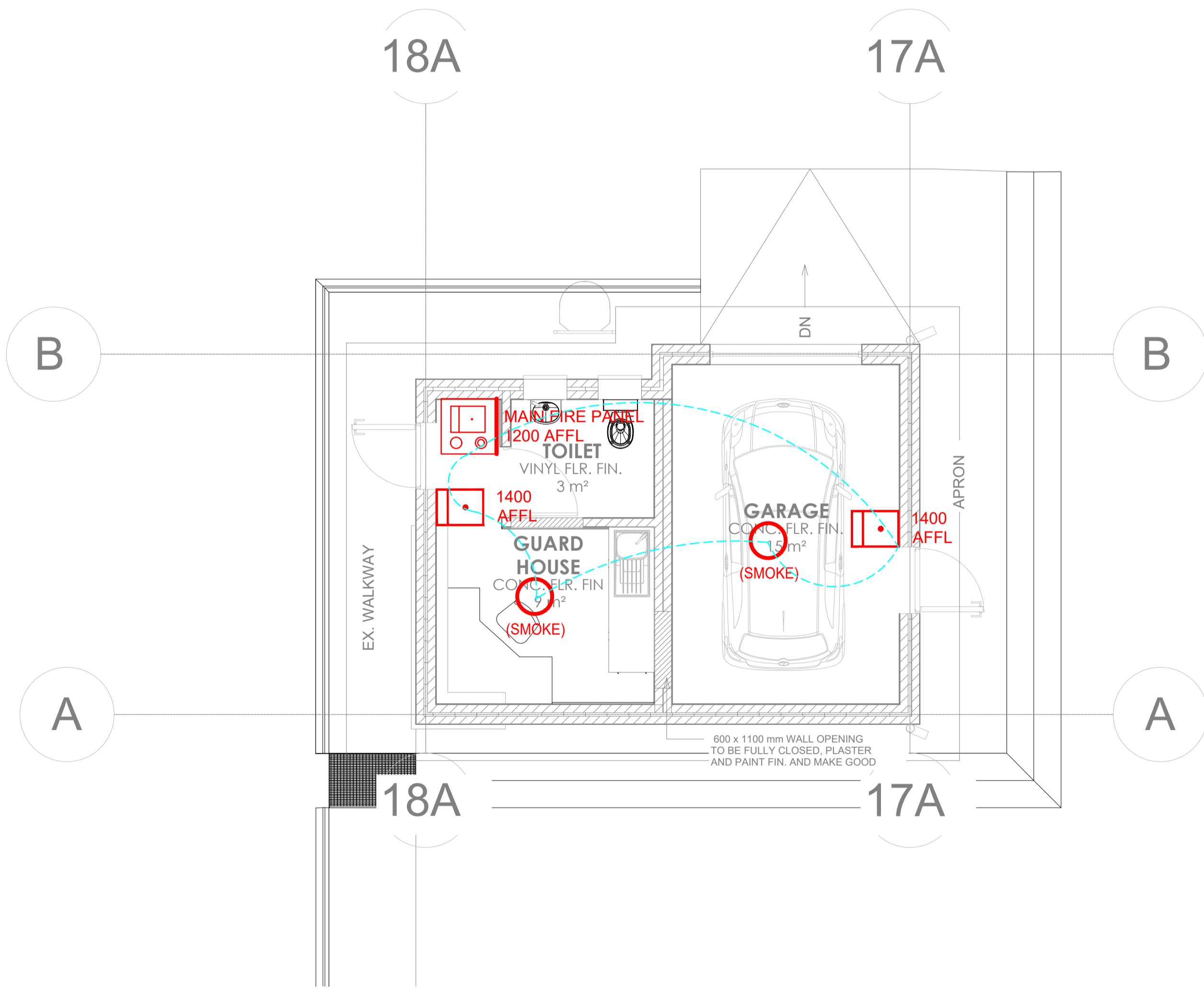
Spacing of sensors shall be in accordance with the minimum spacing requirements of the relevant fire alarm system. The spacing shall be in accordance with the relevant fire alarm system. The spacing shall be in accordance with the relevant fire alarm system.



SYMBOL	DESCRIPTION
○	ADDRESSABLE SMOKE SENSOR DEVICES
○	ADDRESSABLE HEAT SENSOR DEVICES
○	ADDRESSABLE COULDED FIRE BEAM SENSOR DEVICES WITH ADDRESSABLE EXTENSIBLE DELAY LED
○	ADDRESSABLE BEAM SENSOR - 180° DEVICE
○	ADDRESSABLE FIRE CONTROL PANEL L1 + FLOOR PANELS
○	ADDRESSABLE FIRE CONTROL PANEL L2 + FLOOR PANELS
○	ADDRESSABLE FIRE CONTROL PANEL L3 + FLOOR PANELS
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Proposed Typical Fire Detection Conduit Installation (By Electrical Contractor)


Refer Fire Detection Schedule for details of Fire Detection System. All devices are to be installed in accordance with the relevant fire alarm system. The spacing shall be in accordance with the relevant fire alarm system.



GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION

CLIENT



PROJECT

ECDC PROPERTIES - DIMBAZA
FACTORIES - SITE 03

TITLE

SITE 03 -
EARLY WARNING SMOKE DETECTION
EQUIPMENT LAYOUT

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DESIGN	TENDER	CONSTRUCTION
✓		

DESIGNED BY: Travis Warne

SCALE: 1:50

DRAWN: T. Warne

DATE: 31/08/2023

PRINT DATE: 13/11/2023

CHECKED BY: Travis Warne

REGISTRATION No. 201770017

SIGNED:

DRAWING No. 2318-T-M-103 EWD S03

REV No. A



Part C3: Scope of work
C3 - Scope of work

1 Background To

ECDC Vision

To be an innovative leader in promoting sustainable economic growth and development of the Eastern Cape.

Mission

To promote sustainable economic development in the Eastern Cape through focused:

- a) Provision of innovative development finance
- b) Leveraging of resources, strategic alliances, investment and partnerships.

Legislative Mandate

ECDC draws its mandate directly from the Eastern Cape Development Corporation Act (Act 2 of 1997) and is led by the economic development priorities of the provincial government, as detailed in the Provincial Growth and Development Plan (PGDP), Eastern Cape Provincial Industrial Development Strategy (PIDS), the policy statement and budget speech of the Member of the Executive Council (MEC) of Economic Development, Environment Affairs and Tourism (DEDEAT)

Section 3 of the ECDC Act states that the Corporation shall “plan, finance, co-ordinate, market, promote and implement development of the Province and its people in the field of industry, commerce, agriculture, transport and finance”.

2 Scope of Works

2.1 General description of the works

The description and scope of works, as described hereunder are a general guide only and may be subject to change. No liability or claim will be accepted should this information provided change or be regarded as misleading.

The work comprises the following:

MAIN FACTORY BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Conc. Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3. Roof Support Structure - Steel

Clean, repair, refurbish, and repaint the existing steel portal frame, purlins, bracing, etc. Refer to structural engineering drawings for details.

1.4. Roof Support Structure - Concrete

Clean, repair, refurbish, and repaint existing concrete columns, beams, etc. Refer to structural engineering drawings for details.

1.5. Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.6. Rainwater Goods - Aluminium

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

1.7. Rainwater Goods - Galv. Steel

Replace existing asbestos box gutter and downpipes with custom-made galvanized steel box gutter and downpipes. Refer to rainwater goods drawing and specs for details.

1.8. Rainwater Goods - Concrete

Repair, refurbish, and waterproof the existing concrete box gutter. Replace asbestos downpipes with galvanized steel pipes. Refer to rainwater goods drawing/specs for details.

1.9. Skylights

Replace existing roof air vent with skylights for natural light and ventilation. Installation by specialist

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and brandering. Provide new trap doors and over brandering insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Curtainwalls

Install new curtainwalls along the entire building perimeter for natural light and ventilation requirements.

3.4. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.5. Wall Tiles

Replace all existing ablution wall tiles. Refer to tile layout drawing for details.

3.6. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.1. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

ADMINISTRATION BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Roof Support Structure

Repair and replace damaged timber trusses, purlins, bracing, etc. Make good. Refer to structural engineer drawing for details.

1.3. Rainwater Goods

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and brandering. Provide new trap doors and over brandering insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing ablution wall tiles. Refer to tile layout drawing for details.

3.5. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.1. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

ABLUTION FACILITY BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Roof Support Structure

Repair and replace damaged timber trusses, purlins, bracing, etc. Make good. Refer to structural engineer drawing for details.

1.3. Rainwater Goods

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and brandering. Provide new trap doors and over brandering insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing ablution wall tiles. Refer to tile layout drawing for details.

3.5. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.2. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

6.3. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.2. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

GUARD HOUSE BUILDING

1. ROOF STRUCTURE

1.1. Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.2. Concrete Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3. Rainwater Goods

Replace existing asbestos downpipes with custom-made seamless aluminium downpipes, including the existing deteriorated cast iron full bore with a brand new one. Refer to rainwater goods drawing and specs for details.

2. CEILING/CONCRETE ROOF SLAB UNDERSIDE

2.1. Concrete Roof Slab Underside

Clean, repair, refurbish, and repaint existing concrete roof slab underside. Refer to structural engineer repair and refurbishment schedules for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing ablution/kitchenette wall tiles. Refer to tile layout drawing for details.

3.5. Toilet

Demolish the partition wall inside the toilet to alleviate spatial issue. Clean, repair, and refurbish existing walls and make good. Refer to sanitaryware schedule for details.

4. FLOORS

4.4. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.5. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.6. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.4. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.5. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.6. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.4. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

6.5. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.3. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

BOILER ROOM BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Conc. Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3. Roof Support Structure - Steel

Clean, repair, refurbish, and repaint the existing steel portal frame, purlins, bracing, etc. Refer to structural engineering drawings for details.

1.4. Roof Support Structure - Concrete

Clean, repair, refurbish, and repaint existing concrete columns, beams, etc. Refer to structural engineering drawings for details.

1.5. Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.6. Rainwater Goods - Aluminium

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING/CONCRETE ROOF SLAB UNDERSIDE

2.1. Concrete Roof Slab Underside

Clean, repair, refurbish, and repaint existing concrete roof slab underside. Refer to structural engineer repair and refurbishment schedules for details.

3. SUPERSTRUCTURE

3.1. Masonry Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Asbestos Wall Cladding

Replace all existing asbestos wall cladding, flashing, bargeboard, and etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

3.3. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.4. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Open Ditch/Trench

Seal the entire opening with a 100mm thick concrete slab, fills, and make good, Refer to engineers drawing for details

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

SITE 03 - INFRASTRUCTURES

1. INTERNAL ROAD

1.1. Re-design Entrance Gate & Internal Roads:

- Tailor the entrance gate and internal roads to accommodate cargo trucks and meet the requirements of multiple tenancies.

1.2. Provide Thoroughfare Road:

- Establish a thoroughfare road to service the existing loading platform on the northern side of the main factory building.

1.3. Additional Parking Spaces:

- Create extra parking spaces and utilize overflow parking on the open grass field located at the back of the ablution facility.

2. BOUNDARY FENCE

2.1. Replace Existing Boundary Fence:

- Replace the current dilapidated diamond mesh boundary fence with a 2.4m Security fence. Install in accordance with manufacturer requirements and recommendations.

2.2. Re-design & Install New Entrance Gate:

- Redesign and install a new entrance gate as per architect details and specifications.

3. DRAINAGE SYSTEM

3.1. Optimize Existing Drainage System:

- Make the most of the existing drainage system and upgrade it to accommodate the requirements of multiple tenancies.

4. WATER SUPPLY SYSTEM

4.1. Maximize Existing Water Supply System:

- Utilize the current water supply system to its fullest extent and upgrade it to meet the needs of multiple tenancies.

5. STORM WATER MANAGEMENT SYSTEM

5.1. Utilize and Upgrade Storm Water System:

- Optimize the existing stormwater management system, making necessary upgrades to align with the requirements of multiple tenancies.

SITE 03 – LANDSCAPING

1. GRASS LAWNS AND FIELDS

1.1. Clearing of Unwanted Vegetation:

- Remove and clear all undesired and overgrown bushes, disposing of them at the designated tipsite.

2. EXISTING TREES

2.1. Removal of Invasive Trees:

- Cut down trees that are causing damage to existing walkways, infrastructures, and buildings.

2.2. Clearing for Proposed Development:

- Remove & disposed trees that obstruct the proposed development.

2.3. Removal of Trees Inside Buildings:

- Cut down & disposed trees that are growing inside the buildings, posing potential hazards or causing structural issues.

SITE 03 – SEQUENCE OF WORKS

The contract period is 15 months including removal and disposal of Asbestos.

Removal of Asbestos as per the Asbestos Management Plan is proposed for a period of two months including disposal to a waste management site or asbestos disposal site. After complete removal and disposal of the asbestos, the AIA will complete an asbestos testing that can take up to one week to confirm the site is asbestos free and a compliance certificate is to be provided. Once this is completed the contractor can then only proceed with the scope of work described for an overall contract period (including removal and disposal) of 15 months.

2.2 Variation in the Scope of Work

The Client retains the right to omit specific sections of the work prior to signing the contract and in the event that such omissions are incorporated in the contract it is hereby agreed that no claim for loss of profit will be entertained. In addition, tenderers are required to price all work in a "stand-alone fashion" so that profit/mark-up etc are such that omission of any of the tendered works will NOT render the remaining contract work viable.

2.3 Temporary works, etc.

Refer also to Clause 4.2: Enclosure of the Works in the Preliminaries Section of this document.

3. General

3.1 Damage to other services

The Contractor shall assume full responsibility in the event where he or any person in his service is directly or indirectly responsible for any damages caused to other services already installed (water, sewerage, storm water, roads, surveyors' pegs, etc.) Any such damage shall immediately be reported to the Principal Agent.

The Contractor shall be held fully responsible for the repair of such damage to the satisfaction of the Principal Agent.

The costs for the repair of such damage shall be borne by the Contractor. Claims by the Contractor in this connection will not be considered. Should any portion of the works in terms of this Contract, for which the Contractor is responsible, be damaged by other Contractors, the Contractor shall repair such damage at the tendered rate and shall submit full details of such damage to the Principal Agent so that he can recover such costs from the responsible party.

This repair work may only be done on the written instruction from the Principal Agent. The contractor shall make provision for a full scan of the area to determine the position of services in the area.

3.2 Local labour and local authorities

Local Labour:

It is intended that the project must make maximum possible use of local labour which is presently unemployed in the area of which the project is performed.

All unskilled labour shall be from the Local Municipal Supply area.

Engagement of local labour shall be controlled in a formal manner through the client's labour liaison body. It is furthermore expected that the labour liaison body will assist in the monitoring of labour goals.

3.3 Liaison with Local Authorities

The contractor will have to liaise with local authorities regarding the following matters:

3.3.1 Locating of existing underground services.

3.3.2 Protection of existing services during construction.

It is the contractor's onus to immediately contact all these authorities and to accommodate their involvement in his programme of work.

The contractor should also warn the authorities at least 48 hours before the actual work commence.

Compensation for delays, losses or accidents will not be considered should the contractor at any time have failed to keep the local authorities informed.

The Principal Agent or employer must immediately be notified, should the contractor experience any problem regarding work, which involves a local authority.

3.4 Community Liaison and Community Relation

In all dealings with the community and workers employed from within the community, the Contractor shall take due cognisance of the character, culture and circumstances of the community involved and shall at all times use his best endeavours to avoid the development of disputes and to foster a spirit of co-operation and harmony towards the project.

The Contractor shall at all times, keep the Principal Agent fully informed on all matters affecting the contractor and the community, and shall attend all community meetings relating to the project as may be reasonably required by the Principal Agent.

All matters concerning the community shall be discussed and where possible, resolved at such meetings. Where any resolution of a community meeting shall be contrary to the terms and provisions of the Contract, the Contractor shall not give effect thereto without a prior written instruction from the Principal Agent.

Where the Contractor is of the opinion that any instruction of the Principal Agent issued in terms of this clause will result in the incurring of additional costs which were not provided for in his tendered rates and/or that a delay in the progress of the works will result, he shall be entitled to submit a claim in terms of the conditions of contract.

3.5 OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)

Contractors shall meet the health and safety requirements as stipulated in health and safety plan, to be prepared by the Employer's Agent and issued to the contractor.

3.5.1 Safety Precautions

Notwithstanding the fact that the Contractor is solely responsible for the actions of his staff and any duly appointed sub-contractors, the Principal Agent reserves the right for himself, or his nominated representative, to inspect and monitor working methods and materials handling to ensure that safe working practices are being adhered to at all times.

3.5.2 Health and Safety Specifications

Please refer to Annexure A in Part C.4 for the Health and Safety Specification including Asbestos Abatement Regulations 2020 Project Specification.

Asbestos Removal

Tenderers have to price under alterations also for a Comprehensive Asbestos Plan, Pre-production sampling, Clearance Sampling and Clearance Report/Certificate.

It will be deemed that Tenderers' prices received have fully taken the above requirements into consideration and priced accordingly to allow for the correct procedure of removal and disposal thereof to a designated dumping site in terms of the latest legislation applicable. No extra cost will be entertained for not pricing for the correct legislative procedures. The asbestos removal must be done by a registered asbestos removal contractor. Removal as per the Asbestos Management Plan is proposed for a period of two months including disposal to a waste management site or asbestos disposal site. After complete removal and disposal of the asbestos, the AIA will complete an asbestos testing that can take up to one week to confirm the site is asbestos free and a compliance certificate is to be provided. The Tenders must allow for all the above costs in the tender price submitted. The asbestos removal must be read in conjunction with the OHS Specification, Baseline Risk Assessment and the Asbestos Management Plan included in this tender document. All Asbestos removal must be done and comply to the Asbestos Abatement Regulation 2020.

4 SMME Sub-contracting requirements

A minimum of 30% of the building work needs to be allocated to SMME Sub-contractors. Contractors will be required to supply verified monthly statements/schedules (verified by their auditors) indicating the % achieved for that month. A cumulative schedule also needs to be maintained for each month that has passed.

4.1 Responsibilities and duties

Notwithstanding the fact that a description of the services has been provided above, ECDC shall be entitled to request additional services related to deliverables required to ensure the successful completion of the services set out above on such further terms and conditions as may be agreed between the parties in writing.

The service provider shall at all times faithfully and timeously carry out and perform the Services and shall use its best endeavours to properly conduct, improve, extend and develop the business of ECDC in the provisioning of the services.

The Services Provider shall as part of his duties, attend such meetings as may be required by ECDC from time to time and submit weekly or monthly progress reports on the services as may be required and requested by ECDC.

4.2 Obligation to perform and sub-contracting

The bidder shall notify ECDC in writing of all subcontracts awarded under this contract if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the bidder from any liability or obligation under the contract.

The bidder shall not assign, in whole or in part, its obligations to perform under the contract, except with ECDC's prior written consent.

4.3 Performance guarantee

Within fourteen (14) days of receipt of the notification of contract award, the successful bidder shall furnish to ECDC the performance security of the amount specified above.

The proceeds of the performance security shall be payable to ECDC as compensation for any loss resulting from the bidder's failure to complete his obligations under the contract.

The performance security shall be denominated in the currency of the contract or in a freely convertible currency acceptable to ECDC and shall be in one of the following forms:

A bank guarantee or an irrevocable letter of credit issued by a reputable bank located in South Africa, acceptable to ECDC, in the form provided in the bid documents or another form acceptable to ECDC; or

A cashier's or certified cheque

The performance security will be discharged by ECDC and returned to the bidder not later than thirty (30) days following the date of completion of the bidder's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.

Notwithstanding the provisions above, the bidder shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

4.4 Anti-dumping and countervailing duties and rights

When, after the date of bid, provisional payments are required, or anti-dumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, ECDC is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to ECDC or ECDC may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him.

4.5 ECDC facilities

Unless otherwise agreed in writing by ECDC, the Service Provider will work from its own office and provide its own facilities, such as transport, telephone, cell phone, fax and computer facilities to perform the services.

The service provider may use certain facilities made available by ECDC to assist in performing the services, including but not limited to computer facilities, telephone and fax facilities and stationery. In this regard the service provider agrees to:

Abide by the health, safety and security measures as prescribed by ECDC from time to time;

To use such accommodation and facilities entirely at his own risk and ECDC shall not be liable for any loss or damage whatsoever and howsoever caused arising out of or in connection with the use of these items, other than loss or damage caused as a result of ECDC's own wilful misconduct.

4.6 Force majeure

If a force majeure situation arises, the bidder shall promptly notify ECDC in writing of such condition and the case thereof. Unless otherwise directed by ECDC in writing, the bidder shall continue to perform its obligations under the contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

4.7 Insurance

The contractor shall affect and maintain all required and/or necessary insurances in accordance with Clause 12 of the **JBCC Series 2000 Principal Building Agreement Edition 6.2 prepared by the Joint Building Contracts Committee, May 2018.**

4.8 Responsibility to perform

Delivery of the goods and performance of services shall be made by the bidder in accordance with the time schedule prescribed by ECDC in the contract.

If at any time during performance of the contract, the bidder or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services,

the bidder shall promptly notify ECDC in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the bidder's notice, ECDC shall evaluate the situation and may at his discretion extend the bidder's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.

ECDC reserves the right to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the bidder's point of supply is not situated at or near the place where the supplies are required, or the bidder's services are not readily available.

A delay by the bidder in the performance of its delivery obligations may render the bidder liable to the imposition of penalties, unless an extension of time is agreed upon without the application of penalties.

ECDC shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance.

Where necessary, ECDC may also consider termination of the contract in accordance to the requirements of the Construction Agreement conditions applicable for administration of this contract.

4.9 Duration of the contract

The construction project duration is **15 Months** from date of appointment. The successful Bidder shall be required to complete and submit the signed and duly completed **client recommended Construction Contract**.

Upon any delay beyond the delivery period in the case of a supplies contract, ECDC shall, without cancelling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the bidder's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the bidder. (N/A)

4.10 Payment and tax

Payments shall only be made in accordance with the fees as quoted in this documentation. Prices charged by the bidder for goods delivered and services performed under the contract shall not vary from the prices quoted by the bidder in this bid, except for any price adjustments authorized at ECDC's request for bid validity extension, as the case may be.

ECDC will reimburse the service provider for expenses and disbursements incurred subject to the submission of satisfactory proof that such expenses and disbursements have been incurred and subject to it being within the budget as indicated in this documentation.

The service provider shall from time to time during this contract duration furnish ECDC with a VAT compliant tax invoice accompanied by a copy of the delivery note and upon fulfilment of other obligations stipulated in the contract.

Each invoice must be accompanied by a detailed timesheet and expense claim forms substantiating the amount claimed.

Payments shall be made promptly by ECDC in Rand, but in no case later than thirty (30) days after submission of a VAT compliant tax invoice and supporting documentation by the service provider if the services have been properly executed as agreed.

The service provider shall retain all proof of expenditure and maintain such accounts and records as are reasonably necessary, claimed above, should ECDC require an audit to substantiate that expenditure and allow ECDC's own personnel or an independent auditor access to those records.

Should the above audit reveal that ECDC has been overcharged, the Service Provider will reimburse the ECDC the amount overcharged within 30 days inclusive of interest calculated at prime plus 2% per annum.

A foreign bidder shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Republic of South Africa.

A local bidder shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to ECDC.

C3.4 Health and Safety Specification

C3.4.1 Baseline Risk Assessment

PROJECT HEALTH AND SAFETY SPECIFICATION

PROJECT : EASTERN CAPE DEVELOPMENT CORPORATION THE REPAIRS AND REFURBISHMENTS OF SITE 3 IN DIMBAZA INDUSTRIAL PARK



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1. PROJECT AND SCOPE OF WORK DETAILS

1.1 Appointment of Health and Safety Agent

Gatsheni Sizwe(Pty)Ltd has been appointed by Eastern Cape Development Corporation for the following project : The Repairs and Refurbishments of Site 3 in Dimbaza Industrial Park as the Professional Construction Health and Safety Agent.

In terms of Construction Regulations, 2014:

Regulation 5(1), 5(5), 5(6) and 5(7)

Where a construction work permit is required as contemplated 3(1), the client must, without derogating from his or her health and safety responsibilities or liabilities, appoint a competent person in writing as an agent to act as his or her representative

5 (1) a client must –

- (a) Prepare a baseline risk assessment for an intended construction work project;
- (b) Prepare a suitable, sufficiently documented and coherent site-specific health and safety specification for the intended construction work based on the baseline risk assessment contemplated in paragraph (a):

Therefore Gatsheni Sizwe (Pty) Ltd on behalf of Eastern Cape Development Corporation has therefore prepared the following specification below, must be provided and adhered to by Principal Contractor by means of a Health and Safety File, Plan and Health and Safety Compliance on the following project: The Repairs and Refurbishments of Site 3in Dimbaza Industrial Park

The Repairs and Refurbishments of Site 3in Dimbaza Industrial Park

The objective of this specification is to ensure that Principal Contractor entering a contract with Eastern Cape Development Corporation achieves and maintains an acceptable level of occupational health, safety and environmental performance and compliance.

NOTE PRINCIPAL CONTRACTORAND ITS SUB-CONTRACTORS

The SHE specification provided by Gatsheni Sizwe (Pty) Ltd on behalf of Eastern Cape Development Corporation is the minimum requirement. Principal Contractor must develop an HSE File and Plan that meets all the requirements and all relevant and applicable legislation. Gatsheni Sizwe (Pty) Ltd and Eastern Cape Development Corporation in No way assumes Principal Contractor Legal responsibilities and liability. Principal Contractor is accountable for the quality, execution of the Health, Safety and Environmental program and management for its employees, sub-contractors, and sub-contractors' employees. The SHE specification provides the minimum requirements and shall not be construed as exhaustive and all encompassing.

Principal Contractor must include a copy of the following documents:

- a) Construction Regulation, 2014
- b) OHS Act 85 of 1993
- c) Appointment Letter from Eastern Cape Development Corporation
- d) Form of a Guarantee

e) Notification of Asbestos Work: Department of Employment and Labour

1.2 Project Title as per Tender Document:

The Repairs and Refurbishments of Site 3 in Dimbaza Industrial Park

1.3 Project description/detailed scope of work:

General description of the works

The description and scope of works, as described hereunder are a general guide only and may be subject to change. No liability or claim will be accepted should this information provided change or be regarded as misleading.

The work comprises the following sections:

MAIN FACTORY BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Conc. Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3. Roof Support Structure - Steel

Clean, repair, refurbish, and repaint the existing steel portal frame, purlins, bracing, etc. Refer to structural engineering drawings for details.

1.4. Roof Support Structure - Concrete

Clean, repair, refurbish, and repaint existing concrete columns, beams, etc. Refer to structural engineering drawings for details.

1.5. Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.6. Rainwater Goods - Aluminium

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

1.7. Rainwater Goods - Galv. Steel

Replace existing asbestos box gutter and downpipes with custom-made galvanized steel box gutter and downpipes. Refer to rainwater goods drawing and specs for details.

1.8. Rainwater Goods - Concrete

Repair, refurbish, and waterproof the existing concrete box gutter. Replace asbestos downpipes with galvanized steel pipes. Refer to rainwater goods drawing/specs for details.

1.9. Skylights

Replace existing roof air vent with skylights for natural light and ventilation. Installation by specialist

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and brandering. Provide new trap doors and over brandering insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Curtainwalls

Install new curtainwalls along the entire building perimeter for natural light and ventilation requirements.

3.4. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.5. Wall Tiles

Replace all existing ablution wall tiles. Refer to tile layout drawing for details.

3.6. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.1. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

ADMINISTRATION BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Roof Support Structure

Repair and replace damaged timber trusses, purlins, bracing, etc. Make good. Refer to structural engineer drawing for details.

1.3. Rainwater Goods

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and brandering. Provide new trap doors and over brandering insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing ablution wall tiles. Refer to tile layout drawing for details.

3.5. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.1. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

ABLUTION FACILITY BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Roof Support Structure

Repair and replace damaged timber trusses, purlins, bracing, etc. Make good. Refer to structural engineer drawing for details.

1.3. Rainwater Goods

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and brandering. Provide new trap doors and over brandering insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing abluion wall tiles. Refer to tile layout drawing for details.

3.5. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.2. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

6.3. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.2. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

GUARD HOUSE BUILDING

1. ROOF STRUCTURE

1.1. Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.2. Concrete Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3. Rainwater Goods

Replace existing asbestos downpipes with custom-made seamless aluminium downpipes, including the existing deteriorated cast iron full bore with a brand new one. Refer to rainwater goods drawing and specs for details.

2. CEILING/CONCRETE ROOF SLAB UNDERSIDE

2.1. Concrete Roof Slab Underside

Clean, repair, refurbish, and repaint existing concrete roof slab underside. Refer to structural engineer repair and refurbishment schedules for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing ablution/kitchenette wall tiles. Refer to tile layout drawing for details.

3.5. Toilet

Demolish the partition wall inside the toilet to alleviate spatial issue. Clean, repair, and refurbish existing walls and make good. Refer to sanitaryware schedule for details.

4. FLOORS

6.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

6.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

6.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1 Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2 Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3 Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.1 Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1 Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.1 Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

BOILER ROOM BUILDING

1. ROOF STRUCTURE

1.1 Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2 Conc. Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3 Roof Support Structure - Steel

Clean, repair, refurbish, and repaint the existing steel portal frame, purlins, bracing, etc. Refer to structural engineering drawings for details.

1.4 Roof Support Structure - Concrete

Clean, repair, refurbish, and repaint existing concrete columns, beams, etc. Refer to structural engineering drawings for details.

1.5 Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.6 Rainwater Goods - Aluminium

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING/CONCRETE ROOF SLAB UNDERSIDE

2.1. Concrete Roof Slab Underside

Clean, repair, refurbish, and repaint existing concrete roof slab underside. Refer to structural engineer repair and refurbishment schedules for details.

3. SUPERSTRUCTURE

3.1. Masonry Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Asbestos Wall Cladding

Replace all existing asbestos wall cladding, flashing, bargeboard, and etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

3.3. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.4. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Open Ditch/Trench

Seal the entire opening with a 100mm thick concrete slab, fills, and make good, Refer to engineers drawing for details

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

SITE 03 – INFRASTRUCTURES

1. INTERNAL ROAD

1.1. Re-design Entrance Gate & Internal Roads:

Tailor the entrance gate and internal roads to accommodate cargo trucks and meet the requirements of multiple tenancies.

1.2. Provide Thoroughfare Road:

Establish a thoroughfare road to service the existing loading platform on the northern side of the main factory building.

1.3. Additional Parking Spaces:

Create extra parking spaces and utilize overflow parking on the open grass field located at the back of the ablution facility.

2. BOUNDARY FENCE

2.1. Replace Existing Boundary Fence:

Replace the current dilapidated diamond mesh boundary fence with a 2.4m Betaview or a similarly approved product. Install in accordance with manufacturer requirements and recommendations.

2.2. Re-design & Install New Entrance Gate:

Redesign and install a new entrance gate as per architect details and specifications.

3. DRAINAGE SYSTEM

3.1. Optimize Existing Drainage System:

Make the most of the existing drainage system and upgrade it to accommodate the requirements of multiple tenancies.

4. WATER SUPPLY SYSTEM

4.1. Maximize Existing Water Supply System:

Utilize the current water supply system to its fullest extent and upgrade it to meet the needs of multiple tenancies.

5. STORM WATER MANAGEMENT SYSTEM

5.1. Utilize and Upgrade Storm Water System:

Optimize the existing stormwater management system, making necessary upgrades to align with the requirements of multiple tenancies.

SITE 03 – LANDSCAPING

1. GRASS LAWNS AND FIELDS

1.1. Clearing of Unwanted Vegetation:

Remove and clear all undesired and overgrown bushes, disposing of them at the designated tipsite.

2. EXISTING TREES

2.1. Removal of Invasive Trees:

Cut down trees that are causing damage to existing walkways, infrastructures, and buildings.

2.2. Clearing for Proposed Development:

Remove & disposed trees that obstruct the proposed development.

2.3. Removal of Trees Inside Buildings:

Cut down & disposed trees that are growing inside the buildings, posing potential hazards or causing structural issues.

2. ROLES AND RESPONSIBILITIES

Eastern Cape Development Corporation Project Manager: Graham Cowley Pr Eng.

Project Manager on behalf of Eastern Cape Development Corporation He/she is responsible for managing the contract with the Professional Architect, Professional Quantity Surveyor , Consulting Mechanical Engineers ,Consulting Structural Engineers ,Consulting Civil Engineers, Environmental Management Consultants , Health and Safety Consultants and Principal Contractor and ensure overall construction works are completed and Compliance with relevant legislation: General Conditions of Contract for Construction Works, 2015 and OHS Act 85 of 1993 and Construction Regulations 2014and other related legislation.

In regard regulation 5 Duties of the Client and Particulars of Contract including but not limited as per Health and Safety Specification and Baseline Risk Assessment.

Architects and Principal Agent	Pinoy Pride Architecture
Quantity Surveyors	MMDP Quantity Surveyors
Structural and Civil Engineers	Lukhozi Consulting Engineers
Mechanical and Electrical Engineers	RNA Consulting Engineers
Social Facilitator	Zintle Rural Development

Health and Safety Consultants: Gatsheni Sizwe (Pty) Ltd

Gatsheni Sizwe(Pty)Ltd has been appointed by Eastern Cape Development to perform the duties of Health and Safety Manager or Agent to ensure that Principal Contractor and Subcontractor adheres to all Health and Safety standards , legislation including other applicable legislation and must be complied with as per relevant and applicable legislation in terms Health and Safety *Inter Alia* OHS Act 85 of 1993 , National Environmental Management Act 1998 (Act 107 of 1998) , Asbestos abatement Regulations 2020 and Construction Regulations 2014

Principal Contractor: Principal Contractor

Principal Contractor is the appointment principal contractor by Eastern Cape Development Corporation to execute the General Building works as per tender and the contractor to which

compliance with the Health and Safety legislation on site will be required, in executing General Building works for the Eastern Cape Development Corporation for the following project: The Repairs and Refurbishments of Site 3in Dimbaza Industrial Park

Principal Contractor carries primarily accountability and responsibility for ensuring full compliance to the provision of the OHS Act as contemplated by Section 37(2) written agreements and Construction Regulation (7). The section 37(2) of the OHS Act agreement must be signed by Eastern Cape Development Corporation and Principal Contractor be part of the Health and Safety File

3. COMPLIANCE

The Health and Safety Manager or Agent on behalf of Eastern Cape Development Corporation requires the Principal Contractor to comply with legislation as part of the contract. All expenses to the Principal Contractor, which result from non-compliance with this legislation as well as special requirements specific to the site, will be for the Contractors account.

No claim or standing time will be accepted as a result of any costs or delays being incurred due to Principal Contractor and sub-contractors not complying or non-conformance with legislation, this SHE specification or their SHE Plan approved by the Eastern Cape Development Corporation and Health and Safety Manager or Agent.

Should Principal Contractor appoint a sub-contractor, the Principal Contractor would then have the same role and responsibility in relation to the sub-contractors and accountability on the: The Repairs and Refurbishments of Site 3in Dimbaza Industrial Park

The requirements within this specification should not be considered to be exhaustive and the Health and Safety Manager or Agent on behalf of Eastern Cape Development Corporation reserves the right to add, delete or modify conditions where it is considered to be appropriate.

The following applicable legislation has been identified which may impact the Project. The list is not exhaustive:

- Construction Regulations, 2014
- The Constitution of the Republic of South Africa (particularly Section 24 of the Bill of Rights).
- Occupational Health and Safety Act 1993 (Act 85 of 1993) and its Regulations.
- Asbestos abatement Regulations 2020
- National Environmental Management Act 1998 (Act 107 of 1998).
- National Road Traffic Act (93 of 1996) National Environmental Management: Waste Act 59 of 2008
- Air Quality Act 39 of 2004
- Hazardous Substances Act 15 of 1973
- National Water Act 36 of 1998
- Conservation of Agricultural Resources Act 1983 (Act 43 of 1983).
- Mine Health and Safety Act 29 of 1996
- Compensation for Occupational Injuries and Diseases Act No 130 of 1993 (COIDA)

- Applicable South African National Standards (SANS).
- ISO 9001:2008 –Quality Management Systems requirements
- ISO 14001:2004–Environment Management Systems requirements
- OHSAS 18001:2007 –Occupational Health and Safety Management Systems Requirements
- General Administrative Regulations, of the OHS Act
- Hazardous Chemical Agents Regulations, of the OHS Act
- National Environmental Management: Waste Act, No 59 of 2008

4. LETTER OF GOOD STANDING –(COIDA)

The Compensation for Occupational Injuries and Diseases Act, No 130 of 1993 (**COIDA**) provides for compensation for disablement caused by occupational injuries or diseases sustained or contracted by employees in the course of their employment, or for death resulting from such injuries or diseases.

Principal Contractor must have their Letter of Good Standing in the Health and Safety file including the Section 6 (A)- Annexure 13 W.Cl.2 and other related forms

5. NOTIFICATION OF CONSTRUCTION WORK

Notification of Asbestos work

Regulation 10(1) notification of asbestos work as per Annexure 2 of the Asbestos abatement Regulations 2020 to the Department of Employment and Labour

In terms of Construction Regulations, 2014:

4(1) A contractor who intends to carry out any construction work other than work contemplated in regulation 3(1), must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to annexure 2 if intended construction work will –

- a) Include excavation work;
- b) Include working at a height where there is risk of falling;
- c) Include the demolition of a structure
- d) Include the use of explosives to perform construction

Principal Contractor must therefore provide Notification of Construction in terms of Construction Regulations, 2014. Therefore, **No** construction works shall commence before notification of construction work has been submitted at the relevant Department of Employment and Labour by the Principal Contractor. The copy of the notification stamped on both pages must be provided in the Safety File.

6. CONSTRUCTION WORK PERMIT

Regulation 5(1), 5(5) and 5(6)

Where a construction work permit is required as contemplated 3(1), the client must, without derogating from his or her health and safety responsibilities or liabilities, appoint a competent person in writing as an agent to act as his or her representative

3 (1) A client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work if the intended construction work will –

- (a) Exceed 365 days will involve more than 3600-person days of construction work; or
- (b) The tender value limit is grade 6,7,8 or 9 of the Construction Industry Development Board (CIDB) grading.

7. NON-CONFORMANCES / WORK STOPPAGE

The Health and Safety Manager or Agent reserves the right to stop work and issue a non-conformance report whenever safety, health or environmental violations are observed for both Principal Contractor and their sub-contractors. Expenses incurred as a result of such work stoppage and standing time shall be for the Principal Contractor account. Any non-conformances/findings/observations found in these audits/inspections on sub-contractors shall be raised and discussed with the relevant Principal Contractor.

The conditions that lead to work stoppages are based on but not all encompassing:

Management of change – this is when there are changes to the work environment (e.g.: climatic changes) and/construction work (e.g.: modifications to the design), in any phase of the construction project, and/or amendments with regulations and/or legislative amendments; unsafe acts/behaviors;

Unsafe working conditions: Principal Contractor and subcontractors shall ensure that no other work is being performed during this time. Should the estimated time from the outset to make the area safe where life threatening/imminent danger situations exist, then the area will be barricaded and a sign placed with the wording “Unsafe Area – Authorized Access Only”. Principal Contractor shall address the unsafe working condition and then revise the relevant sections in the SHE Plan to accommodate the changes.

8. APPLICATION OF ASBESTOS ABATEMENT REGULATIONS

The following must be implemented by the principal contractor and Subcontractors due to Asbestos work on the site; The Repairs and Refurbishments of Site 3in Dimbaza Industrial, as per Asbestos Management plan developed by Eastern Cape Development Corporation and Asbestos abatement Regulations 2020:

"asbestos" means the following fibrous silicates:

- 1. (a) Asbestos actinolite, CAS No. 77536-66-4;
- 2. (b) asbestos grunerite (amosite), CAS No. 12172-73-5;
- 3. (c) asbestos anthophyllite, CAS No. 77536-67-5;
- 4. (d) chrysotile, CAS No. 12001-29-5 or CAS No. 132207-32-0;
- 5. (e) crocidolite, CAS No. 12001-28-4;
- 6. (f) asbestos tremolite, CAS No. 77536-68-6; and
- 7. (g) any mixture containing these fibrous silicates;

"asbestos risk assessment" means a risk assessment and risk categorisation of potential exposure to asbestos dust;

"approved plan of work" means a written site-specific methodology as contemplated in regulation 15 that is at least co-signed by the asbestos client, registered asbestos contractor and approved inspection authority;

"asbestos waste" means an undesirable or superfluous asbestos or asbestos- containing product or by-product or the undesirable or superfluous asbestos or asbestos-containing emission or residue of any process or activity, which has been

"asbestos disposal site" means a site specifically designated for the purpose of asbestos disposal in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008);

The principal contractor and Subcontractors must comply and implement as per regulation 11 ,Regulation 12 ; Duties of the Registered Asbestos Contractor for Asbestos work , and Regulation 13 , Regulation 15 , Regulation 18, 19, 21 ,22 and Regulation 23 Records but not limited to the above regulations.

9. HSE POLICIES

Principal Contractor and sub-contractor shall each have a SHE Policy authorized by OHS Act Section 16(1) appointee that clearly states overall, SHE objectives and commitment to improving Safety, Health, Environment and Quality performance and Compliance. Including but not limited to:

- HSE Policy
- Disciplinary policy for employees transgressing occupational health, safety and environmental requirements
- Drug, alcohol & substance abuse policy
- Smoking policy
- HIV/AIDS policy

10. SHE PLAN

a) SHE Plan

In terms of Construction regulation 7(1): Principal Contractor and any sub-contractors appointed must provide a Health and Safety Plan which must be constantly be reviewed as per regulation:

- (a) Provide and demonstrate to the client a suitable, sufficiently documented and coherent site-specific health and safety plan, based on the client's documented health and safety specifications contemplated in regulation 5(1)(b), which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the principal contractor as work progresses;
- (b) Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, which must be available on request to an inspector, the client, the client's agent or a contractor

Including but not limited to the following documentation:

- Duties and safety responsibilities of all appointed persons on the project.
- Selection, placement and training procedures, including induction and on-going training in 'Basic Safe Work' and Occupational Health and Safety training for newly hired or promoted supervisors.
- Baseline risk assessments, review & monitoring plan & safe work procedures.
- Occupational health and safety goals for the project and arrangements for monitoring and reviewing occupational health and safety performance.

- Occupational Health and Safety communications and meetings, including daily safe task instructions and project safety meetings.
 - Assessment of sub-contractors, including requirements for safety plans
 - Nomination of personnel to carry out safety inspections. The task may be shared with other duties and provided within the resources of individual gangs and may be rotated
 - Rules and regulations including safety procedures the Contractor has in place for recurring work activities.
 - Personal protective equipment rules.
 - Control of dangerous and hazardous substances.
 - Hazard identification and risk control, such as Risk assessments, Daily Safe Task Instructions and communication.
 - Audits to ensure compliance with safety plans.
 - Daily site safety inspections and audits.
 - Inspection of plant, tools and equipment prior to introduction to site and regularly thereafter.
 - Accident incident reporting, recording, investigation and analysis, which ensure that corrective action, are taken and this action is communicated to report initiators.
 - First aid arrangements.
 - Evacuation and emergency planning.
 - Substance abuse program
 - Record keeping
 - Personal Protective equipment arrangements.
 - Worker's welfare facilities.
 - Induction and toolbox talk's arrangements.
 - Training arrangements.
- b) Fall Protection Plan

Principal Contractor must include a Fall Protection Plan as contemplated in regulation 10. Therefore, must appoint a competent person responsible for the preparation of the plan include the requirements in regulation 10(2), continuously adhere and implement the fall protection plan as per regulation 10(3), 10(4) and 10(5).

c) Traffic Management Plan

The scope - the safe movement of vehicular and pedestrian traffic, protection of workers from passing traffic, provision for access to properties located within the limits of Network Road. The design, construction, maintenance and implementing of any necessary temporary roadways and detours, the provision of traffic controllers, the installation of temporary signs, road markings, lighting, safety, Jersey, temporary speed humps and solid barriers as per Road Traffic Act, 1989 (Act No. 29 of 1989), Road Traffic Sign Applications.

Principal Contractor must provide a comprehensive and detailed a Traffic Management Plan and must include Traffic Control Plans, Emergency Readiness Plan, Objectives of the Traffic Management Plan, Traffic Management Officer, Communications with community, stakeholders. The traffic Management must be in accordance with the South African Road legislation and Signs Manual as modified to suit site conditions. Application of the Act shall apply throughout the Republic: Provided that any provision thereof shall only apply to those areas of the Republic in respect of which the Road Traffic Act, 1989 (Act No. 29 of 1989), did not apply before its repeal by section 93, as from a date fixed by the Minister by notice in the *Gazette*.

11. APPOINTMENTS AND COMPETENCIES

Principal Contractor must submit in writing the appointments and competences of all competent person appointed, which form part of the SHE Plan in terms of Construction Regulation 8. An organogram must also submit including all legislative appointments, defined responsibility structure, OHS meetings and period of appointment. All appointees and appointers must sign the legislative appointments.

Principal Contractor Chief Executive Officer, in terms of Section 16(1) of the Occupational Health and Safety Act (Act no 85 of 1993), is to ensure that the Employer (as defined in the Occupational Health and Safety Act (Act no. 85 of 1993) – hence the Contractor) complies with the Occupational Health and Safety Act (Act no 85 of 1993) and Construction Regulations (2014) as well as all other applicable legislative requirements.

a) Construction Managers

Principal Contractor, appointed in terms of Construction Regulations is responsible for implementing and maintaining the SHE Plan. Regulation 8 (1) A principal contractor must in writing appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed.

No construction manager appointed under sub regulation 8(1) may manage any construction work on or in any construction site other than the site in respect of which he or she has been appointed. Regulation 8(7): Principal Contractor Construction managers, in writing must appoint construction supervisors responsible for activates on site and ensuring compliance with occupational health and safety regulations on site. Regulation 8(8) Principal Contractor considering and depending on the size of the project or construction site must appoint in writing one or more competent employees for different sections to assist the construction supervisor envisaged in sub regulation (7)

REGULATION	APPOINTMENT /COMPETENCIES /RESPONSIBILTY
Chief Executive Officer (OSH Act 16(1))	Chief Executive Officer -Principal Contractor
Contract Director / Manager (OSH Act 16(2))	Contract Director / Manager- Principal Contractor
1. 5(1)(K)	Eastern Cape Development Corporation appointment of Principal Contractor
2. 8(1)	Construction Manager – Principal Contractor: Managing Construction works and ensuring Health and Safety Compliance
3. 8(2)	Assistant Construction Manager and Traffic Management Officer – Principal Contractor: Assist the Construction Manager
4. 8(5)	Health and Safety Officer – Principal Contractor: Ensuring Health and Safety Compliance

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5. 8(7)	Construction Supervisor – Principal Contractor: Supervision of certain type of construction works
6. 7	Appointment and management of Sub-contractor – Principal Contractor
7. 9(1) Risk Assessor	Risk Assessor to conduct risk assessments – Principal Contractor

8. 10(1)(a)	Appointee for preparation of fall protection plan – Principal Contractor
9. General Safety Regulation 3	First Aider – Principal Contractor
10.12(1) Temporary works designer	Appointee for inspect and approve erected temporary works on site – Principal Contractor
11.12(2) Temporary works Supervisor	Appointee for Supervision of Temporary works on site – Principal Contractor
12. 12(3)(a) Temporary Works Erector	Erect temporary works on site – Principal Contractor
13. 12(3)(f) Temporary Works Inspector	Inspector of Temporary Works on site – Principal Contractor
14. 13(1)(a) Excavation Supervisor	Excavation Supervision – Principal Contractor
15. 13(2)(h) Excavation Inspector	Excavation Inspection – Principal Contractor

16.14(1) Supervisor demolition work	Demolition Supervision – Principal Contractor
17. 16(1) and 16 (2) Scaffold Supervisor, Erector, Inspector	Supervision, Inspection and Erection of Scaffolding – Principal Contractor
18. 14(11) Competent Person for Explosives	Legally certified competent explosives person Principal Contractor
19. 20(1) Batch Plant Supervisor	Supervision of Batch plant – Principal Contractor
20. 22(a) Crane Supervision	Certified Crane Supervisor Principal Contractor
21. 23(1)(d) Construction Vehicle and Mobile Plants Operator	Certified Plant Operator and Vehicle – Principal Contractor
22.24(d) Electrical Machinery Inspector	Inspection of Electrical Machinery – Principal Contractor
23. 24(e) Temporary Electrical Installations Inspector and Controller	Control all temporary electrical installations – Principal Contractor

24.28(a) Stacking and Storage Supervisor	Supervision of Stacking and Storing – Principal Contractor
25.29(h) Fire Equipment Inspector	Inspection of Fire Equipment – Principal Contractor
26.29(i) Fire extinguisher Users	Operator of extinguisher – Principal Contractor
27. Hand Tool Inspector	Inspection of Hand tool inspector – Principal Contractor
28. 20(2)(g)(i) Person to control and do the issuing and collection of Cartridges and nails/studs	Certified competent control of explosive equipment – Principal Contractor
29.21(2)(b) Explosive actuated fastening device inspector	Inspection of explosive device fastening- Principal Contractor
30. 21(2)(g)(i) Explosive actuated fastening controller	Controller of explosive device fastening- Principal Contractor
31. Explosive Operator	Operator of explosive device- Principal Contractor
32. General Safety Regulation 13A	Ladder Inspector- Principal Contractor

b) Construction Health and Safety Officers and Manager /Practitioners

Regulation 8(5) and 8(6) Principal Contractor must appoint a full time Health and Safety Officer in writing that is registered with approved statutory body. Therefore, the appointed Construction Safety Officer must be registered with the statutory body approved by Chief Inspector the South African Council for Project and Construction Management Professionals (SACPCMP) and have SAMTRAC or safety diploma and at least 4 years relevant construction safety experience.

c) Occupational Health and Safety Representatives

Section 17 and Section 18 of the OHS Act provides for appointment of the Health and Safety Representative and functions thereof. Every employer who has more than 20 employees in his employment at any workplace, shall designate in writing for a specified period health and Safety representative for such workplace. Principal Contractor must therefore appoint a Health and Safety Representative if Principal Contractor employs on site on than 20 employees including sub-contractors and their employees. Shall appoint one SHE representative for every 50 employees or part thereof.

d) Health and Safety Committee

In regards to section 19 and section 20 of the OHS Act 85 of 1993 Principal Contractor must establish an occupational health and safety committee consisting of all the designated occupational health and safety representatives together with a number of management representatives. The management representatives shall not exceed the number of occupational health and safety

representatives on the committee. The members of the occupational health and safety committee must be appointed in writing. Representatives from Gatszeni Sizwe (Pty) Ltd will act as co-opted members to the Health and Safety Committee meetings as and when required. Principal Contractor is required to compile a schedule for the statutory occupational health and safety committees for the duration of the project and supply the proposed schedule in the SHE Plan.

12. TRAINING

Inductions and Training must be submitted with SHE Plan and SHE File with all the registers for specific training, which will be conducted. Training is to be carried out as required by the Occupational Health and Safety Act (Act no 85 of 1993) and the Construction Regulations (2014). All training courses required and attended are to be included in the principal contractor's SHE File. All members of Principal Contractor site management as well as all the persons appointed responsible for occupational health, safety and environmental management in terms of the Construction Regulations (2014) and other legislative requirements, will be required to attend a SHE System Induction training

Construction Site induction carried out by the Principal Contractor

The aim of this section is to outline expectations in respect of the scope of the training, which Principal Contractor and Sub Contractor employees receive. The scope of the training includes but is not limited to the type of work being performed and the relevant procedures. Additional to the requirements, will be that Principal Contractor and sub-contractors would have the appropriate qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act No.67 of 2000), those qualifications and that training must be regarded as the required qualifications and training, certificates and are under competent supervision. Records of all training and qualifications of all contractor employees must be kept. Principal Contractor shall maintain comprehensive records of all employees under his control (including all employees of the sub-contractor) attending induction training.

Acknowledgement of receiving and understanding the induction must be signed by all persons receiving the induction respectively and the Induction Register be kept in the Health and Safety File.

When there is an amendment to the Acts and/or to the regulations, SHE specification and SHE plan, all affected staff shall undergo the relevant re-training. For appointees that do not meet the minimum competencies as indicated above: full compliance to the above competencies would be expected. A training plan must be submitted on a monthly basis to reflect progress of meeting the minimum training requirements.

Medicals

Prior to induction all Principal Contractor and Sub-contractor employees must undergo a pre-employment medical examination and found fit for duty. A copy of the certificate of medical fitness must be presented for permanent record at the induction venue and kept at Health and Safety File and site offices for permanent record.

The contractor must comply with the provisions and contractual arrangements of the Occupational Health and Safety Act (OHSA) as well as the Environmental Management Act (NEMA): Waste Management. All workers of any project undertaken as part of this bid must undergo a medical fitness test by an Occupational Health and Safety Practitioner or Medical Practitioner who is

registered with the South African Nursing Council (SANC) and or HPSCA. The medical test certificates must be presented by the Principal Contractor to Eastern Cape Development Corporation.

Job specific induction carried out by the Principal Contractor/Sub-Contractor Supervisor on the site

Principal Contractor shall ensure that all his employees and his contractors' employees working on the site are adequately trained in the type of work/tasks to be performed. The training shall extend to include relevant procedures, hazard identification and risk assessment. They shall have the appropriate qualifications, certificates and are under competent supervision. Copies of records of appropriate training and qualifications for all employees must be kept and maintained.

Principal Contractor shall ensure that all his employees, agents and contractors have undergone the Project safety induction program prior to commencing work on site. Appropriate time must be set-aside for training (induction and other) for all employees.

All employees and visitors on site shall carry the proof of induction training. The relevant site Risk Control/SHE Training Officer shall keep a database of all records pertaining to induction and will inform contractors of pending expiry.

Principal Contractor shall ensure that all his employees and sub-contractor employees undergo general work induction with regard to the approved SHE plan, general hazards prevalent on the construction site, construction risk assessment, rules and regulations, and other related aspects. The induction should also include identification of sensitive features such as wetlands areas, red data species, graves, etc.

Principal Contractor will be required to ensure that before an employee commences work on the project that the supervisor in control with responsibility for the employee has informed the employee of his scope of authority, any hazards associated with the work to be performed as well as the control measures to be taken. This will include man- task specifications, the discussion of any standard task procedures or hazardous operational procedures to be performed by the employee. Principal Contractor is to ensure that the supervisor has satisfied himself that the employee understands the hazards associated with any work to be performed by conducting task/job observations.

Other Training

All Operators, Drivers and Users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training. All employees in jobs requiring training in terms of the Act and Regulations must be in possession of valid proof of training.

The principal contractor is required to have a promotion and awareness program in place to create an occupational health and safety culture within employees E.g.: Toolbox Talks, Videos, Health, and Safety circles.

13. CONTRACTOR'S SITE FACILITIES AND ACCESS CONTROL TO THE CONSTRUCTION SITE

Principal Contractor must manage site facilities as per Environmental Regulations for workplaces, Facility Regulation, Security Personnel, General safety regulation as framed under the OHS Act.

Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must, amongst other, include the rule that non-employees will not be allowed on site unaccompanied.

Principal Contractor shall provide a guardhouse for a security working during the day and at night. The guardhouse should be in good condition and at-least meet minimum requirements as per environmental regulations for workplaces.

Temporary Facility

Ablution facilities, Site Offices and Amenities, lay down and Storage, Site Access, Temporary Site Services Principal Contractor employees are registered on the site access system and are issued with access certificates. Access certificates to be kept with the Contractor at all times within the site.

Principal Contractor and his sub-contractors shall adhere to the site traffic plan to ensure the safe movement of all construction related mobile plant. Principal Contractor shall adhere to the pedestrian and vehicle routings and Traffic Authority.

The project/site security arrangements are: Site Safeguarding: Nets, Canopies, Platforms, Fans, Barriers etc. to protect members of the public passing / entering the site

14. RISK MANAGEMENT AND ASSESSEMENTS

Regulation 9(1) A contractor must, before the commencement of any construction work and during such construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on site

Principal Contractor must identify the construction site SHE risks and hazards before commencing any construction works on site as per regulation 9 and his/her subcontractors to identify hazardous and potentially hazardous work operations. Principal Contractor needs to demonstrate that the site hazards and the contractor's activity risks and the mitigating measure have been considered in his risk assessments.

The Occupational Health and Safety Act (Act no. 85 of 1993) specifically requires that employers shall provide and maintain working environments that are safe and without risk to health. The general awareness of hazards needs to be raised as work ethic to maintain a safe and risk-free environment on an on-going basis. This is achieved by continuous risk assessments, a form of risk assessment that takes place as an integral part of day-to-day management.

There must be method statements or written safe work procedures for all the Principal Contractor activities

Emerging risks and hazards must be managed during construction work. Activity based risk assessments must be conducted by an appointed and competent person of the Principal Contractor on a regular basis. Principal Contractor prior to daily work beginning on site shall conduct Preliminary hazard identification.

Site Specific Health and Safety Hazards

Principal Contractor Site-Specific list may not be totally comprehensive and it is the duty of Principal Contractor to ensure that all the hazards are identified, before and during the project, and the necessary activity-based risk assessments are carried out. These risk assessments shall form part

of the SHE Plan. The site-specific health and safety hazards are on continuous during the duration of the project.

Hazardous and potentially hazardous work operations and Emerging Risks

Principal Contractor shall identify hazards and potentially hazardous work operations. For each work operation Identified, the Contractor shall supply Risk Assessment, which shall:

1. Describe the operation to be performed in the sequence of the basic job steps.
2. Identify and rank the hazard or potential hazard.
3. A plan to review the risk assessments as the work progresses and changes are introduced;
4. Describe how the hazard will be managed therefore a documented plan and Safe Working Procedures, and its relevance to the risk assessment, to mitigate, reduce or control the risks and hazards that have been identified.
5. A plan to monitor the application of the Safe Working Procedures
6. Signature of appointed competent person conducting risk assessment; and Signature of Principal Contractor management and employees involved in risk assessment.
7. Review plan; Based on the risk assessments, the principal contractor must develop a set of site-specific occupational SHE rules that will be applied to regulate the health, safety and environmental aspects of the construction work.
8. Identify the responsible person for each mitigation action.

The hazards and risk to which persons, plant, vehicles and facilities may be exposed during the construction should be identified and evaluated. The aspects and impacts resulting in environmental pollution or degradation should also be identified and evaluated. Measures to reduce or control these risks or hazards should be defined during this assessment.

Principal Contractor must ensure that all employees under his or her control are informed instructed and trained by a competent person regarding any hazard and the related work procedure and or control measure before any work commences, and thereafter at the times determined in the risk assessment monitoring and review plan of the relevant site.

During construction work, Principal Contractor, his sub-contractors or Eastern Cape Development Corporation representative or agent may identify emerging hazards and risks. For each such newly identified hazard or risk, the Eastern Cape Development Corporation representative or agent shall review the baseline site hazard identification and the relevant section(s) of the Baseline Risk Assessment during Audits. The hazard identification shall be submitted to the Principal Contractor who will review his own risk assessments and relevant sections of the SHE Plan, as well as those of the sub-contractors.

Principal Contractor representative or agent will prepare and submit to the Eastern Cape Development Corporation representative or agent, both documents for approval.

Principal Contractor and his subcontractors shall not proceed with the work/operation in hazardous areas until the Client/Agent's representative has reviewed the Risk Assessment and has approved and signed the revised SHE plan and issued a valid permit to work.

Principal Contractor shall on a daily basis and for every task to be performed, conduct a pre-task

risk assessment with all employees involved with the task(s). The pre-task risk assessment will form the basis of the daily pre-job brief/toolbox talks prior to the start of work. Proof of communication as well as confirmation that it was received and understood by all will be noted on a standard form, which will be kept at the job site during the job execution. The completed signed pre-task risk assessment form will be filed in the Principal Contractor **SHE** files.

The Contractor must ensure through his risk management process the hierarchy of controls stipulated as follows, are implemented:

1. **Eliminate** - The complete elimination of the hazard.
2. **Substitute** - Replacing the material or process with a less hazardous one.
3. **Redesign** - Redesign the equipment or work process.
4. **Separate** - Isolating the hazard by guarding or enclosing it.
5. **Administrate** - Providing control such as training, procedures etc.
6. **Personal Protective Equipment (PPE)** - Use of appropriate and properly fitted PPE where other controls are not practical. (PPE as the last resort)

15. SAFE WORK PROCEDURES AND PRACTICES

Principal Contractor is to provide an indication of the activities that require safe work procedures and practices to mitigate the identified risks. There must be written safe work procedures or method statements for all activities. Risk Assessments should refer to the safe work procedures.

- A safe working procedure should be written when
- Designing a new job or task;
- Changing a job or task;
- Introducing new equipment or substances; and
- Reviewing a procedure when problems have been identified, e.g., from near miss incidents or accident/incident investigation. The safe working procedure should identify:
- The supervisor for the task or job and the employees who will undertake the task
- The tasks that are to be undertaken that pose risks
- The equipment and substances that are used in these tasks
- The control measures that have been built into these tasks
- Any training or qualification needed to undertake the task
- The personal protective equipment to be worn;
- Actions to be undertaken to address safety issues that may arise while undertaking the task
- The methodology that will be used to ensure compliance with the method statement/ procedure.
- Any other information deemed to be necessary by the Eastern Cape Development Corporation Project team.
- Associated responsibilities and authorities

- Authorized staff positions to conduct the relevant activities contained in the Safe Work Procedure.

16. EMERGENCY PREPAREDNESS AND RESPONSE

Principal Contractor and his sub-contractors must develop a site-specific emergency response plan and contingency plan, appoint a competent person to act as emergency controller and/or coordinator.

Principal Contractor, together with his sub-contractors, must develop their own emergency response for both site and offices and submit this plan to Eastern Cape Development Corporation representative or agent for approval. Principal Contractor must ensure that his employees and his sub-contractor employees are trained on this plan. Principal Contractor must initiate his own emergency drills and must hold regular practice drills of contingency plans and emergency procedures to test them and familiarize employees with them, have written arrangements in place with his other contractors regarding the responsibility of the other contractors towards their own injured and/or ill employee

Principal Contractor must provide third parties and other specialized sub-contractors with training of emergency response plan and contingency plan, such training must be writing be part of SHE Plan.

General Safety Regulations promulgated in terms of the Occupational Health and Safety Act (Act no. 85 of 1993) provides for a qualified First Aider and First Aid Equipment regulation 7

17. ENVIRONMENTAL MANAGEMENT

Principal Contractor must comply with the National Environmental Management Act 107 of 1998 and Amendments, therefore must provide a comprehensive Environmental Management Plan

Spillage of Hazardous Chemical Substances

Principal Contractor must have register of Hazardous Chemical Substances and Material Safety Data Sheets should be kept on site. Herbicide usage

Principal Contractor must have an Herbicide register for usage to be compiled and maintained if such will be utilized on site. The application of herbicides to be in accordance with the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act No. 36 of 1947. Only approved and tested herbicides with a low environmental risk shall be used. Only registered pest control operators may apply herbicides on a commercial basis. All staff applying herbicides must be trained in the application of herbicides.

Fire hazard

Principal Contractor shall comply with regulation 29 in terms of Fire precautions on construction site, ensure that staff are educated in fire prevention and will be held responsible to avoid the risk of fire. No area is to be denuded of vegetation to create firebreaks, to prevent or make fires. No open fires are allowed on site. Principal Contractor must ensure that operations are in compliance with statutory requirements at all times.

Waste

Principal Contractor must compile and submitted waste management plan included the SHE File before commencement of construction works on site. Registers of hazardous and non-hazardous waste to be kept on-site. Principal Contractor must include in the SHE File and a record of disposal and continuous updating of records. No waste, whether it be biodegradable or not, is to be left on site once work has ended. Domestic and hazardous waste generated will not be burned, buried, or disposed of on site or other Landowners' property but will be controlled and removed to a registered waste site on a regular basis (Daily/Weekly/Monthly) must be taken to the appropriate local government site

Principal Contractor and sub-contractor working on site must ensure that oil, fuel, and chemicals are confined to specific and secure areas throughout the construction period and appropriate signage. These materials must be stored in a barricade area with adequate containment for potential spills and leaks. Principal Contractor must ensure that sufficient waste bins / containers are made available for waste control.

Dust and Noise

Principal Contractor shall monitor dust and noise caused by mobile equipment, generators and other equipment during construction must have a Dust and Noise Management Plan. Factors such as wind can often affect the intensity to which these impacts are experienced. To ensure that noise does not constitute a disturbance during construction activities, all construction works shall occur between specific working hours. Dust suppression measures must be in place to reduce the dust caused by the movement of heavy vehicles.

Environmental Incidents

All environmental incidents such as pollution (air, water, land, noise, etc.), bird kills, animals killed, plants destroyed, public complaints etc. must be reported to Eastern Cape Development Corporation or representative or agent within 24 hours of its occurrence. All environmental incidents occurring on site must be recorded; detailing how each incident was dealt with. Proof thereof must be kept in an incident register. Principal Contractor will be held liable for any infringement of statutory requirements of the National Environmental Management Act of 1998 or any other relevant legislation.

Water

Principal Contractor must comply with regulation 26. Should observe and water restrictions on site. Must provide water for consumption for by employees during extreme weather conditions. Should any pollution of the watercourse occur, t Eastern Cape Development Corporation or representative or agent the Department of Water Affairs (DWA) must be notified immediately via the ECO/Corporate Environmental Advisor. Bore hole water must be verified for human consumption fitness. All incidents related to water contamination to be reported within 24 hours. Chemical toilets may not be within close proximity of the drainage lines / ways.

Flora

All suitable and rare flora and seeds will be rescued and removed from the site. They must be suitably stored, for future use in rehabilitation. The felling and/or cutting of trees and clearing of bush will be minimized. Bush will only be cleared to provide essential access for construction purposes. The spread of alien vegetation must be minimized. Any incident of unauthorized removal of plant material, as well as accidental damage to priority plants, will be documented.

Fauna

No species of animal may be poached, snared, hunted, captured or wilfully damaged or destroyed. Snakes and other reptiles that may be encountered on the construction site will not be killed unless the animal endangers the life of an employee. Principal Contractor will ensure that the work site is kept clean and free from rubbish, which could attract pests.

Soil pollution management

Topsoil will be temporarily stockpiled, separately from (clay) subsoil and rocky material, when areas are cleared. If mixed with clay sub-soil the usefulness of the topsoil for rehabilitation of the site will be lost. Stockpiled topsoil will not be compacted but will be replaced as the final soil layer. No vehicles will be allowed access onto the stockpiles after they have been placed. Stockpiled soil will be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet season. The need for such measures will be indicated in the site-specific report. Topsoil stripped from different sites will be stockpiled separately and clearly identified as such. Topsoil obtained from sites with different soil types will not be mixed. Topsoil stockpiles will not be contaminated with oil, diesel, petrol, waste or any other foreign matter, which may inhibit the later growth of vegetation and microorganisms in the soil.

Aesthetic and visual impact management

Damage to the natural environment must be minimized. Trees and tall woody shrubs will be protected from damage to provide a natural visual shield. Excavated material will not be placed on such plants and movement across them will not be allowed, as far as practical. All above ground structures will be located in areas where the visual impact from roads, houses etc. is minimised. All above ground structures could be treated or painted to blend in with the natural environment. Cut and fill areas, river and stream crossings and other soil stabilization works will be constructed to blend in with the natural environment.

All finds of human remains will be reported to the nearest police station. Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the South African Heritage and Resource Agency (SAHRA).

18. SHE AUDITS AND INSPECTIONS

17.1 Compliance with OHS ACT and Construction Regulations

In terms of Construction Regulations 2014, regulation 5(1)(n) to 5(1)(q) the client must take reasonable steps the client must ensure periodic health and safety audits and document verification are conducted at intervals mutually agreed upon between the principal contractor any contractor, but at least once every 30 days. Regulation 5(1)(q) stop any contractor from executing a construction activity which poses a threat to health and safety of persons

17.2 Contractor SHE Performance Evaluation

Gatsheni Sizwe (Pty) Ltd shall evaluate contractor SHE performance on an on-going basis against the requirements of OHS ACT and Construction Regulations. There will be monthly audits/inspections conducted by Gatsheni Sizwe (Pty) Ltd on Principal Contractor and/or sub- contractors. The contractor's site manager or his representative shall attend these audits. Find SHE Performance

Evaluation attached.

19. INCIDENT MANAGEMENT (PRINCIPAL CONTRACTOR AND SUB- CONTRACTORS)

Reporting of Accidents and Incidents

Principal Contractor shall compile and implement procedure for Reporting and investigation of incidents – This document sets out the procedures to be followed when reporting, recording and investigating incidents that occur on a construction site.

Principal Contractor must report to Eastern Cape Development Corporation or representative or agent within 24 Hours and to the Provincial Director of the Department of Labour within seven days from date of incident (Section 24 of the Occupational Health and Safety Act (Act no. 85 of 1993)

Principal Contractor shall report all incidents/accidents as required in terms of legislation including near miss incidents, first aid, medical treatment, lost time incidents (lost time injuries and fatalities); Section 24 and 25 incidents; electrical contact; major equipment damage; chemical spillage and other environmental incidents within 24 hours or before the end of the work shift.

All fatal incidents, employee and contractor incidents, shall be reviewed by the committee within one week after the incident and the members of the Project Progress meeting notified of corrective actions taken. Preliminary investigation information shall be shared

A comprehensive and detailed investigation report shall be submitted to the Gatsheni Sizwe (Pty) Ltd manager within 7 -14 days after the incident which shall include: Date, time and place of incident; Description of incident; Root cause of incident/accident; Type of injury (if any); Medical treatment provided (if any); Persons involved; Names of witness/s; Corrective action to prevent recurrence (with clear deadlines and responsible persons). It is required that all corrective action is closed out within 3 months. If this is not practicable within the time frame, then it is to be submitted at a later date agreed to by the Eastern Cape Development Corporation or Gatsheni Sizwe (Pty) Ltd.

Gatsheni Sizwe (Pty) Ltd shall ensure that all accidents/incidents are investigated by him/her and are discussed at the SHE committee meeting held on site. Accidents/incidents shall be investigated and recorded in terms of the requirements of the Occupational Health and Safety Act, the National Environmental Management Act and National Water Act as applicable.

Please note that providing the Accident/incident investigation report does not exempt the Principal Contractor from providing accident reports required by Statutory Authorities, in particular, the Contractors' responsibility for reporting accidents in accordance with the requirements of the OHS Act and COID Act.

Gatsheni Sizwe (Pty) Ltd will participate in any accident/incident investigation if the accident/incident is directly linked to any activity within the scope of the construction project. Principal Contractor shall keep on site/workplace a record of all accidents and incidents reported in the form of the OHS Act Annexure 1 investigation form as referenced in the OHS Act. (Incident Investigation Report) Gatsheni Sizwe (Pty) Ltd on behalf of Eastern Cape Development Corporation reserves the right to conduct an independent investigation in any incident.

Principal Contractor shall report **all Incidents/Accidents** where an employee is injured on duty to the extent that he:

- Dies

- Becomes unconscious
- Loses a limb or part of a limb
- Is injured or becomes ill to such a degree that he is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he was usually employed

Or where -

- A major incident occurred
- The health or safety of any person was endangered
- Where a dangerous substance was spilled
- The uncontrolled release of any substance under pressure took place
- Machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- Machinery ran out of control

To Eastern Cape Development Corporation or representative or agent within two days and to the Provincial Director of the Department of Labour within seven days from date of incident (Section 24 of the Occupational Health and Safety Act (Act no. 85 of 1993) and General Administrative Regulations), except that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or suffer a permanent physical defect, the incident must be reported to both Eastern Cape Development Corporation and the Provincial Director of the Department of Labour forthwith by telephone, telefax or e-mail.

Principal Contractor shall provide Eastern Cape Development Corporation with copies of all statutory reports required in terms of the Occupational Health and Safety Act (Act no. 85 of 1993) within 7 days of the incident occurring.

Principal Contractor shall provide Eastern Cape Development Corporation with copies of all internal and external accident/incident investigation reports, within 7 days of the incident occurring.

Accident and Incident Investigation

Principal Contractor will be responsible for the investigation of all accidents and/or incidents where employees and non-employees were injured to the extent that they had to receive medical treatment other than first aid.

The results of the investigation will be entered into the accident and/or incident register. Principal Contractor will be responsible for the investigation of all minor and non-injury incidents as described in Section 24(1)(b) and (c) of the Occupational Health and Safety Act (Act no. 85 of 1993) and for keeping a record of the results of the investigations including the steps taken to prevent similar accidents in future. Principal Contractor will be responsible for the investigation of all road traffic accidents, related to the construction activities, and for keeping a record of the results of the investigations including the steps taken to prevent similar accidents in future.

20. MONTHLY STATISTICAL REPORTING AND WEEKLY STATISTICAL REPORTING

Principal Contractor must report to Gatsheni Sizwe (Pty) Ltd on the 2nd of every month, each company's performance which includes the following as a minimum: Incidents: Lost time /Disabling Injuries, Medical; first aid, near misses reported; Staff Complement per principal contractor and Sub-Contractor Company; Actual man-hours worked. Status on incidents investigated and recommendations closed out and Status on audits conducted and findings closed out. Principal Contractor Safety Officer where appointed must report all the SHE Matters to Gatsheni Sizwe (Pty) Ltd on include day and time using the Weekly Report Template.

21. OPERATIONAL CONTROL REQUIREMENTS

Notices and Signs

It's mandatory for Principal Contractor and their sub-contractors to display construction notices and signage.

- The location of every first aid box; fire extinguisher and emergency exit are to be clearly indicated by means of a sign.
- At the entrance to premises where machinery is used: Restricted access on “**Authorized Person Only**” signs on entry. Notices & Signs at entrances and along perimeters indicating “No Unauthorized Entry”.
- When in use, an Explosive Power Tool shall have a sign, warning people of its use.
- Principal Contractor shall provide the signage where work is conducted and where unauthorized entry is prohibited and/or where alerting and cautioning passers-by to be aware of potential dangers.
- Notices & Signs at entrance instructing visitors and non - employees what to do, where to go and where to report on entering the site/yard with directional signs. e.g., “Visitors to report to Office”
- Notices & Signs posted to warn of overhead work and other hazardous activities. e.g., **General Warning Sign's**
- All equipment brought onto the construction site, (including motorized equipment, e.g., bobcat) that requires PPE to be worn during operation, must have the relevant PPE mandatory sign/s attached. The type and use of PPE will be placed at all entry points to the construction site.
- At every place where machinery is used a notice (English & Pictograms) shall be posted.
- Explosive Power Tool shall have a sign warning people when it is in use.
- Electrical Control Gear. A notice shall be posted so as to warn against the re-closing of a switch of control gear whilst a person is working on such equipment.
- Emergency contact telephone numbers.
- Adequate scaffolding signs. (When applicable).
- Adequate firefighting equipment signs.
- Speed limit signs.
- “MEN WORKING ABOVE”
- “MEN WORKING BELOW”
- “ROAD CLOSED - DETOUR”
- “CAUTION - MEN WORKING - DRIVE SLOWLY”

- “EXCAVATION IN PROGRESS”
- “NO WALKWAY”
- “NO CLEARANCE”
- “WALKWAY”
- “RED AND YELLOW DANGER FLAGS”
- “DANGER - LIVE CABLES”
- Warning notices at openings through which people may fall.
- Risk based signage depending on the task being performed i.e., overhead work, hot work etc.
- No-entry signs to incomplete platforms

Barricading

Principal Contractor will erect barricading for any major operations involving site works for approval by Eastern Cape Development Corporation. Examples are Man at work, Narrow, Arrow etc. Where there is a risk of injury, Principal Contractor will erect the area secure solid barricades. The barricade will be constructed a minimum of 1,5m away from the area. All physical barricades must be covered with netting ensuring visibility for personnel and operators of machinery.

Barricading for the prevention of access into areas with a potential risk of injury shall as a minimum be constructed of a handrail, knee-rail and appropriately supported as to prevent any person from falling into the restricted/risk area.

Working in confined spaces (manholes)

Principal Contractor will take adequate steps to eliminate or control hazards when the workers working inside confined space. Before working in an area, which contains dust, the area is to be ventilated and hosed down to settle and dampen the dust.

Principal Contractor shall provide all necessary equipment to manage confined spaces, including all necessary monitoring and rescue equipment (such as tripods, breathing equipment and the like). Principal Contractor shall ensure that all persons working in a confined space or managing entry to a confined space are appropriately trained.

Construction Vehicles and Mobile Plant

In terms of regulation 23(1) to 23 (2) provides regulations which Principal Contractor must comply with in regards to construction vehicles and mobile plant:

All lifting equipment and cranes must load test certificates.

All motor vehicles operated by Contractors within the area shall, in all respects, comply with the Road Traffic Ordinance and Road Traffic Act. Designated drivers shall be in possession of a driver's license, valid for the class of vehicle. The person or operator so authorized and shall produce such card on request shall keep the driver's license.

All drivers of construction vehicles and mobile plant to have medical certificates of fitness. Each Project site will have system/ process to manage vehicle access to site.

The speed limit within the bounds of the construction site is 40 km/h.

No drivers or operator may talk on cell phones or two-way radios whilst driving, unless a hands-free kit is used.

It is the responsibility of the driver to ensure:

- He/ She and his/her passengers wear seat belts whilst the vehicle is in motion.
- Comply with all safety, direction and speed signs.
- Ensure that vehicle loads are properly secured and loaded onto vehicles.
- Ensure that vehicles are not overloaded.

The requirements with regard to the transportation of tools/equipment/material and persons on the back of construction vehicles must be adhered to:

- No Personnel to be transported in the back of construction vehicles with tools.
- Tools, equipment and material to be secured in order to prevent movement;
- Fixed and firmly secured seats with seat belts – Number of passengers
- The driver and all passengers must have seatbelts fastened whilst driving

Principal Contractor shall ensure that his employees and those of his subcontractors do not:

- Ride on back of elevators, cranes or other mobile plant equipment. Only competent Machine, Equipment operator in Construction Vehicles.
- Leave vehicles unattended with the engine running.
- Park vehicles in unauthorized zones/areas.

Principal Contractor shall be solely responsible for the safety and security of any of his vehicles (including private vehicles) on the premises.

A current maintenance logbook is required for all cranes and large plant equipment, and shall be available for inspection at any time. The logbook shall be located in the cabin of the crane or plant equipment.

Principal Contractor is to ensure that visibility (e.g.: switching on of lights, reflectors, barricades equipped with lights, etc.) is enhanced on all Construction Vehicles and Mobile plants in order to identify the location of the vehicles or plant.

Principal Contractor must maintain his vehicles in roadworthy condition and a valid license. These vehicles shall be subject to inspection by the Client/Agent's representative. Vehicles, which are not roadworthy, will not be allowed onto the site.

In the event where the Principal Contractor and his sub-contractor do not own the equipment, the Principal Contractor is still responsible for ensuring all conditions are complied with by all of his subcontractors or hire companies. Drivers/operators shall be responsible for the travel-worthiness of all loads conveyed by them. Precautions

Cranes and lifting equipment

Regulation 22 provides for requirement for Principal Contractor to provide risk assessments and procedure or method statements in regards cranes and for competent operators with medical certificates of plant and cranes. Compliance with Driven Machinery Regulations promulgated in

terms of the Occupational Health and Safety Act (Act no 85 of 1993)

Lifting equipment must be designed and constructed in accordance with the manufactures/designer's specifications as well as generally accepted technical standards and operated, used, inspected and maintained in accordance with the manufactures requirements as well as that of the of Driven Machinery Regulations promulgated in terms of the Occupational Health and Safety Act (Act no 85 of 1993)

Lifting equipment is clearly and conspicuously marked with the maximum mass load (MML) that it is designed to carry safely. Lifting equipment shall be fitted with a load limiting device that automatically arrest the lift when the load reaches its highest safe position or when the mass of the load is greater than the MML. No person may be lifted by a lifting machine not designed for lifting persons unless in a cradle approved by the inspector of the Department of Labour.

All lifting equipment and cranes must load test certificates.

No Crane shall be used without a pre-use check and findings entered on an approved checklist. Before any cranes are established on site the following must be inspected and approved. Certification will be required for record purpose, and shall cover the following:

Brake or other device capable of holding the maximum mass should the power fail, or which is such that it shall automatically prevent the uncontrolled downward movement of the load when the raising effort is interrupted; and Limiting device that shall automatically arrest the driving effort when:

The Hook or Load attachment point of the Power-Driven lifting machine reaches its highest safe position; and in the case of a Winch Operated lifting machine with a lifting capacity of 5000kg or more; the load is greater than the rated mass load of such machine.

Bulk Mixing Plant

Regulation 20 provides:

Principal Contractor must ensure that the operations of a bulk mixing plants are operated and supervised by a competent person who has been appointed in writing and is

- (a) Aware of all the dangers involved in the operation thereof; and
- (b) Conversant with the precautionary measures to be taken in the interest of health and safety.

No person supervising or operating a bulk mixing plant may authorize any other person to operate the plant, unless that person is competent to operate a bulk mixing plant.

Principal Contractor must ensure that the placement and erection of a bulk mixing plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.

Structures

In terms of regulation 11 Principal Contractor must comply with regulation –

He or she prevent uncontrolled collapse of any new/existing structure
Ensure structures are not overloaded to the extent that it becomes unsafe
Contractor to ensure all drawing are kept on site and available to interested parties
Owners of structures to ensure inspections are conducted by competent persons at least once every 6 months for the first 2 years and thereafter annually.
Owner to retain records to ensure maintenance of a structure and ensure records are kept

Scaffolding

Principal Contractor compliance with regulation 16(1), 16(2) and usage complies with regulation 44 of the Act. Principal Contractor must a appoint a competent person in writing to supervise all scaffolding works, erection, team leaders and inspectors are competent.

A scaffold is a temporary structure for the purpose of creating a work platform, on which workers can carry out their work at varying heights, whether on buildings under construction, or during maintenance of buildings.

The most serious risks associated with scaffolds are firstly that the structure itself may collapse, leading to damage and injuries. Secondly, the items on the scaffold may fall and be damaged or cause damage to items on a lower level or injure or kill people. Thirdly, people may fall from the scaffold and the results are usually serious or fatal.

Personal and other Protective Equipment

In terms of Section 8 of the OHS Act, the duty of the employer is to take steps to eliminate or mitigate (hierarchy of control measures) any hazard or potential hazard to the safety or health of employees before resorting to PPE.

Principal Contractor employees and his sub-contractor employees at the construction site, including visitors, shall use the following SANS or the relevant internationally recognized authority approved risk-based PPE at all times, as a minimum:

- Head protection (Hard hat).
- Steel toe capped safety boots.
- Eye protection.
- Long sleeved and long pants protective clothing.
- High visibility vests.

Refer to General Safety Regulation 2 of the OHS Act However, if there are particular activities/areas/risk assessments that require a specific type of PPE, then that specific PPE requirement must be adhered to (e.g.: for dusty environments – eye goggles; for welding – welding helmet; etc.).

Principal Contractor must provide a detailed program on the issuing, maintenance and replacement of PPE for all his employees and subcontractors on site. Principal Contractor required to keep an updated register of all PPE issued to staff, including that of his sub-contractors

The principal contractor is required continuously to identify the hazards in the workplace and deal with them. He must either remove them or, where impracticable take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered.

Where it is not possible to create an absolutely safe and healthy workplace the principal contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

Suspended Platforms

A contractor must appoint a competent person in writing who must ensure that all suspended platforms work operations are carried out under his or her supervision and that all suspended platform erectors, operators and inspectors are competent to carry out their work. Principal Contractor must adhere to the requirements by regulation 17.

No contractor may use or permit the use of a suspended platform, unless –

- (a) the design, stability and construction thereof comply with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act;
- (b) he or she is in possession of a certificate of system design issued by a professional engineer, certificated engineer or a professional technologist for the use of the suspended platform system; and
- (c) he or she is, before the commencement of the work, in possession of an operational compliance plan developed by a competent person based on the certificate of system design contemplated in subparagraph (b) and applicable to the environment in which the system is being used, which operational compliance plan must include proof.

Explosive Actuated Fastening Devices

No contractor may use or permit any person to use an explosive actuated fastening device unless:

- The user is provided with and uses suitable protective equipment
- User is trained in the operation, maintenance and use of such a device
- Firing mechanism designed to ensure no accidental firing

Blasting Operations

No blasting shall be done by Principal Contractor or subcontractors without the approval and permission of Eastern Cape Development Corporation or Gatsheni Sizwe (Pty)Ltd. The Contractor shall apply in writing to Eastern Cape Development Corporation for permission to blast. All contact with the Inspector of Labour shall be done through the appropriate channels.

Principal Contractor must furnish the following information to Eastern Cape Development Corporation and Gatsheni Sizwe (Pty)Ltd before blasting takes place:

- The blaster must hold a surface-blasting permit for blasting.
- The name of the blaster.
- The number of his blasting permit.
- The registration number of the explosive vehicle.
- The number of the continuous transport permit held.
- The blasting method statement in detail.

Hazard Identification Risk Assessment. The Occupational Health and Safety Act (Act no. 85 of 1993) and Mine Guidelines are to be strictly adhered to at all times. NB: Insofar as those Regulations shall apply in all cases, irrespective of the depth of the hole to be blasted. The Site Manager of Principal Contractor is to be advised each morning as to the blasting program for the day.

Electrical installations and machinery on construction sites

Principal Contractor must, in addition to compliance with the Wireman's License (Qualified Electrician) and registered Electrical Contracting Board of South Africa, Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations, 1988, promulgated by Government Notice No. R. 1593 of 12 August 1988, ensure that:

- Before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
- All parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;

Electrical and mechanical lockout

An electrical and mechanical (as applicable) lockout procedure must be developed by the principal contractor and submitted to Eastern Cape Development Corporation or Gatsheni Sizwe (Pty)Ltd for approval before construction commences. All contractors on site must adhere to this lockout procedure.

Fuel Storage

No petrol or fuel oil shall be stored in bulk on the surface in quantities in excess of two thousand liters in any tank above or below ground level except with the prior written approval of the Chief Inspector. No petrol shall be stored in drums in excess of a total of two hundred liters in any building or other place except with

The prior written approval of the Department of Labour Chief Inspector. No fuel oil shall at any time be stored underground unless it is stored in a suitable container or tank, which does not leak.

Every storage tank provided at any filling station on the surface for the purpose of containing petrol or fuel oil shall be suitably constructed to an acceptable standard that would ensure the safest storage thereof.

Suitable means for firefighting shall be installed at a safe location for the extinguishing of fire in the event of an incident. Fire equipment supply shall be appropriate to the quantity being stored.

All storage facilities shall be bunded 110% of the quantity contained and bunded areas will be supplied with a drain facility to enable the bunded area to be drained in a receptacle for disposal in the event of a spill or accumulation of water.

Housekeeping and general safeguarding on construction sites

Principal Contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, promulgated by Government Notice No. R. 2281 of 16 October 1987, ensure that suitable housekeeping is continuously implemented on each construction site, including:

- The proper storage of materials and equipment;
- The removal of scrap, waste and debris at appropriate intervals;
- Ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways
- Ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
- Ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in regulation 14(6);
- Ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons;
- Ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

Stacking and storage on construction sites

Principal Contractor must, in addition to compliance with the provisions for the stacking of articles in the General Safety Regulations, 2014, regulation 28 ensure that:

A competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;

Adequate storage areas are provided;

There are demarcated storage areas; and

Storage areas are kept neat and under control.

Fire precautions on construction sites

The principal contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, ensure that:

- All appropriate measures are taken to avoid the risk of fire;
- Sufficient and suitable storage is provided for flammable liquids, solids and gases;
- Smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials;
- In confined spaces and other places in which flammable gases, vapors or dust can cause danger –
- Only suitably protected electrical installations and equipment, including portable lights, are used;
- There are no flames or similar means of ignition; There are conspicuous notices prohibiting smoking;
- Oily rags, waste and other substances liable to ignite are without delay removed to a safe place; and
- Adequate ventilation is provided;
- Combustible materials do not accumulate on the construction site;
- Welding, flame cutting and other hot work are done only after appropriate precautions have been taken to reduce the risk of fire;

Excavations

Principal Contractor must ensure compliance regulation 13 amongst other must appoint competent person for supervision of excavation works. Principal Contractor must provide for Excavation and Back Filling Plan.

Principal Contractor who performs excavation work must take reasonable and sufficient steps in order to prevent, as far as is reasonably practicable, any person from being buried or trapped by a fall or dislodgement of material in an excavation. May not require or permit any person to work in an excavation, which has not been adequately shored or braced: Provided that shoring and bracing may not be necessary were.

Appropriate signage shall be affixed to the barricade indicating the risk associated (i.e., deep excavation, lifting operations etc.) and the responsible Supervisor and contact details shall be displayed

The process of excavation and back filling must be carried out as a sequential process following one another as quickly as possible. Excavations must only remain open for a minimum period of time and during this time they must be clearly demarcated. If excavations place the public at risk these sites must be fenced. The residents directly affected by open trenches must be notified of the dangers. This will be done during the site-specific phase.

22. HEALTH AND SAFETY AWARENESS PROGRAMME

The awareness program must be provided by Principal Contractor for community awareness, Schools, Clinic, local Vendors etc., must be in place to create an occupational health and safety culture within employees. The following are some of the methods that may be used:

- Toolbox talks;
- Posters;
- Videos;
- Competitions;
- Suggestion schemes;
- Participative employee activities such as “occupational health and safety circles”.

23. MINIMUM REQUIREMENTS OF THE SHE FILE

As required by the Occupational Health and Safety Act 1993, Construction Regulations (2014) , Asbestos abatement Regulations 2020 and other applicable Legislation , the Principal Contractor and other Contractors will each keep an SHE File on site containing the following minimum documentation:

Approval letter by Eastern Cape Development Corporation on contents of Health and Safety File / SHE Plan.

Notification of construction work to the relevant Department of Labour (stamped on each page / no faxed copies).

Scope of work to be performed;

Asbestos abatement Regulations 2020 requirements

OH&S / SHE Policy and other Policies;

Updated copy of the Occupational Health and Safety Act (Act no. 85 of 1993) and its Regulations.

Updated copy of the Compensation for Occupational Injuries and Diseases Act (Act no. 130 of 1993) and it's Regulations;

Proof of registration and good standing with the Compensation Commissioner or another licensed Insurer;

SHE plans agreed with Eastern Cape Development Corporation including the underpinning risk assessment(s).

A list of contractors (sub-contractors) including copies of the agreements between the parties and the type of work being done by each contractor.

- Notice of new projects.
- Designs and/or drawings;
- Copies of occupational health and safety committee meetings and other relevant minutes;
- Copies of written designations and appointments of competencies;
- Management structure (inclusive of OH&S responsibility & meeting structure);
- Induction training and site, SHE rules;
- Occupational health and safety training;
- Arrangements with contractors and/or mandatories;
- Description of security measures;
- Occupational health and safety rules and procedures;

The following registers:

- Accident and/or incident register;
- Occupational health and safety representative's inspection register;
- Construction vehicles and mobile plan inspections;
- Daily inspections of construction vehicles, plant and other equipment by the operator, driver and/or user;
- Daily inspections of excavations by competent person;
- Daily inspections of demolition work by competent person;
- Record of entry to confined space;
- Record of training;
- Record of toolbox talks;
- Designer's inspections and structures record;
- Inspection and maintenance of explosive powered tools;
- Inspection of electrical installations (including inspection of portable electrical tools, electrical equipment and other electrical appliances);
- Fall protection inspections;
- First-aid box content;
- Record of first-aid treatment;
- Fire equipment inspection and maintenance;
- Record of hazardous chemical substances kept and used on site;
- Ladder inspection;
- Machine safety inspections (including machine guards, lock-outs etcetera);
- Inspection registers and logbooks for lifting machines and –tackle (including daily inspections by drivers/operators);
- Inspection of temporary work
- Inspection of scaffolding;
- Inspection of excavation
- Inspection of demolition work
- Inspection of tunneling
- Inspection of stacking and storage;
- Inspections of structures;
- Inspection of use and temporary storage of flammable liquids on construction sites
- Inspection of water environments
- Inspection of housekeeping and general safeguarding on construction site

- Inspection of construction employees' facilities
- Inspection of suspended platforms
- Inspection of rope access work
- Inspection of material hoists
- Inspection of bulk mixing plant
- Inspection of explosive actuated fastening device
- Inspection of cranes and Load Test Certificates
- Inspection of construction vehicles and mobile plant Inspections of vessels under pressure;
- Inspection of electrical installations and machinery on construction sites; and
- Records of issuing of Personal Protective Equipment;
- Eastern Cape Development Corporation Master Way Leaves

Monthly reporting and recording of statistics;

Keeping of any other record in terms of applicable legislation falling within the scope of SHE Legislation applicable to the project and the Principal Contractor/ Contractor's activities and organization.

Emergency preparedness and response program;

Investigation and reporting of incidents and/or accidents (internal to Client and Department of Labour / Compensation Commissioner

All other applicable records. Principal Contractor duties are to ensure compliance with the Construction Regulation (2014) and Asbestos abatement Regulations 2020, which are to:

Provide a suitably documented health and safety plan based on the health and safety specification

- Keep a health and safety file on site, which must include all documentation required in terms of the Act and
- Regulations, and which are made available on request to an inspector, the client, the client's agent or a Contractor
- Ensure appointed contractor complies with the Act
- Perform duties of client with regard to contractors
- Appoint contractors in writing
- Ensure a contractor's health and safety plan is implemented and maintained
- Ensure that potential contractors submitting tenders have made sufficient provision for health and safety
- Ensure Principal Contractor is satisfied that contractor that he/she intends to appoint, is competent and has resources to perform work safely
- Prior to work commencing, every contractor needs to be registered and in good standing with the compensation fund or with a licensed compensation insurer – COID Act, 1993
- Audit contractor monthly

- Stop any contractor from executing work which is not in accordance with health and safety plan for the site or which poses a threat to health and safety of persons
- Where changes are made to the design and construction, make available sufficient health and safety information and resources
- After discussions and negotiations with Principal Contractor on the contents of the health and safety plan, it must be sent for final approval
- Ensure copies of all health and safety plans are available on request to an employee, an inspector, a contractor, the client or the client's agent
- Hand over the consolidated health and safety file to the client on completion of the construction work (Include drawings, designs, materials used, etc.)
- Provide updated list and agreements/contracts of all contractors on-site to the client
- Ensure all employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3
- Principal Contractor must ensure cooperation between all appointed contractors.
- Principal Contractor allows or permit any employee or person to enter any site unless they have undergone a health and safety induction training.

Principal Contractor must ensure all visitors to a construction site have personal protective equipment. The regulations require that the duties extend through to all levels of responsibility to sub - contractors. For this reason, it is advised that contractors require sub-contractors to be up front on their intent to further sub- contract any aspects of their work. Eastern Cape Development Corporation will conduct an inspection and evaluation of the principal contractor's SHE File on a monthly basis.

Principal Contractor is required to submit the SHE File after receiving letter of appointment from Eastern Cape Development Corporation. Eastern Cape Development Corporation will allocate a day to evaluate the file and to give feedback on the evaluation report of the file to the contractor. The approval letter from Eastern Cape Development Corporation must be kept in the SHE File, and any letter issued concerning the evaluation of the file.

EASTERN CAPE DEVELOPMENT CORPORATION

THE REPAIRS AND REFURBISHMENTS OF SITE 3 IN DIMBAZA INDUSTRIAL PARK

BASELINE RISK ASSESSMENT



TERMS OF REFERENCE

The Health and Safety Baseline Risk Assessment was conducted based on scope of works set out and site visit. The objective of this baseline risk assessment is to identify and evaluate all baseline risks associated with the execution of the **EASTERN CAPE DEVELOPMENT CORPORATION: THE REPAIRS AND REFURBISHMENTS OF SITE 3 IN DIMBAZA INDUSTRIAL PARK**

EXECUTIVE SUMMARY

All construction and maintenance activities can subject workers to levels of Occupational stressors and safety factors, e.g., noise, fumes, revolving motor machinery, tools, moving vehicles, electricity, etc., which permanently harm the health and physical wellbeing of persons at work and greatly reduce productivity. The Occupational Health and Safety Act of 1993, and its relevant regulations, require employers to conduct surveys of the actual situation at every site. Measurements must be taken, and the identified problems addressed by the employer. Improved conditions ensure better worker morale, loyalty, and greater productivity.

SCOPE OF WORK

EASTERN CAPE DEVELOPMENT CORPORATION: THE REPAIRS AND REFURBISHMENTS OF SITE 3 IN DIMBAZA INDUSTRIAL PARK

The work comprises the following sections:

MAIN FACTORY BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Conc. Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3. Roof Support Structure - Steel

Clean, repair, refurbish, and repaint the existing steel portal frame, purlins, bracing, etc. Refer to structural engineering drawings for details.

1.4. Roof Support Structure - Concrete

Clean, repair, refurbish, and repaint existing concrete columns, beams, etc. Refer to structural engineering drawings for details.

1.5. Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.6. Rainwater Goods - Aluminium

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

1.7. Rainwater Goods - Galv. Steel

Replace existing asbestos box gutter and downpipes with custom-made galvanized steel box gutter and downpipes. Refer to rainwater goods drawing and specs for details.

1.8. Rainwater Goods - Concrete

Repair, refurbish, and waterproof the existing concrete box gutter. Replace asbestos downpipes with galvanized steel pipes. Refer to rainwater goods drawing/specs for details.

1.9. Skylights

Replace existing roof air vent with skylights for natural light and ventilation. Installation by specialist

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and branderling. Provide new trap doors and over branderling insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Curtainwalls

Install new curtainwalls along the entire building perimeter for natural light and ventilation requirements.

3.4. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.5. Wall Tiles

Replace all existing ablution wall tiles. Refer to tile layout drawing for details.

3.6. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.1. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

ADMINISTRATION BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Roof Support Structure

Repair and replace damaged timber trusses, purlins, bracing, etc. Make good. Refer to structural engineer drawing for details.

1.3. Rainwater Goods

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and brandering. Provide new trap doors and over brandering insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing ablution wall tiles. Refer to tile layout drawing for details.

3.5. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.1. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

ABLUTION FACILITY BUILDING

1. ROOF STRUCTURE

1.1. Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2. Roof Support Structure

Repair and replace damaged timber trusses, purlins, bracing, etc. Make good. Refer to structural engineer drawing for details.

1.3. Rainwater Goods

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING

2.1. Ceiling Board

Replace all existing and damaged ceiling boards and brandering. Provide new trap doors and over brandering insulations. Refer to ceiling plan and specifications for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing ablution wall tiles. Refer to tile layout drawing for details.

3.5. Toilet/Shower Cubicles

Replace all existing, dilapidated, and narrow-width toilet cubicles with industrial modular toilet cubicle system. Refer to sanitaryware schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3. Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.2. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

6.3. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.2. Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

GUARD HOUSE BUILDING

1. ROOF STRUCTURE

1.1. Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.2. Concrete Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3. Rainwater Goods

Replace existing asbestos downpipes with custom-made seamless aluminium downpipes, including the existing deteriorated cast iron full bore with a brand new one. Refer to rainwater goods drawing and specs for details.

2. CEILING/CONCRETE ROOF SLAB UNDERSIDE

2.1. Concrete Roof Slab Underside

Clean, repair, refurbish, and repaint existing concrete roof slab underside. Refer to structural engineer repair and refurbishment schedules for details.

3. SUPERSTRUCTURE

3.1. Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.3. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

3.4. Wall Tiles

Replace all existing ablution/kitchenette wall tiles. Refer to tile layout drawing for details.

3.5. Toilet

Demolish the partition wall inside the toilet to alleviate spatial issue. Clean, repair, and refurbish existing walls and make good. Refer to sanitaryware schedule for details.

4. FLOORS

6.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

6.2. Shower Area Concrete Floor

Cast 100mm thick concrete slab on top of the existing floor to accommodate new drainage system. Refer to architectural "General Details-A" for information.

6.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1 Drainage System

Replace the existing drainage system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.2 Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

5.3 Sanitary Wares

Replace all sanitary wares in accordance with multiple tenancies and SANS requirements. Refer to sanitaryware schedules for details.

6. ELECTRICAL

6.1 Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1 Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

8. SITEWORKS

8.1 Siteworks System

Rebuild new concrete walkway, apron, and stormwater channels in accordance with SANS requirements. Refer to civil engineer drawings and specs for details.

BOILER ROOM BUILDING

1. ROOF STRUCTURE

1.1 Asbestos Roof Cover

Replace all existing asbestos roof sheets, fascia, barge boards, etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

1.2 Conc. Roof Slab

Clean, repair, and refurbish the existing concrete roof slab. Refer to structural engineering drawings and specifications for details.

1.3 Roof Support Structure - Steel

Clean, repair, refurbish, and repaint the existing steel portal frame, purlins, bracing, etc. Refer to structural engineering drawings for details.

1.4 Roof Support Structure - Concrete

Clean, repair, refurbish, and repaint existing concrete columns, beams, etc. Refer to structural engineering drawings for details.

1.5 Waterproofing

Replace deteriorated waterproofing with new torch-on applied waterproofing. Refer to engineering drawings and specs for details.

1.6 Rainwater Goods - Aluminium

Replace existing asbestos gutter and downpipes with custom-made seamless aluminium gutter and downpipes. Refer to rainwater goods drawing and specs for details.

2. CEILING/CONCRETE ROOF SLAB UNDERSIDE

2.1. Concrete Roof Slab Underside

Clean, repair, refurbish, and repaint existing concrete roof slab underside. Refer to structural engineer repair and refurbishment schedules for details.

3. SUPERSTRUCTURE

3.1. Masonry Walls

Clean, repair, and refurbish all existing wall cracks, chipped, stained, etc. Repaint interior walls and apply brick seal on the exterior.

3.2. Asbestos Wall Cladding

Replace all existing asbestos wall cladding, flashing, bargeboard, and etc., with insulated Colorplus AZ150 roof sheets. Install according to manufacturer specifications and requirements. Refer to roof schedules for details.

3.3. Windows

Replace all existing and rusted steel windows with aluminium windows with safety glazing. Refer to window schedule for details.

3.4. Doors

Replace all existing and worn-out doors with new ones. Refer to door schedule for details.

4. FLOORS

4.1. Concrete Floor

Clean, re-sealed joints, repair damaged, and make good.

4.2. Open Ditch/Trench

Seal the entire opening with a 100mm thick concrete slab, fills, and make good, Refer to engineers drawing for details

4.3. Floor Finish

Repaint all worn-out floor paint with hard-wearing epoxy floor paint finish. Use mosaic tiles on the shower floor. Refer to accommodation schedules and tile layout drawings for details.

5. PLUMBING

5.1. Water Supply System

Replace the existing water supply system in accordance with multiple tenancies and SANS requirements. Refurbish functional sections. Refer to civil engineer drawings for details.

6. ELECTRICAL

6.1. Electrical System

Replace all existing and outdated electrical systems in accordance with multiple tenancies and SANS requirements. Refer to electrical engineer drawings and specs for details.

7. MECHANICAL

7.1. Mechanical System

Replace all existing and outdated mechanical systems in accordance with multiple tenancies and SANS requirements. Refer to mechanical engineer drawings and specs for details.

SITE 03 – INFRASTRUCTURES

1. INTERNAL ROAD

1.1. Re-design Entrance Gate & Internal Roads:

Tailor the entrance gate and internal roads to accommodate cargo trucks and meet the requirements of multiple tenancies.

1.2. Provide Thoroughfare Road:

Establish a thoroughfare road to service the existing loading platform on the northern side of the main factory building.

1.3. Additional Parking Spaces:

Create extra parking spaces and utilize overflow parking on the open grass field located at the back of the ablution facility.

2. BOUNDARY FENCE

2.1. Replace Existing Boundary Fence:

Replace the current dilapidated diamond mesh boundary fence with a 2.4m Betaview or a similarly approved product. Install in accordance with manufacturer requirements and recommendations.

2.2. Re-design & Install New Entrance Gate:

Redesign and install a new entrance gate as per architect details and specifications.

3. DRAINAGE SYSTEM

3.1. Optimize Existing Drainage System:

Make the most of the existing drainage system and upgrade it to accommodate the requirements of multiple tenancies.

4. WATER SUPPLY SYSTEM

4.1. Maximize Existing Water Supply System:

Utilize the current water supply system to its fullest extent and upgrade it to meet the needs of multiple tenancies.

5. STORM WATER MANAGEMENT SYSTEM

5.1. Utilize and Upgrade Storm Water System:

Optimize the existing stormwater management system, making necessary upgrades to align with the requirements of multiple tenancies.

SITE 03 – LANDSCAPING

1. GRASS LAWNS AND FIELDS

1.1. Clearing of Unwanted Vegetation:

Remove and clear all undesired and overgrown bushes, disposing of them at the designated tipsite.

2. EXISTING TREES

2.1. Removal of Invasive Trees:

Cut down trees that are causing damage to existing walkways, infrastructures, and buildings.

2.2. Clearing for Proposed Development:

Remove & disposed trees that obstruct the proposed development.

2.3. Removal of Trees Inside Buildings:

Cut down & disposed trees that are growing inside the buildings, posing potential hazards or causing structural issues.

THE REPAIRS AND REFURBISHMENTS OF SITE 3 IN DIMBAZA INDUSTRIAL PARK: OHS BASELINE RISK ASSESSMENT: DEFINITIONS

Hazard:	A situation that poses a level of threat to People, production, property, or the environment.
Risk:	The probability that something unwanted/ unpleasant will happen
Severity:	Is the anticipated extent or damage that may occur because of an unplanned event.
Frequency:	How often does activity occur within a predetermined time?
Likelihood:	How likely are the consequences to occur

RISK RATING:

1	Consider what can go wrong that can hurt someone.
2	Determine what the most likely outcome would be - Consequences.
3	Determine worst case scenario how likely those consequences are - Likelihood.
4	Calculate the risk rating.
5	Required action

CONSEQUENCES:

1. Severe	Death or permanent disability to one or more persons
2. Major	Hospital admission required.
3. Moderate	Medical treatment required.
4. Minor	First aid required
5. Insignificant	Injuries not requiring first aid.

LIKELIHOOD:

1. Almost certain	Expected to occur in most circumstances.
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2. Likely	Hospital admission required.
3. Possible	Could occur at some time.
4. Unlikely	Is not likely to occur in normal circumstances.
5. Rare	May occur only in exceptional circumstances.

METHOD:

The basic risk assessment principles that will be followed are hazard identification, hazard quantification, risk identification, risk evaluation and ranking and lastly risk management recommendations. (Risk evaluation is described under the heading “Risk evaluation criteria”.) This assessment will be reviewed whenever the Project Scope is altered or after serious / repetitive incidents.

RESPONIBILITIES:

1. Site Management	To ensure that Risk Assessments are conducted, assessed, communicated, addressed, and signed.
2. Occupational Health Safety Officer	To ensure and enforce that Risk Assessments are communicated and utilized as a tool during work activities on site, as well as activities in the lay down areas.
3. Supervision	To ensure that existing Risk Assessments remain applicable and regularly updated upon changes and replacements.
4. OHS Representative	To discuss risks daily and to assist employees regarding changes in risks

1. LEGISLATIVE REQUIREMENTS

The following are legislation or guidelines that were identified as most applicable to this project:

- Construction Regulations, 2014
- The Constitution of the Republic of South Africa (particularly Section 24 of the Bill of Rights).
- Occupational Health and Safety Act 1993 (Act 85 of 1993) and its Regulations.
- Asbestos abatement Regulations 2020
- National Environmental Management Act 1998 (Act 107 of 1998).
- National Road Traffic Act (93 of 1996) National Environmental Management: Waste Act 59 of 2008
- Air Quality Act 39 of 2004
- Hazardous Substances Act 15 of 1973
- National Water Act 36 of 1998
- Conservation of Agricultural Resources Act 1983 (Act 43 of 1983).
- Mine Health and Safety Act 29 of 1996
- Compensation for Occupational Injuries and Diseases Act No 130 of 1993 (COIDA)

- Applicable South African National Standards (SANS).
- ISO 9001:2008 –Quality Management Systems requirements
- ISO 14001:2004–Environment Management Systems requirements
- OHSAS 18001:2007 –Occupational Health and Safety Management Systems Requirements
- General Administrative Regulations, of the OHS Act
- Hazardous Chemical Agents Regulations, of the OHS Act
- National Environmental Management: Waste Act, No 59 of 2008

1.1. Risk Management (RM)

The RM methodology comprises five key elements, which are:

1.1.1. Identify site hazards.

These are conditions on site that could present Health and Safety risks. e.g., dust, noise, work at heights, travelling, trenching, rigging, uneven terrain, construction vehicle, traffic, and hazardous chemical substances.

1.1.2. Identify the risks.

These are events that could adversely affect the Health and Safety of people as well as the environment. Included in this step is the identification of causal factors. The risk owner is the person accountable for ensuring that controls are in place, implemented and reviewed/ monitored. Highlight unanticipated risks due to abnormal conditions (e.g., sudden unexpected and short-term changes to environmental conditions).

1.1.3. Analyze the Risks

With the hazards and risks identified, start with listing potential consequences and existing control measures. Then assess the effectiveness of the existing controls. Also considering existing controls, determine the anticipated consequences and the likelihood of these consequences using the prescribed framework for health, safety, and environmental risks.

1.1.4. Evaluate Risks

This step aimed at ensuring that adequate controls have been identified for the risks, adequate resources have been allocated and adequate progress is being made with implementation. The level of managerial oversight and the timeframe within which the treatment strategy must be established is dictated by the priority rating matrix.

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

Evaluation includes:

1.1.4.1.	Agreement by appropriate managerial levels, that appropriate risk and control measures have been identified.
1.1.4.2.	Review of the appropriateness of the control measures them.
1.1.4.3.	Review of additional controls/ tasks that have been identified as necessary.
1.1.4.4.	Assessment of the measures proposed for measuring the progress of implementation.
1.1.4.5.	Assessment of the measures proposed for monitoring effectiveness of the controls.

The Contractor must ensure through his risk management process the hierarchy of controls stipulated as follows, are implemented:

1.	<i>Eliminate</i>	The complete elimination of the hazard.
2.	<i>Substitute</i>	Replacing the material or process with a less hazardous one.
3.	<i>Redesign</i>	Redesign the equipment or work process.
4.	<i>Separate</i>	Isolating the hazard by guarding or enclosing it.

**EASTERN CAPE DEVELOPMENT CORPORATION
BASELINE RISK ASSESSMENT**

**CONTRACT
NUMBER:**

**BASELINE RISK
13112023**

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

5. <i>Administrate</i>	Providing control such as training, procedures etc.
6. <i>Personal Protective Equipment (PPE)</i>	Use of appropriate and properly fitted PPE where other controls are not practical. (PPE as the last resort)

PROJECT DESCRIPTION:**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK****APPOINTMENTS AS PER THE CONSTRUCTION REGULATIONS**

Item	Regulation	Appointment	Responsible Person
1.	5(1)(k)	Principal contractor for each phase or project	Client
2.	7.(1)(v)	Contractor	Principal Contractor
3.	7(3)	Sub-Contractors	Contractor
4.	8(1)	Construction Manager	Contractor
5.	8(2)	Assistant Construction Managers	Contractor
6.	8(5)	Construction Safety Officer	Contractor
7.	8(7)	Construction supervisor	Contractor
8.	9(1)	Person to carry out Risk Assessment	Contractor
9.	9(3)	Risk Assessment Trainer/Instructor	Contractor
10.	10(1)(a)	Fall Protection Planner	Contractor
11.	12 (2)	Temporary Works Supervisor	Contractor
12.	11 (2))	Structures Examiner	Contractor
13.	13(1)	Excavation Supervisor	Contractor
14.	13(2)(ii)(bb)	Professional Engineer or Technologist	Contractor
15.	13(2)(k)	Explosives Expert	Contractor
16.	14(1)	Demolition Work Supervisor	Contractor

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

17.	14(2)	Demolition Expert	Contractor
18.	14(11)	Explosives Expert	Contractor
19.	16(1)	Scaffold Supervisor	Contractor
20.	17(2)(b)	Compliance Plan Developer	Contractor
21.	17(2)(ii)	Rigger	Contractor
22.	18 (1)	Rope Access Work Supervisor	
23.	19(8)(a)	Material Hoist Inspector	Contractor
24.	20(1)	Bulk Mixing Plant Supervisor	Contractor
25.	20(2)	Bulk Mixing Plant Operator	Contractor
26.	21(2)(b)	Explosive Actuated Fastening Device Operator	Contractor
27.	21.2 (g) (i)	Explosive Actuated Fastening Device Controller	Contractor
28.	22(a)	Crane Operator	Contractor
29.	23(d)(i)(ii)	Construction Vehicle and Mobile Plant Operator	Contractor

Item	Regulation	Appointment	Responsible Person
30.	23(1)(k)	Construction Vehicle and Mobile Plant Inspector	Contractor
31.	24(d)	Temporary Electrical Installations Inspector	Contractor
32.	24 (c)	Temporary Electrical Installations Controller	Contractor
33.	28 (a)	Stacking and Storage Supervisor	Contractor

EASTERN CAPE DEVELOPMENT CORPORATION BASELINE RISK ASSESSMENT	CONTRACT NUMBER:	BASELINE RISK 13112023
PROJECT DESCRIPTION:		
THE REPAIRS AND REFURBISHMENTS OF SITE 3 IN DIMBAZA INDUSTRIAL PARK		

34.	29 (h)	Fire Equipment Inspector	Contractor
35.	29 (i)	Fire Fighter	Contractor

This list may be used as a reference or tool to determine which components of the Act and Regulations would be applicable to a particular site. This list must not be assumed to be exclusive or exhaustive.

Activities

A. Administration

B. Site Establishment and Construction Works

1. Site Establishment Camp
2. Fencing around Site Camp
3. Erection of Barricades
4. Security at Camp site
5. Erection of signs on Construction Site
6. Delivery of materials at camp site
7. Loading and unloading of site materials (Roof Sheeting, and General Building Materials)
8. Stacking and storage of materials
9. Handling of hazardous chemicals
10. Environmental protection, sanitation, and waste removal

C. Construction Works and General Building Works

1. Installation of Roof Sheeting, glazing, painting, and other building works and working at heights
2. Backfill and compaction.
3. Entering a confined space
4. Asbestos handling and Removal
5. Use of cement and tilling works
6. Use of hand tools
7. Use of machinery
8. Road Construction and Resurfacing
9. Road painting

D. Emergency preparedness

1. Evacuation during site emergencies

PROJECT DESCRIPTION:

THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK

2. Providing first aid
3. Firefighting activities

E. Electrical power supply system, Electrical and energy powered tools

1. Working with electrical power supply system, portable electrical equipment

F. Housekeeping

1. Cleaning

2. Cleaning oil spillages
3. Waste disposal

G. Public Safety

1. Unauthorized Personnel
2. Working near offices and confined spaces
3. Public passing near construction site

H. Night work

1. Working at Nigh

**EASTERN CAPE DEVELOPMENT CORPORATION
BASELINE RISK ASSESSMENT**

**CONTRACT
NUMBER:**

**BASELINE RISK
13112023**

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

REF	ACTIVITY, HAZARD & RISK IDENTIFICATION			LOSS TYPE	CONTROLS TO BE IMPLEMENTED	RISK ASSESSMENT			SWP / SOP /MS REF NUMBER
	ACTIVITY	HAZARD	RISK			(C)	(L)	CLASS	
A. Administration									
	Medical examinations	Employees unfamiliar with their medical conditions	Health problems resulting in time loss and project delays.	H	<ul style="list-style-type: none"> All employees are to be declared medically fit by a registered occupational health practitioner. 	3	3	13(H)	
	Admin documentation	Nonconformance issues	Work stopped due to non-compliance.		<ul style="list-style-type: none"> All necessary permits, method statements and plans to be in place prior to commencement of task. 	3	3	13(H)	
	Application of wayleaves	No wayleave and supporting permits.	Time loss due to work stoppage by authorities resulting in unnecessary costs.		<ul style="list-style-type: none"> Ensure that all documentation and permits are in place. 	3	3	13(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

	Entering site without being inducted	Employees exposed to unknown hazards.	Moderate to severe injuries	S		4	4	21(CR)	
	Appointments	Appointments not done as per construction regulation.	Time loss due to work stoppage by authorities	S	<ul style="list-style-type: none"> SHE induction must be given to persons before entering site. Standard appointment letters should be completed as required by the OHS Act. Refer to Appointments in the safety file. 	3	2	9(M)	
	Induction training	Persons have not received induction training before starting work.	Employees are not aware of the risks associated with their activities.	S	<ul style="list-style-type: none"> Management is to ensure that all workers have received health & safety induction training pertaining to the hazards associated with the activities performed. Proof of the induction training must be maintained for all persons that perform high risk activities. Complete the Induction Form. 	4	3	18(H)	
	Performing Risk Assessments	Risk assessments not performed before commencement of any new work	Employees are not aware of the risks they are exposed to during work	S	<ul style="list-style-type: none"> Appoint a competent Supervisor in writing and provide HSE Representative Training. Supervisor to do a risk assessment that includes the following: 	4	3	18(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

		and during hazardous activities			<ul style="list-style-type: none"> The identification of risks and hazards to which persons may be exposed. The analysis and evaluation of the risks and hazards identified. A plan to mitigate, reduce or control the risks and hazards that have been identified. 				
B. Site Establishment and Construction Works									
01	Establishing Site Camp	Incompetent Employees, Oil leakages from machines, Generators Eastern Cape Development Corporation 's	Injury, injuries to third parties & fatalities pollution Injuries	S E S	<ul style="list-style-type: none"> Operator must have knowledge, experience, training, and qualifications specific to the work they have been appointed to do. Oil spills must be cleaned out. Spill kits must be available onsite. Workers to be trained on safe working procedures. 	4 2 5	4 4 4	21(CR) 12(M) 24(CR)	Environmental Management Plan

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

	workers not following Safe Working Procedures (SWP)				<ul style="list-style-type: none"> • Toolbox talks on importance of following SWP'S. 	4	4	21(CR)	
	Working on uneven surfaces	Leg & ankle injuries	S		<ul style="list-style-type: none"> • Use of proper footwear PPE 	3	3	13(H)	
	Damage to adjacent private property by machine bumping into private property.	property damage	S		<ul style="list-style-type: none"> • Prior to the beginning of clearing or grubbing activities, the project engineer or the certified inspector is to inspect the area to determine if these activities are likely to cause damage or require access to adjacent private property. 	3	4	17(H)	
	Non disposal of generated waste	Environment al pollution			<ul style="list-style-type: none"> • When felling, topping or trimming trees, broken or cut limbs are not to fall on or damage overhead wires. 				
		Manifestation of rodents	E		<ul style="list-style-type: none"> • The disposal of all cleared or grubbed materials is the responsibility of the Eastern Cape Development Corporation to remove from the right-of-way and disposed at locations off 	2	4	12(M)	
		Insect bites and Illness	H			3	5	20(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

		Exposure to venomous reptiles and insect bites	Illnesses associated with lungs, Pollution		the project outside the limits of view of the traveling public.				
		Exposure to dust from Construction work site		H	<ul style="list-style-type: none"> All waste must be removed from site through a formal waste management program. No littering is allowed on site. 	3	4	17(H)	
				H	<ul style="list-style-type: none"> Use of insect repellents Environmental awareness during toolbox talks Spay water on ground to minimize the production of dust. Employees working close to the machines, generators and exposed for longer periods to the machine must be provided with dust masks. 	3	4	17(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

02	Fencing around Camp Site	Substandard fencing	Fence blown down in high winds.	S	<ul style="list-style-type: none"> The safety fencing should be strong enough and durable enough to withstand the elements. Wear proper PPE. It should be of a design that makes it difficult to climb. It should have reinforcement at the bottom so that one cannot climb underneath it. Gates or joins should not provide a security threat. Persons must wear correct PPE before entering site. Use of protective safety eyewear(goggles) 	3	3	13(H)	
		Exposure to sharp edges	Cuts & lacerations	S		2	3	8(M)	
		Unauthorized persons accessing site via poor fencing and green netting.	Theft	S		5	4	24(CR)	
		Persons entering site without PPE.	Moderate to severe Injuries	S		4	4	21(CR)	
		Use of hand tools to erect fence.	Injuries to eyes	S		4	4	21(CR)	
03	Erection of barricades on work site	Work site not barricaded from unauthorized personnel	Moderate to severe injuries		<ul style="list-style-type: none"> Erect barricades to control access to the job site from the public and control the worksite as a whole 	4	3	18(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

04	Security at camp site	Un-authorized persons entering site.	Injuries	S	<ul style="list-style-type: none"> No Eastern Cape Development Corporation may allow or permit any employee or person to enter site unless the person has undergone Health and safety induction training. Security system and guards should be used. Use very secure, lockable storage units. Equipment and tools to be locked inside secure area. Use net to increase security 	4	4	21(CR)	
		Unsecured storage facilities	Theft	S		1	4	7(M)	
	Substandard fencing	Fence blown away by wind if there is no net.	Theft	S		1	4	7(M)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

05	Erection of signs on Construction Site	Speeding vehicles on site	Vehicle accidents	S	<ul style="list-style-type: none"> Ensure erection of site speed signs Use of proper PPE (protective gloves and goggles) Training on proper bending postures Allocation of designated parking areas for delivery/plant vehicles and staff/visitors 	4	4	21(CR)	To be included in Traffic Management Plan
		Poor condition of hand tools used to erect signs.	Hand and eye injuries	S		4	3	18(H)	
		Manual use of hand tools to Erection of Signs	Back injuries from bending	S		3	3	13(H)	
		No signage on construction site	Employees parking vehicles anywhere on site	S		2	3	8(M)	
06	Delivery of materials at camp site	Incompetent vehicle and machinery operators	Accidents	S	Employment controls for persons required to drive. Valid driver's license. Safe driving techniques to be adhered to at all times.	4	4	21(CR)	
		Driver not adhering to Safe driving techniques	Injuries	S		3	4	17(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

		Machinery operators not competent to perform specific appointed work.	Injuries to third parties	S	Operator must have knowledge, experience, training, and qualifications specific to the work they have been appointed to do; follow SWP's.	4	4	21(CR)	
		Oil spills from machinery and generators		E	Use of spill kits and persons trained on using them, use of drip trays.	4	4	21(CR)	
		Inhalation of fumes	Environmental pollution	H	Air quality monitoring and surveys Use of masks	3	5	20(H)	
		Dust inhalation	Lung illnesses	H		3	5	20(H)	
		Dropping of loads	Lung illnesses	S	Correct positioning of equipment and low loaders	3	4	17(H)	
			Property damage						

**EASTERN CAPE DEVELOPMENT CORPORATION
BASELINE RISK ASSESSMENT**

**CONTRACT
NUMBER:**

**BASELINE RISK
13112023**

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

08	Stacking and storage of materials including general building materials	Improper Stacking of general building material resulting in materials falling	Injuries	S	<ul style="list-style-type: none">• Follow proper stacking procedures.• Proper supervision and inspections	4	4	21(H)	
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PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

9	Handling of hazardous chemicals	No bunding for Storage of Cement, Glue resulting in spills.	Environmental pollution	E	<ul style="list-style-type: none"> All fuel storage to be in specific banded fuel storage tanks that holds 110% of the capacity of the container. Spill kits required and persons trained on using them. 	4	4	21(CR)	Environmental management plan/ Fire Protection Plan
		Fire extinguishers not accessible	Property damage from fire	S		4	5	23(CR)	
		Skin contacts with chemicals	Skin irritation and skin dermatitis	H		1	4	7(M)	
		Inhalation of hazardous chemicals	Illnesses associated with lungs.	H		3	3	13(H)	
		Incorrect disposal of chemicals	Environmental pollution	E		3	4	17(H)	
		Inventory list of chemicals not kept.		S		3	3	13(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

		Ingestion	poisoning	S	<ul style="list-style-type: none"> • Compile a complete list of the chemicals in your workplace. 	3	3	13(H)	
		Employees not trained on working with hazardous chemicals.	risks associated with incorrect use of chemicals.	S	<ul style="list-style-type: none"> • Making available emergency medical help 	3	3	13(H)	
		Unmarked chemicals	risks associated with using unknown chemicals	S	<ul style="list-style-type: none"> • Trained personnel to handle hazardous chemicals. • All chemicals on site must be correctly marked and labeled 	3	4	17(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

10	Environmental protection and sanitation	Employees smoking anywhere on site.	Risk of a fire starting from a lit cigarette	E	<ul style="list-style-type: none"> Smoking must be prohibited outside designated smoking areas. 	1	4	7(M)	Environmental Management Plan
		Use of unhygienic toilets according to regulation requirements	Bacterial/viral/fungi and parasite infections	H	<ul style="list-style-type: none"> Ensure that toilets are regularly cleaned and maintained, including temporary units. Employees are required to wash their hands after going to the toilets/ using urinals. 	2	4	12(M)	
		Working in extreme weather i.e., hail, strong winds, Heat	Heatstroke	H	<ul style="list-style-type: none"> EHS weather watch via internet Find shelter in a secure building. All work must be halted under such conditions. Provide employees with water. 	2	4	12(M)	Environmental Management Plan
				E	<ul style="list-style-type: none"> Ensure that there is no un-natural flow into storm water channels. 	3	4	17(H)	Environmental Management Plan
			Noise exposure to ears	H		2	4	12(M)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

					<ul style="list-style-type: none"> Laborers can sustain noise-induced hearing loss when not using correct PPE. I.e., Earmuffs, ear plugs 				
C. Construction Works, Removal Asbestos handling and removal and General Building Works									
01	Installation of Roof, and other general building works: Painting Tiling Brickwork Plastering Plastering Roof works Removal Asbestos handling and removal	Installations done by incompetent supervisor.	Installations work on unstable Surface or Walls	S	<ul style="list-style-type: none"> Evaluate the stability of the walls before Installations work begins. Inspection by a qualified engineer An Eastern Cape Development Corporation must ensure that all Installation work is carried out under the supervision of a competent person. 	5	3	22(CR)	Appointment of competent person
		Fall or dislodgement of material in an Installations.	Being buried/trapped	S		4	4	21(CR)	
		Exposed to Work at Heights Workers not following safe	Injuries	S		4	4	21(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

		working procedures. Excavations not being inspected	Fall of ground	S	<ul style="list-style-type: none"> No load, material, plant or equipment is to be placed or moved near the edge of any excavation where it may cause its collapse and consequently endangers the safety of any person. (1m distance from excavation) <p>Every excavation must be inspected daily and after rain or fall of ground.</p>	4	4	21(CR)	
02	Backfill and compaction.	Flying debris getting into eyes of workers	Loss of sight – Backfill and Compaction works create flying debris which may pose a significant eye hazard	S	<ul style="list-style-type: none"> Workers must be issued eye protection upon hire. E.g., eye goggles Re-enforcement on the use of eye protection during site toolbox talks 	4	4	21(CR)	
03	Entering a confined space	No gas detectors- Air quality is not tested before entering confined space.	Fires and explosion can occur causing multiply injuries to employees.	S	<ul style="list-style-type: none"> Before a person enters a confined space, gas detectors must be used to determine the need for breathing apparatus. 	4	4	21(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

		Entering a confined space without inspection	Injuries to workers	S	<ul style="list-style-type: none"> All confined spaces must be inspected before any person enters the confined space. SWP training must be given to workers. Only competent persons must be appointed in writing. When oxygen drops to less than 20% by volume, the area must be cleared of all people and artificial ventilation systems put into place. 	4	3	18(H)	
		Inadequate symbolic safety signs and notices	May result in fatalities to workers.	S		4	3	18(H)	
		Oxygen content dropping to less than 20% by volume.	Insufficient % of oxygen can have a serious impact on the entrant working inside the confined space, suffocate.	S		4	4	21(CR)	
04	Asbestos Handling and Removal	Inhalation of Asbestos fibers Improper Asbestos removal	May result in fatalities to workers.	S	Risk Assessment and Method statement of Asbestos to be communicated to the relevant exposed employees.	4	3	21(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

		Incompetent person conducting removal	Insufficient % of oxygen can have a serious impact on workers, Lung disease, suffocation		Only registered contractor must handle and remove asbestos. Only workers with the required task specific PPE will be allowed to handle and remove asbestos.				
05	Use of Cement	Workers not trained on working with concrete mix.	Severe chemical burns to exposed skin and eyes	S	<ul style="list-style-type: none"> Task to be done by competent shutter hands and concrete hands. Use of correct PPE, i.e. Waterproof gloves, overalls, eye goggles 	3	3	13(H)	
06	Use of hand tools	Incorrect use of hand tools	Hand loss	S	<ul style="list-style-type: none"> Practice correct use of tools for the correct task 	4	4	21(CR)	
		Not following Safe Working Procedures	Injuries	S	<ul style="list-style-type: none"> Training on safe working procedures Correct use of PPE 	4	4	21(CR)	
		Using sub-standard tools	Injuries to hands	S	<ul style="list-style-type: none"> Regular tool inspections 	4	5	23(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

		Using homemade tools to perform tasks.	Injuries to hands	S	<ul style="list-style-type: none"> Removal of damaged tools Use the correct tools for the correct task. Conduct Hand tool Risk Assessment 	4	4	21(CR)	
07	Use of machinery and Tools	Use of faulty equipment	Injuries	S	<ul style="list-style-type: none"> Maintenance of equipment as per manufacturer's requirements periodic repairs removal of faulty equipment 	4	5	23(CR)	
		Contact with exposed/damaged wires.	Electrocution	S	<ul style="list-style-type: none"> display visible signage that indicates faulty equipment. 	3	3	13(H)	
		Work stoppages	Loss of production	E	<ul style="list-style-type: none"> toolbox talks proper supervision 	3	4	17(H)	
		Oil and fuel spills	Environmental pollution	S	<ul style="list-style-type: none"> Any leaks must be contained with drip trays and spill kits must be used to minimize environmental damage 	3	4	17(H)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

08	Road Construction and Resurfacing of the road	Sight Hazard – flying debris getting into eyes.	Resurfacing operations can create flying debris which may pose a significant eye hazard	S	<ul style="list-style-type: none"> Workers must be issued eye protection upon hire. E.g., eye goggles Re-enforcement on the use of eye protection during site toolbox talks 	4	4	21(CR)	
09	Road painting	Chemicals - workers exposed to vapors from paint which will be exacerbated by ambient heat	Chemical inhalation may lead to dizzy spell and in severe cases lung illness	S	<ul style="list-style-type: none"> Review of Safety Data Sheets for all paints. Skin protection as needed 	3	4	17(H)	

D. Emergency Preparedness

01	Evacuation during site emergencies	Workers uninformed of emergency evacuation routes. Emergency evacuation signs not visible to employees	Injuries	S	<ul style="list-style-type: none"> Conduct emergency drills SHE Orientation Supervision during evacuation Emergency evacuation routes and assembly points must be clearly marked 	3	4	17(H)	Emergency Plan
			Stampede	S		4	4	21(CR)	
			Fatalities	S		5	4	24(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

02	Providing first aid	Incompetent first aider	Escalation of injuries	S	• Trained first aiders.	4	4	21(CR)	Emergency plan
		Untrained persons attending to first aid cases	Fatalities	S	• Trained first aiders.	5	4	24(CR)	
		First aider not using PPE	Bacterial, viral infections	S	Use gloves and CPR mask.	4	4	21(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

03	Firefighting activities	Incompetent fire fighter	Burns	S	<ul style="list-style-type: none"> Trained fire fighters 	4	4	21(CR)	Fire Protection Plan
		Workers not trained on emergency plan.	Injuries	S	<ul style="list-style-type: none"> Conduct fire drills Emergency plan must be in place. 	4	4	21(CR)	
		Emergency numbers not displayed on site for everyone to see.	Fatalities	S	<ul style="list-style-type: none"> Emergency numbers must be visible to everyone. 	5	3	22(CR)	
		Fire extinguishers not working and not inspected.	Property damage		<ul style="list-style-type: none"> Fire extinguishers must be easily accessible and available. Firefighting equipment must be inspected. 	4	5	23(CR)	
		Smoke inhalation	Suffocation	H	<ul style="list-style-type: none"> Use of masks 	4	4	21(CR)	

E. Electrical power supply system, Electrical and energy powered tools

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

01	Working with electrical power supply system, portable electrical equipment	Exposure to faulty electrical equipment/tools	Shock	S	<ul style="list-style-type: none"> Regular tool inspections Ensure that the connections. (DB Boards, cables to equipment, equipment, etc.) are tight. Risk Assessments 	3	4	17(H)	
		Use of incorrect tools for the wrong job	Fatalities	S	<ul style="list-style-type: none"> Equipment must be in good working condition. Correct use of the correct tool for the correct task 	5	4	24(CR)	
		Incompetent person performing electrical work.	Fire	S	<ul style="list-style-type: none"> Access to live equipment is to be controlled. Regular maintenance of equipment 	4	3	18(H)	
		Contact with live /damaged wires.	Electrocution	S	<ul style="list-style-type: none"> Safe work procedure/lock out procedure to be available and followed when working on electrical machinery and/or equipment. Certificate of compliance to be issued before the electrical installation is handed over for use, or if alterations and modifications have been done. 	4	4	21(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

					<ul style="list-style-type: none"> • Correct usage; do not work on live equipment. 				
F. Housekeeping									
01	Sweeping/cleaning	Exposure to cleaning chemicals	Skin irritation	S	<ul style="list-style-type: none"> • Use of PPE (gloves) 	1	4	7(M)	
			Skin dermatitis	H		2	4	12(M)	
		Inhalation of chemicals	Dizzy spell	H		1	4	7(M)	
		Musculoskeletal from repetitive motion including bending, stretching, reaching etc.	Back injuries	H		3	4	17(H)	
02	Cleaning oil spillages	Spill kits not available	Slips and falls	E	<ul style="list-style-type: none"> • Spill kits must be available and accessible on site 	3	4	17(H)	Environmental Management Plan
				E		2	4	12(M)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

03	Waste disposal	Untrained persons doing spill cleanups.	Improper clean ups	E	<ul style="list-style-type: none"> • Training must be provided to persons responsible for spill cleanups. • Conduct spill drills 	3	4	17(H)	
		Incorrect disposal of contaminated waste	Environmental pollution	E	<ul style="list-style-type: none"> • Designated bins for disposal of contaminated waste 	2	4	12(M)	
G. PUBLIC SAFETY									
01	Unauthorized persons entering site	Members of public unknowingly exposed to risks.	Moderate to severe injuries	S	<ul style="list-style-type: none"> • Site must be clearly fenced and closed off. Warning signage must be placed at entrance to prohibit unauthorized entry. 	4	4	21(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

02	Working near the Offices and workstations	Workers unaware of their surroundings	Damage to public passing by	S	<ul style="list-style-type: none"> Safe work procedures must be in place. Sufficient signage 	3	3	13(H)	
			Injuries to third parties	S		4	3	18(H)	
03	Public passing near construction site	Material falling from elevation	Injuries to third parties	S	<ul style="list-style-type: none"> Construct temporary protective gantries or covered walkways to provide protection when employees are working above areas where the public or other employees need to pass 	4	3	18(H)	
04	Moving motorized and other equipment around	Workers not following procedures when offloading equipment from low loaders	Moderate to severe injuries to third parties	S	<ul style="list-style-type: none"> Follow procedure for offloading. Correct positioning of equipment and low loaders 	4	4	21(CR)	

H. Night Work

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

01	Working at night	Reduced visibility for motorists	Accidents	S	<ul style="list-style-type: none"> Temporary lighting set to avoid glare and shadows for motorists, equipment drivers, workers. 	4	4	21(CR)	
		Drivers, pedestrians, workers less alert and more likely to be tired.	Injuries	S	<ul style="list-style-type: none"> Work schedules set up to allow enough sleep. Maintain strict sleep schedule, make sleep a priority. 	3	4	17(H)	
		Workers less visible	Accidents and injuries	S	<ul style="list-style-type: none"> Use of retroreflective high visibility apparel meeting ANSI/ISEA 107-2004-Class 3 to improve visibility. 	4	3	18(H)	
		Decreased visibility on site	Trips, falls, run overs	S	<ul style="list-style-type: none"> Temporary lighting to ensure good visibility 	4	4	21(CR)	

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

LOSS TYPE		CONSEQUENCE ©				
		INSIGNIFICANT (1)	MINOR (2)	MODERATE (3)	MAJOR (4)	CATASTROPHIC (5)
Harm to people (Safety / Health) (S/H)		First aid case / Exposure to minor health risk	Medical Treatment case / Exposure to major health risk	Lost time injury / Reversible impact on health	Disabling Injury / Irreversible impact on health	Fatality / Impact on health ultimately fatal
Environmental impact (EI)		Minimal environmental harm – immediate clean-up	Material environmental harm – incident remediable in short term	Serous environmental harm – incident remediable in medium term	Major environmental harm – incident remedial in long terms	Extreme environmental harm – Incident irreversible
LIKELIHOOD (L)		RISK RATING				
5 (Almost certain)	The unwanted event has occurred frequently; and is likely to re-occur within 1 week	11 (M)	16 (H)	20 (H)	23 (CR)	25 (CR)
4 (Likely)	The unwanted event has occurred infrequently; and is likely to re-occur within 1 month	7 (M)	12 (M)	17 (H)	21 (CR)	24 (CR)
3 (Possible)	The unwanted event has happened in the business at some time; or could happen within the next 3 months	4 (L)	8 (M)	13 (H)	18 (H)	22 (CR)
2 (Unlikely)	The unwanted event has happened in the business at some time; or could happen within the next 6 months	2 (L)	5 (L)	9 (M)	14 (H)	19 (H)
1 (Rare)	The unwanted event has never been known to occur in the business; or it is highly unlikely it will occur the next year	1 (L)	3 (L)	6 (M)	10 (M)	15 (H)
RISK RATING		RISK LEVEL		GUIDELINES FOR RISK MATRIX AND MANAGEMENT PRACTICES		

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

21 – 25	(CR) – Critical Risk	Eliminate, avoid, implement specific action plans / procedure to manage and monitor
13 – 20	(H) – High	Pro-actively manage
6 – 12	(M) – Medium	Actively manage
1 – 5	(L) - Low	Monitor and manage as appropriate

CONSEQUENCE ©						
LOSS TYPE		<i>INSIGNIFICANT (1)</i>	<i>MINOR (2)</i>	<i>MODERATE (3)</i>	<i>MAJOR (4)</i>	<i>CATASTROPHIC (5)</i>
Harm to people (Safety / Health) (S/H)		First aid case / Exposure to minor health risk	Medical Treatment case / Exposure to major health risk	Lost time injury / Reversible impact on health	Disabling Injury / Irreversible impact on health	Fatality / Impact on health ultimately fatal
Environmental impact (EI)		Minimal environmental harm – immediate clean-up	Material environmental harm – incident remediable in short term	Serous environmental harm – incident remediable in medium term	Major environmental harm – incident remedial in long terms	Extreme environmental harm – Incident irreversible
LIKELIHOOD (L)		RISK RATING				
5 (Almost certain)	The unwanted event has occurred frequently; and is likely to re-occur within 1 week	11 (M)	16 (H)	20 (H)	23 (CR)	25 (CR)

PROJECT DESCRIPTION:

**THE REPAIRS AND REFURBISHMENTS OF SITE 3
IN DIMBAZA INDUSTRIAL PARK**

4 (Likely)	The unwanted event has occurred infrequently; and is likely to re-occur within 1 month	7 (M)	12 (M)	17 (H)	21 (CR)	24 (CR)
3 (Possible)	The unwanted event has happened in the business at some time; or could happen within the next 3 months	4 (L)	8 (M)	13 (H)	18 (H)	22 (CR)
2 (Unlikely)	The unwanted event has happened in the business at some time; or could happen within the next 6 months	2 (L)	5 (L)	9 (M)	14 (H)	19 (H)
1 (Rare)	The unwanted event has never been known to occur in the business; or it is highly unlikely it will occur the next year	1 (L)	3 (L)	6 (M)	10 (M)	15 (H)
RISK RATING	RISK LEVEL	GUIDELINES FOR RISK MATRIX AND MANAGEMENT PRACTICES				
21 – 25	(CR) – Critical Risk	Eliminate, avoid, implement specific action plans / procedure to manage and monitor				
13 – 20	(H) – High	Pro-actively manage				
6 – 12	(M) – Medium	Actively manage				
1 – 5	(L) - Low	Monitor and manage as appropriate				



ASBESTOS MANAGEMENT PLAN

Document date: 12th April 2023

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DEFINITIONS AND ABBREVIATIONS

DEFINITIONS

Term	Definition
Asbestos	means the following fibrous silicates: (a) Asbestos actinolite, CAS No. 77536-66-4. (b) asbestos grunerite (amosite), CAS No. 12172-73-5. (c) asbestos anthophyllite, CAS No. 77536-67-5. (d) chrysotile, CAS No. 12001-29-5, or CAS No. 132207-32-0. (e) crocidolite, CAS No. 12001-28-4. (f) asbestos tremolite, CAS No. 77536-68-6; and (g) any mixture containing these fibrous silicates
Asbestos cement products	A range of building materials that were manufactured using moulding and compression techniques, consisting of a hardened mixture of asbestos fibres, cement and water
Asbestos client	Any person for whom asbestos work is performed
Asbestos coating	A surface coating which contains asbestos for fire protection, heat insulation or sound insulation, but does not include textured decorative coatings
Asbestos containing material	Asbestos as well as any material that contains asbestos and includes asbestos cement products, asbestos coating, asbestos insulation board, asbestos insulation, asbestos textured decorative coatings, asbestos contaminated soil and other asbestos-containing materials
Asbestos disposal site	means a site specifically designated for the purpose of asbestos disposal in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008);
Asbestos dust	Airborne or settled dust, which contains or is likely to contain regulated asbestos fibres
Asbestos in place	Includes any asbestos, asbestos cement products, asbestos coatings, asbestos-containing material, asbestos dust, asbestos insulation, asbestos insulation board and asbestos waste at the workplace
Asbestos insulation	Any asbestos-containing material, which is used for thermal, acoustic or other insulation purposes, including fire protection, except – (a) Asbestos cement, asbestos coating or asbestos insulating board; or Any article of bitumen, plastic, resin or rubber, which contains asbestos and which thermal and acoustic properties are incidental to its main purpose
Asbestos insulating board	Any flat sheet, tile or building board consisting of a mixture of asbestos and cement or any other material, but which is not – a) Asbestos coating; or An article of bitumen, plastic, resin or rubber, which contains asbestos and which thermal and acoustic properties are incidental to its main purpose
Asbestos risk assessment	A risk assessment and risk categorisation of potential exposure to asbestos dust

Term	Definition
Asbestos waste	means an undesirable or superfluous asbestos or asbestos containing product or by-product or the undesirable or superfluous asbestos or asbestos-containing emission or residue of any process or activity, which has been- (a) discarded by any person; or (b) accumulated and stored temporarily with the purpose of discarding it, with or without prior treatment connected with the discarding thereof
Asbestos work	means work that exposes or is likely to expose an employee to asbestos dust, including transporting, storing, removing, handling, treating, repairing, and disposing of asbestos
Competent person	means a person who— (a) has, in respect of the work or task to be performed, the required knowledge, training and experience and, where applicable, qualifications specific to asbestos work or related tasks: Provided that, where appropriate qualifications and training are registered in terms of the National Qualifications Framework Act, 2008 (Act No. 67 of 2008), those qualifications and that training must be regarded as the required qualifications and training; and (b) is familiar with the Act and the applicable regulations made under the Act;
Environmental air monitoring	includes static air monitoring for regulated fibres conducted downwind from outdoor type 2 asbestos work or outside asbestos enclosures where type 3 asbestos work is performed or in any area where there is the potential for asbestos contamination
Exposed to asbestos	Exposed or likely to be exposed to asbestos dust while at the workplace and “exposure” has a corresponding meaning
Incidental asbestos exposure	means unintentional exposure to airborne asbestos at a workplace where asbestos is present
OEL for asbestos	means an occupational exposure limit of 0,1 regulated asbestos fibres per millilitre of air measured in accordance with HSG 248
Registered asbestos contractor	Either a contractor, a mandatory or an employer who conducts type 2 asbestos work or type 3 asbestos work or asbestos removal, who is registered with the chief inspector
Regulated asbestos area	means an area demarcated and controlled as contemplated in Regulation 18.
Regulation 18	An employer or self-employed person undertaking type 1, type 2 or type 3 asbestos work must— (a) clearly demarcate and identify the relevant area as a regulated asbestos area in accordance with regulation 20; and (b) ensure that no person enters or remains in a regulated asbestos area unless he or she wears the appropriate type and correctly fitting respiratory protective equipment and protective clothing
Risk categorisation	The grouping and ordering of potential asbestos exposure risks

Term	a) Definition
Type 1 asbestos work	b) Painting of asbestos cement products in a manner that does not require surface preparation and does not cause the release of asbestos fibres; c) The removal of less than 10 m ² of asbestos cement products or equivalent gutters and piping or asbestos insulating board, where removal work may not be repeated on the same site within a period of six months Does not require registration as a registered asbestos contractor with the chief inspector.
Type 2 asbestos work	a) The repair or encapsulation of asbestos cement products in a manner that does not require surface preparation; b) The removal of asbestos cement products or asbestos insulating board Requires registration as a type 2 registered asbestos contractor with the chief inspector
Type 3 asbestos work	a) The removal, repair or encapsulation of any asbestos and asbestos containing material; Requires registration as a type 3 registered asbestos contractor with the chief inspector
Words in the singular include the plural and vice versa, any gender includes the other genders and any natural person includes a juristic person.	

ABBREVIATIONS

AIA	Approved Inspection Authority
AMP	Asbestos Management Plan
ACMs	Asbestos containing materials: Asbestos as well as any material that contains asbestos and includes asbestos cement products, asbestos coating, asbestos insulation board, asbestos insulation, asbestos textured decorative coatings, asbestos contaminated soil, and other asbestos-containing materials
DoEL	Department of Employment and Labour
OHS Act	Occupational Health and Safety Act, Act 85 Of 1993
OEL	Occupational Exposure Limit
OMP	Occupational medical practitioner
PPE	Personal Protective Equipment
RARC	Registered Asbestos Removal Contractor
ROHA	Registered Occupational Hygiene Assistant
ROHT	Registered Occupational Hygiene Technologist
ROH	Registered Occupational Hygienist
SAIOH	South African Institute for Occupational Hygiene
SANS	South African National Standards
Words in the singular include the plural and vice versa, any gender includes the other genders, and any natural person includes a juristic person.	

ASBESTOS MANAGEMENT PLAN

1.0 INTRODUCTION

Asbestos Containing Material (ACM) has been identified at the Erf 2937 ECDC Industrial Park – Site 3, Dimbaza.. In terms of Section 6 of the Asbestos Abatement Regulations (2020) published under the Occupational Health and Safety Act, No 85 of 1993, if ACM have been identified, a written Asbestos Management Plan for the site must be prepared.

This document sets out the procedures for managing asbestos at site.

The following documents must be read in conjunction with the Asbestos Management Plan:

- Pinoy Pride Architecture 8990 Asbestos Report F1 12042023
- Pinoy Pride Architecture Asbestos Spreadsheet F1 12042023

2.0 SITE LOCATION

Erf 2937 ECDC Industrial Park – Site 3, Dimbaza

GPS co-ordinates 32°149'44" S, 27°12'3.23" E

3.0 LEGAL REQUIREMENTS

The following legislation and standards are applicable:

- Occupational Health and Safety Act: No 85 of 1993
- Asbestos Abatement Regulations, November 2020 (OHS Act, Act 83 of 1993)
- General Administrative Regulations, of the OHS Act
- Hazardous Chemical Agents Regulations, of the OHS Act
- Compensation of Occupational Injuries and Diseases Act, No 103 of 1993
- National Environmental Management: Waste Act, No 59 of 2008

4.0 ROLES AND RESPONSIBILITIES

4.1 Person Responsible for Asbestos Management (Asbestos Compliance Manager)

Name:	Kurt Groom
Position / job title:	Project Manager
Email:	kgroom@ecdc.co.za
Mobile phone:	0835556429

The role of the Asbestos Compliance Manager:

- The competent person for asbestos is responsible for compliance to the Asbestos Abatement Regulations.
- Assess the risk associated with ACM and ensure that the level of risk is available to all staff and contractors.
- Ensure information pertaining to Asbestos Management is disseminated to all relevant parties.
- Ensure all persons receive training with their responsibilities under the AMP.
- Ensure procedures are in place to prevent uncontrolled work on ACMs.
- Ensure when ACM become deteriorated or damaged, are repaired, removed, or isolated.
- Ensure the AMP is reviewed annually.
- Give notice to DoEL regarding any asbestos repair or removal work planned.
- Instruct, direct, monitor and liaise with accredited consultants, analysts, surveyors, and specialist licensed removal contractors.
- Liaise with line Managers to arrange and implement appropriate asbestos awareness training.
- Consult with the Health and Safety Representative(s), SHE Committee(s) regarding the Asbestos Risk Assessment and Asbestos Management Plan.
- Maintain accurate records relating to asbestos (risk assessment, asbestos inventory, waste disposal certificates, monitoring records)

4.2 The Employer

Health and Safety legislation places specific responsibilities for the safe handling of asbestos on the Employer. In this regard, ECDC Industrial Park – Site 3, Dimbaza will:

- Ensure resources are available for effective Asbestos Management.
- Ensure training is provided, to persons who may have incidental asbestos exposure, information, instruction, and training.

4.3 Employees who may be exposed to asbestos must:

- Obey any lawful instruction pertaining occupational health and safety given by the employer.
- Attend training on awareness of the inventory.
- Report any damage to any asbestos containing material to the employer or health and safety representative or committee, who must report it to the employer.
- Prevent damage or disturbance of asbestos.
- Ensure they wear the correct PPE.
- Ensuring that all procedures for dealing with accidents, incidents, and emergencies with regard to ACMs are fully complied with.

4.4 Persons involved in non-asbestos-related maintenance (e.g. plumbers, electricians) who may be exposed to asbestos must:

- Obtain a copy of the asbestos inventory specific to the area here they will be working.
- Prevent damage or disturbance to the asbestos in place.
- If damage or disturbance occurs, stop work immediately and report the damage or disturbance to the employer or health and safety representative or committee, who will then report it to the employer.

4.5 Persons involved in type 1 asbestos work (painting or removal of <10m² of ACM) must obey any lawful instruction to occupational health and safety given by the employer regarding:

- Acquiring a copy of the asbestos inventory for the area in which they will be working.
- Demarcation of the regulated asbestos area, to prevent unauthorised entry.
- Use of non-destructive wet methods during removal procedures.
- The use of appropriate tools and equipment to limit the release of asbestos fibres.
- Appropriate personal protective clothing.
- Thorough decontamination of equipment.
- The containment, labelling and disposal of waste in accordance with Regulations 20 and 21.
- The disposal of used disposable overalls and respiratory protective equipment, and asbestos waste.

4.6 Persons involved in type 2 or type 3 asbestos work must obey any lawful instruction pertaining to occupational health and safety given by the employer regarding:

- Compliance with the asbestos plan of work that was approved for that site-specific work.
- The use of non-destructive wet methods during asbestos removal work.
- The prevention of asbestos dust becoming airborne.
- The appropriate type and use of personal protective equipment.
- Wearing of monitoring equipment to measure personal exposure to asbestos.
- Reporting for medical surveillance.
- The cleaning up and disposal of any asbestos waste.
- Decontamination of the structure of a workplace, building or plant of any visible dust residue where asbestos removal work has been undertaken.
- Housekeeping at the workplace, personal hygiene and good environmental health practices including eating, drinking and smoking only in designated areas.
- Information and training must be received.
- Following of correct decontamination procedures as per the plan of work.

4.7 Occupational Health Practitioner

The Occupational Health Practitioner will perform initial and periodic health evaluations as directed by an Occupational Medicine Practitioner or as per the Asbestos Abatement Regulations.

5.0 PROCEDURE FOR THE IDENTIFICATION OF ASBESTOS IN PLACE

- All asbestos-containing materials at the workplace will be identified through a walk-through by Safetech Consultant.
- If it is uncertain whether the suspected materials contain asbestos it should be deemed to be asbestos-containing material or arrange for a bulk sample to be analysed for the presence of asbestos by a laboratory competent to carry out such analysis.
- If an area is inaccessible and considered by the Safetech Consultant as likely to contain asbestos, it will be assumed that asbestos is present in that area.
- If all asbestos have been removed, the asbestos-free status of the workplace must be substantiated in writing by Safetech.

6.0 PROCEDURE FOR AN INVENTORY OF ASBESTOS IN PLACE

- An asbestos inventory will be drawn up identifying all asbestos-containing material on site by Safetech. The asbestos inventory will be kept on site at the premises.
- The asbestos inventory will be reviewed at intervals not exceeding 24 months and more frequently if further asbestos-containing material is identified, or if existing asbestos-containing material has been damaged, encapsulated or removed.
- The asbestos inventory will contain information regarding the following:
 - The date of identification of ACM
 - A description of the material, quantity, and deterioration
 - Location as detailed on floorplan.
 - Confirmation of labelling and signage
 - The risk categorisation (as per risk assessment)
 - A description of potential exposure scenarios
- A copy of the inventory of asbestos in place will be:
 - Given to the mandatory before any asbestos removal or repair work commences.
 - Given to the registered asbestos contractor and approved inspection authority before asbestos removal or repair work commences.
 - Readily accessible to employees and health and safety representatives at the workplace.
 - In the case of transfer of ownership, provided to the new owner of the premises.
 - Given to the approved inspection authority before asbestos removal or repair work commences.
- In the event of work carried out at a workplace and potential exposure to airborne asbestos, ECDC Industrial Park – Site 3, Dimbaza, will ensure that:
 - the person authorising such work is given a copy of the inventory of asbestos in place.
 - The recommended controls are implemented with regard to the work.
- Access points to asbestos containing material identified in the asbestos inventory will be clearly labelled or provided with signage in accordance with Regulation 20. Refer to Annexure A.

The Inventory of asbestos in place will be carried out at intervals not exceeding 24 months.

7.0 PROCEDURE FOR AN ASBESTOS RISK ASSESSMENT

- An asbestos risk assessment will be carried out and renewed thereafter at intervals not exceeding 24 months by Safetech.
- The Employer will consult with the Health and Safety representative and committee before carrying out the risk assessment, inform them of arrangements that have been made for the risk assessment, give them reasonable time to comment thereon and make available to them the results thereof.
- The risk assessment must have a risk categorisation based on:
 - The health impacts of asbestos
 - The number of persons potentially exposed
 - The potential for daily exposure due to damage caused by everyday tasks, maintenance activities or potential incidents.
 - The condition (deterioration) of asbestos containing materials.
 - This categorisation can be used to determine whether to keep in place, repair or remove the asbestos-containing material.
- The asbestos risk assessment for asbestos repair work must include the following:
 - The assessed risk of any asbestos exposure relating to each job step.
 - The controls necessary to reduce the risk of exposure to as low as reasonably practicable.
 - An indication whether environmental air monitoring is required.
 - If exposure risk indicates that the OEL may be exceeded, an indication that, ECDC Industrial Park – Site 3, Dimbaza must obtain the services of an occupational medical practitioner as per regulation 17(1)(b).
- The asbestos risk assessment for asbestos removal work must consider the following:
 - Aspects as indicated in point above.
 - Risk assessment as per regulation 12(2)
 - The potential exposure of persons other than employees.
 - The potential contamination of the air, ground and water.
 - The thorough decontamination of employees and the workplace.
 - The transportation of asbestos-containing materials and asbestos waste.
 - Emergency scenarios.

The Asbestos risk assessment will be performed at intervals not exceeding 24 months.

The Risk Assessment will be made available to:

- ECDC Project Manager
- Health and Safety Agent (Still to be appointed)

8.0 PERSONAL PROTECTIVE EQUIPMENT

The following PPE to be worn at all times during the handling of ACM:

- Disposable overall.
- Eye protection.
- FF3- Particulate Masks.
- Gloves.

9.0 LABELLING AND SIGNAGE

- All asbestos listed in the asbestos inventory will be clearly and legibly identified using the pictogram specified in the Asbestos Abatement Regulations (Refer to Annexure A).
- Any regulated asbestos area will be clearly demarcated using the signs as specified in **Annexure A**.
- In situations where a label cannot be placed directly on or next to identified asbestos, a sign will be placed at entrance points to rooms or buildings where asbestos is present. Labels will be placed as close as possible to the asbestos containing items.
- ACM that are readily accessible and in a good condition will be labelled directly by placing signs onto the ACM.
- Labels will be of durable material.
- Labels will be checked regularly and kept in good condition.
- All asbestos waste must be clearly labelled:
 - Using the specified label
 - Using clearly visible and a sufficient number of labels to warn of exposure.
 - Ensuring that any vehicle or container transporting asbestos waste must be clearly labelled.
 - Any soil or land contaminated with asbestos waste must be clearly demarcated and signposted using the warning signage in the Asbestos Abatement Regulations.

10.0 MAINTENANCE, REPAIRS AND REMOVAL OF ACM

The following is applicable for the repair, maintenance or removal of ACM as identified in the Risk Assessment.

All ACM shall be maintained as follows:

- ACM shall be kept sealed on all surfaces exposed to the weather.
- No surface preparation will be allowed.
- The sealant used shall be of a reputable manufacturer and suitably formulated to ensure longevity against the weather.
- The ACM shall be inspected annually to determine the need for maintenance or repair.

Table 1: ACM Management

TYPE OF ASBESTOS	DEFINITION	REQUIREMENTS	RESPONSIBILITIES	DUTIES
<p>Type 1</p>	<p>Means -</p> <p>(a) painting of asbestos cement products in a manner that does not require surface preparation and does not cause the release of asbestos fibres; or</p> <p>(b) the removal of less than 10 square metres of asbestos cement products or equivalent gutters and piping or asbestos insulating board, where removal work may not be repeated on the same site within a period of six months.</p>	<p>1) Does not require registration as a registered asbestos contractor with the chief inspector.</p> <p>2) No Type 1 asbestos work must be carried out without notifying the Chief Director: Provincial Operations in writing, at least 7 days prior to commencement of such work.</p>	<p>Persons involved in type 1 asbestos work must obey any lawful instruction pertaining to occupational health and safety given by or on behalf of the employer, regarding –</p> <ul style="list-style-type: none"> • Acquaint themselves with the relevant part of the inventory of asbestos. • Demarcate the regulated asbestos area. • As far as reasonably practical, use non-destructive wet methods during removal procedures. • Use appropriate tools and equipment to limit the release of asbestos dust. • Use the correct PPE. • Thoroughly decontaminate equipment. • Dispose of PPE as asbestos waste. 	<p>Person carrying out type 1 asbestos work must –</p> <ul style="list-style-type: none"> • Provide an up-to-date inventory of asbestos in place when asbestos work is planned. • Ensure that an asbestos Risk Assessment is carried out prior to asbestos work. • Ensure that a written safe work procedure is developed and followed. • Provide adequate information, instruction and training to any person who may be exposed to asbestos as a result of that asbestos work.

TYPE OF ASBESTOS	DEFINITION	1) REQUIREMENTS	RESPONSIBILITIES	DUTIES
Type 2	<p>Means -</p> <p>(a) the repair or encapsulation of asbestos cement products in a manner that does not require surface preparation; or</p> <p>(b) the removal of asbestos cement products or asbestos insulating board.</p>	<p>2) Requires registration as a type 2 registered asbestos contractor with the chief inspector.</p> <p>3) No Type 2 asbestos work must be carried out without notifying the Chief Director: Provincial Operations in writing, at least 7 days prior to commencement of such work.</p>	<p>Person involved in type 2 or type 3 asbestos work, who may be exposed to asbestos at the workplace, must obey any lawful instruction pertaining to occupational health and safety, given by or on behalf of the employer regarding-</p> <ul style="list-style-type: none"> • Comply with requirements of the ASBESTOS PLAN OF WORK that was approved for that site-specific asbestos work. • As far as is reasonably practicable, the use of non-destructive wet methods during asbestos removal work. • The prevention of asbestos dust becoming airborne. • The appropriate type and use of PPE. • Wearing of monitoring equipment to measure personal exposure to asbestos. • Reporting for medical surveillance. <p>The cleaning up and disposal of any asbestos waste.</p>	<p>Person planning type 2 or type 3 asbestos work must –</p> <ul style="list-style-type: none"> • Provide an up-to-date inventory of asbestos in place to the registered asbestos contractor and approved inspection authority. • Ensure that an asbestos risk assessment if carried out prior to asbestos work. • Appoint, in writing, an approved inspection authority (AIA). • Ensure that a registered asbestos contractor is in good standing with the Compensation Fund (Compensation for Occupational Injuries and Diseases Act, No. 130 of 1993) and performs the asbestos work as per the asbestos plan. <p>Any asbestos work which poses a health or safety risk will be stopped until the risk has been appropriately mitigated.</p>
Type 3	<p>Means –</p> <p>(a) the removal, repair or encapsulation of any asbestos and asbestos-containing material.</p>	<p>1) Requires registration as a type 3 registered asbestos contractor with the chief inspector.</p> <p>2) No Type 3 asbestos work must be carried out without notifying the Chief Director: Provincial Operations in writing, at least 7 days prior to commencement of such work.</p>	<p>The cleaning up and disposal of any asbestos waste.</p>	<p>Any asbestos work which poses a health or safety risk will be stopped until the risk has been appropriately mitigated.</p>

TYPE OF ASBESTOS	DEFINITION	REQUIREMENTS	RESPONSIBILITIES	DUTIES
Continue			<ul style="list-style-type: none"> • Decontamination of the structure of a workplace, building or plant, of any visible dust residue where asbestos removal work has been undertaken. • Housekeeping at the workplace, personal hygiene, and good environmental and health practices, including eating, drinking, and smoking in designated places, as provided. • Information and training received. • The correct decontamination procedures that must be followed as given in the approved plan of work. 	<ul style="list-style-type: none"> • In the unlikely event that a fatality or permanent disabling injury occurs during the asbestos work, the incident will be reported to the Chief Director: Provincial Operations as required by Section 24 of the General Administrative Regulations, 2003. <p>After completion of the asbestos work, an asbestos clearance certificate must be obtained from the AIA.</p>

10.1 Phasing out of ACM

Any old and damaged ACM that is removed will be replaced with asbestos-free materials. All ACM will be phased out as follows:

Year 1 – Complete removal of all asbestos materials on site ($\pm 9151\text{m}^2$)

11.0 PROHIBITIONS

No person may –

- Sell, donate, reuse, reinstall or recycle any asbestos or asbestos containing materials;
- Clean or prepare surfaces of asbestos cement materials.
- Temporarily store any asbestos or asbestos-containing materials for longer than three months after completion of asbestos removal work, before final disposal;
- Temporarily store asbestos-containing materials destined for disposal, which are uncovered or unprotected or stored in a manner that may contaminate ground or water systems or may cause the release of asbestos dust;
- Use compressed air or permit the use of compressed air to remove asbestos dust from any surface or person;
- Use electrical power tools, such as angle grinders, or any other fast-moving equipment to cut, grind or drill asbestos-containing material.
- Smoke, eat, drink and keep food or beverages in a regulated asbestos area or require or permit any other person to smoke, eat, drink or keep food or beverages in such area.
- Vacuum asbestos dust using vacuum cleaning equipment other than vacuum cleaning equipment with a filtration efficiency of at least 99 percent for particles one micrometre in size; or
- Carry out any demolition work before all asbestos and asbestos-containing building material has been identified in the inventory of asbestos in place, safely removed or otherwise controlled, as far as is reasonably practicable, so as to eliminate the uncontrolled release of asbestos and asbestos dust.

12.0 ASBESTOS PLAN OF WORK

Prior to type 2 or type 3 asbestos work commence, a written Asbestos Plan of Work must be approved by an Approved Asbestos Inspection Authority and submitted to the Department of Employment and Labour - Chief Director: Provincial Operations. The Plan of Work will include the following:

1. Name, contact details and responsibilities of the following:
 - 1.1 The registered asbestos contractor.
 - 1.2 Approved inspection authority (AIA).
 - 1.3 Asbestos waste transporter, and
 - 1.4 Asbestos waste disposal site.
2. Name and contact details of the asbestos removal supervisor.
3. Details of the asbestos to be removed, including the location, type, estimated quantity and condition of the asbestos.
4. A list of employees' names and identification numbers with verification of valid asbestos training and medical surveillance records for the asbestos work site.
5. Expected commencement and completion dates.
6. Air monitoring and frequency of monitoring.
7. Details of how the asbestos removal work will take place, including methods of removal, tools and equipment, and the appropriate PPE that will be used.
8. Details of demarcation, labelling and signage for:
 - 8.1. Regulated asbestos areas.
 - 8.2. Asbestos waste, and
 - 8.3. Temporary on-site storage areas.
9. Procedure for decontamination of the work area, tools, and equipment.
10. Emergency procedures in the event of uncontrolled asbestos release.

The Removal plan must be signed by the Employer, AAIA, RARC.

13.0 EMERGENCY INCIDENTS **Refer to Reg 6(2)(b)**

The following will be regarded as emergency situations where the ACM can be damaged or disturbed:

- Fire
- Vandalism
- Flooding

The site Emergency Plan shall address these situations.

The overall procedure for controlling an emergency, whether asbestos is present or not, will include:

1. Contain and control the incident to minimise the effects, and to limit damage to persons, the environment and property.
2. Implement the measures necessary to protect persons and the environment from the effects of the emergency.
3. Communicate any necessary information to employees, contractors, and authorities.
4. Arrange and plan for the restoration and clean-up of the affected areas in line with all legislation (including the Asbestos Abatement Regulations), and the asbestos risk assessment.

13.1 Accidental Disturbance of ACM

The following actions will be taken if ACMs are uncovered or disturbed or have been uncovered or disturbed and could affect any person's health and safety:

- All work activities in the area must stop immediately.
- If fibres have been released, the immediate area must be closed off, preventing the possible spread of fibres to other workers or people passing through. Tools and materials located in the contaminated area will not be removed.
- Appropriate emergency notices (See **Annexure A.**) will be posted to alert people of the danger and prevent them accessing the area.
- The Contractors will be instructed to immediately contact the Competent Person, in the event that ACM has been uncovered.
- The Competent Person shall decide on the appropriate action based on the risk to persons.

13.2 Decontamination

The following action will be taken if ACMs are disturbed, and fibres are released:

- Carefully remove any contaminated clothing and bag it, leaving it in situ. DO NOT take it home to wash.
- Contaminated clothing must be disposed of as asbestos waste.

14.0 REPORTING AN INCIDENT

In the unlikely event that a fatality or Section 24 incident occurs during the asbestos work, the incident will be reported to the Chief Director: Provincial Operations as required by Section 24 of the OHS Act.

If an employer has been exposed to ACMs a notation will be made on the employee's personal file, with a copy provided to the employee.

14.1 Main contact person(s) for incident/emergency management (e.g., site manager, facilities manager)

Name:	Kurt Groom
Position / job title:	Project Manager
Email:	kgroom@ecdc.co.za
Mobile phone:	0835556429

15.0 STORAGE AND DISPOSAL

All asbestos waste will be double bagged in plastics with a minimum thickness of 75 microns before the waste is taken to landfill. The bags must be placed in a container designated for asbestos waste, and clearly labelled "ASBESTOS".

Care will be taken to ensure waste storage is not in an area where it may be exposed to vandalism, or close to an area considered to be sensitive, e.g., stormwater drains.

The PPE will be disposed with the Asbestos only at a disposal site permitted to accept such waste.

All asbestos disposals will have a safe disposal certificate which will be kept in the Asbestos Management file.

16.0 TRAINING AND AWARENESS

It is essential that employees who could be exposed to ACM in the workplace receive asbestos awareness training through induction upon employment, and when the asbestos inventory and risk assessment is reviewed. Training will be provided by a person deemed competent by the Chief Inspector.

General Asbestos Awareness Training

Asbestos awareness training should at least cover:

- a) Types, uses and sources of potential exposure as identified in the Asbestos Inventory.
- b) Properties of asbestos and its effects on health, including the further increased risk of lung cancer for those who smoke.
- c) The correct use of control measures to limit the spread of asbestos dust.
- d) The correct use of PPE.
- e) General procedures to be followed to deal with an emergency, e.g., accidental damage to an ACM, and reporting of such incidents.
- f) Personal decontamination procedures to be followed when ACMs have been damaged.
- g) The safe disposal of asbestos waste.

Task Specific Training

Employees or contractors who will do asbestos related work will receive additional training specific to the risks associated with the planned asbestos work. This training will include:

- a) The approved Plan of Work
- b) Safe work practices
- c) Fall protection (if working at heights)
- d) Assessment and correct use of control measures and protective equipment
- e) Decontamination procedures
- f) Waste handling procedures

Employees who undergo training will be provided with an Asbestos Training Certificate. Up-to-date training attendance records will be kept on site.

17.0 MONITORING

Medical Surveillance	Section 17 of the Asbestos Abatement Regulations (2020)
Parameters	<ul style="list-style-type: none"> Employee's medical, occupational, exposure and social history Appropriate physical examination A chest radiograph, and Any other additional medical examination, such as pulmonary function testing, which, in the opinion of the occupational medicine practitioner, is necessary
Frequency	<ul style="list-style-type: none"> An initial health evaluation before commencement of asbestos work Periodic health evaluations
Records	The health record should ideally be kept indefinitely, but in any event for a minimum of 50 years.
Responsibility	The employer will appoint an Occupational Medicine Practitioner to document the system of medical surveillance of employees

Environmental Air Monitoring	In the case of type 2 and type 3 asbestos work, air monitoring of the concentration of airborne regulated fibres to which an employee may be exposed, will be: <ul style="list-style-type: none"> (a) Performed by an approved inspection authority (AIA) (b) Carried out in terms of HSG 248. (c) Representative of employee exposure; and (d) Carried out at a frequency determined by the approved inspection authority (AIA) based on the site-specific asbestos risk assessment
Parameter	OEL for asbestos means an occupational exposure limit of 0,1 regulated asbestos fibres per millilitre of air measured in accordance with HSG 248
Frequency	During asbestos work
Records	Results will be kept in the Asbestos Management file
Responsibility	An approved inspection authority (AIA) during type 2 and type 3 asbestos work

Asbestos Inventory	
Parameter	Section 4 of the Asbestos Abatement Regulations (2020)
Frequency	Review and revise at intervals not exceeding 24 months, or if <ul style="list-style-type: none"> (a) further asbestos containing material is identified. (b) the asbestos containing material has deteriorated significantly or is removed, damaged, sealed, coated, or encapsulated.
Records	The asbestos inventory will be kept on site
Responsibility	A competent person

Asbestos Risk Assessment	
Parameter	Section 5 of the Asbestos Abatement Regulations (2020)
Frequency	Review and revise at intervals not exceeding 24 months, or if (a) further asbestos containing material is identified. (b) the asbestos containing material has deteriorated significantly or is removed, damaged, sealed, coated, or encapsulated.
Records	The asbestos inventory will be kept on site
Responsibility	A competent person

Asbestos Management Plan	
Parameter	Section 6 of the Asbestos Abatement Regulations (2020)
Frequency	Intervals not exceeding 8 years, or if any information changes
Records	The Asbestos Management Plan will be kept on site
Responsibility	Employer

18.0 ASBESTOS MANAGEMENT OPTIONS

18.1 Priorities for actions

An asbestos risk assessment has been carried out for the asbestos containing materials on site. For management purposes, asbestos identified is categorised based on the risk assessment score.

Risk Score	Sum of Scores	Management Action
Very High	>50	Consider Removal of ACM
High	20-49	Repair / consider removal / Seal
Medium	11-20	Repair the ACM / Maintenance (Repaint)
Low	<10	Maintain the ACM

1. Any score above 50 is considered very high, and removal of the ACM should be considered.
2. Scores between 20 and 49 are considered high, and removal should be considered, although repair or sealing are an option.
3. Scores from 11 to 20 are considered medium risk and should be repaired and maintained.
4. Low scores are under 10 and the ACM should be maintained.

18.2 Strategy and timescales

Where ACMs are in a safe condition and are unlikely to be disturbed, they will be left in place. They will be inspected regularly at intervals determined by the Health and Safety Team. This will typically be every twelve months but may be less or more based upon risk assessment.

Some of the management options described below will need to be taken. Management decisions will be made by the Health and Safety Team using all relevant information.

18.2.1 Monitoring the condition of ACM's

- ACMs which are in good condition, sealed, and are unlikely to be disturbed, will be left in place.
- The time period between re-inspection will vary depending on the type of ACM, its location and the activities in the area concerned, but would not be more than 12 months in most cases, and an update to the asbestos inventory will be undertaken at intervals not exceeding 24 months. ACMs in remote locations, with little or no routine activity, or materials which pose little likelihood of fibre release, will be inspected infrequently.
- Re-inspection involves a visual check, looking for signs of disturbance, scratches, broken edges, cracked or peeling paint and debris. Where deterioration has occurred, a recommendation on what remedial action to take will be made. This may be a case of resealing the surface of the ACM, but if there is evidence that the ACM is being disturbed on a frequent basis, the decision may be made to remove it or at least protect it by putting up a suitable barrier after clearing any visible debris. The reason for the constant disturbance will also be investigated. Employees are encouraged to report any new damage to ACMs that they become aware of.

18.2.2 Seal or encapsulate the ACM

- Encapsulation of an ACM is only deemed a suitable action if the ACM is in sound condition and can take the additional weight of the encapsulant without delamination.

18.2.3 Repair the ACM

- In order to be suitable for repair, the damage must be slight; therefore, repair will be restricted to patching/sealing small areas and making good slight damage.
- ACMs that are unsealed, while not damaged, will be treated with a sealant to prevent deterioration of the exposed surface as soon as is reasonably practicable.

18.2.4 Remove the ACM





- Where highly damaged ACMs have been identified, or if ACMs are in a vulnerable position and liable to damage, the above management options will be explored first; where it is not practical to repair or encapsulate the ACMs, they will be removed as soon as is reasonably practicable.





18.2.5 Work with or near ACMs



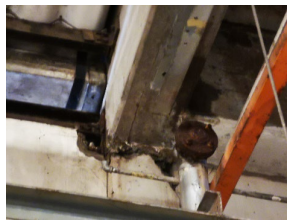

- If building, project or maintenance work has the potential to disturb ACMs those materials will normally be removed prior to work commencing.



If it is not practicable for the ACMs to be removed, and building, project or maintenance needs to be conducted in areas containing ACMs and has the potential to damage them, contractors must follow 18.2.4 above.


19.0 TABLE OF ASBESTOS MANAGEMENT


No. according to inventory	Building	Roof/gutter/ Downpipe/etc	Estimated volume or area	Photo/s	Describe condition	Risk as per risk assessment	Type of management (Air monitoring/ Painting/ Removal & replacing)	Reasons	Timeframe	Person responsible
1.	Outside Ablution	Roof	472m ²		Unpainted. Lichen growth evident	High	Paint / consider removal			
2.		Gutter	119m		Unpainted. Broken section. Plant growth evident	High	Repair / consider removal / seal			
3.		Downpipes	41m		Unpainted. Appear intact	High	Paint / consider removal			
4.		Facia	18m		Unpainted. Appear intact	High	Paint / consider removal			




No. according to inventory	Building	Roof/gutter/ Downpipe/etc	Estimated volume or area	Photo/s	Describe condition	Risk as per risk assessment	Type of management (Air monitoring/ Painting/ Removal & replacing)	Reasons	Timeframe	Person responsible
5.		Bargeboard	10m		Unpainted. Appear intact	High	Paint / consider removal			
6.	Main factory	Roof	7989m ²		Unpainted. Lichen growth evident. Small holes noticed.	Very high	Consider Removal of ACM			
7.		Underside of roof	7989m ²		Unpainted	Very high	Consider Removal of ACM			
8.		Internal & External Gutters	264m		Unpainted. Inside gutters leaking. Plant growth evident in external gutters	Very high	Consider Removal of ACM			

No. according to inventory	Building	Roof/gutter/ Downpipe/etc	Estimated volume or area	Photo/s	Describe condition	Risk as per risk assessment	Type of management (Air monitoring/ Painting/ Removal & replacing)	Reasons	Timeframe	Person responsible
9.		Internal & External Downpipes	374m		Some painted. Evidence of repairs performed previously	High	Repair / Paint / consider removal			
10.		Rainwater boxes for downpipes	70m		Unpainted. Appear intact	High	Paint / consider removal			
11.		Box Gutters	240m		Unpainted	High	Paint / consider removal			
12.		Bargeboards	153m		Unpainted. Appears intact	High	Paint / consider removal			

No. according to inventory	Building	Roof/gutter/ Downpipe/etc	Estimated volume or area	Photo/s	Describe condition	Risk as per risk assessment	Type of management (Air monitoring/ Painting/ Removal & replacing)	Reasons	Timeframe	Person responsible
13.	Main factory Bay 1	Roof vents	124m ²		Unpainted. Lichen growth evident	High	Paint / consider removal			
14.	Administration Block	External Windowsill	56m		Unpainted. Lichen growth evident	High	Paint / consider removal			
15.		Roof	323m ²		Unpainted. Lichen growth evident	High	Paint / consider removal			
16.		Gutters	56m		Unpainted. Plant growth evident	High	Repair / consider removal / seal			
17.		Downpipes	20m		Unpainted. Broken pieces	High	Repair / consider removal / seal			

No. according to inventory	Building	Roof/gutter/ Downpipe/etc	Estimated volume or area	Photo/s	Describe condition	Risk as per risk assessment	Type of management (Air monitoring/ Painting/ Removal & replacing)	Reasons	Timeframe	Person responsible
18.		Facia / Bargeboard	23m		Unpainted	High	Consider Removal of ACM / seal			
19.		Soffit / ceiling	87m ²		Painted. Appears intact	Medium	Consider removal			
20.	Boiler Room	Facia	32m		Unpainted	High	Seal / consider removal			
21.		Roof sheets	236m ²		Unpainted. Lichen growth evident	High	Consider removal			
22.		Gutters	37m		Unpainted	High	Consider removal			
23.		Downpipes	34m		Unpainted. Broken pieces	High	Consider removal			
24.		Wall cladding	278m ²		Unpainted. Appears intact	High	Seal / consider removal			

No. according to inventory	Building	Roof/gutter/ Downpipe/etc	Estimated volume or area	Photo/s	Describe condition	Risk as per risk assessment	Type of management (Air monitoring/ Painting/ Removal & replacing)	Reasons	Timeframe	Person responsible
25.	Coal Storage Area for Boiler	Roof sheets	46m ²		Unpainted. Lichen growth evident	High	Consider removal			
26.		Gutter	23m		Unpainted	High	Consider removal			
27.		Downpipes	6m		Unpainted. Broken pieces	High	Consider removal			
28.	Loading Bay Canopy	Roof sheets	335m ²		Unpainted. Lichen growth evident	High	Consider removal			
29.		Gutters	28m		Unpainted	High	Consider removal			
30.		Downpipes	8m		Unpainted. Broken pieces	High	Consider removal			
31.	Wash Basin Support outside Bay 6	Wash Basin support			Unpainted. Chipped at top	High	Consider removal			

No. according to inventory	Building	Roof/gutter/ Downpipe/etc	Estimated volume or area	Photo/s	Describe condition	Risk as per risk assessment	Type of management (Air monitoring/ Painting/ Removal & replacing)	Reasons	Timeframe	Person responsible
32.	Guardhouse	Downpipe	5m		Unpainted. Appears intact	High	Consider removal			
33.	Air Handling Unit	Facia			Unpainted	High	Seal / consider removal			
34.		Downpipe			Parts painted. Paint peeling. Broken pieces	High	Paint / consider removal			
35.		Pipe			Unpainted. Appears intact	High	Seal / paint			

APPENDICES

ANNEXURE A – LABELLING AND SIGNAGE

Asbestos warning labels and signs

1.1 Asbestos warning sign



1.2 Asbestos warning labels

ASBESTOS



DANGER

MAY CAUSE CANCER THROUGH INHALATION

CAUSES SKIN IRRITATION

Do not handle until all precautions described in the Asbestos Regulations and Safety Data Sheet have been read and understood. Do not breathe asbestos dust. Wear the correct type of respirator that fits properly. When showering, take off the disposable gloves and your overall before removing the respirator. Dispose of asbestos waste in line with the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

12th April 2023

Mr Allan M. Deang
Pinoy Pride Arhitecture (Pty) Ltd
28 Candleberry Drive
Nahoon Valley Park
East London
5241

Dear Mr Deang

INVENTORY OF ASBESTOS IN PLACE AND ASBESTOS RISK ASSESSMENT – SITE 3 DIMBAZA INDUSTRIAL PARK

Thank you for affording us the opportunity to assist you with your Identification of asbestos in place, Inventory of asbestos in place and Asbestos risk assessment (during normal conditions) at Site 3 Dimbaza Industrial Park as required by the Asbestos Abatement Regulations, November 2020 of the Occupational Health and Safety Act, Act 85 of 1993.

The results are contained in an accompanying Microsoft Excel Spreadsheet.

If any further information is required, please feel free to contact me.

Thanking you



Dr Brett Williams

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Amendment History

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INFORMATION PAGE

CLIENT NAME	Pinoy Pride Architecture (Pty) Ltd
PHYSICAL ADDRESS	Site 3 Dimbaza Industrial Park
CONTACT	Mr Allan M. Deang
TYPE OF SERVICE	Identification of Asbestos in Place, Inventory of Asbestos in Place and Asbestos Risk Assessment
DATE OF SERVICE	8 th March 2023
PROJECT NUMBER	8990
SERVICE CONDUCTED AND REPORT COMPILED BY	Ms Sarah Mullan (ROHA SAIOH)
REPORT REVIEW	Ms Adele Pieterse (ROH SAIOH)
TECHNICAL REVIEW	Dr Brett Williams (ROH SAIOH)

This report only pertains to the conditions found at the above address at the time of the survey. This report may not be copied electronically, physically or otherwise, except in its entirety. If sections of the report are to be copied the approval of the author, in writing, is required.

Recommendations offered in this report are made in good faith with every effort to ensure the professional integrity thereof.

A description of the handling process for complaints and appeals are available to any interested party on request.



.....
Sarah Mullan



.....
Adele Pieterse



.....
Brett Williams

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ABBREVIATIONS AND DEFINITIONS

AIA	Approved Inspection Authority
Asbestos cement products	A range of building materials that were manufactured using moulding and compression techniques, consisting of a hardened mixture of asbestos fibres, cement and water
Asbestos client	Any person for whom asbestos work is performed
Asbestos coating	A surface coating which contains asbestos for fire protection, heat insulation or sound insulation, but does not include textured decorative coatings
Asbestos containing material	Asbestos as well as any material that contains asbestos and includes asbestos cement products, asbestos coating, asbestos insulation board, asbestos insulation, asbestos textured decorative coatings, asbestos contaminated soil and other asbestos-containing materials
Asbestos dust	Airborne or settled dust, which contains or is likely to contain regulated asbestos fibres
Asbestos in place	Includes any asbestos, asbestos cement products, asbestos coatings, asbestos-containing material, asbestos dust, asbestos insulation, asbestos insulation board and asbestos waste at the workplace
Asbestos insulation	Any asbestos-containing material, which is used for thermal, acoustic or other insulation purposes, including fire protection, except – (a) Asbestos cement, asbestos coating or asbestos insulating board; or Any article of bitumen, plastic, resin or rubber, which contains asbestos and which thermal and acoustic properties are incidental to its main purpose
Asbestos risk assessment	A risk assessment and risk categorisation of potential exposure to asbestos dust
Exposed to asbestos	Exposed or likely to be exposed to asbestos dust while at the workplace and "exposure" has a corresponding meaning
Incidental asbestos exposure	Unintentional exposure to airborne asbestos at a workplace where asbestos is present
OHS Act	Occupational Health and Safety Act, Act 85 Of 1993
OMP	Occupational medical practitioner
Risk categorisation	The grouping and ordering of potential asbestos exposure risks
ROHA	Registered Occupational Hygiene Assistant
ROHT	Registered Occupational Hygiene Technologist
ROH	Registered Occupational Hygienist
SANS	South African National Standards
SAIOH	South African Institute for Occupational Hygiene
Words in the singular include the plural and vice versa, any gender includes the other genders and any natural person includes a juristic person.	

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EXECUTIVE SUMMARY

Safetech was requested by Mr Allan M. Deang to identify asbestos in place, compile an Inventory of asbestos in place and conduct an Asbestos risk assessment at Site 3 Dimbaza Industrial Park, East London . The purpose of the assessment was to identify the location of Asbestos Containing Material on site and comment on its condition, identify the type(s) of asbestos on site and assess the risk. The assessment was requested in order to comply with Asbestos Abatement Regulations, November 2020 published in terms of the Occupational Health and Safety Act, Act 85 of 1993.

This report evaluates measurements and observations made at the above site under the conditions which prevailed on the date of the survey. Results and recommendations, made without prejudice, are contained in this report.

Asbestos Containing Material was found on site. Most of the Asbestos on site was restricted to Roofing, Wall Cladding, Bargeboards/Facia Boards, Guttering and Downpipes. There was evidence that not all the building material containing Asbestos had been painted or sealed. In a number of areas, the Asbestos was in a poor condition. There was a high risk of Asbestos Regulated Fibre exposure in these areas.

All Asbestos Containing Material on site should be labelled as per the legal requirements. As asbestos containing material was found on site, an Asbestos Management Plan is required in terms of Regulation 6. Annexure A describes a compliance roadmap that illustrates the legal requirements.

It is strongly recommended that the gradual replacement of the Asbestos Containing Material on site be considered as a priority, as it is getting more expensive each year to dispose of it. Furthermore, Regulation 6(2c) requires a phase out plan.

Assuring you of our best attention at all times.

Thanking you



Dr Brett Williams

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IDENTIFICATION, INVENTORY OF ASBESTOS IN PLACE AND ASBESTOS RISK ASSESSMENT

1.0 INTRODUCTION

Pinoy Pride Architecture was visited at Site 3 Dimbaza Industrial Park, East London, on the 8th March 2023 to identify asbestos in place, compile an Inventory of asbestos in place and conduct an Asbestos risk assessment. Samples were taken for Asbestos identification purposes.

The purpose of the survey was to identify the location of Asbestos Containing Material on site and comment on its condition, identify the type(s) of asbestos on site and assess the risk. The survey was requested in order to comply with Asbestos Abatement Regulations, November 2020 (Regulations 3, 4 and 5) published in terms of the Occupational Health and Safety Act, Act 85 of 1993.

2.0 TYPES OF ASBESTOS

Generally, there are six different varieties of Asbestos that were used in industry.

Chrysotile

Chrysotile is the most widely used Asbestos variety and is casually referred to as "white asbestos". It is a member of the group of known as Serpentine. In its raw state it is pale green, cream or white and it forms a mass of curly soft white fibres when processed. It is highly flexible which makes it ideal for spinning, weaving or products such as Asbestos Rope. Chrysotile is by far the most abundant Asbestos form in terms of production and usage, about 93%.

Amosite

The most common Asbestos amphibole is Amosite. Amosite is the commercial name derived from the acronym of Asbestos Mines of South Africa, the producers of the mineral. The mineral should properly be called Grunerite. It is also casually known as "brown asbestos".

It occurs in veins in metamorphic iron rich rocks only found in South Africa. It is coarser and stronger than chrysotile and forms more needle like fibres when processed. In the raw state it is dark brown or black but when processed it is grey-brown, or white if heavily milled.

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Crocidolite

Crocidolite is the correct name for the amphibole Asbestos commonly known as "Blue asbestos". Its primary source is in South Africa but was also produced in Wittenoom, Australia and in a slightly different variety in Bolivia.

It is blue-black in colour in the raw state but when processed it forms fine fibres with a distinctive smokey blue colour.

Anthophyllite

Anthophyllite is a coarse white Asbestos variety which was produced in Finland until the 1960's. It is not in widespread use and can only be found very occasionally in commercial products or lagging.

Tremolite and Actinolite

These are both quite rare as commercial Asbestos minerals, although quite common as Crystalline minerals. Actinolite is green in colour. It is found in association with some of the other South African amphibole Asbestos and may be present as a contaminant in products manufactured with Asbestos from that area.

Tremolite Asbestos has been produced in moderate quantities in other countries. It consists of white silky fibres and has not had widespread uses but can be found in commercial products.

Tremolite and Actinolite may occur as a trace contaminant in other mineral products like Talc or Vermiculite.

3.0 METHOD USED

A walk through inspection was conducted and potential asbestos-containing materials were observed and identified. Samples were taken of the products / materials, namely the roof, fascia / barge board, wall cladding, gutter and downpipe, external windowsill from the Administration Block, and washbasin support outside of Bay 6. This was to identify the types of asbestos on site.

A scoring method was used to determine the level of risk the asbestos containing material on site presents to employees and other visitors to the site. The methodology included identifying the following information:

- (a) The date on which the material was identified;
- (b) a description of the material, quantity and extent of deterioration;
- (c) the location as detailed on a plan;
- (d) confirmation of labelling and signage as required by Regulation 20;
- (e) the risk categorisation derived from the asbestos risk assessment as detailed in Regulation 5(3); and
- (f) a description of potential exposure scenarios as required in regulation 6(2)(b).

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The risk assessment portion of the inventory considered the following factors as per Regulation 5(3):

- (a) The health impacts of asbestos;
- (b) the number of persons potentially exposed at the workplace;
- (c) the potential for damage or disturbance of asbestos-containing materials at the workplace, also by maintenance activities, potential incidents and normal occupant activities; and
- (d) the condition of asbestos-containing material, including state of deterioration.

The Safetech risk assessment scoring methodology is as follows:

Condition Rating	Rating Score
ACM NOT coated or showing signs of damage or weathering	15
ACM coated and showing signs of damage or weathering	10
ACM coating showing early signs of need to be recoated	5
ACM in good condition and coated	1

Potential for Damage or Disturbance		Rating Score
ACM exposed to the weathering and NOT sealed	High potential for disturbance during maintenance or incidents or Type 1, 2 or 3 work (Removal)	10
ACM exposed to the weathering and sealed	Potential for disturbance during routine maintenance or plant changes or Type 1 work (Painting only)	5
ACM indoors and low potential for disturbance	Low potential for disturbance during normal activities or Type 1 work (Painting only)	3
ACM indoors and very low potential for disturbance	ACM indoors and very infrequent maintenance and low incident probability during normal activities	1

Health Effects Description	Rating Score
Disability or Death likely due to possibility of exposure	15
Low risk of exposure and Health Effect	1

Number of Persons Exposed	Rating Score
>20 or occupied areas and no physical barrier	15
≤19 or occupied areas and no physical barrier	10
≤5 or occupied areas and no physical barrier	5
<2 or unoccupied areas	1

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The assessor selects one each of the above factors and then adds the corresponding scores. The total is then compared to the risk categories below and the suggested management action.

Risk Score	Sum of Scores	Management Action
Very High	>50	Consider Removal of ACM
High	20-49	Repair / consider removal / Seal
Medium	11-20	Repair the ACM / Maintenance (Repaint)
Low	<10	Maintain the ACM

4.0 RESULTS

4.1 Asbestos Inventory & Risk Assessment

The results are contained in the accompanying Microsoft Excel Spreadsheet ([Pinoy Pride Architecture Asbestos Spreadsheet F1 12042023](#))

4.2 Asbestos identification

Bulk samples were taken for identification purposes. Sample details i.e., sample numbers and results are reflected in the accompanying Excel spreadsheet as indicated under 4.1. Chemtech result report number CLS230836 refers. This report is available on request.

The results of the bulk sampling indicated that the asbestos containing material on site contained Chrysotile and Crocidolite.

Refer to Appendices for ACM locations, detailed on the floor plans.

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5.0 LEGAL REQUIREMENTS

The following legal requirements are contained in Regulation 4 and the corresponding sub-regulations (4 & 5) and must be complied with:

Regulation 4

- (4) The employer or self-employed person must ensure that a competent person reviews and, if necessary, revises the inventory of asbestos in place for the workplace at intervals not exceeding 24 months.
- (5) The inventory of asbestos in place should be revised more frequently if—
 - (a) further asbestos-containing material is identified; and
 - (b) the asbestos-containing material has deteriorated significantly or is removed, damaged, sealed, coated or encapsulated.
- (6) Where the removal of asbestos or repair of asbestos-containing material is planned, information in the inventory of asbestos in place must be adequately detailed with respect to the work to be carried out.
- (7) The employer, self-employed person or asbestos client must ensure that a copy of the inventory of asbestos in place, or relevant part thereof, is—
 - (a) given to the mandatory before any asbestos removal or repair work commences;
 - (b) given to the registered asbestos contractor and approved inspection authority before asbestos removal or repair work commences;
 - (c) readily accessible to employees and health and safety representatives at the workplace;
 - (d) in the case of transfer of ownership, provided to the new owner of the premises; and
 - (e) given to the approved inspection authority before asbestos removal or repair work commences.

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6.0 DISCUSSION AND RECOMMENDATIONS

Materials that have been identified as an ACM should be treated as follows:

- Any ACM identified should be labelled as Asbestos Containing Material. It was identified that no Asbestos Containing Material on site had been labelled. **Regulation 20 came into effect from the 10th of May 2022 and requires that asbestos containing material needs to be labelled as described in Regulation 20.**
- ACM in good condition should be painted to seal it against environmental elements (rain and wind). Painting of asbestos cement products in a manner that does not require surface preparation and does not cause the release of asbestos fibres.
- Avoid breaking solid pieces into smaller pieces at all times.
- ACM in deteriorated condition
 - Remove the Asbestos cement pieces **whole**, following an Asbestos Removal Plan and Occupational Hygiene Air Monitoring.
 - Replace with a safe Non-Asbestos containing material.
- Update this inventory whenever Asbestos is removed and/or replaced or more ACMs are identified on site.

When repair work is required, it is suggested to replace any damaged products with products that do not contain Asbestos. If Asbestos is removed from site, an Asbestos Removal Plan must be developed with the assistance of an Occupational Hygienist and approved Asbestos Removal Contractor and submitted to The Department of Employment and Labour for approval. Part of the removal plan will be air monitoring to determine the exposure of employees to Regulated Asbestos Fibres for Type 2 and 3 asbestos.

The conclusion of the site assessment and suggested management actions are recorded in the accompanying inventory. It is strongly recommended that management consider the suggested actions. The roadmap in Annexure A will assist the employer with compliance.

As asbestos in place was identified on site the employer must develop an Asbestos Management Plan (Regulation 6).

It is strongly recommended that the gradual replacement of the Asbestos Containing Material on site be considered as a priority, as it is getting more expensive each year to dispose of it. **Furthermore, Regulation 6(2c) requires a phase out plan.**

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The Asbestos Risk Assessment and Inventory of Asbestos in Place should also be communicated to the Health and Safety Representatives and Health and Safety Committee.

The Appendices provide more details on the Asbestos Regulation definitions of the Types of Asbestos Work and the Prohibitions that have to be adhered to.

Definition of types of asbestos work and Prohibitions are reflected in Annexure B.

7.0 REFERENCES

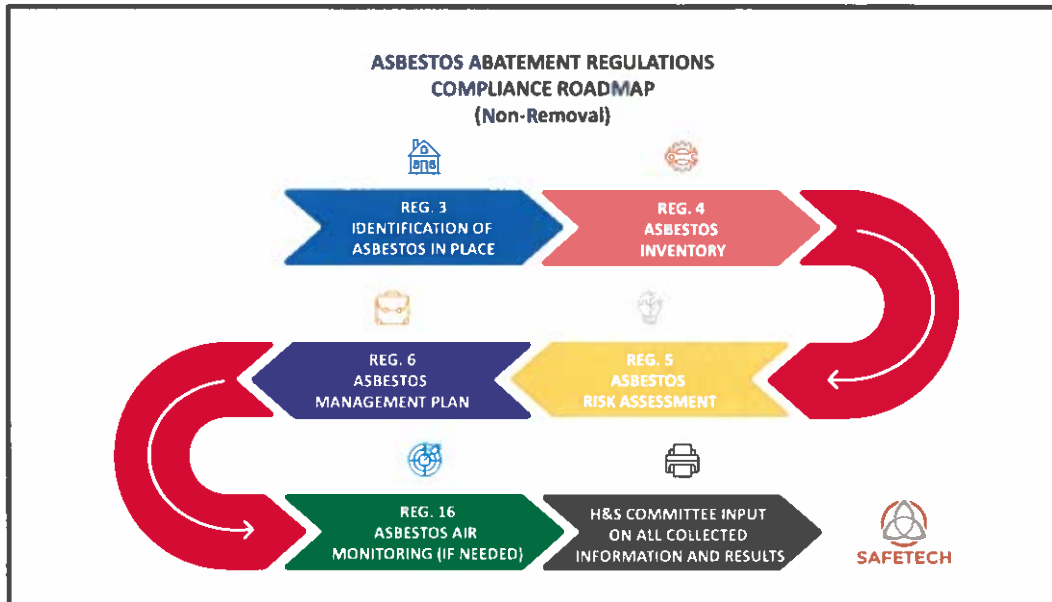
- Occupational Health and Safety Act, Act 85 of 1993
- Asbestos Abatement Regulations, November 2020

.....

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APPENDICES

ANNEXURE A – COMPLIANCE ROADMAP



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ANNEXURE B – DEFINITION OF TYPE OF ASBESTOS WORK & PROHIBITIONS

"type 1 asbestos work" means—

- (a) painting of asbestos cement products in a manner that does not require surface preparation and does not cause the release of asbestos fibres; or
- (b) the removal of less than 10 square metres of asbestos cement products or equivalent gutters and piping or asbestos insulating board, where removal work may not be repeated on the same site within a period of six months; and does not require registration as a registered asbestos contractor with the chief inspector;

"type 2 asbestos work" means—

- (a) the repair or encapsulation of asbestos cement products in a manner that does not require surface preparation; or
- (b) the removal of asbestos cement products or asbestos insulating board; and requires registration as a type 2 registered asbestos contractor with the chief inspector;

"type 3 asbestos work" means—

- (a) the removal, repair or encapsulation of any asbestos and asbestos-containing material; and, requires registration as a type 3 registered asbestos contractor with the chief inspector;

Prohibition

24. No person may—


- (a) sell, donate, reuse, reinstall or recycle any asbestos or asbestos-containing materials;
- (b) clean or prepare surfaces of asbestos cement materials;
- (c) temporarily store any asbestos or asbestos-containing materials for longer than three months after completion of asbestos removal work, before final disposal;
- (d) temporarily store asbestos-containing materials destined for disposal, which are uncovered or unprotected or stored in a manner that may contaminate ground or water systems or may cause the release of asbestos dust;
- (e) use compressed air or permit the use of compressed air to remove asbestos dust from any surface or person;
- (f) use electrical power tools, such as angle grinders, or any other fast-moving equipment to cut, grind or drill asbestos-containing material;
- (g) smoke, eat, drink or keep food or beverages in a regulated asbestos area or require or permit any other person to smoke, eat, drink or keep food or beverages in such area;
- (h) vacuum asbestos dust using vacuum cleaning equipment other than vacuum cleaning equipment with a filtration efficiency of at least 99 per cent for particles one micrometre in size; or


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- (i) carry out any demolition work before all asbestos and asbestos-containing building material has been identified in the inventory of asbestos in place, safely removed or otherwise controlled, as far as is reasonably practicable, so as to eliminate the uncontrolled release of asbestos and asbestos dust.

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ANNEXURE C – LOCATION AS DETAILED ON THE SITE MAP



<p>Dimbaza Industrial Park Site 3 Erf 2937 Dimbaza</p>	
<p>TITLE:</p> <p>Asbestos</p>	
	<p>Drawn by Yvonne Westra 12/04/2023</p> <p>Client: Pinoy Pride Architecture</p>

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8990	17	19	Pinoy Pride Architecture 8990 Asbestos Report F1 12042023.Docx	Final 1

ANNEXURE D - SAIOH MEMBERSHIP CERTIFICATES



The Southern African Institute for Occupational Hygiene

This is to certify that

Sarah Mullan SA

ID Number: 6712010047086

Has satisfied the requirements of
the Constitution of the Institute
and on recommendation of the Professionals Certification Committee
is registered as an

Occupational Hygiene Assistant (OHA)

Member Number: 0877

Valid until: 31 January 2024

Elsie Cornelia Peens

Chairperson, Professional Certification Committee



Member ID: 33914852

Certificate ID: 33914852-25701

Issued by the Southern African Institute for Occupational

Hygiene

SAQA Professional Body ID: 844

**IOHA Recognised
Certification Scheme**



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8990	18	19	Pinoy Pride Architecture 8990 Asbestos Report F1 12042023.Docx	Final 1



The Southern African Institute for Occupational Hygiene

This is to certify that

Adele Pieterse

ID Number: 7811030100088

Has satisfied the requirements of
the Constitution of the Institute
and on recommendation of the Professional Certification Committee
is registered as an

Occupational Hygienist (OH)

Member Number: 0783

Valid until: 31 January 2024

Elsie Cornelia Peens

Chairperson, Professional Certification Committee



Member ID: 33914809

Certificate ID: 33914809-25703

Issued by the Southern African Institute for Occupational

Hygiene

SAQA Professional Body ID: 844

**IOHA Recognised
Certification Scheme**



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8990	19	19	Pinoy Pride Architecture 8990 Asbestos Report F1 12042023.Docx	Final 1



The Southern African Institute for Occupational Hygiene

This is to certify that

Brett Williams

ID Number: 6304215081084

Has satisfied the requirements of
the Constitution of the Institute
and on recommendation of the Professional Certification Committee
is registered as an

Occupational Hygienist (OH)

Member Number: 0221

Valid until 31 January 2024

Elsie Cornelia Peens

Chairperson: Professional Certification Committee



Member ID 33914550

Certificate ID 33914550-25703

Issued by the Southern African Institute for Occupational

Hygiene

SAQA Professional Body ID: 844

**IOHA Recognised
Certification Scheme**



CLS230836
Status Confidential
Tab Number 1 of 1
Test Item Description Bulk Samples
Test Item Condition Sealed in plastic bags
 Received at ambient temperature
Date Received 22/03/2023
Date of Analysis 28/03/2023
Analysis Required Identification of Asbestos Fibres in Bulk Material
Method Used HSG 248*

Results: Table 1 - 8990

Sample Number	Result
PP-1	Positive, fibres were identified as a mixture of both chrysotile and crocidolite
PP-2	Positive, fibres were identified as a mixture of both chrysotile and crocidolite
PP-3	Positive, fibres were identified as a mixture of both chrysotile and crocidolite
PP-4	Positive, fibres were identified as a mixture of both chrysotile and crocidolite
PP-5	Negative, asbestos fibres not detected
PP-6	Negative, asbestos fibres not detected. Fibres were identified as Man Made Mineral Fibres
PP-7	Positive, fibres were identified as chrysotile
PP-8	Positive, fibres were identified as crocidolite
PP-9	Positive, fibres were identified as a mixture of both chrysotile and crocidolite
PP-10	Negative, asbestos fibres not detected

* Sub-contracted

Specific Test Conditions Stored at ambient temperature prior to analysis

TEST REPORT

DATE OF REPORT : 5 April 2023
REFERENCE NO : CLS230988

CONTACT PERSON : Adri Cowley

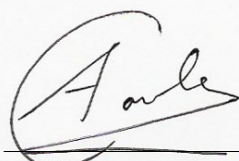
CLIENT : Safetech
CLIENT ADDRESS : P.O. Box 27607
Greenacres
PORT ELIZABETH
6057

CLIENT CONTACT PERSON : Sarah Mullan
Kerwin Pillay
CLIENT TELEPHONE NO : (041) 365 6846
CLIENT e-MAIL ADDRESS : kerwin.pillay@safetech.co.za

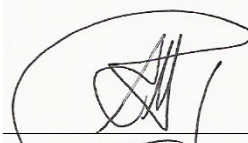
TEST RESULTS

See attached spreadsheet.

WORK APPROVED BY:



Adri Cowley
(Laboratory Manager)
(Technical Signatory)



Eugene Cowley
(Technical Manager)
(Technical Signatory)

05/04/2023

Date

This report relates to the specific sample(s) tested as identified herein, it does not imply Chemtech Laboratory Services approval of the quality and/or performance of the item(s) in question and the test results do not apply to any similar item that has not been tested.

This report may only be reproduced in full, with the written approval of Chemtech Laboratory Services.

The acceptance of an item for test and the issue of a test report are subject to Chemtech Laboratory Services condition of test. This document is available on request.

Chemtech Laboratory Services does not accept responsibility for errors that might have arisen during sampling and transport of samples by external parties.

Results express in ppm, ppb, mg/m³ or µg/m³ were calculated using data supplied by the client.

C4 DRAWINGS

TOPOGRAPHICAL SURVEY

OF ERF 2937

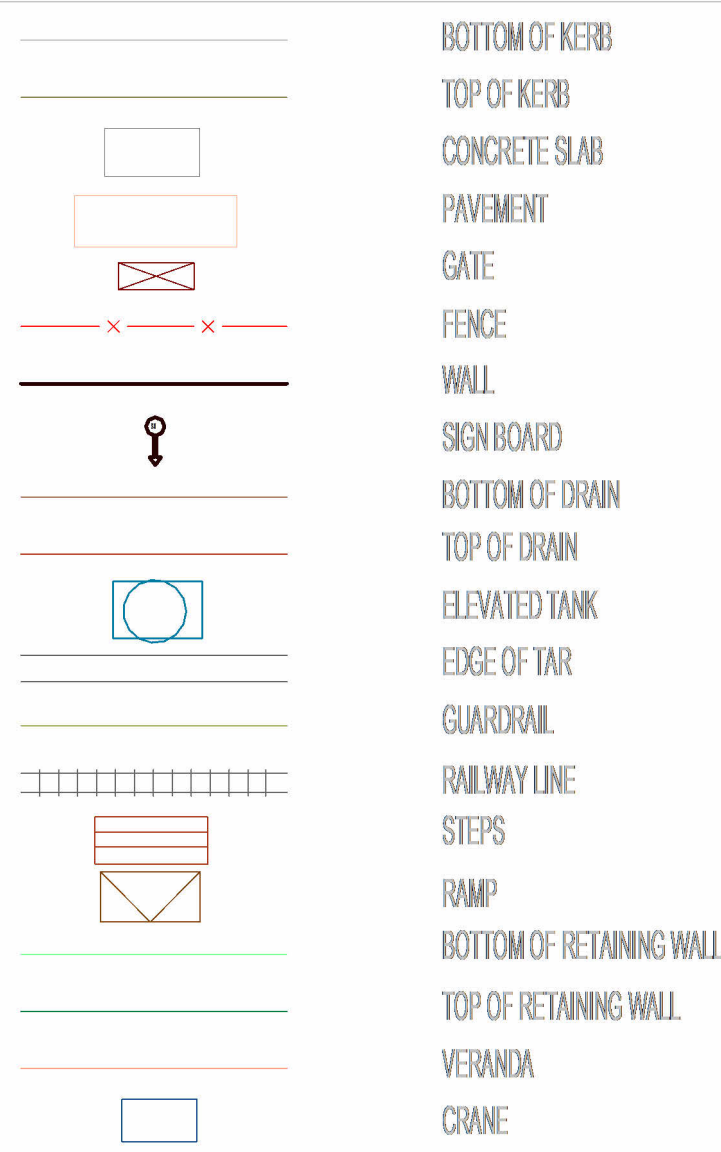
(DIMBAZA INDUSTRIAL PARK)

SITUATE IN THE BUFFALO CITY METRO MUNICIPALITY
IN THE ADMINISTRATIVE DISTRICT OF EAST LONDON
PROVINCE OF THE EASTERN CAPE

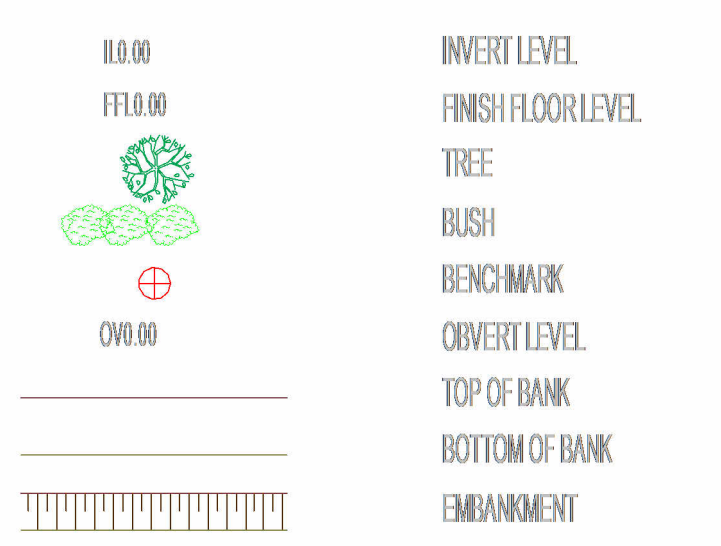
CLIENT : PINOY PRIDE ARCHITECTS
PROJECT : DETAILED TOPOGRAPHICAL SURVEY OF ERF 2937 (DIMBAZA INDUSTRIAL PARK) EAST LONDON WVS 84
SURVEY DATUM : LONGITUDE 27° EAST
CENTRAL MERIDIAN : MEAN SEA LEVEL
LEVEL DATUM : MEAN SEA LEVEL
CONTOUR INTERVAL : 0,5 METRES
SCALE : 1:1750
DATE : MARCH 2023
REF : Z.PALESAMMS/TACHF1133

LEGEND

STRUCTURE



TERRAIN LEVEL



SERVICES

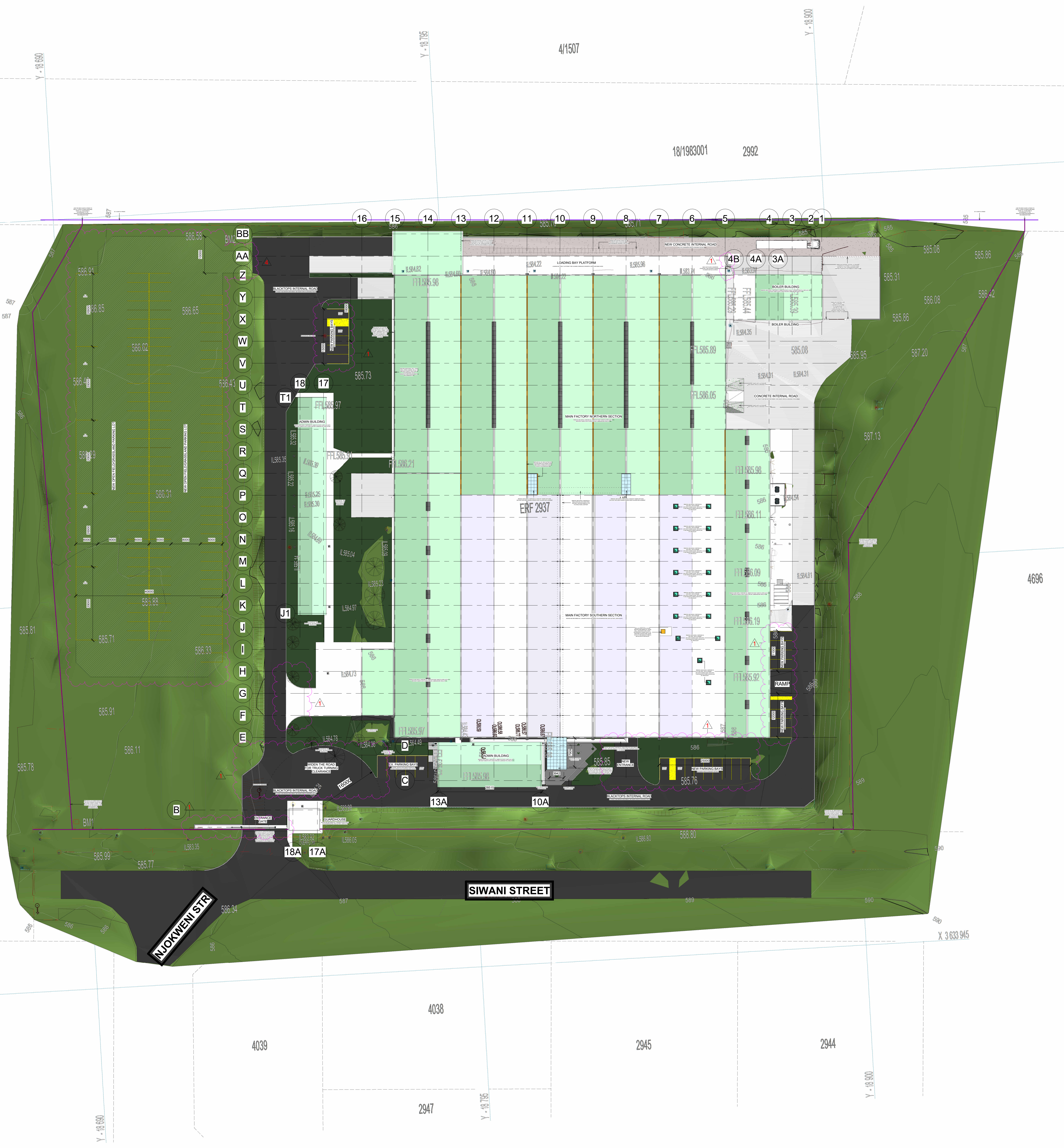
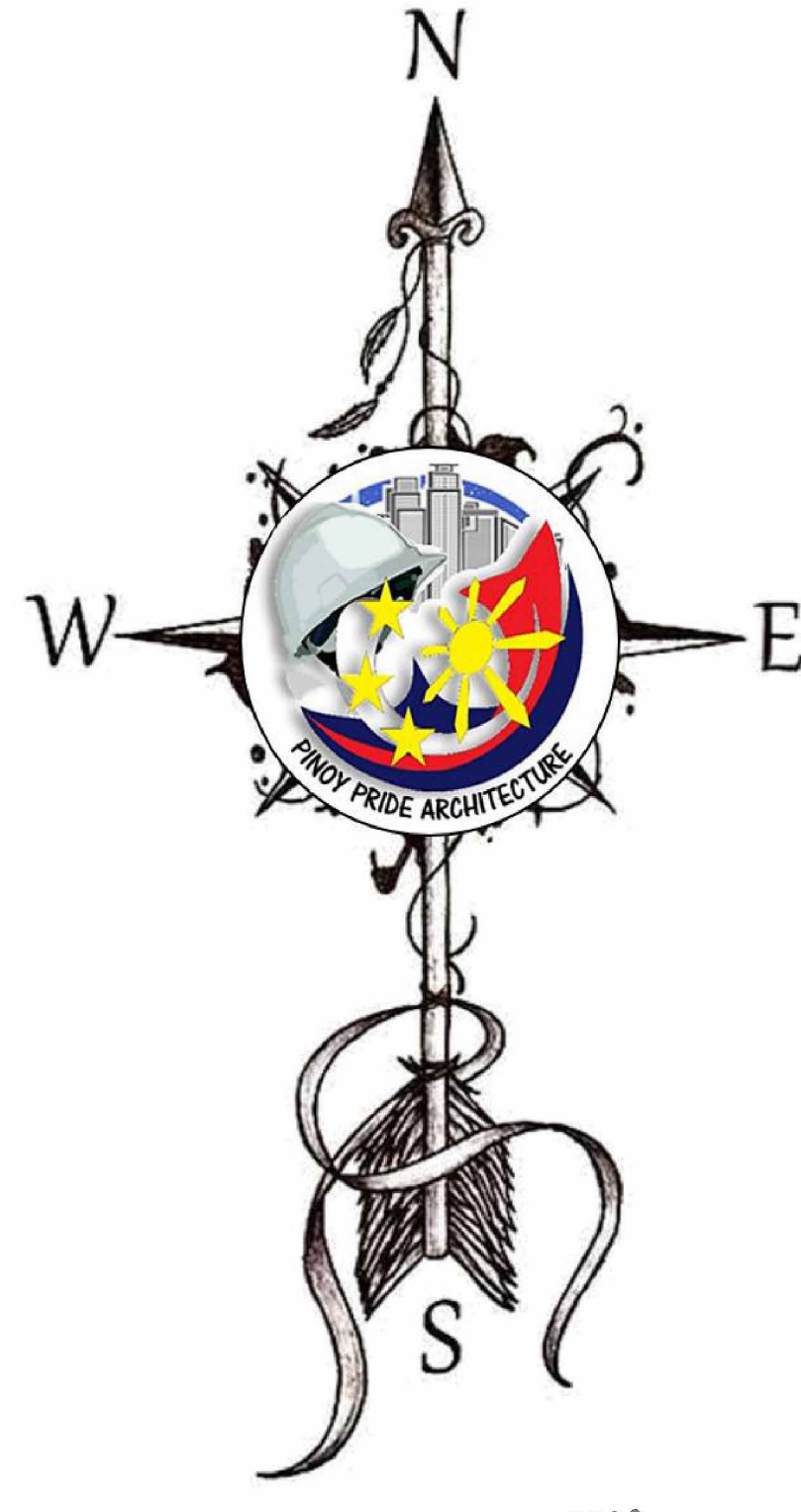


BENCH MARK CO-ORDINATES

NAME	CO-ORDINATES		
	Y	X	Z
BM1	-18 686,87	+ 3 820 000,00	585,85
BM3	-18 741,56	+ 33 742,06	586,58

DESCRIPTION OF BEACONS

BM1, BM2 : 12mm Round Iron Peg in Concrete



1 SITE PLAN
1 : 400



Consultant: Pinoy Pride Architecture
Appointment: Project Architect
Address: 28 Candlerbury Drive Nahoon Valley Park, EL
Phone: 084 055 4235
e-mail: pinoypride8791@gmail.com

ARCHITECT

Consultant: MMDP Quantity Surveyors
Appointment: Project Quantity Surveyor
Address: 1st Floor Hammer Mill House, The Quarry, Selborne, EL
Phone: 083 348 1228
e-mail: felicity@mmdp.co.za

QUANTITY SURVEYOR

Consultant: Lukhozi Consulting Engineers
Appointment: Project Civil & Structural Engineer
Address: Kwa-Lukhozi, Quartzite Dr. The Quarry, Selborne, EL
Phone: 082 894 0816
e-mail: l.coetzer@lukhozi.co.za

CIVIL & STRUCTURAL ENGINEER

Consultant: RNA Consulting Engineer
Appointment: Mechanical, Electrical & Fire Engineer
Address: 11 Bonza Bay Road, Beacon Bay, EL
Phone: 083 381 8985
e-mail: travisw@rnaconsulteng.co.za

MECHANICAL, ELECTRICAL & FIRE ENGINEER

REVISION SCHEDULE

No.	Description	Date
1	Tenancy Subdivision Revisions	30-10-2023
4	New Open Field/Grassland Parking Lot	21-11-2023

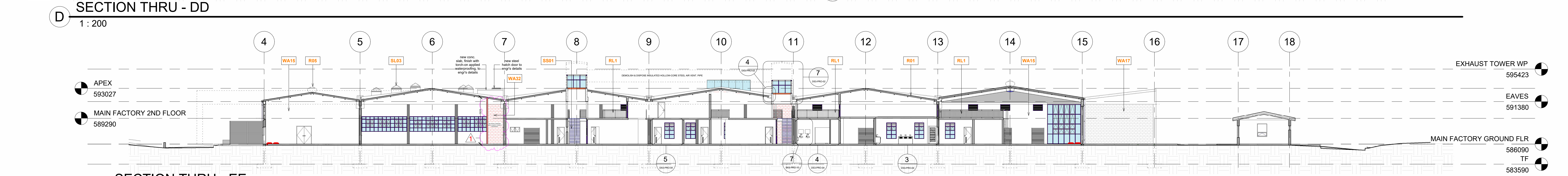
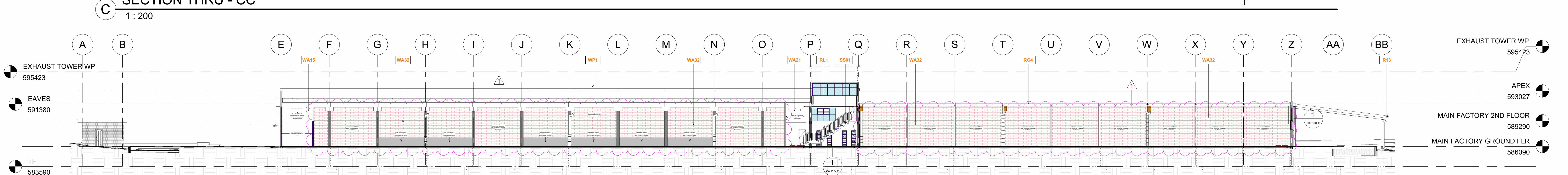
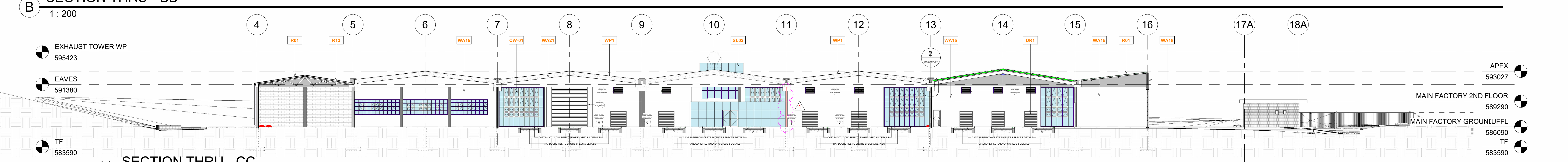
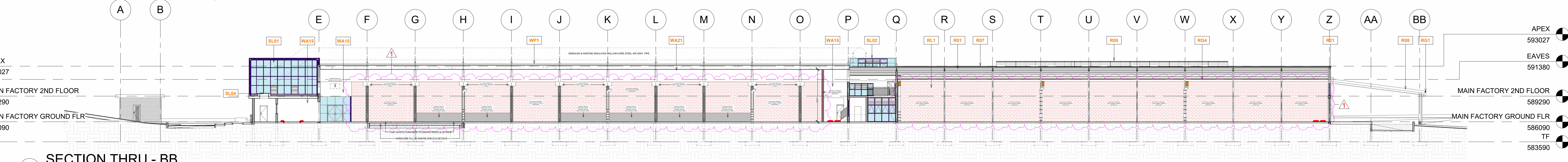
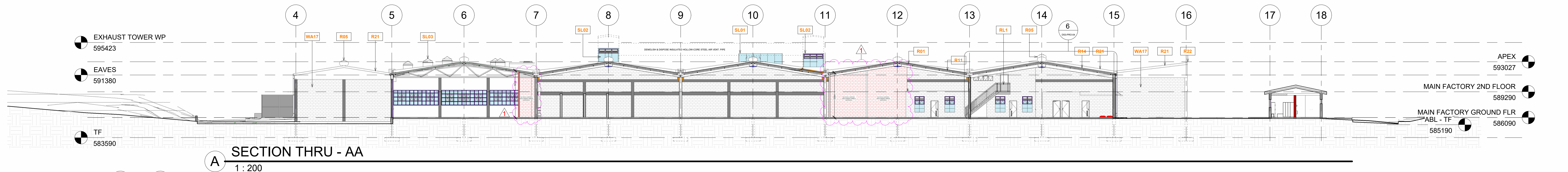
REPAIRS AND REFURBISHMENT NOTES:

- ALL MEASUREMENT MUST BE DOUBLE CHECK ON SITE AND ON ACTUAL.
- ANY DISCREPANCIES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION FOR WAY-FORWARD.
- ALL EXISTING MATERIALS, OPENINGS, SUBSTRATES, SIZES AND ETC., VARIES FROM EACH OTHER AND MUST BE TREATED AND ADJUSTED INDIVIDUALLY TO SUIT THE NEW PROPOSAL.
- REPAIRS AND REFURBISHMENT WORKS MUST BE READ IN COORDINATION WITH THE OTHER DRAWINGS, SCHEDULES, DETAILS, KEY PLANS, SHOP DRAWINGS AND ETC.
- ALL WALLS OPENINGS CAUSE BY NEW REPAIRS, REPLACEMENT OR REFURBISHMENT OF WINDOWS, DOORS, CURTAIN WALLS AND ETC., THAT IS WITHOUT BEAM PROTECTION/SUPPORT ON SOFFIT/TOPSIDE, MUST BE PROVIDED EITHER WITH BRICK LINTEL FOR BRICK WALLS OR BLOCKS LINTEL FOR BLOCK WALLS, LINTEL MUST BE PLASTERED, PAINTED & MAKE GOOD. REFER TO ENGRS DRAWING FOR DETAILS.
- ARCHITECTS DRAWING MUST BE READ, PLANNED AND COORDINATED WITH OTHER PROFESSIONAL DRAWINGS, DETAILS, SCHEDULES AND ETC.
- ALL REPAIRS, REFURBISHMENT AND REPLACEMENT WORKS MUST EITHER SUIT OR ADJUSTED TO ACCOMMODATE THE NEW PROPOSAL AND MAKE GOOD.
- ANY UNFORESEEN NEW ITEMS, ISSUES OR SCOPE OF WORKS MUST BE BROUGHT TO THE ARCHITECTS AND PRINCIPAL AGENT ATTENTION FOR WAY-FORWARD.
- NO NEW OR ADDITIONAL SCOPE OF WORKS OR WORK DONE WILL BE ENTERTAIN OUTSIDE OR EXTRA FROM THE ORIGINAL SCOPE OF WORKS WITHOUT THE PRINCIPAL AGENT AUTHORIZATION OR APPROVAL.
- CHANGES OR SCOPE ALTERATION MUST BE DONE IN WRITING OR GIVEN UNDER THE SITE INSTRUCTION BOOK BY THE PRINCIPAL AGENT. SPECIALLY CHANGES THAT HAS "COST" EXTENSION OF TIME CLAIM AND COST IMPLICATION.
- ALL WORKS MUST COMPLY WITH THE CURRENT SOUTH AFRICAN BUILDING CODES/STANDARDS/NORMS, REGULATIONS AND THE CONTRACT AGREEMENTS.
- THE DESIGN IS SPECIFIC FOR SANS OCCUPANCY CLASS: 103 & 101, WHICH ARE LOW-RISK INDUSTRIAL & LOW-RISK STORAGE.

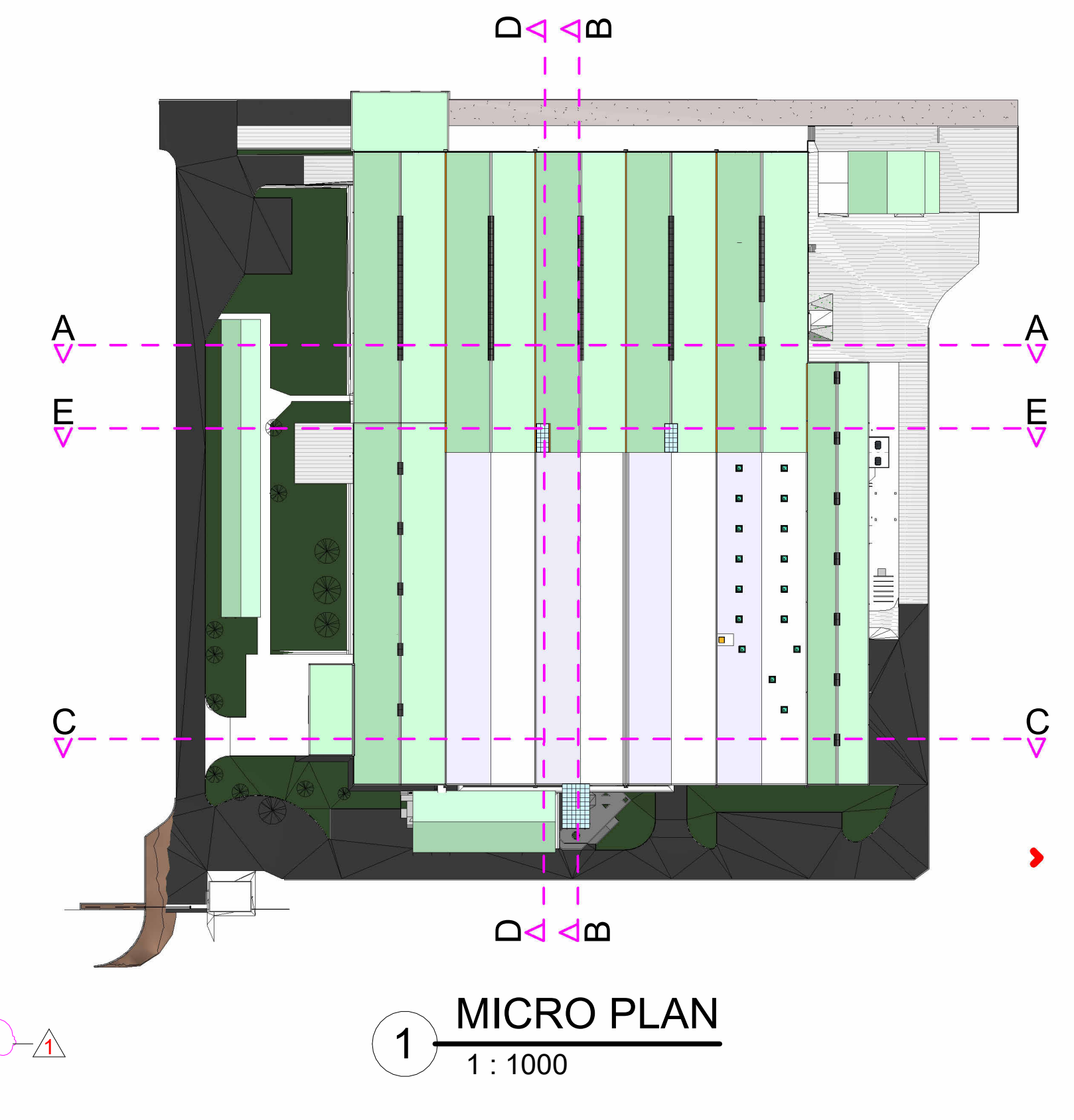
DESIGN DEVELOPMENT

Client: ECDC
Project name: REPAIRS & REFURBISHMENTS IN DIMBAZA INDUSTRIAL PARK SITE 3
Drawing name: PROPOSE SITE LAYOUT PLAN
Site address: ERF 2973 DIMBAZA INDUSTRIAL PARK SITE 3

Project number: RFQ00868/2022
Date: 12 JUNE 2023
Drawn by: AMD/MAO
Checked by: ACC
Sheet no.: DS3-PRO-01
Scale: As indicated



Numbers	Specifications
CW-01	Curtain Wall Panel 01: 4969 X 5653mm (HxW). Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
DR1	For all Door Finishes, descriptions, quantities & ironmongery refer to Door & Ironmongery schedule. WEATHER BARS AND DIVIDING STRIPS TO EXTERIOR DOORS-Supply and fit a 30 x 5mm flat brass strip in full lengths to all external doors and where different floor finishes join, complete with 75mm flat fixing lugs at 400mm max. centres, fixed to concrete with stainless steel screws, with screeds to be perfectly level and flush with the top of weather bars and dividing strips.
R01	Safintra 0,55mm thick 686mm cover Tufdek® IFR Desert Sand COLORPLUS® roof sheeting, fixed to steel purlins at 1892mm centres and eaves and end-span purlins at 1634mm centres (final spacing to be calculated by an engineer) using Fixtite® self tapping fasteners or Safintra approved fasteners with EPDM seals. Purlin fixed to every second crest of each sheet and at all crests at sheet ends. Side laps to be secured using Fixtite® stitching fasteners or Safintra approved fasteners at centres not exceeding 500mm and sealed with Butyl tape with minimum 230mm end laps sealed with a double row of Butyl tape, installation includes fixing of all flashing i.e. ridge, barge, close-end and etc... all in accordance with the manufacturer's recommendations. Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R05	Seaspray COLORPLUS® ridge mounted roof ventilator, to Mechanical Engineer details and specifications
R07	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 9degree x 462mm girth ridge flashing > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R08	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 462mm girth barge flashing (231 X 231MM) > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R11	XPS 100mm thick high density rigid extruded polystyrene 100% closed cell insulation boarding with smooth bevel tongue and grooved edge profile, fixed concurrent with roof covering over steel purlins at maximum 1600mm centres with 5mm gap between boards butt-joined over purlins. Ridge vents are recommended to be allowed for in the roof covering (elsewhere specified) in order to prevent deflection due to heat build up above the boards. > Application: Over-purlin insulation > Insulation board: 100mm x 600mm x 800mm long (Code: LD100X800SBTG) > Edge profile: smooth bevel tongue and grooved > R-value: 3.34sq.m.K/W > Thermal conductivity: 0.03 W/m.K > Density: 33 kg/m³.
R12	LAMBDABOARD® laminated polystyrene core board with a minimum core density of 34kg/m³, with a thickness of 100 mm; in widths of 1,220mm with a 4.17(Ksq.m/W) R-Value. Cut to length; length to be measured on site and manufactured to exact length to avoid butt joints over purlins. Finish shall be White Mineral and Mineral Natural laminated on each side. Lambda board to be installed above purlin and in conjunction with Roof covering, fastener length as per roof sheeting manufacturer to suit 100mm Lambda board, in accordance with manufacturer's specification.
R13	Everite high-density plain ungrooved Nutec fascia boards (Code: 41-503), size 300 x 15mm, fixed to 38 x 38mm support battens between rafters twice screwed with 12 x 40mm countersunk brass screws at 900mm centres to support battens with aluminium fascia jointing plate between boards and aluminium H-profile fascia corner joiners at board ends. > Finish: 38 x 38mm batten and 38 x 38mm support battens > Thickness: 15mm > Width: 300mm
R14	Safintra Tufdek® profile Desert Sand COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 308mm girth side wall flashing > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R21	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 730mm girth custom-made barge flashing (280 X 450MM) > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R22	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 730mm girth custom-made apex flashing (280 X 450MM) > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
RG1	Industrial Seamless Aluminium Gutter 150mm Box/Square profile, overall size 150mm x 150mm x 0.9mm thick coated internally and externally with ColourTech G4 in colour Marble White with matching splashplate including cut and mitred angles covered with a mitre strip externally, stop ends riveted and all sealed on the inside with Dow Corning 813 silicone sealer, secured to purposely made end timber purlins with 25 x 2,5mm L - Shaped internal brackets at 600mm centres using selfdrilled screw as shown on architects details, including expanded aluminium mesh leaf guard set over gutter with 150mm x 150mm x 0.6mm thick Marble White aluminium downpipe @ every 2nd column or 12meters apart, fixed to wall with straps at 1500mm centres using masonry screw & plugs, with downpipes riveted and silicone sealed to gutter outlets, including all necessary bends, elbows, shoes, link into the underground storm water pipes & etc. > Gutter profile: 150mm Box > Gutter size: 150mm x 150mm x 0.9mm thick > Downpipe size: 150mm x 150mm x 0.6mm thick aluminium > Downpipe colour: Marble White.
RG4	New 3mm thick custom-made galvanized steel box gutter as per Architect design & specs, fully covered with a single layer of torched on applied abedex 4mm unigum waterproofing with silvokote final coating on its entire topside surface, to be manufactured and installed by a specialist. COC required
RL1	Custom-made galvanized mild steel industrial railings as per architects' detailed drawings and specifications. Manufacture, supply, and install on top of the concrete floor or on the staircase steel stringers and landings
SL01	New custom-made box Skylight with an external dimension of (LxWxH) 5398 x 8873 x 4572mm (to be confirmed on site) installed on top of the air vent, mechanical room flat concrete roof, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engnr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
SL02	New custom-made box Skylight with an external dimension of (LxWxH) 2552 x 5707 x 1676mm (to be confirmed on site) installed on top of the air vent, shaft, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engnr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
SL03	New custom-made pyramid Skylight with an external dimension of (LxWxH) 1000 x 1000 x 514mm (to be confirmed on site) installed on top of the air vent, shaft, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engnr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
SL04	New custom-made Round Skylight with an external dimension of 1600mm diameter (to be confirmed on site) installed on top of the new concrete upstand, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engnr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
SS01	Custom-made Industrial Steel Staircase to engineer's detail and specifications
WA15	Marmocote M180 Wall Finish: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements. Apply one full coat of MARMORAN ACRYLIC PRIMER and allow to dry. > Apply 2 or 3 coats of Marmoran Marmocote M180 by spray, roller or brush as per the approved colour. > Allow for drying time between coats. Over coating Time: 12-24hours > Ensure that the surface is completely obliterated. > Wet Film Thickness: 143-111 microns per coat Dry Film Thickness: 47-37 microns per coat > Guideline Spread Rate is 7.6 ± 0.9 sq.m / L > Low VOC Levels 20g/L [1.54%]. See paint schedules for details
WA17	Aquastop Brick Seal: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements > Ensure that substrate is completely dry. > Apply 2-3 coats of Aquastop by brush, roller or by spray to saturate the substrate. Use a cross hatching method to apply so as to ensure that whole surface is evenly covered. Low pressure atomised spray is the preferred method of application. > Allow to dry between coats. Over coating Time: 12 hours > Wet Film Thickness: 1000-333 microns per coat Dry Film Thickness: 50-17 microns per coat > This product is supplied ready for use. Thinning is not recommended at all. > Theoretical Spread rate 1-3 sq.m / L /coat, dependent on substrate porosity. This figure is indicative, and subject to applicator skill and substrate type and conditions. See paint schedules for details
WA18	Marmoran Permacrete 1.5mm on all exterior Concrete Beams: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements. > Apply 1 coat of Marmoran Universal Primer, at a spread rate of 8 -10 sq.m / L / coat and allow to cure. Apply one full coat of MARMORAN TEXTURED ACRYLIC PRIMER, > Apply at a guideline spread rate of 4 sq.m / kg. > Crosshatch to achieve complete obliteration of the substrate & allow to cure. Apply 1.5mm PERMACRETE VERTICAL > apply product with a steel trowel and then float with a plastic trowel > Indicative spread rate per sq.m 1.5 mm Permacrete 3.0 kg / sq.m. This figure is indicative, and subject to applicator skill and substrate type and conditions. See paint schedules for details
WA21	Repair & refurbish existing concrete block walls or concrete slab ceiling, repair damaged wall joints, scaling, delamination, spalling and etc... use a mastic surface cleaner machine & cleaning agent to remove stubborn dirt, stains, grease, oil and etc... finish it with powerhorse pressure washer surface cleaner and make good.
WA32	New Tenancy Masonry Subdivision Wall to engineer's details & specifications
WP1	Waterproofing on top of the bldg. concrete roof & concrete/steel box gutter. remove ex. waterproofing & comply with the waterproofing manufacturer on surface preparation before the new waterproofing application can be done. 1st step: apply a single coat of bitu.prime followed by the application of abedex 4mm unigum torched on applied waterproofing, 2nd step: finish it with 2 coats of silvokote final coating. (COC) Certificate of Compliance for the work done required.



Consultant: Pinoy Pride Architecture
 Appointment: Project Architect
 Address: 28 Candlerbury Drive Nahoon Valley Park, EL
 Phone: 084 055 4233
 e-mail: pinoypride8791@gmail.com

ARCHITECT

Consultant: MMDP Quantity Surveyors
 Appointment: Project Quantity Surveyor
 Address: 1st Floor Hammer Mill House, The Quarry, Selborne, EL
 Phone: 083 348 1228
 e-mail: felicity@mmdp.co.za

QUANTITY SURVEYOR

Consultant: Lukhozi Consulting Engineers
 Appointment: Project Civil & Structural Engineer
 Address: Kwa-Lukhozi, Quartzite Dr. The Quarry, Selborne, EL
 Phone: 082 894 0816
 e-mail: l.coetzee@lukhozi.co.za

CIVIL & STRUCTURAL ENGINEER

Consultant: RNA Consulting Engineer
 Appointment: Electrical, Mechanical & Fire Engineer
 Address: 11 Bonza Bay Road, Beacon Bay, East London, 5241
 Phone: 083 381 8985
 e-mail: travisw@rnaconsulting.co.za

ELECTRICAL, MECHANICAL & FIRE ENGINEER

REVISION SCHEDULE

No.	Description	Date
1	Tenancy Subdivision Revisions	30-10-2023

REPAIRS AND REFURBISHMENT NOTES:

- ALL MEASUREMENT MUST BE DOUBLE CHECK ON SITE AND ON ACTUAL.
- ANY DISCREPANCIES MUST BE BROUGHT TO THE ARCHITECT'S ATTENTION FOR WAY-FORWARD.
- ALL EXISTING MATERIALS, OPENINGS, SUBSTRATES, SIZES AND ETC. VARIES FROM EACH OTHER AND MUST BE TREATED AND ADJUSTED INDIVIDUALLY TO SUIT THE NEW PROPOSAL.
- REPAIRS AND REFURBISHMENT WORKS MUST BE READ IN COORDINATION WITH THE OTHER DRAWINGS, SCHEDULES, DETAILS, KEY PLANS, SHOP DRAWINGS AND ETC.
- ALL WALLS OPENINGS CAUSED BY NEW REPAIRS, REPLACEMENT OR REFURBISHMENT OF WINDOWS, DOORS, CURTAIN WALLS AND ETC., THAT IS WITHOUT BEAM PROTECTION/SUPPORT ON SOFFIT/TOPSIDE, MUST BE PROVIDED EITHER WITH BRICK LINTEL FOR BRICK WALLS OR BLOCKS LINTEL FOR BLOCK WALLS. LINTEL MUST BE PLASTERED, PAINTED & MAKE GOOD. REFER TO ENGRS DRAWING FOR DETAILS
- ARCHITECTS DRAWING MUST BE READ, PLANNED AND COORDINATED WITH OTHER PROFESSIONAL DRAWINGS, DETAILS, SCHEDULES AND ETC.
- ALL REPAIRS, REFURBISHMENT AND REPLACEMENT WORKS MUST EITHER SUIT OR ADJUSTED TO ACCOMMODATE THE NEW PROPOSAL AND MAKE GOOD.
- ANY UNFORESEEN NEW ITEMS, ISSUES OR SCOPE OF WORKS MUST BE BROUGHT TO THE ARCHITECTS AND PRINCIPAL AGENT ATTENTION FOR WAY-FORWARD
- NO NEW OR ADDITIONAL SCOPE OF WORKS OR WORK DONE WILL BE ENTERTAIN OUTSIDE OR EXTRA FROM THE ORIGINAL SCOPE OF WORKS WITHOUT THE PRINCIPAL AGENT AUTHORIZATION OR APPROVAL.
- CHANGES OR SCOPE ALTERATION MUST BE DONE IN WRITING OR GIVEN UNDER THE SITE INSTRUCTION BOOK BY THE PRINCIPAL AGENT. SPECIALLY CHANGES THAT HAS "EOT" EXTENSION OF TIME CLAIM AND COST IMPLICATION
- ALL WORKS MUST COMPLY WITH THE CURRENT SOUTH AFRICAN BUILDING CODES/STANDARDS/NORMS, REGULATIONS AND THE CONTRACT AGREEMENTS
- THE DESIGN IS SPECIFIC FOR SANS OCCUPANCY CLASS '33' & '31' WHICH ARE LOW-RISK INDUSTRIAL & LOW-RISK STORAGE

DESIGN DEVELOPMENT

Client: ECDC

Project name: REPAIRS & REFURBISHMENTS IN DIMBAZA INDUSTRIAL PARK SITE 3

Drawing name: MAIN FACTORY CROSS & LONGITUDINAL SECTIONS

Site address: ERF 2973 DIMBAZA INDUSTRIAL PARK SITE 3

Project number: RFQ00868/2022

Date: 12 JUNE 2023

Drawn by: Author

Checked by: Checker

Sheet no.: DS3-PRO-09

Scale: As indicated

ADMIN BLOCK	PICTURES AND SPECIFICATION CODES																														
	WC PAN	WASH BASIN	SINK & TROUGH	TAP & MIXER	GRAB RAILS & SEAT	URINAL	ACCESSORIES	SW01	SW02	SW10	SW08	SW09	SW26	SW12	SW11	SW32	SW06	SW07	SW27	SW05	SW24	SW25	SW17	SW18	SW19	SW20	SW04	SW03	SW22	SW21	SW14
FEMALE TOILET	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALE TOILET	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PARAPLEGIC TOILET	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
KITCHENETTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SERVICE DUCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

ABLUTION FACILITY	PICTURES AND SPECIFICATION CODES																														
	WC PAN	WASH BASIN	SINK & TROUGH	TAP & MIXER	GRAB RAILS & SEAT	URINAL	ACCESSORIES	SW01	SW02	SW10	SW08	SW09	SW26	SW12	SW11	SW32	SW06	SW07	SW27	SW05	SW24	SW25	SW17	SW18	SW19	SW20	SW04	SW03	SW22	SW21	SW14
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MALE TOILET	8	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PARAPLEGIC TOILET	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SHOWER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
KITCHEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

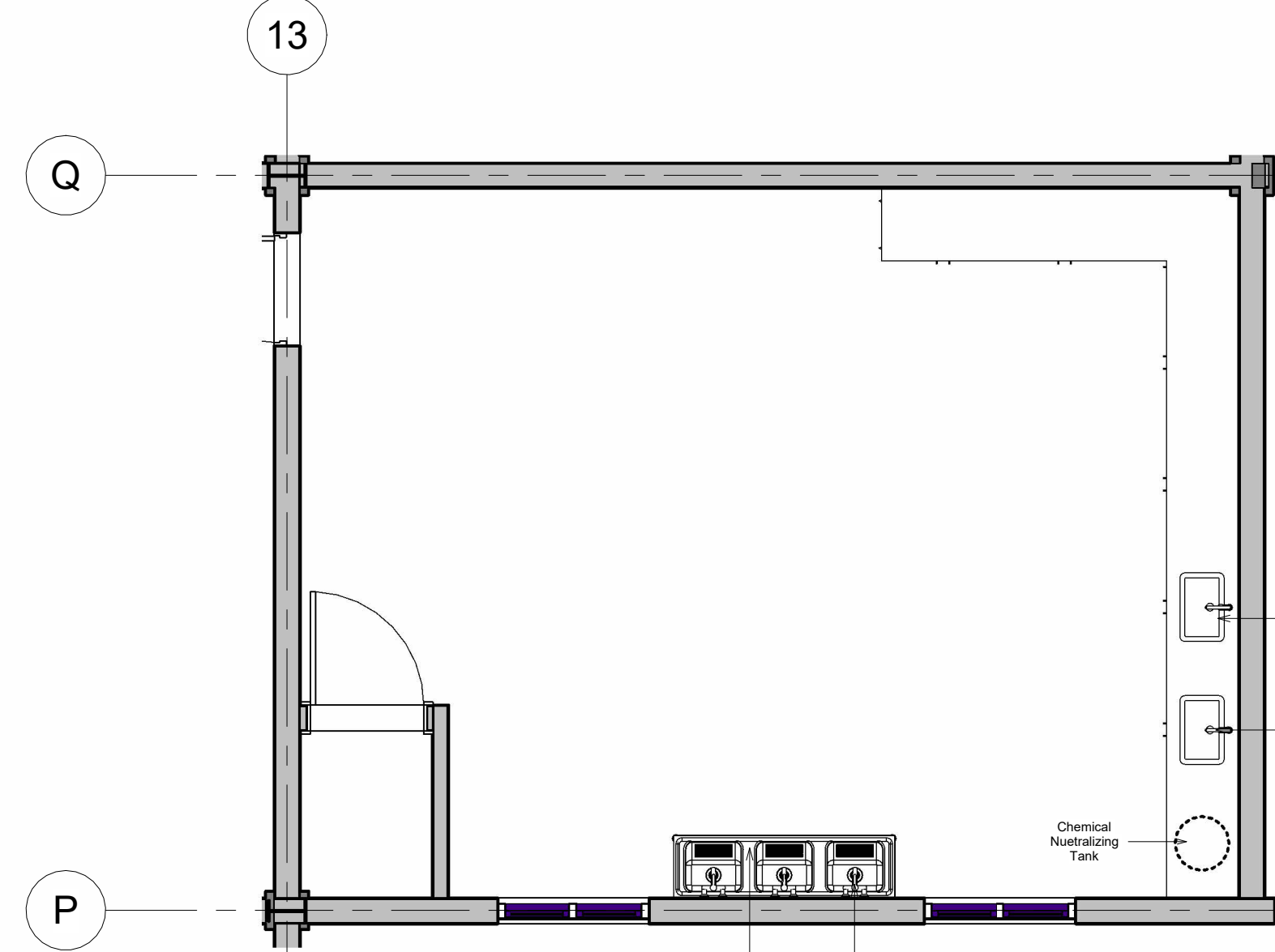
GUARD HOUSE	PICTURES AND SPECIFICATION CODES																														
	WC PAN	WASH BASIN	SINK & TROUGH	TAP & MIXER	GRAB RAILS & SEAT	URINAL	ACCESSORIES	SW01	SW02	SW10	SW08	SW09	SW26	SW12	SW11	SW32	SW06	SW07	SW27	SW05	SW24	SW25	SW17	SW18	SW19	SW20	SW04	SW03	SW22	SW21	SW14
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PARAPLEGIC TOILET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SHOWER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
KITCHEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

M. FACTORY GRD FLOOR	PICTURES AND SPECIFICATION CODES																														
	WC PAN	WASH BASIN	SINK & TROUGH	TAP & MIXER	GRAB RAILS & SEAT	URINAL	ACCESSORIES	SW01	SW02	SW10	SW08	SW09	SW26	SW12	SW11	SW32	SW06	SW07	SW27	SW05	SW24	SW25	SW17	SW18	SW19	SW20	SW04	SW03	SW22	SW21	SW14
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MALE TOILET	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PARAPLEGIC TOILET	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OFFICE RM-05 TOILET	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
LABORATORY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

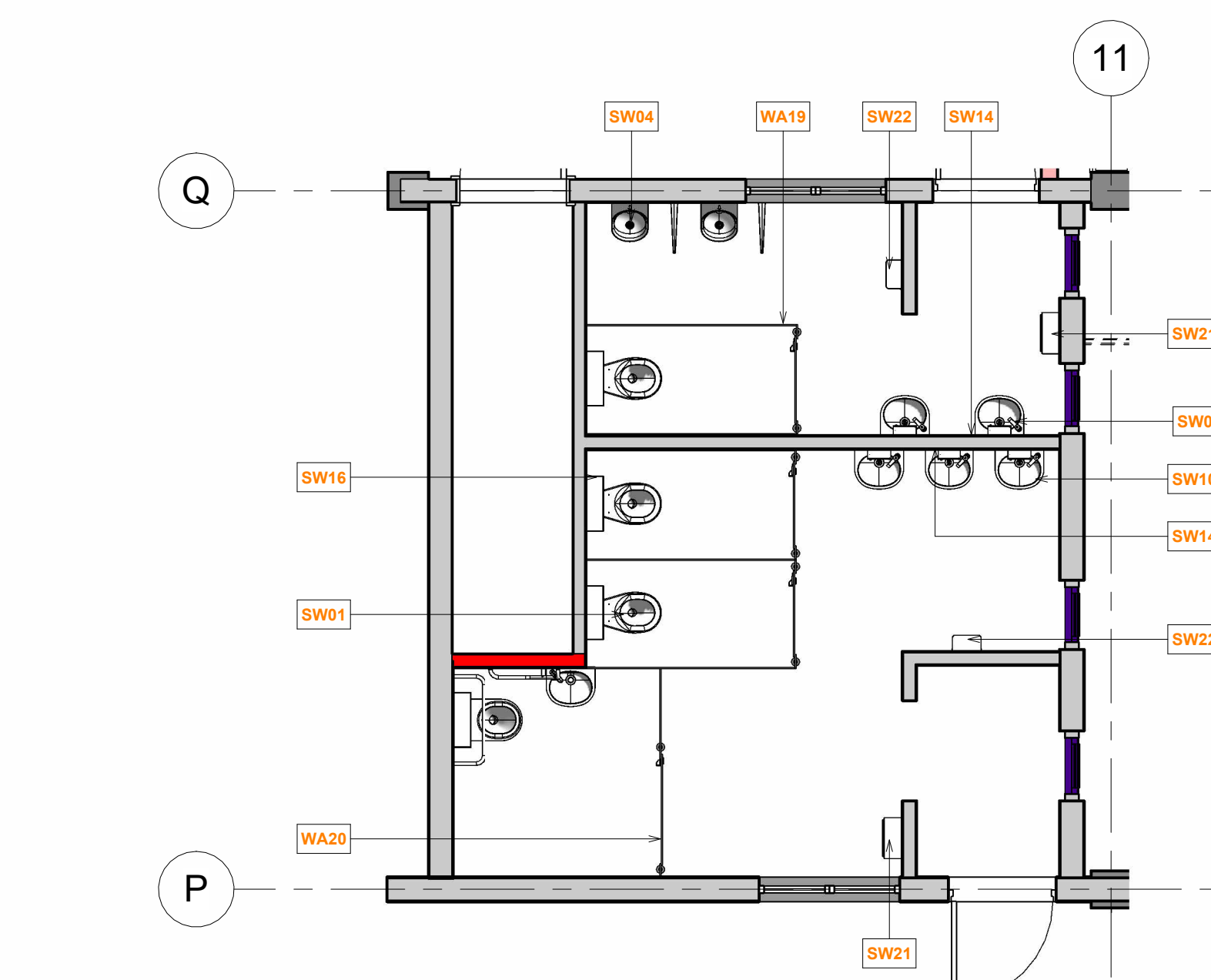
M. FACTORY 2ND FLOOR	PICTURES AND SPECIFICATION CODES																														
	WC PAN	WASH BASIN	SINK & TROUGH	TAP & MIXER	GRAB RAILS & SEAT	URINAL	ACCESSORIES	SW01	SW02	SW10	SW08	SW09	SW26	SW12	SW11	SW32	SW06	SW07	SW27	SW05	SW24	SW25	SW17	SW18	SW19	SW20	SW04	SW03	SW22	SW21	SW14
FEMALE TOILET	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MALE TOILET	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PARAPLEGIC TOILET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SHOWER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
KITCHEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Keynote Legend

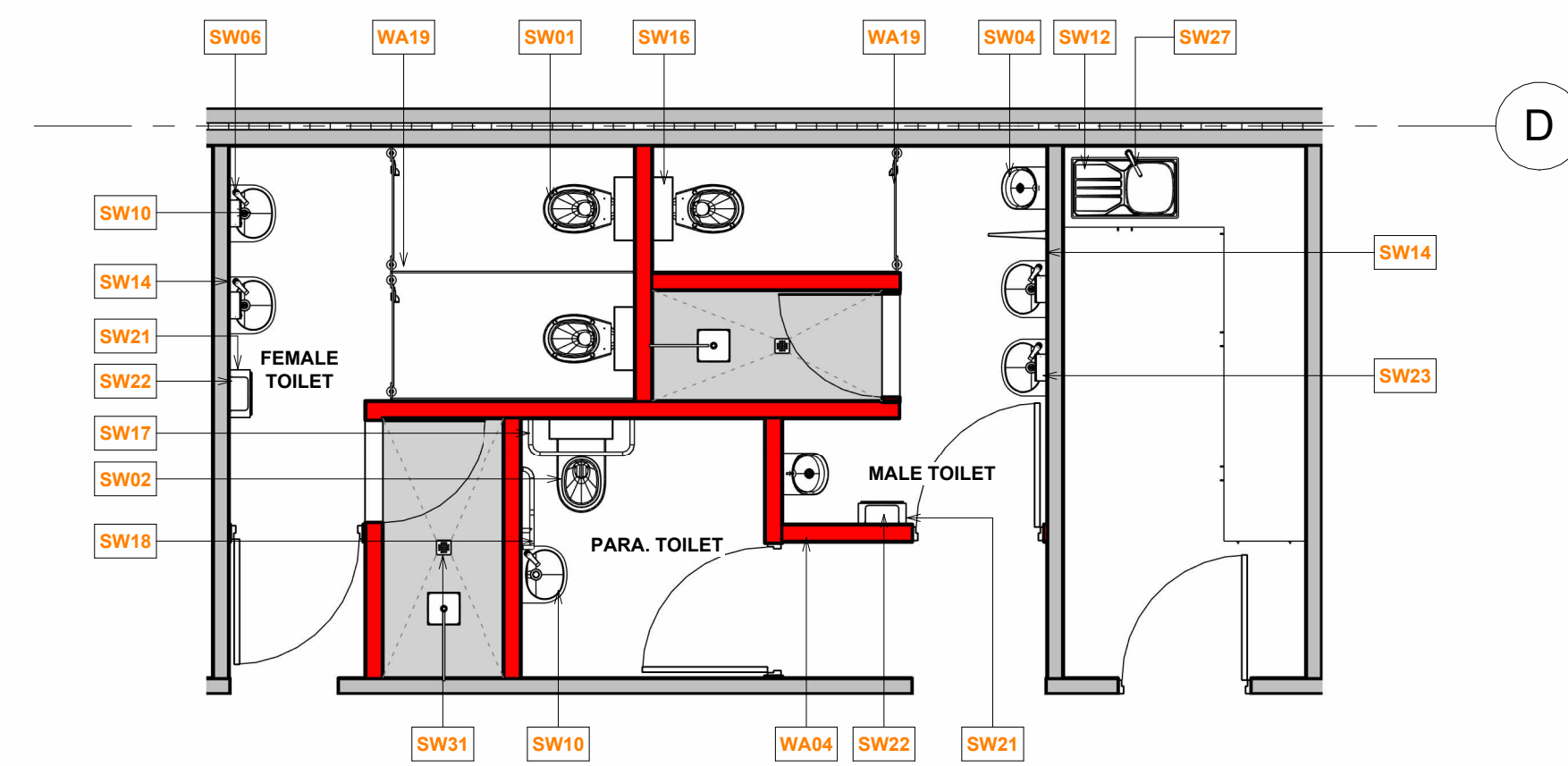
Key Value	Keynote Text
GI02	Cubical Solutions® 3T locker (Code: CSL/CHPL/304/3), overall size 300 x 450 x 1900mm high (1800mm locker and 100mm plinth), comprising 12mm compact high pressure laminate white carcasses with 12mm Pastel Grey compact high pressure laminate doors including auto return hinges (Code: CSSHE112) and D shaped keeps (Code: CSLJ/LK/3) for padlocks (no locking mechanism included), lock cover plate and handles (Code: CSLJ/LH/9).
GI04	Cubical Solutions® 1600mm long Freestanding bench (Code: CSBEN/chpl), comprising powder coated Charcoal mild steel frame with 12mm thick Pastel Grey compact high pressure laminate solid seat pop-riveted to frame.
SW01	Franke 1.2mm Grade 304 18/10 stainless steel HCL pedestal WC pan (Code: 2540154), size 500 x 360 x 429mm high with Black Estonia self closing seat (Code: 2540095), SCL 11 litre low level stainless steel cistern (Code:2570005), size 490 x 336 x 154mm deep with PVC flush pipe, Supa Flush valve and ball valve, bolted to floor with 6mm anchor bolts, compliant with SABS 1733:2002.
SW02	Franke Grade 304 18/10 stainless steel CMPX532 wall hung WC pan (Code: 2540142-001), size 500 x 360 x 350mm high with Black Estonia self closing seat (Code: 2540095), exposed top entry flush inlet and 38mm s/s flush pipe connected to SCL 11 litre low level stainless steel cistern (Code:2570005) size 490 x 150 x 336mm high with s/s flush pipe, Supa Flush Valve and Ball Valve, bolted to wall with anchor bolts. WC pan is fixed with 3mm stainless steel bracket bolted to wall with 4 x 8mm anchor bolts, compliant with SABS 497:1991 and SABS 1733:2002.
SW04	Franke 1.2mm Grade 304 18/10 stainless steel CMPX538 wall hung urinal (Code: 2540059), size 313 x 342 x 733mm high, includes exposed top entry flush valve, 40mm waste outlet, pressed perforated stainless steel grid and chrome plated button spreader connected to 15mm water supply, 1.2mm stainless steel bracket bolted to wall with wall rail bolts. Installation includes CMPX700 urinal s/s divider fixed in-between urinals
SW05	Splashworks Icon Red wall mounted Chrome plated Pisces sink mixer (Code: PSC210), overall size 233mm x 181mm x 116.69mm, installed in accordance with the manufacturer's recommendations. > Product type: Sink mixers > Tap/Mixer: Icon Red Pisces sink mixer (Code: PSC210) > Finish: Chrome plated > Length: 233mm > Width: 181mm > Height: 116.69mm > Guarantee: 12-year.
SW06	Franke Aspera chrome basin mixer (Code: 2150019), overall size 48 x 106 x 120mm. With 5 year guarantee on body construction.
SW08	Franke 0.9mm Grade 304 18/10 stainless steel WB004 wash hand basin (Code: 2520034), size 2024 x 430 x 140mm deep with four pressed bowls size 406 x 300 x 140mm deep, 25mm splashback and 40mm waste outlet, 25mm stainless steel square gallews brackets (Code: 2120012) bolted to wall with 4 x 6mm anchor bolts.
SW09	Franke 0.9mm Grade 304 18/10 stainless steel WB005 wash hand basin (Code: 2520035), size 2530 x 430 x 140mm deep with five pressed bowls size 406 x 300 x 140mm deep, 25mm splashback and 40mm waste outlet, 25mm stainless steel square gallews brackets (Code: 2120012) bolted to wall with 4 x 6mm anchor bolts.
SW10	Franke 1.2mm Grade 304 18/10 stainless steel Oval A wash hand basin (Code: 2520029), size 420 x 340 x 185mm deep with a one piece pressed bowl, 50mm splashback and 100mm radiused apron and 40mm waste outlet, fixed to wall with 4 x 6mm stainless steel anchor bolts.
SW11	Franke 1.2mm Grade 304 18/10 stainless steel Six003 wash through (Code: 2560014), size 1800 x 510 x 257mm deep with pressed bowl with radiused corners, slanted ribbed front side for scrubbing and 40mm waste outlet, stainless steel brackets (Code: 2120010) bolted to wall with anchor bolts.
SW12	Franke Nouveau Model NVN611 Grade 304 18/10 polished stainless steel single end bowl inset sink (Code: 1990001), overall size 800 x 460mm with one 340 x 370 x 149mm deep bowl, fitted onto cupboard (elsewhere specified). Sink to include: > Spazi F/1 plumbing kit (Code: 1120008) > 90mm waste fitting > One tube of Inox cream > Turbo Plus TP-75 Waste Disposal Unit (Code: 1340005), dispenser fitted to sink and connected to 220 volt power supply. Sink to include Highrise Swivel mixer (Code: 1150019) with overarm swivel spout, 15mm flexible connections. With 5 year guarantee on body construction.
SW14	Franke CHRH4011mm mirrors (Code: 2120077), size 400 x 300mm high, plugged and screwed to the wall with stainless steel screws.
SW16	Franke 1.2mm Grade 304 18/10 stainless steel SCL low level cistern (Code: 2570005), size 490 x 150 x 336mm high with s/s flush pipe, Supa Flush Valve and Ball Valve, bolted to wall with anchor bolts.
SW17	Franke CNTXBR Grade 304 18/10 stainless steel 32mm diameter cistern & flush valve back rail with Franke fine grip (Code: 2510014), size 750 x 260mm, plugged and screwed to the wall with stainless steel screws (includes screws and dowels).
SW18	Franke CNTXPAR Grade 304 18/10 stainless steel 32mm diameter paraplegic grab rail with Franke fine grip (Code: 2510012), size 578 x 578 x 95mm deep, plugged and screwed to the wall with stainless steel screws (includes screws and dowels).
SW21	Franke Rodan RODX605 0.8mm thick satin finished stainless steel waste bin (Code: 2120097), size 35590 x 168 x 460mm high with capacity of 23 litres and cylinder lock and standard Franke key, plugged and screwed to the wall with stainless steel screws.
SW22	Franke HFL2400HD 1,2/1,5mm thick satin finished stainless steel automatic hands free hand dryer (Code: 2500001), size 28090 x 207 x 245mm high with 2 vandal proof lock screws and key wrench, plugged and screwed to the wall with stainless steel screws, 200 W motor connected to 230/240 volt power supply. With 5 year warranty.
SW23	Franke Rodan RODX619 0.8mm thick satin finished stainless steel soap dispenser (Code: 2120095), size 20090 x 85 x 140mm high with 1 litre capacity, front push button, cylinder lock and Franke standard key, plugged and screwed to the wall with stainless steel screws.
SW24	Hansgrohe Crometta 85 Chrome Vario shower set with 65cm shower bar and soap dish (Code: 27764000) with a maximum flow rate of 17L/min. > Mixer: Vario shower set with 65cm shower bar and soap dish (Code: 27764000) > Finish: Chrome.



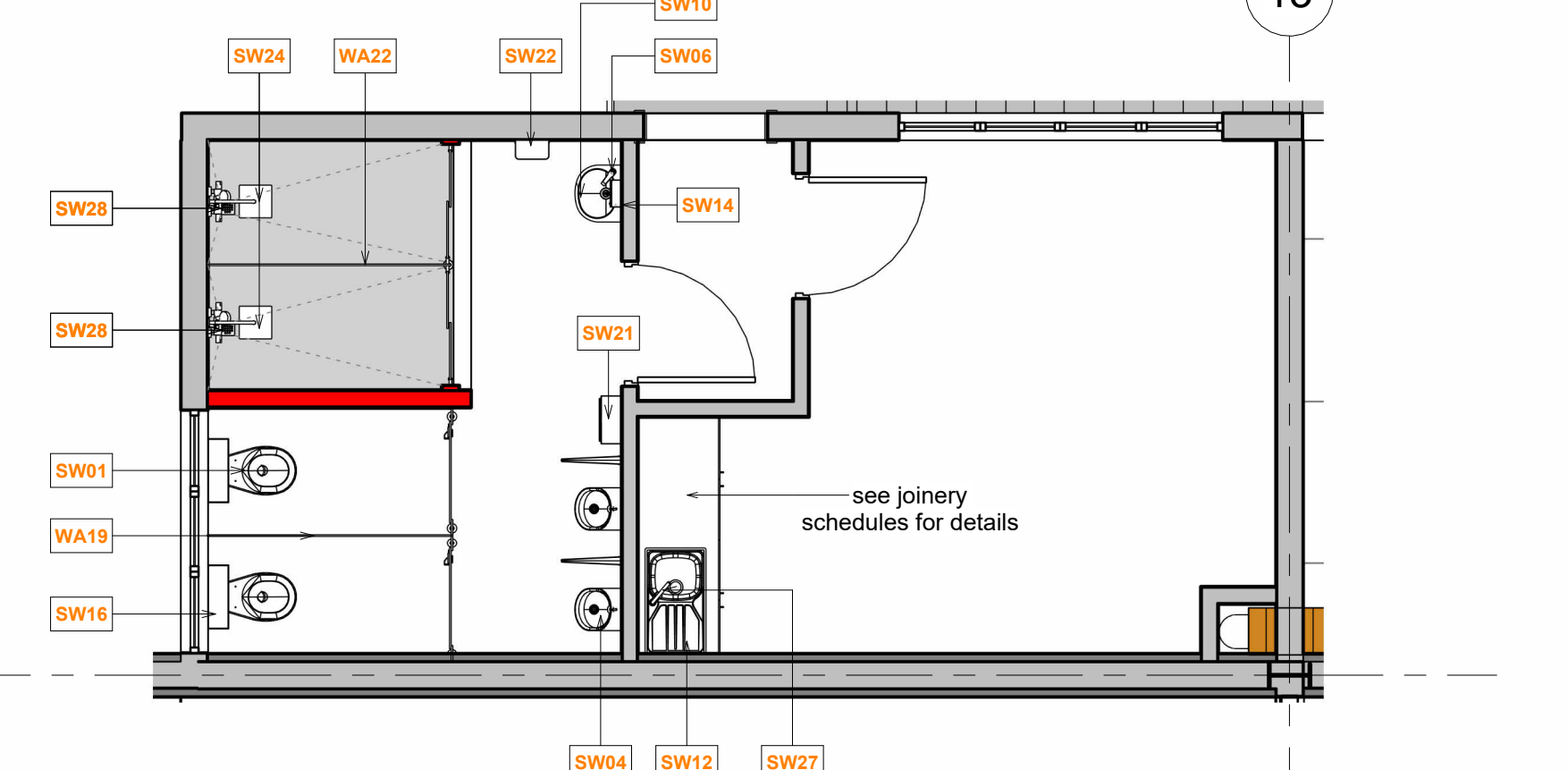
2 M. FACTORY GRD FLOOR LABORATORY 1:50



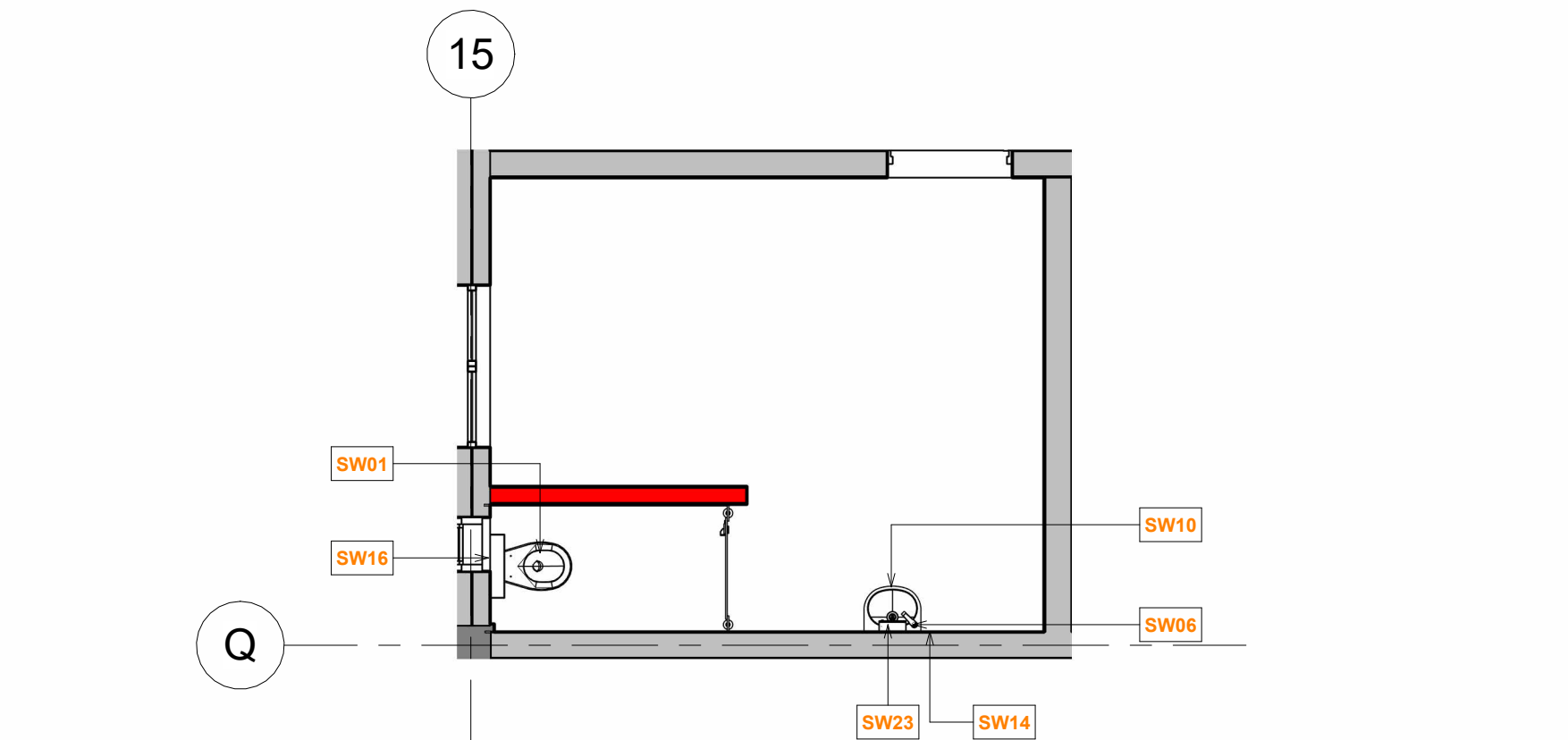
1 M. FACTORY GRD FLOOR M/F TOILET 1:50



5 ADMIN - M/F TOILET & KITCHENETTE 1:50



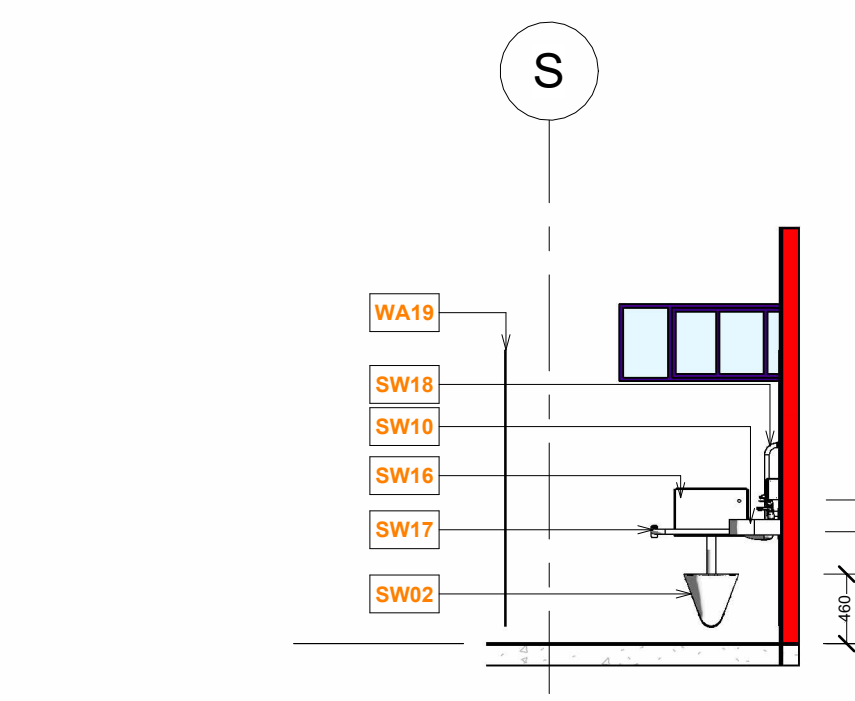
3 M. FACTORY 2ND FLOOR M/F SUPERVISOR TOILET 1:50



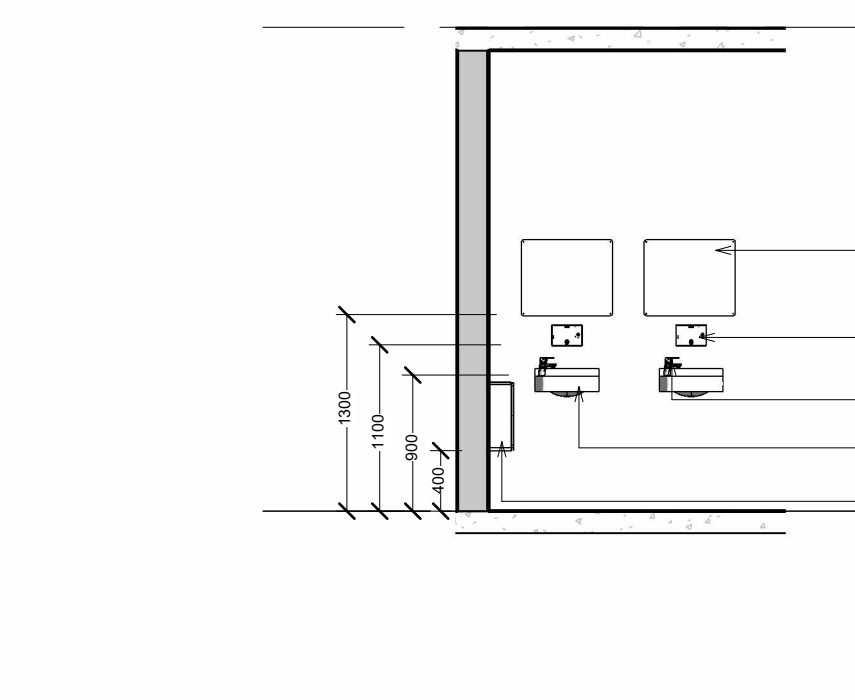
6 M. FACTORY BLDG - OFFICE RM.-5 TOILET 1:50

Keynote Legend

Key Value	Keynote Text
SW25	Hansgrohe Rainmaker Select White/Chrome 460 2jet EcoSmart overhead shower with ceiling connector (Code: 24014400) with a maximum flow rate of 9L/min. > Showerhead: 460 2jet EcoSmart overhead shower with ceiling connector (Code: 24014400) > Finish: White/Chrome. > Mixer: Hansgrohe RainSelect basic set for 2 functions (Code: 15310180).
SW26	Vaal Laboratory Sink size 435 x 335mm; Lab Sink ceramic fireclay laboratory sink colour White with waste outlet including acid resistant waste fitting, insert fitted on the opening of the worktop's surface with two underneath adjustable underlung brackets, see manufacturer installation manual for details
SW27	Franke Highrise Swivel mixer (Code: 1150019) with overarm swivel spout, 15mm flexible connections. With 5 year guarantee on body construction.
SW28	Seaqual LoLo Drain with 200 x 200mm grating with round holes (Code: 111066), connected to waste pipe and installed in accordance with manufacturer's recommendations.
SW29	Custom-made galvanized steel floor drain channel as per architect design & specifications. Galvanized Steel channel dimensions (TxWxHxL) 3mm X 100mm X 75mm X Length varies (see floor plan for length measurements). To be installed in shower rooms as shown on the plan, channel side dowels are embedded in the new shower floor screed with mosaic tiles finish and apply water-proofing on all sides for leak prevention
SW31	Seaqual WetFloor Drain including 75mm vertical outlet (Code: 0977146) with 110 x 110mm Light Grey grating (Code: 097712), connected to waste pipe and installed in accordance with manufacturer's recommendations.
SW32	Franke 0.8mm Grade 403 17/10 stainless steel ET 102 double wash trough (Code: 2560005), size 1030 x 430 x 348mm deep with sloped front, wash ridges and 40mm waste outlet, including its fixing lugs & screws.
WA03	New 230mm Double Skin interior wall plaster both sides, paint finish & brickforce in every brick 3rd course: use Cape Brick 14MPa Plaster Grade Imperial recycled concrete brick (Code: IMPVB4PLASTER), overall size 220mm x 106 x 72mm high, manufactured in accordance with SANS 1215:2008, laid in superstructure walls to single storey building in Class II mortar with 10mm joints in accordance with SANS 10145, SANS 10400 and the current edition of CMA Concrete Masonry Manuals.
WA04	New 110mm Single Skin Interior wall plaster both sides, paint finish & brickforce in every brick 3rd course: use Cape Brick 14MPa Plaster Grade Imperial recycled concrete brick (Code: IMPVB4PLASTER), overall size 220mm x 106 x 72mm high, manufactured in accordance with SANS 1215:2008, laid in superstructure walls to single storey building in Class II mortar with 10mm joints in accordance with SANS 10145, SANS 10400 and the current edition of CMA Concrete Masonry Manuals.
WA19	Regular Toilet Cubicle: Manufacture, delivery & installation of a regular modular toilet cubicle system with a cubicle internal plan dimensions of 1800 x 926mm (LxW), 12mm thick Compact High Pressure Laminate (colour: pastel grey), in Cube Exclusive Overlap/Range that includes all partitions, joins, and doors. This is a modular frameless system fixed into position with an overhead brace and hanging clamp, and is floor anchored with adjustable supporting feet fixed to the front mid and end panels and bracketed to walls and partitions using stainless steel brackets. All Stainless Steel Ironmongery includes: Hat and coat hook with buffer stopper, Indicator bolt, Rise and fall butt auto open hinge, and Three-roll toilet roll holder. All Preparation & Installation works as per the manufacturer's requirements & recommendations. Room dimensions where the cubicle will be installed must be double check and confirmed on-site to avoid shortfalls & issues.
WA20	Paraplegic Toilet Cubicle: Manufacture, delivery & installation of a paraplegic modular toilet cubicle system with a cubicle internal plan dimensions of 1800 x 1800mm (LxW), 12mm thick Compact High Pressure Laminate (colour: pastel grey), in Cube Exclusive Overlap/Range that includes all partitions, joins, and doors. This is a modular frameless system fixed into position with an overhead brace and hanging clamp, and is floor anchored with adjustable supporting feet fixed to the front mid and end panels and bracketed to walls and partitions using stainless steel brackets. All Stainless Steel Ironmongery includes: Hat and coat hook with buffer stopper, Indicator bolt, Rise and fall butt auto open hinge, and Three-roll toilet roll holder. All Preparation & Installation works as per the manufacturer's requirements & recommendations. Room dimensions where the cubicle will be installed must be double check and confirmed on-site to avoid shortfalls & issues.
WA22	Regular Shower Cubicle: Manufacture, delivery & installation of a regular modular shower cubicle system with a cubicle internal plan dimensions of 1800 x 926mm (LxW), 12mm thick Compact High Pressure Laminate (colour: pastel grey), in Cube Exclusive Overlap/Range that includes all partitions, joins, and doors. This is a modular frameless system fixed into position with an overhead brace and hanging clamp, and is floor anchored with adjustable supporting feet fixed to the front, mid and end panels, and bracketed to walls and partitions using stainless steel brackets. All Stainless Steel Ironmongery includes: Hat and coat hook with buffer stopper, Indicator bolt, Rise and fall butt auto open hinge, and Three-roll toilet roll holder. All Preparation & Installation works as per the manufacturer's requirements & recommendations. Room dimensions where the cubicle will be installed must be double check and confirmed on-site to avoid shortfalls & issues.
WA23	Paraplegic Shower Cubicle: Manufacture, delivery & installation of a paraplegic modular shower cubicle system with a cubicle internal plan dimensions of 1800 x 1800mm (LxW), 12mm thick Compact High Pressure Laminate (colour: pastel grey), in Cube Exclusive Overlap/Range that includes all partitions, joins, and doors. This is a modular frameless system fixed into position with an overhead brace and hanging clamp, and is floor anchored with adjustable supporting feet fixed to the front, mid and end panels, and bracketed to walls and partitions using stainless steel brackets. All Stainless Steel Ironmongery includes: Hat and coat hook with buffer stopper, Indicator bolt, Rise and fall butt auto open hinge, and Three-roll toilet roll holder. All Preparation & Installation works as per the manufacturer's requirements & recommendations. Room dimensions where the cubicle will be installed must be double check and confirmed on-site to avoid shortfalls & issues.

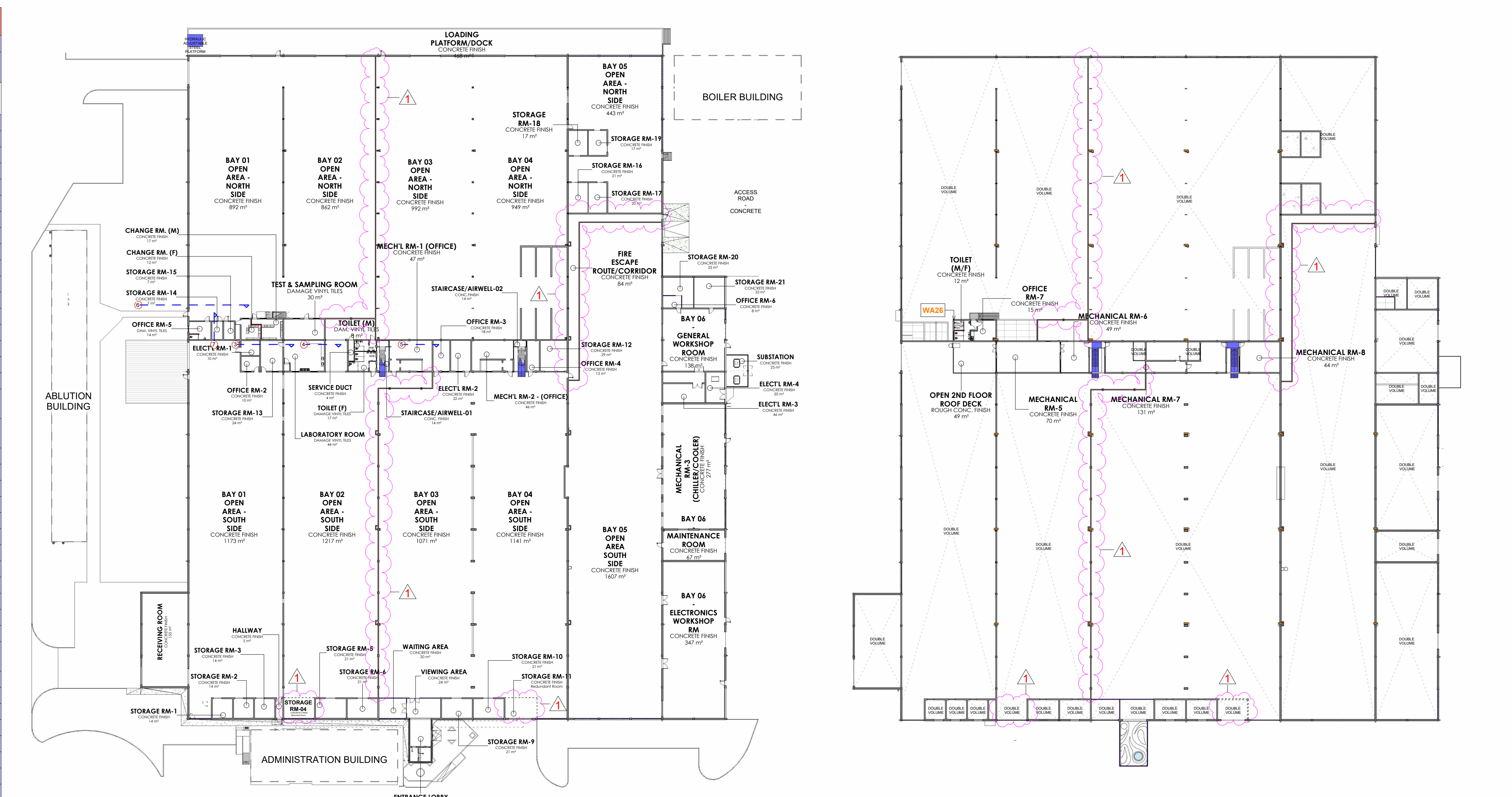


9 PARAPLEGIC TOILET SET-UP & LEVELS 1:50

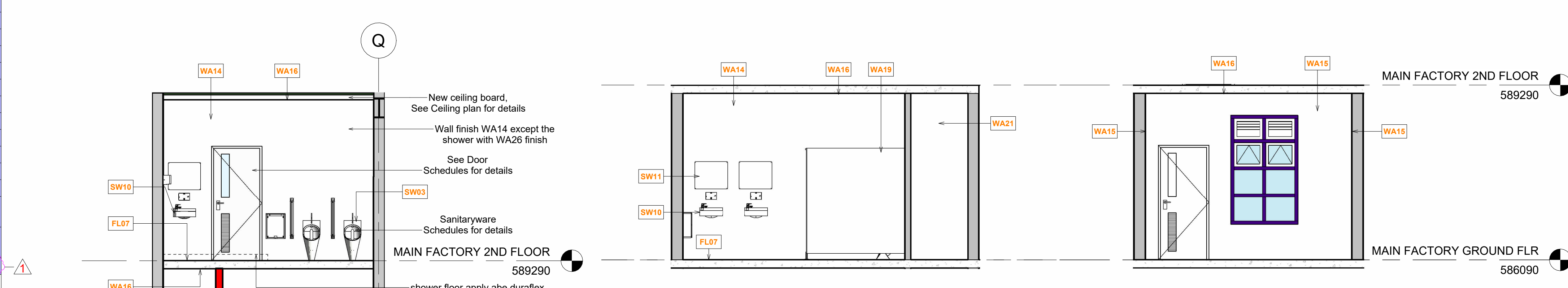


7 BASIN SET-UP & LEVELS 1:50

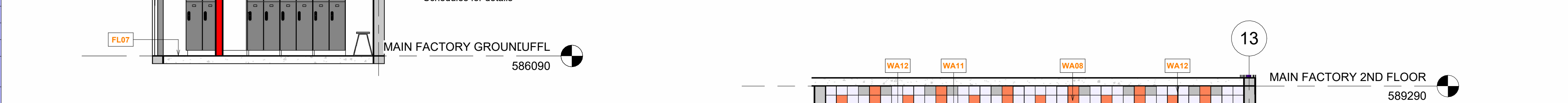
NO.	Name	Area	Design Population	Existing Finishes			Level	Proposed Finishes		
				Floor Finish	Wall Finish	Ceiling Finish		Floor Finish	Wall Finish	Ceiling Finish
MAIN FACTORY GROUND FLR										
1	BAY 01 OPEN AREA - NORTH SIDE	892 m²	850	CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA21	R12
2	BAY 01 OPEN AREA - SOUTH SIDE	1173 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL07	WA15	R12
3	BAY 02 OPEN AREA - NORTH SIDE	862 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
4	BAY 02 OPEN AREA - SOUTH SIDE	1217 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	WA21
5	BAY 03 OPEN AREA - NORTH SIDE	992 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
6	BAY 03 OPEN AREA - SOUTH SIDE	1071 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	WA21
7	BAY 04 OPEN AREA - NORTH SIDE	949 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
8	BAY 04 OPEN AREA - SOUTH SIDE	1141 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	WA21
9	BAY 05 OPEN AREA - NORTH SIDE	443 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
10	BAY 05 OPEN AREA SOUTH SIDE	1607 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12/WA21
11	BAY 06 - ELECTRONICS WORKSHOP RM	347 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA21	R12
12	BAY 06 - GENERAL WORKSHOP ROOM	138 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
13	BAY 06 - MAINTENANCE ROOM	67 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA21	R12
14	CHANGE RM. (F)	12 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL07	WA14	WA16
15	CHANGE RM. (M)	17 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL07	WA14	WA16
16	ELECTL RM-1	10 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
17	ELECTL RM-2	22 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
18	ELECTL RM-3	46 m²		CONCRETE FINISH	PAINT ON RAW CONC. BLOCKS	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
19	ELECTL RM-4	20 m²		CONCRETE FINISH	PAINT ON RAW CONC. BLOCKS	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
20	ENTRANCE LOBBY	32 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (FLAT CONC. ROOF SLAB U/S)	MAIN FACTORY GROUND FLR	FL07	WA15	WA16
21	HALLWAY	5 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
22	LABORATORY ROOM	44 m²		DAMAGE VINYL TILES	CERAMIC TILES	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL07	WA08	WA16
23	LOADING PLATFORM/DOCK	468 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA21	N/A
24	MECHL RM-1 (OFFICE)	47 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
25	MECHL RM-2 (OFFICE)	46 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
26	MECHANICAL RM-3 (CHILLER/COOLER)	277 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA21	R12
27	OFFICE RM-2	10 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
28	OFFICE RM-3	18 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
29	OFFICE RM-4	13 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
30	OFFICE RM-5	14 m²		DAM. VINYL TILES	PLASTER & PAINT	PAINT (CEILING BOARD)	MAIN FACTORY GROUND FLR	FL07	WA15	WA16
31	OFFICE RM-6	8 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CEILING BOARD)	MAIN FACTORY GROUND FLR	FL08	N/A	N/A
32	RECEIVING ROOM	155 m²		CONCRETE FINISH	PAINT ON RAW CONC. BLOCKS	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
33	SERVICE DUCT	4 m²		CONCRETE FINISH	RAW BLOCK FINISH	RAW 2nd FLR CONC. SLAB U/S	MAIN FACTORY GROUND FLR	FL08	WA21	WA21
34	STAIRCASE/AIRWELL-01	14 m²		CONC. FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	N/A
35	STAIRCASE/AIRWELL-02	14 m²		CONC. FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	N/A
36	STORAGE RM-1	14 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
37	STORAGE RM-2	14 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
38	STORAGE RM-3	14 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
40	STORAGE RM-5	21 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
41	STORAGE RM-6	21 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
42	STORAGE RM-9	21 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
43	STORAGE RM-10	21 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
44	STORAGE RM-11	10 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
45	STORAGE RM-12	29 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
46	STORAGE RM-13	24 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
47	STORAGE RM-14	7 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CEILING BOARD)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
48	STORAGE RM-15	7 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CEILING BOARD)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
49	STORAGE RM-16	21 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
50	STORAGE RM-17	20 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
51	STORAGE RM-18	17 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
52	STORAGE RM-19	17 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. CEILING)	MAIN FACTORY GROUND FLR	FL08	WA15	WA16
53	STORAGE RM-20	25 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
54	STORAGE RM-21	33 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12
55	SUBSTATION	25 m²		CONCRETE FINISH	RAW BLOCK FINISH	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA21	N/A
56	TEST & SAMPLING ROOM	30 m²		DAMAGE VINYL TILES	PLASTER & PAINT	PAINT (CEILING BOARD)	MAIN FACTORY GROUND FLR	FL07	WA06	WA16
57	TOILET (F)	17 m²		DAMAGE VINYL TILES	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL07	WA14	WA16
58	TOILET (M)	8 m²		DAM. VINYL TILES	PLASTER & PAINT	PAINT (2nd FLR CONC. SLAB U/S)	MAIN FACTORY GROUND FLR	FL07	WA14	WA16
59	VIEWING AREA	24 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. ROOF STRUCTURE U/S)	MAIN FACTORY GROUND FLR	FL07	WA15	WA21
60	WAITING AREA	20 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CONC. ROOF STRUCTURE U/S)	MAIN FACTORY GROUND FLR	FL07	WA15	WA21
68	FIRE ESCAPE ROUTE/CORRIDOR	84 m² 12730 m²		CONCRETE FINISH	PLASTER & PAINT	NO CEILING	MAIN FACTORY GROUND FLR	FL08	WA15	R12



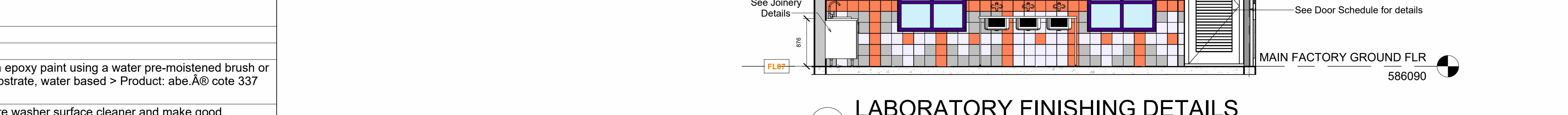
1 GROUND FLOOR - ROOM SCHEDULES 1:500



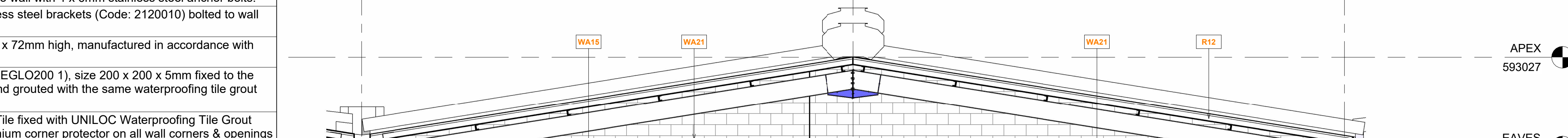
2 2ND FLOOR - ROOM SCHEDULES 1:500



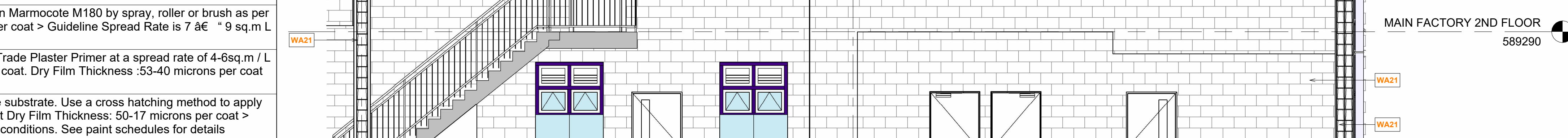
4 MALE ABLUTION - FINISHING DETAILS 1:50



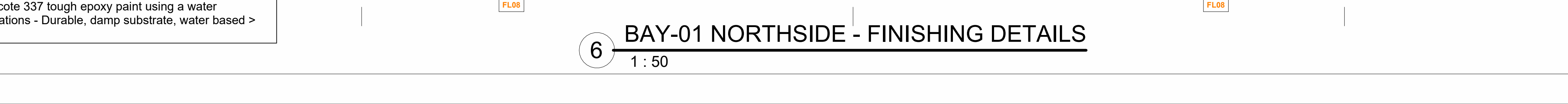
5 ELECTRICAL ROOM - FINISHING DETAILS 1:50



7 CHANGE ROOM & M/F TOILET - FINISHING DETAILS 1:50



3 LABORATORY FINISHING DETAILS 1:50



6 BAY-01 NORTHSIDE - FINISHING DETAILS 1:50

NO.	Name	Area	Design Population	Existing Finishes	Level	Proposed Finishes
				Floor Finish	Wall Finish	Ceiling Finish
MAIN FACTORY 2ND FLOOR						
61	MECHANICAL RM-5	70 m²	25	CONCRETE FINISH	PAINT ON RAW CONC. BLOCKS	GALVANIZED METAL SHEETS
62	MECHANICAL RM-7	131 m²		CONCRETE FINISH	PAINT ON RAW CONC. BLOCKS	GALVANIZED METAL SHEETS
63	OFFICE RM-7	15 m²		CONCRETE FINISH	PLASTER & PAINT	GALVANIZED METAL SHEETS
64	OPEN 2ND FLOOR ROOF DECK	49 m²		ROUGH CONC. FINISH	RAW BLOCK FINISH	NO CEILING
65	TOILET (M/F)	12 m²		CONCRETE FINISH	PLASTER & PAINT	PAINT (CEILING BOARD)
66	MECHANICAL RM-8	44 m²		CONCRETE FINISH	PAINT ON RAW CONC. BLOCKS	GALVANIZED METAL SHEETS
67	MECHANICAL RM-6	49 m²		CONCRETE FINISH	PAINT ON RAW CONC. BLOCKS	GALVANIZED METAL SHEETS

KEYNOTES	
Numbers	Specifications
FL07	Epoxy Floor Coating: Concrete surfaces must be clean and mechanically sound and free of laitance, nibs, dust, grease and oil. Mix using a slow speed mechanical mixer for at least 5 minutes. Apply two coats abe.Äö cote 337 tough epoxy paint using a water pre-moistened brush or roller or by airless spray using a Ä500micron tip with an overcoating time of 4 to 6 hours, all in accordance with the manufacturer's recommendations. > Product type: Coatings > Application: Light duty applications - Durable, damp substrate, water based > Product: abe.Äö cote 337 tough epoxy paint > Colour: Soft Grey.
FL08	Repair & refurbish old concrete floor: repair damaged floor joints, scaling, delamination, spalling and etc... use a buffering machine & cleaning agent to remove stubborn dirt, stains, grease, oil and etc... finish it with powerhorse pressure washer surface cleaner and make good.
R12	LAMBDABOARD® laminated polyisocyanurate core board with a minimum core density of 34kg/m³, with a thickness of 100 mm; in widths of 1,220mm with a 4,17(Ksqm/W) R-Value. Cut to length; length to be measured on site and manufacturer to exact length to avoid butt joints over purins. Finish shall be White Mineral and Mineral Natural laminated on each side. Lambda board to be installed above purin and in conjunction with Roof covering, fastener length manufacturer to suit 100mm Lambda board, in accordance with manufacturer's specification.
SW03	Frankle 1,2mm Grade 304 18/10 stainless steel CMPX538 wall hung urinal (Code: 2540058), size 313 x 342 x 733mm high, exposed back entry flush valve (elsewhere specified), 40mm waste outlet, perforated stainless steel grid and chrome plated toilet spreader connected to 15mm water supply, 1,2mm stainless steel bracket bolted to wall with raw bolts. Installation includes CMPX700 urinal s/d divider fixed in-between urinals
SW10	Frankle 1,2mm Grade 304 18/10 stainless steel Oval A wash hand basin (Code: 2520029), size 420 x 340 x 185mm deep with a one piece pressed bowl, 50mm splashback and 100mm radiused apron and 40mm waste outlet, fixed to wall with 4 x 6mm stainless steel anchor bolts.
SW11	Frankle 1,2mm Grade 304 18/10 stainless steel Six003 wash through (Code: 2560014), size 1800 x 510 x 257mm deep with pressed bowl with radiused corners, slanted ribbed front side for scrubbing and 40mm waste outlet, stainless steel brackets (Code: 2120010) bolted to wall with anchor bolts.
WA04	New 110mm Single Skin Interior wall plaster both sides, paint brick & brickface in every brick 3rd course; use Cape Brick 14MPa Plaster Grade Imperial recycled concrete brick (Code: IMPV4PLASTER), overall size 220mm x 106 x 72mm high, manufactured in accordance with SANS 1215:2008, laid in superstructure walls to single mass in accordance with SANS 1045, SANS 1040 and in accordance with the current building code of practice.
WA06	Patterned Wall Tiles Finish as per Architect design. The combinations of (White) Yek ceramic tiles (Code: 1YEKWHIHALG0200), (Orange) Tre ceramic tiles (Code: 1TRENARGLO200), (Grey) Tre ceramic tiles (Code: 1TREGREGL0200 1), size 200 x 200 x 5mm fixed to the internal wall starting from the floor to the ceiling or as per architect's design patterns - internal wall plaster to be repaired & properly cleaned. Tile fixed with UNILOC Waterproofing Tile Grout with joints continuous in both directions and grouted with the same waterproofing tile grout strictly applied as per manufacturer recommendations, excess grout on the surface to be cleaned with water as work proceeds. Install aluminium corner protector on all wall corners & openings
WA08	(Orange) Tre ceramic tiles (Code: 1TRENARGLO200), size 200 x 200 x 5mm fixed to the internal wall starting from the floor to the ceiling or as per architect's design patterns - internal wall plaster to be repaired & properly cleaned. Tile fixed with UNILOC Waterproofing Tile Grout with joints continuous in both directions and grouted with the same waterproofing tile grout strictly applied as per manufacturer recommendations, excess grout on the surface to be cleaned with water as work proceeds. Install aluminium corner protector on all wall corners & openings
WA11	(Grey) Tre ceramic tiles (Code: 1TREGREGL0200 1), size 200 x 200 x 5mm fixed to the internal wall starting from the floor to the ceiling or as per architect's design patterns - internal wall plaster to be repaired & properly cleaned. Tile fixed with UNILOC Waterproofing Tile Grout with joints continuous in both directions and grouted with the same waterproofing tile grout strictly applied as per manufacturer recommendations, excess grout on the surface to be cleaned with water as work proceeds. Install aluminium corner protector on all wall corners & openings
WA12	M&E-Tim 10 x 10mm Aluminium tile-in corner protector (Code: ATIC2100 BL) fixed to substrate with adhesive, in accordance with manufacturer's recommendations. > Location: Wall > Colour: Matt Black > Material: Aluminium > Length: 2500mm.
WA14	Marmaglow Wall Finish: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements. > Apply 1 coat of Marmoran Universal Primer, at a spread rate of 8 - 10 sq.m / L / coat and allow to cure. Apply one full coat of MARMORAN UNIVERSAL UNDERCOAT and allow to dry. > Apply 2 coats of Marmoran Marmoglow. > Guideline spread rate of 8-10 sq.m / L / coat. > Allow for drying time between coats. Over coating Time: 16-24 hours > Wet Film Thickness: 125-100 microns per coat / Dry Film Thickness: 55-44 microns per coat > Solvent based. See paint schedules for details
WA15	Marmocote M180 Wall Finish: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements. Apply one full coat of MARMORAN ACRYLIC PRIMER and allow to dry. > Apply 2 or 3 coats of Marmoran Marmocote M180 by spray, roller or brush as per the approved colour. > Allow for drying time between coats. Over coating Time: 12-24 hours > Ensure that the surface is completely obliterated. > Wet Film Thickness: 143-111 microns per coat Dry Film Thickness: 47-37 microns per coat > Guideline Spread Rate is 7 ä6 " 9 sq.m / L - Low VOC levels 20g/L (1.54%). See paint schedules for details
WA16	Marmocote M100 Ceiling Finish: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements. > Apply 1 coat of Marmoran Trade Plaster Primer, so as to achieve complete obliteration. > Apply the Trade Plaster Primer at a spread rate of 4-6sq.m / L / coat. > Allow for drying time between coats. > Apply 2 coats of Marmoran Marmocote M100 by spray, roller or brush. > Allow for drying time between coats. Over coating time: 12 hours > Wet Film Thickness: 53-40 microns per coat > Theoretical Spreading Rates: 6-8 sq.m / L / coat, and subject to applicator skill and substrate type and condition. > VOC LEVEL: 10 g/L [0.72%]. See paint schedules for details
WA17	Aquastop Brick Seal: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements > Ensure that substrate is completely dry. > Apply 2-3 coats of Aquastop by brush, roller or by spray to saturate the substrate. Use a cross hatching method to apply so as to ensure that whole surface is evenly covered. Low pressure atomised spray is the preferred method of application. > Allow to dry between coats. Over coating Time: 12 hours > Wet Film Thickness: 1000-333 microns per coat Dry Film Thickness: 50-17 microns per coat > This product is supplied ready for use. Thinning is not recommended at all. > Theoretical Spreading rate 1-3 sq.m / L / coat, dependent on substrate porosity. This figure is indicative, and subject to applicator skill and substrate type and conditions. See paint schedules for details
WA19	Regular Toilet Cubicle: Manufacture, delivery & installation of a regular modular toilet cubicle system with a cubicle internal panel dimensions of 1800 x 926mm (LxW), 12mm thick Compact High Pressure Laminate (colour: pastel grey), in Cube Exclusive Overlay/Range that includes all partitions, joints, and doors. This is a modular frameless system with an overhead brass and stainless steel hanging clamp, and is floor anchored with adjustable supporting feet fixed to the front mid and end panels and bracketed to walls and partitioned using stainless steel brackets. All Stainless Steel trimmings include: Hat and coat hook with built stopper, Indicator bolt, Rise and fall butt auto open hinge, and Three-roll toilet roll holder. All Preparation & Installation works as per the manufacturer's requirements & recommendations. Room dimensions where the cubicle will be installed must be double checked and confirmed on-site to avoid shortfalls & issues.
WA21	Repair & refurbish existing concrete block walls or concrete slab ceiling: repair damaged wall joints, scaling, delamination, spalling and etc... use a mastic surface cleaner machine & cleaning agent to remove stubborn dirt, stains, grease, oil and etc... finish it with powerhorse pressure washer surface cleaner and make good.
WA26	Epoxy Shower Wall Coating Finish: Concrete surfaces must be clean and mechanically sound and free of laitance, nibs, dust, grease and oil. Mix using a slow speed mechanical mixer for at least 5 minutes. Apply two coats abe.Äö cote 337 tough epoxy paint using a water pre-moistened brush or roller or by airless spray using a Ä500micron tip with an overcoating time of 4 to 6 hours, all in accordance with the manufacturer's recommendations. > Product type: Coatings > Application: Light duty applications - Durable, damp substrate, water based > Product: abe.Äö cote 337 tough epoxy paint > Colour: Ivory Silk.

Consultant: Pinoy Pride Architecture
Project Architect: Pinoy Pride Architecture
Address: 28 Candlerbury Drive Nahoon Valley Park, EL
Phone: 084



Consultant: Pinoy Pride Architecture
 Appointment: Project Architect
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ARCHITECT

Consultant: MMDP Quantity Surveyors
 Appointment: Project Quantity Surveyor
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 Phone: 083 348 1228
 e-mail: felicity@mmdp.co.za

QUANTITY SURVEYOR

Consultant: Lukhozi Consulting Engineers
 Appointment: Project Civil & Structural Engineer
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 Phone: 082 894 0816
 e-mail: l.coetzee@lukhozi.co.za

CIVIL & STRUCTURAL ENGINEER

Consultant: RNA Consulting Engineer
 Appointment: Electrical, Mechanical & Fire Engineer
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 Phone: 083 381 8985
 e-mail: travisw@rnaconsulting.co.za

ELECTRICAL, MECHANICAL & FIRE ENGINEER

REVISION SCHEDULE

No.	Description	Date
1	Tenancy Subdivision Revisions	30-10-2023

REPAIRS AND REFURBISHMENT NOTES:

1. ALL MEASUREMENT MUST BE DOUBLE CHECK ON SITE AND ON ACTUAL.
2. ANY DISCREPANCIES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION FOR WAY-FORWARD.
3. ALL EXISTING MATERIALS, OPENINGS, SUBSTRATES, SIZES AND ETC., VARIES FROM EACH OTHER AND MUST BE TREATED AND ADJUSTED INDIVIDUALLY TO SUIT THE NEW PROPOSAL.
4. REPAIRS AND REFURBISHMENT WORKS MUST BE READ IN COORDINATION WITH THE OTHER DRAWINGS, SCHEDULES, DETAILS, KEY PLANS, SHOP DRAWINGS AND ETC.
5. ALL WALLS OPENINGS CAUSE BY NEW REPAIRS, REPLACEMENT OR REFURBISHMENT OF WINDOWS, DOORS, CURTAIN WALLS AND ETC., THAT IS WITHOUT BEAM PROTECTION/SUPPORT ON SOFFIT/TOPSIDE, MUST BE PROVIDED EITHER WITH BRICK LINTEL FOR BRICK WALLS OR BLOCKS LINTEL FOR BLOCK WALLS, LINTEL MUST BE PLASTERED, PAINTED & MAKE GOOD. REFER TO ENGRS DRAWING FOR DETAILS.
6. ARCHITECTS DRAWING MUST BE READ, PLANNED AND COORDINATED WITH OTHER PROFESSIONAL DRAWINGS, DETAILS, SCHEDULES AND ETC.
7. ALL REPAIRS, REFURBISHMENT AND REPLACEMENT WORKS MUST EITHER SUIT OR ADJUSTED TO ACCOMMODATE THE NEW PROPOSAL AND MAKE GOOD.
8. ANY UNFORESEEN NEW ITEMS, ISSUES OR SCOPE OF WORKS MUST BE BROUGHT TO THE ARCHITECTS AND PRINCIPAL AGENT ATTENTION FOR WAY-FORWARD.
9. NO NEW OR ADDITIONAL SCOPE OF WORKS OR WORK DONE WILL BE ENTERTAIN OUTSIDE OR EXTRA FROM THE ORIGINAL SCOPE OF WORKS WITHOUT THE PRINCIPAL AGENT AUTHORIZATION OR APPROVAL.
10. CHANGING OR SCOPE ALTERATION MUST BE DONE IN WRITING OR GIVEN UNDER THE SITE INSTRUCTION BOOK BY THE PRINCIPAL AGENT. ESPECIALLY CHANGES THAT HAS "EOT" EXTENSION OF TIME CLAIM AND COST IMPLICATION.
11. ALL WORKS MUST COMPLY WITH THE CURRENT SOUTH AFRICAN BUILDING CODES/STANDARDS/NORMS, REGULATIONS AND THE CONTRACT AGREEMENTS.
12. THE DESIGN IS SPECIFIC FOR SANS OCCUPANCY CLASS: "D3 & D1" WHICH ARE LOW-RISK INDUSTRIAL & LOW-RISK STORAGE.

DESIGN DEVELOPMENT

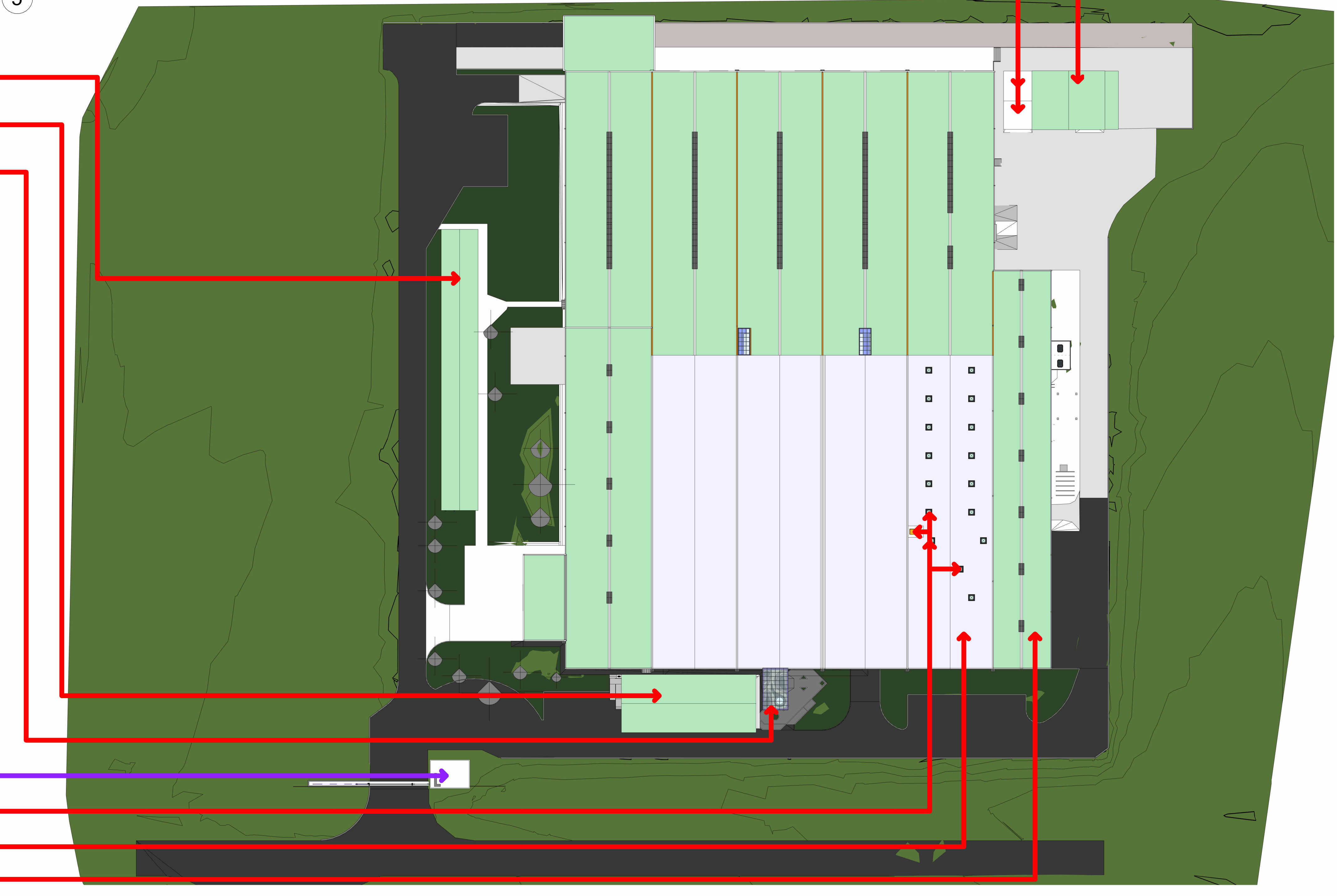
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 Drawing name: ROOF SCHEDULES, LAYOUT, SECTIONS & DETAILS

Site address: ERF 2973 DIMBAZA INDUSTRIAL PARK SITE 3

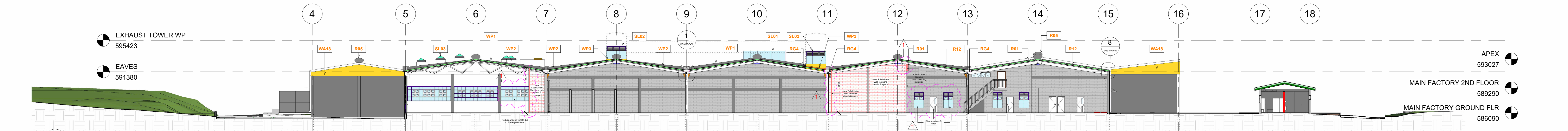
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 Date: 12 JUNE 2023

Drawn by: Author
 Checked by: Checker
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 Scale: As indicated

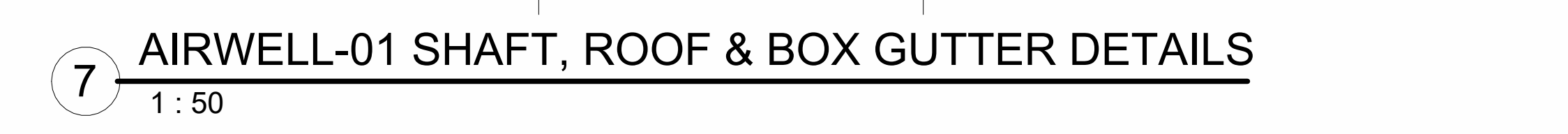
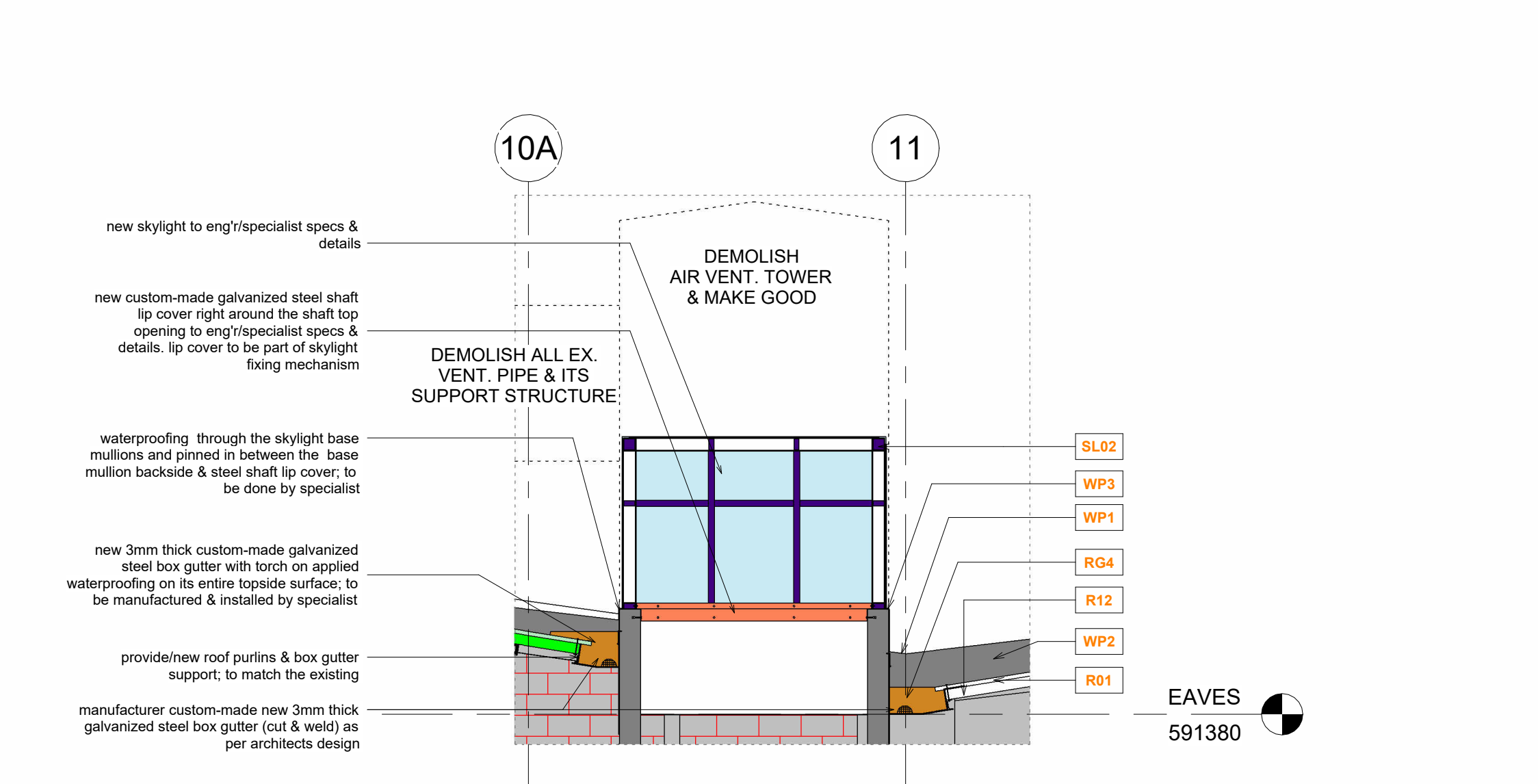
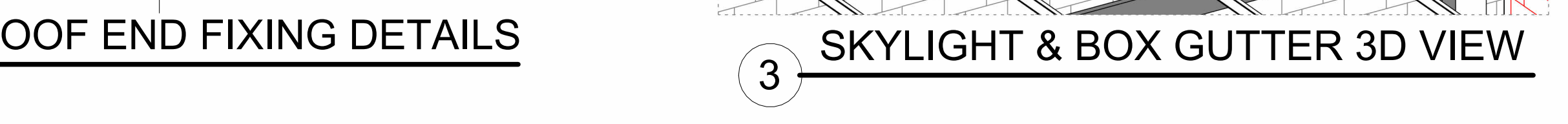
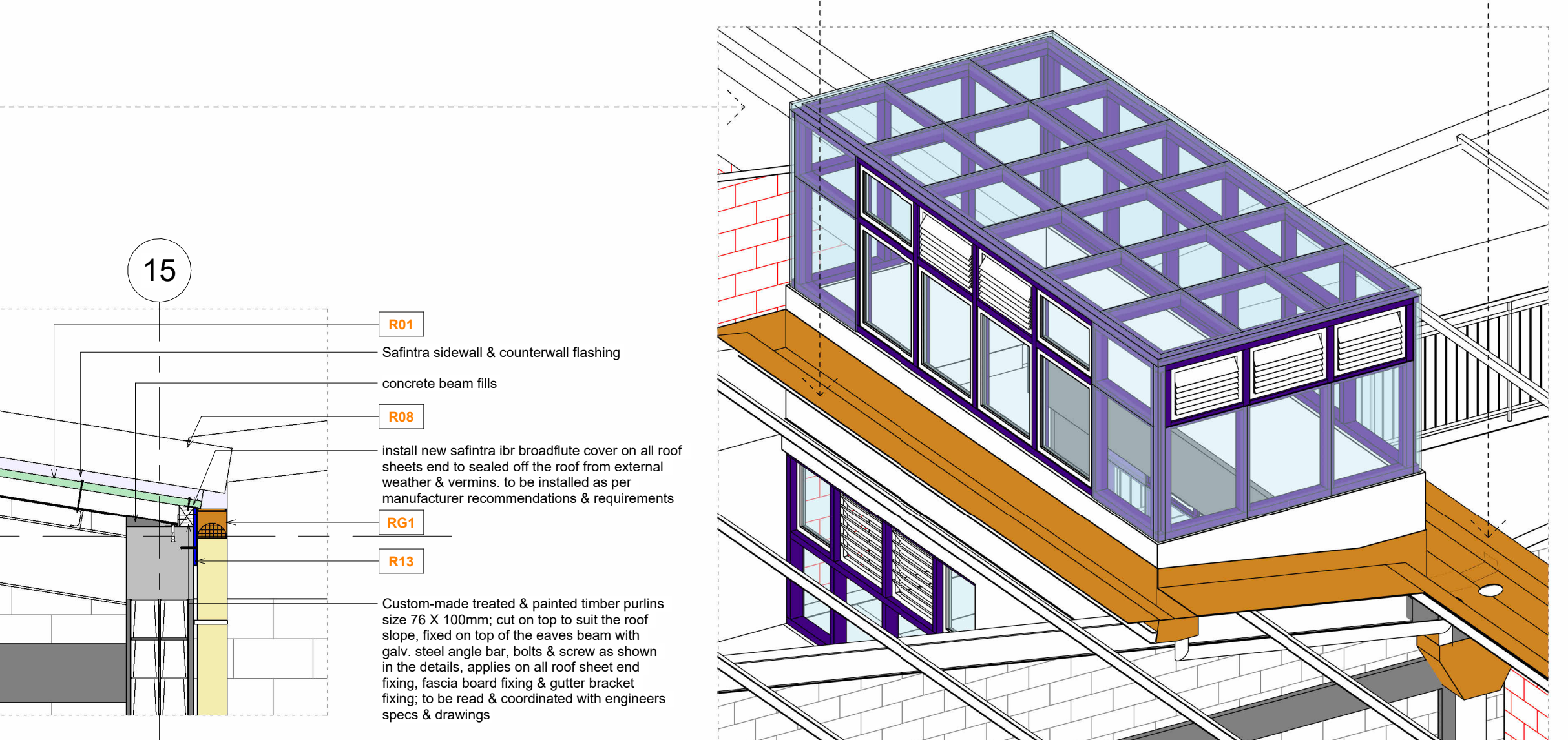
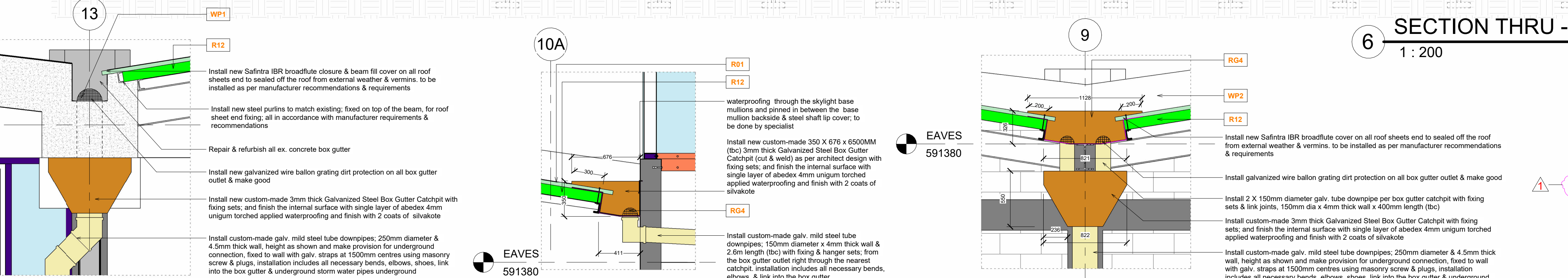
INDUSTRIAL PARK - SITE 3 - TOP VIEW



Roof Schedules			
Type	Area	Description	Total Sq.m
ABLUTION FACILITY	471.91 m²	NEW IBR ROOF SHEETS WITH TIMBER TRUSSES AND PURLINS	471.85
ADMIN BUILDING	357.43 m²	NEW IBR ROOF SHEETS WITH TIMBER TRUSSES AND PURLINS	326.15
AIR VENT MECHANICAL BLDG	44.92 m²	REPAIR & REFURBISH EX. FLAT CONCRETE ROOF ON TOP OF 270MM BRICKWALL	44.92
BOILER ROOM BUILDING	36.98 m²	IBR ROOF SHEETS WITH STEEL PURLINS & PORTAL FRAME, IBR SHEETS SIDE WALL CLADDING HALF OF THE BUILDING HEIGHT	231.41
BOILER ROOM BUILDING	194.43 m²	IBR ROOF SHEETS WITH STEEL PURLINS & PORTAL FRAME, IBR SHEETS SIDE WALL CLADDING HALF OF THE BUILDING HEIGHT	
BOILER ROOM BUILDING	77.72 m²	REPAIR & REFURBISH EX. FLAT CONCRETE ROOF ON TOP OF SUPPORT BEAM & COLUMN	77.72
EXHAUST TOWER 2 - DEMOLISH	16.28 m²	DEMOLISH - GALV. ROOF SHEETS ON STEEL TRUSS AND PURLINS	32.56
GUARD HOUSE	51.61 m²	REPAIR & REFURBISH EX. FLAT CONCRETE ROOF ON TOP OF 270MM BRICKWALL	51.61
MAIN FACTORY - CR (AIR VENT)	16.28 m²	REPLACE WITH PYRAMID SKYLIGHT/ACCESS DOOR HATCH	19.81
MAIN FACTORY - CR (AIR VENT)	3.43 m²	REPLACE WITH PYRAMID SKYLIGHT/ACCESS DOOR HATCH	
MAIN FACTORY - CR (DARK ROOM)	1173.62 m²	REPAIR & REFURBISH CONCRETE ROOF WITH CONCRETE TRUSSES AND BEAMS & WATERPROOFING FINISH	4,680.59
MAIN FACTORY - CR (DARK ROOM)	1165.35 m²	REPAIR & REFURBISH CONCRETE ROOF WITH CONCRETE TRUSSES AND BEAMS & WATERPROOFING FINISH	
MAIN FACTORY - CR (DARK ROOM)	1161.99 m²	REPAIR & REFURBISH CONCRETE ROOF WITH CONCRETE TRUSSES AND BEAMS & WATERPROOFING FINISH	
MAIN FACTORY - CR (DARK ROOM)	1158.43 m²	REPAIR & REFURBISH CONCRETE ROOF WITH CONCRETE TRUSSES AND BEAMS & WATERPROOFING FINISH	
MAIN FACTORY - IBR 2	537.07 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	7,982.07
MAIN FACTORY - IBR 2	537.07 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	523.73 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	498.74 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	228.87 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	483.70 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	499.79 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	520.63 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	537.07 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	529.53 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	529.53 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	537.07 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	549.54 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	644.73 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	665.68 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
MAIN FACTORY - IBR 2	158.19 m²	NEW IBR ROOF SHEETS & INSULATION ON TOP OF REFURBISH STEEL PURLINS & PORTAL FRAME	
ROOF ACCESS HATCH - CONC ROOF	6.66 m²	REPLACE WITH PYRAMID SKYLIGHT/ACCESS DOOR HATCH	
ROOF ACCESS HATCH - CONC ROOF	13918.01 m²		



Numbers	Specifications
R01	Safintra 0.55mm thick 686mm cover Tufdek® IBR Desert Sand COLORPLUS® roof sheeting, fixed to steel purlins at 1892mm centres and eaves and end-span purlins at 1634mm centres (final spacing to be calculated by an engineer) using Fittle® self tapping fasteners or Safintra approved fasteners with EPDM seals. Purlin fixed to every second crest of each sheet and at all crests at sheet ends. Side laps to be secured using Fittle® stitching fasteners or Safintra approved fasteners at centres not exceeding 500mm and sealed with Butyl tape with minimum 230mm end laps sealed with a double row of Butyl tape. Installation includes fixing of all flashing i.e. ridge, barge, close-end and etc... all in accordance with the manufacturer's recommendations. > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R05	Seaspray COLORPLUS® ridge mounted roof ventilator, to Mechanical Engineer details and specifications
R08	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 462mm girth barge flashing (231 X 231MM) > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R12	LAMBDABOARDA® laminated polyisocyanurate core board with a minimum core density of 34kg/m², with a thickness of 100 mm; in widths of 1,220mm with a 4,17 (Ksq/mW) R-Value. Cut to length, length to be measured on site and manufactured to exact length to avoid butt joints over purlins. Finish shall be White Mineral and Mineral Natural laminated on each side. Lambdaboard to be installed above purlin and in conjunction with Roof covering, fastener length as per roof sheeting manufacturer to suit 100mm Lambdaboard, in accordance with manufacturer's specification.
R13	Everite high-density plain ungrooved Nutec fascia boards (Code: 41-503), size 300 x 15mm, fixed to 38 x 38mm tilter batten and 38 x 38mm support battens between rafters twice screwed with 12 x 40mm countersunk brass screws at 900mm centres to support battens with aluminium fascia jointing plate between boards and aluminium H-profile fascia corner joiners at board ends. > Finish: 38 x 38mm tilter batten and 38 x 38mm support battens between rafters > Thickness: 15mm > Width: 300mm
RG1	Industrial Seamless Aluminium Gutter 150mm Box/Square profile, overall size 150mm x 150mm x 0.9mm thick coated internally and externally with ColourTech G4 in colour Marble White with matching splashplate including cut and milled angles covered with a mite strip externally, stop ends riveted and all sealed on the inside with Dow Corning 813 silicone sealer, secured to purposely made end timber purlins' using 25 x 2.5mm L - Shaped internal brackets at 600mm centres using selfdrilled screw as shown on architects details, including expanded aluminium mesh leaf guard set over gutter with 150mm x 150mm x 0.6mm thick Marble White aluminium downpipe @ every 2nd column or 12meters apart, fixed to wall with straps at 1500mm centres using masonry screw & plugs, with downpipes riveted and silicone sealed to gutter outlets, including all necessary bends, elbows, shoes, link into the underground storm water pipes & etc. > Gutter profile: 150mm Box > Gutter size: 150mm x 150mm x 0.9mm thick > Gutter colour: Marble White > Downpipe size: 150mm x 150mm x 0.6mm thick aluminium > Downpipe colour: Marble White.
RG4	New 3mm thick custom-made galvanized steel box gutter as per Architect design & specs, fully covered with a single layer of torched on applied abe 4mm unigum waterproofing with silvakoat final coating on its entire topside surface, to be manufactured and installed by a specialist. COC required
SL01	New custom-made box Skylight with an external dimension of (LXWXH) 5398 x 8873 x 4572mm (to be confirmed on site) installed on top of the air vent, mechanical room flat concrete roof, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
SL02	New custom-made box Skylight with an external dimension of (LXWXH) 2552 x 5707 x 1676mm (to be confirmed on site) installed on top of the air vent, shaft, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
SL03	New custom-made pyramid Skylight with an external dimension of (LXWXH) 1000 x 1000 x 514mm (to be confirmed on site) installed on top of the air vent, shaft, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
WA18	Marmoran Permacrete 1.5mm on all exterior Concrete Beams: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements. > Apply 1 coat of Marmoran Universal Primer, at a spread rate of 8-10 sq.m / L / coat and allow to cure. Apply one full coat of MARMORAN RBP TEXTURED ACRYLIC PRIMER, > Apply at a guideline spread rate of 4 sq.m Kg. > Crosshatch to achieve complete obliteration of the substrate & allow to cure. Apply 1.5mm PERMACRETE VERTICAL > apply product with a steel trowel and then float with a plastic trowel > Indicative spread rate per sq.m 1.5 mm Permacrete 3.0 kg / sq.m. This figure is indicative, and subject to applicator skill and substrate type and conditions. See paint schedules for details
WP1	Waterproofing on top of the bldg, concrete roof & concrete/steel box gutter, remove ex. waterproofing & comply with the waterproofing manufacturer on surface preparation before the new waterproofing application can be done. 1st step: apply a single coat of bitu prime followed by the application of abeex 4mm unigum torched on applied waterproofing, 2nd step: finish it with 2 coats of silvakoat final coating. (COC) Certificate of Compliance for the work done required.
WP2	Waterproofing on top of the MF bldg, on the section where IBR Sheets & Concrete roof meets, remove ex. waterproofing & comply with the waterproofing manufacturer on surface preparation before the new waterproofing application can be done. 1st step: apply new abeex 4mm unigum flashing into the IBR sheets valley 50mm through, torched on applied. 2nd step: apply abe.proof paintable counter flashing 100mm in the IBR sheets valley with silvakoat final coating. 3rd step: apply super laykold and membrane counter flashing on 4mm unigum terminations & finish with silvakoat final coating. (COC) Certificate of Compliance for the work done required.
WP3	Waterproofing on top of the MF bldg, Skylight/Roof Door Hatch; shaft or upstand walls, remove ex. waterproofing & comply with the waterproofing manufacturer on surface preparation before the new waterproofing application can be done. 1st step: apply new abeex 4mm unigum flashing into the IBR sheets valley 50mm through & on the entire surface of the upstand walls through the skylight mullions torched on applied, 2nd step: abe.proof paintable counter flashing 100mm in the IBR sheets valley finish with silvakoat final coating. (COC) Certificate of Compliance for the work done required.



FRONT ELEVATION	FLOOR PLAN	STATUS Q/UO
		<p>NAME: D01 PRO FAC-D01-PRO - 4800 X 5100MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> EXISTING <input checked="" type="checkbox"/> NEW/PROPOSAL</p> <p>SPECIFICATIONS: Standard electrically operated roller shutter in Galvanised finish, overall size 5100mm x 4800mm high with 550mm headroom with 130mm clearance on free side and 315mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D02 PRO FAC-D02-PRO - 4800 X 5100MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard electrically operated roller shutter in Galvanised finish, overall size 5100mm x 4800mm high with 600mm headroom with 130mm clearance on free side and 315mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D03 PRO FAC-D03-PRO - 3000 X 5653MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard electrically operated roller shutter in Galvanised finish, overall size 5653mm x 3000mm high with 600mm headroom with 130mm clearance on free side and 315mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D04 PRO FAC-D04-PRO - 3000 X 2700MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard chain operated roller shutter in Galvanised finish, overall size 2700mm x 3000mm high with 500mm headroom with 130mm clearance on free side and 160mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D05 PRO FAC-D05-PRO - 4500 X 3000MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Xpanda Standard chain operated roller shutter in Galvanised finish, overall size 3000mm x 4500mm high with 500mm headroom with 130mm clearance on free side and 160mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D06 PRO FAC-D06-PRO - 4500 X 3000MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard electrically operated roller shutter in Galvanised finish, overall size 3000mm x 4500mm high with 500mm headroom with 130mm clearance on free side and 160mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D07 PRO FAC-D07-PRO - 3000 X 2500MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard chain operated roller shutter in Galvanised finish, overall size 2500mm x 3000mm high with 500mm headroom with 130mm clearance on free side and 160mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D08 PRO FAC-D08-PRO - 2000 X 2500MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard push pull roller shutter in Galvanised finish, overall size 2500mm x 2000mm high with 500mm headroom with 130mm clearance on free side and 130mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and sloping T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D09 PRO FAC-D09-PRO - 2000 X 2000MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard push pull roller shutter in Galvanised finish, overall size 2000mm x 2000mm high with 450mm headroom with 130mm clearance on free side and 130mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and sloping T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D10 PRO FAC-D10-PRO - 2000 X 1600MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard push pull roller shutter in Galvanised finish, overall size 1600mm x 2000mm high with 450mm headroom with 130mm clearance on free side and 130mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and sloping T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>

FRONT ELEVATION	FLOOR PLAN	STATUS Q/UO
		<p>NAME: D11 PRO 11-PRO - 3000 X 2750MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> EXISTING <input checked="" type="checkbox"/> NEW/PROPOSAL</p> <p>SPECIFICATIONS: Standard chain operated roller shutter in Galvanised finish, overall size 2750mm x 3000mm high with 500mm headroom with 130mm clearance on free side and 130mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and sloping T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D12 PRO FAC-D12-PRO - 2200 X 1300MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard push pull roller shutter in Galvanised finish, overall size 1300mm x 2200mm high with 450mm headroom with 130mm clearance on free side and 130mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and sloping T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>
		<p>NAME: D13 PRO FAC-D13-PRO - 2100 X 900MM ENTRANCE/EXIT FIRE DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Varkus® VKS9F sound insulating single fire door, door size 900mm x 2100mm high comprising extruded Natural anodised aluminium door frame with door leaf formed of suitably reinforced anodised aluminium frame clad on each side with decoupled 38dB DnT_w rated panels with Varkusmat finish (elsewhere specified) on one side and 430 grade stainless steel rigidized SVL finish on other side with 30 minutes fire rating including sub-frame (installed by others) to suit 200mm thick concrete block wall.</p>
		<p>NAME: D14 PRO FAC-D14-PRO - 1800 X 923MM SLATTED DOOR W/ GLASS & LOUVER INSERT</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Custom made treated meranti solid timber door set (door frame & leaf), no all wooden door frame with 86 x 67mm frame sections and rebated, moulded, grooved and weather grooved without sill, overall size 923mm x 1870mm high finished in rustproof undercoat for final painting by contractors. Category: Category 2ADM - Strongroom. D550 - Size: 520mm x 1870mm high. Additional lock: 3-wheel combination lock, as per architect's detailed drawing.</p>
		<p>NAME: D15 PRO FAC-D05-AS - 1970 X 928MM STRONGROOM STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Mutual Austen Safes D550 SABS Category 2ADM left/right hand Strongroom with 2 x 7-lever security keylock and 3-wheel combination lock, overall size 928mm x 1870mm high finished in rustproof undercoat for final painting by contractors. Category: Category 2ADM - Strongroom. D550 - Size: 520mm x 1870mm high. Additional lock: 3-wheel combination lock, as per architect's detailed drawing.</p>
		<p>NAME: D16 PRO FAC-D16-PRO - 2114 X 923MM SOLID DOOR W/ GLASS & LOUVER INSERT</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Custom made treated meranti solid timber door set (door frame & leaf), no all wooden door frame with 86 x 67mm frame sections and rebated, moulded, grooved and weather grooved without sill, overall size 923mm x 2114mm high to suit the door leaf with aluminium glass & louver insert overall size 813mm x 2023mm high, sealed with a lined oil based transit stabilizing sealer.</p>
		<p>NAME: D17 PRO FAC-D17-PRO - 2114 X 923MM PANEL LOUVER DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Cape Culture SK1 no sill wooden door frame with 86 x 67mm frame sections and rebated, moulded, grooved and weather grooved without sill (Code: SK1NS), overall size 923mm x 2114mm high to suit 2 Panel louver door (Code: SD21) overall size 813mm x 2023mm high, sealed with a lined oil based transit stabilizing sealer.</p>
		<p>NAME: D18 PRO FAC-D18-PRO - 2185 X 1765MM DOUBLE SWING STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: hot dipped galvanised substation Eskom sub station door in two equal leaves, size 1765mm x 2185mm high with 3mm 'Z' section outer frame 'U' inner frame, 32 x 32mm square door reinforcement frame, 1.2mm solid steel slats, cabin hooks, earth strap, shooting bolt housing, vermin proof mesh, 25mm dust filter, 50 x 5 water stopper, drainage holes and Xpanda 3 Point locking system for padlock, with perimeter framing plugged and screwed to reveal at maximum 300mm centres to concrete or brickwork using Xpanda concealed rivets.</p>
		<p>NAME: D19 PRO FAC-D19-PRO - 2400 X 2000MM DOUBLE SWING STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: hot dipped galvanised substation Transformer room door in two equal leaves, size 2000mm x 2400mm high with 800mm high ventilation panel made comprising 2.5mm louvre slats and vermin proof backing, with 1.2mm solid steel slats, cabin hooks, earth strap, shooting bolt housing and Night latch, with perimeter framing plugged and screwed to reveal at maximum 300mm centres to concrete or brickwork using Xpanda concealed rivets.</p>
		<p>NAME: D20 PRO FAC-D20-PRO - 3000 X 3000MM ROLLER SHUTTER STEEL DOOR</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Standard chain operated roller shutter in Galvanised finish, overall size 3000mm x 3000mm high with 500mm headroom with 130mm clearance on free side and 160mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Rol-Lok, with pressed steel canopy cover and sloping T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</p>

Door Schedule						
Family	Mark	Count	Height	Width	Level	
MAIN FACTORY GROUND FLR						
FAC-D01-PRO - 4800 X 5100MM ROLLER SHUTTER STEEL DOOR	D01	2	5000	4500	MAIN FACTORY GROUND FLR	
FAC-D02-PRO - 4800 X 5100MM ROLLER SHUTTER STEEL DOOR	D02	2	4800	5100	MAIN FACTORY GROUND FLR	
FAC-D03-PRO - 3000 X 5653MM ROLLER SHUTTER STEEL DOOR	D03	4	3000	5653	MAIN FACTORY GROUND FLR	
FAC-D04-PRO - 3000 X 2700MM ROLLER SHUTTER STEEL DOOR	D04	1	3000	2700	MAIN FACTORY GROUND FLR	
FAC-D05-PRO - 4500 X 3000MM ROLLER SHUTTER STEEL DOOR	D05	4	4500	3000	MAIN FACTORY GROUND FLR	
FAC-D06-PRO - 4500 X 3000MM ROLLER SHUTTER STEEL DOOR	D06	1	4500	3000	MAIN FACTORY GROUND FLR	
FAC-D07-PRO - 3000 X 2500MM ROLLER SHUTTER STEEL DOOR	D07	1	3000	2500	MAIN FACTORY GROUND FLR	
FAC-D09-PRO - 2000 X 2000MM ROLLER SHUTTER STEEL DOOR	D09	7	2000	2000	MAIN FACTORY GROUND FLR	
FAC-D10-PRO - 2000 X 1600MM ROLLER SHUTTER STEEL DOOR	D10	3	2000	1600	MAIN FACTORY GROUND FLR	
FAC-D12-PRO - 2200 X 1300MM ROLLER SHUTTER STEEL DOOR	D12	5	2200	1300	MAIN FACTORY GROUND FLR	
FAC-D13-PRO - 2100 X 900MM ENTRANCE/EXIT FIRE DOOR	D13	15	2100	900	MAIN FACTORY GROUND FLR	

Door Schedule						
Family	Mark	Count	Height	Width	Level	
MAIN FACTORY GROUND FLR						
FAC-D15-PRO - 1970 X 870MM STRONG ROOM DOOR	D15	2	1970	870	MAIN FACTORY GROUND FLR	
FAC-D16-PRO - 923 X 2125MM DOOR WITH VIEWING PANEL & LOUVERS	D16	20	2100	923	MAIN FACTORY GROUND FLR	
FAC-D17-PRO - 2125 X 813MM 2 PANEL TIMBER LOUVER DOOR	D17	2	2114	923	MAIN FACTORY GROUND FLR	
FAC-D18-PRO - 2000 X 2000MM DOUBLE SWING STEEL DOOR	D18	4	2185	1765	MAIN FACTORY GROUND FLR	
FAC-D19-PRO - 2400 X 1900MM DOUBLE SWING STEEL DOOR	D19	2	2400	1900	MAIN FACTORY GROUND FLR	
FAC-D20-PRO - 3000 X 3000MM ROLLER SHUTTER STEEL DOOR	D20	2	3000	3000	MAIN FACTORY GROUND FLR	
MAIN FACTORY 2ND FLOOR						
FAC-D14-PRO - 923 X 1800MM SLATTED DOOR WITH VIEWING PANEL & LOUVER INSERT	D14	2	1800	923	MAIN FACTORY 2ND FLOOR	
FAC-D15-PRO - 1970 X 870MM STRONG ROOM DOOR	D15	1	1970	870	MAIN FACTORY 2ND FLOOR	
FAC-D16-PRO - 923 X 2125MM DOOR WITH VIEWING PANEL & LOUVERS	D16	5	2100	923	MAIN FACTORY 2ND FLOOR	

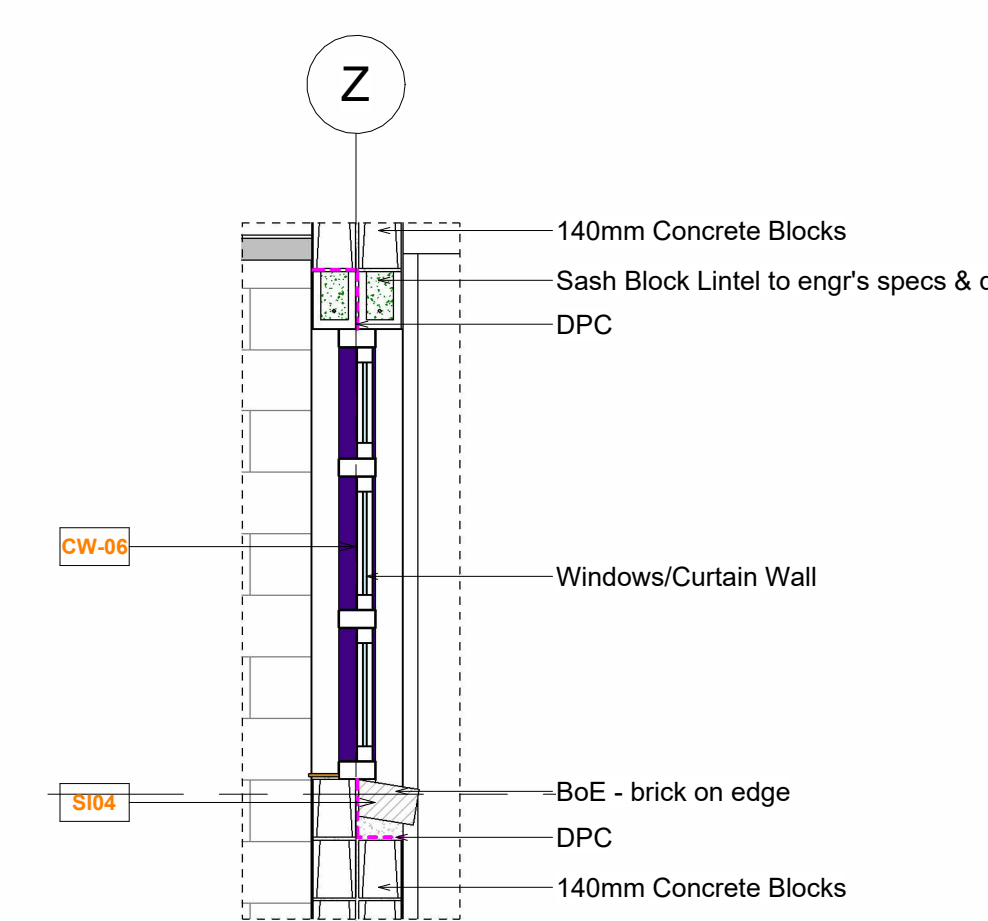
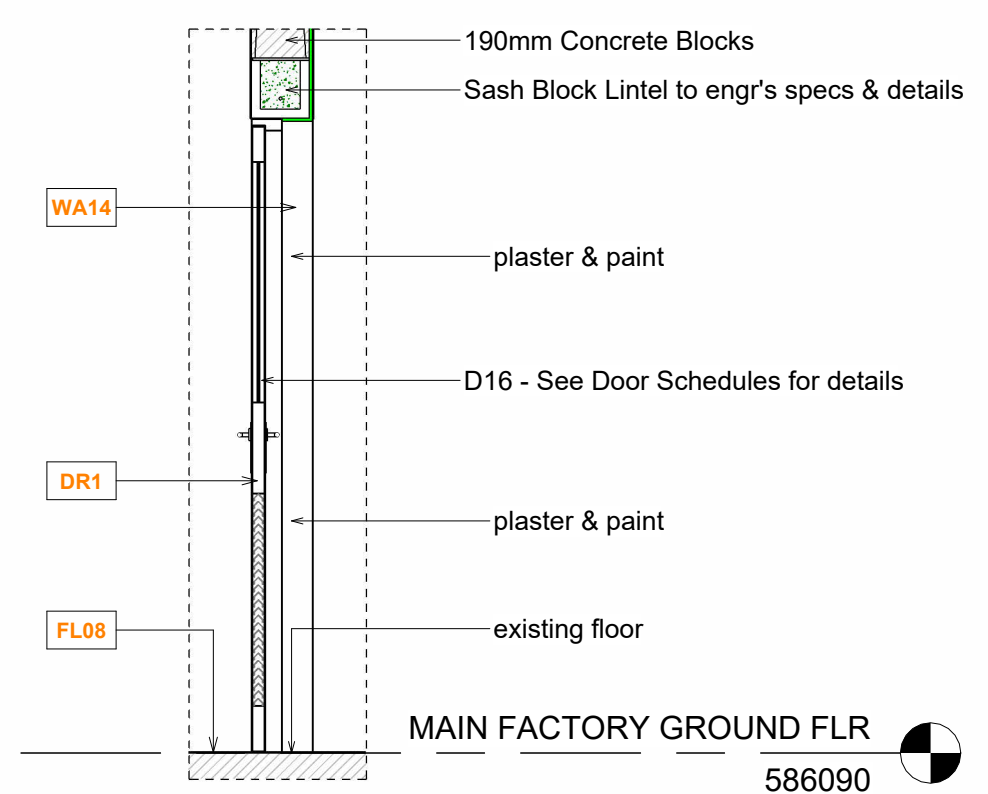
DOOR SCHEDULES - MAIN FACTORY

1: 100

Numbers	Specifications
CW-06	Curtain Wall Panel 06: 1900 X 5653mm (HxW), Mullions (vertical & horizontal) & in-fills/insets (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
DR1	For all Door Finishes, descriptions, quantities & ironmongery refer to Door & Ironmongery schedule. WEATHER BARS AND DIVIDING STRIPS TO EXTERIOR DOORS: Supply and fit a 30 x 5mm flat brass strip in full lengths to all external doors and where different floor finishes join, complete with 75mm flat fixing lugs at 400mm max. centres, fixed to concrete with stainless steel screws, with screeds to be perfectly level and flush with the top of weather bars and dividing strips.
FL08	Repair & refurbish old concrete floor: repair damaged floor joints, scaling, delamination, spalling and etc... use a buffing machine & cleaning agent to remove stubborn dirt, stains, grease, oil and etc... finish it with powerhouse pressure washer surface cleaner and make good.
SI04	(BoE) Brick-On-Edge New Solid Clay Facebrick (Silvergrey Travertine FBX) build on all windows undersides full length. Solid Clay Facebrick overall size 222mm x 106 x 73mm high, manufactured in accordance with SANS 227:2007, laid on all windows undersides in Class II mortar with 10mm joints in accordance with SANS 10145, SANS 10400 and the current edition of CMA Concrete Masonry Manuals. See architect BoE drawing for details
WA14	Marmoran Wall Finish: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements. > Apply 1 coat of Marmoran Universal Primer, at a spread rate of 8-10 sq.m / L / coat and allow to cure. Apply one full coat of MARMORAN UNIVERSAL UNDERCOAT and allow to dry. > Apply 2 coats of Marmoran Marmoglow. > Guideline spread rate of 8-10 sq.m / L / coat. > Allow for drying time between coats. Over coating Time: 16-24 hours > Wet Film Thickness: 125-100 microns per coat / Dry Film Thickness: 55-44 microns per coat > Solvent based. See paint schedules for details

DOORS TYPICAL CROSS SECTION DETAILS

1: 25



WINDOWS TYPICAL CROSS SECTION DETAILS

1: 25

FRONT ELEVATION	FLOOR PLAN	STATUS Q/UO
		<p>NAME: W01 PRO FAC-W01-PRO - 600 X 400MM SINGLE PANE TOP HUNG ALU. WINDOW</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: single pane top hung aluminium window, size 400mm x 600mm able to meet the mech1 performance requirements of SANS 613 for wind loads of up to 2000Pa with surfaces to receive 60-80µm Charcoal powder coating, supplied by a manufacturer complying with SANS 1578 and applied in accordance with SANS 1796 by an approved applicator, glazing shall be executed strictly in conformance with glass manufacturer's recommendations and SANS 1263-1 and SANS 10400-N all in accordance with SANS 10400 Parts B, N, X, A, plugged and screwed to brickwork or concrete. Obscure light blue glass</p>
		<p>NAME: W02 PRO FAC-W02-PRO - 600 X 1200MM 2 PANE TOP HUNG ALU. WINDOW</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: 2 pane top hung aluminium window, size 1200mm x 600mm able to meet the mech1 performance requirements of SANS 613 for wind loads of up to 2000Pa with surfaces to receive 60-80µm Charcoal powder coating, supplied by a manufacturer complying with SANS 1578 and applied in accordance with SANS 1796 by an approved applicator, glazing shall be executed strictly in conformance with glass manufacturer's recommendations and SANS 1263-1 and SANS 10400-N all in accordance with SANS 10400 Parts B, N, X, A, plugged and screwed to brickwork or concrete. Obscure light blue glass</p>
		<p>NAME: W03 PRO FAC-W03-PRO - 600 X 1800MM 3 PANE TOP HUNG ALU. WINDOW</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: 3 pane top hung aluminium window, size 1800mm x 600mm able to meet the mech1 performance requirements of SANS 613 for wind loads of up to 2000Pa with surfaces to receive 60-80µm Charcoal powder coating, supplied by a manufacturer complying with SANS 1578 and applied in accordance with SANS 1796 by an approved applicator, glazing shall be executed strictly in conformance with glass manufacturer's recommendations and SANS 1263-1 and SANS 10400-N all in accordance with SANS 10400 Parts B, N, X, A, plugged and screwed to brickwork or concrete.</p>
		<p>NAME: W04 PRO FAC-W04-PRO - 600 X 2400MM 4 PANE TOP HUNG ALU. WINDOW</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: 4 pane top hung aluminium window, size 2400mm x 600mm able to meet the mech1 performance requirements of SANS 613 for wind loads of up to 2000Pa with surfaces to receive 60-80µm Charcoal powder coating, supplied by a manufacturer complying with SANS 1578 and applied in accordance with SANS 1796 by an approved applicator, glazing shall be executed strictly in conformance with glass manufacturer's recommendations and SANS 1263-1 and SANS 10400-N all in accordance with SANS 10400 Parts B, N, X, A, plugged and screwed to brickwork or concrete.</p>
		<p>NAME: W05 PRO FAC-W05-PRO - 800 X 800MM ALUMINIUM LOUVER WINDOW</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Aluminium Louvre size 800 x 800mm x 100mm deep Charcoal Grey C4 COLORTRECH ALUMINIUM, square metal louvre unit, fixed in accordance with the manufacturer's recommendations. • Installation region: inland - heavy industrial. • Atmospheric corrosion category: C4.</p>
		<p>NAME: W06 PRO FAC-W06-PRO - 1000 X 800MM ALUMINIUM LOUVER WINDOW</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Aluminium Louvre size 1000 x 800mm x 100mm deep Charcoal Grey C4 COLORTRECH ALUMINIUM, square metal louvre unit, fixed in accordance with the manufacturer's recommendations. • Installation region: inland - heavy industrial. • Atmospheric corrosion category: C4.</p>
		<p>NAME: W07 PRO FAC-W07-PRO - 800 X 1200MM ALUMINIUM LOUVER WINDOW</p> <p>CATEGORY: <input type="checkbox"/> ASBUILT <input checked="" type="checkbox"/> PROPOSAL</p> <p>SPECIFICATIONS: Aluminium Louvre size 800 x 1200mm x 100mm deep Charcoal Grey C4 COLORTRECH ALUMINIUM, square metal louvre unit, fixed in accordance with the manufacturer's recommendations. • Installation region: inland - heavy industrial. • Atmospheric corrosion category: C4.</p>

WINDOW SCHEDULES - MAIN FACTORY

1: 100

Main Factory Window Schedule					
Family	Mark	Count	Height	Width	
FAC-W01-PRO - 600 X 400MM 1 PANEL AWING WINDOW	W01	3	600	400	
FAC-W02-PRO - 600 X 1200MM 2 PANEL AWING WINDOW	W02	7	600	1200	
FAC-W03-PRO - 600 X 1800MM 3 PANEL AWING WINDOW	W03	8	600	1800	
FAC-W04-PRO - 600 X 2400MM 4 PANEL AWING WINDOW	W04	1	600	2400	
FAC-W05-PRO - 800 X 800MM POWDER COATED ALUMINIUM LOUVER WINDOW	W05	1	800	800	
FAC-W07-PRO - 800 X 1200MM POWDER COATED ALUMINIUM LOUVER WINDOW	W07	7	800	1200	

Consultant: Pinoy Pride Architecture
Appointment: Project Architect
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Phone: 084 055 4233
e-mail: pinoypride8791@gmail.com

ARCHITECT

Consultant: MMDP Quantity Surveyors
Appointment: Project Quantity Surveyor
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Phone: 083 348 1228
e-mail: felicity@mmdp.co.za

QUANTITY SURVEYOR

Consultant: Lukhozi Consulting Engineers
Appointment: Project Civil & Structural Engineer
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Phone: 082 894 0816
e-mail: l.coetzer@lukhozi.co.za

CIVIL & STRUCTURAL ENGINEER

Consultant: RNA Consulting Engineer
Appointment: Electrical, Mechanical & Fire Engineer
Address: 11 Bonza Bay Road, Beacon Bay, East London, 5241
Phone: 083 381 8985
e-mail: travis@rnaconsulting.co.za

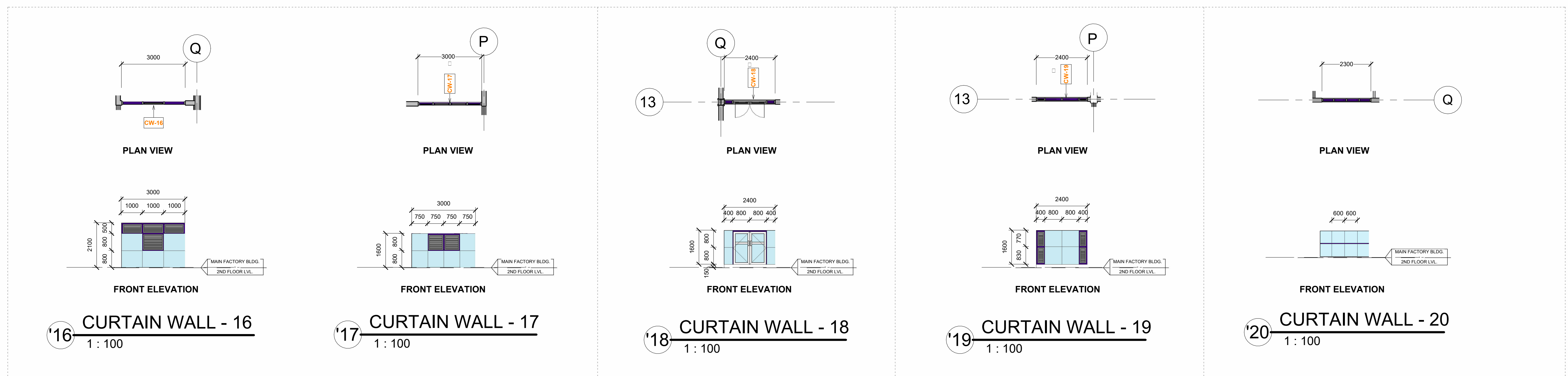
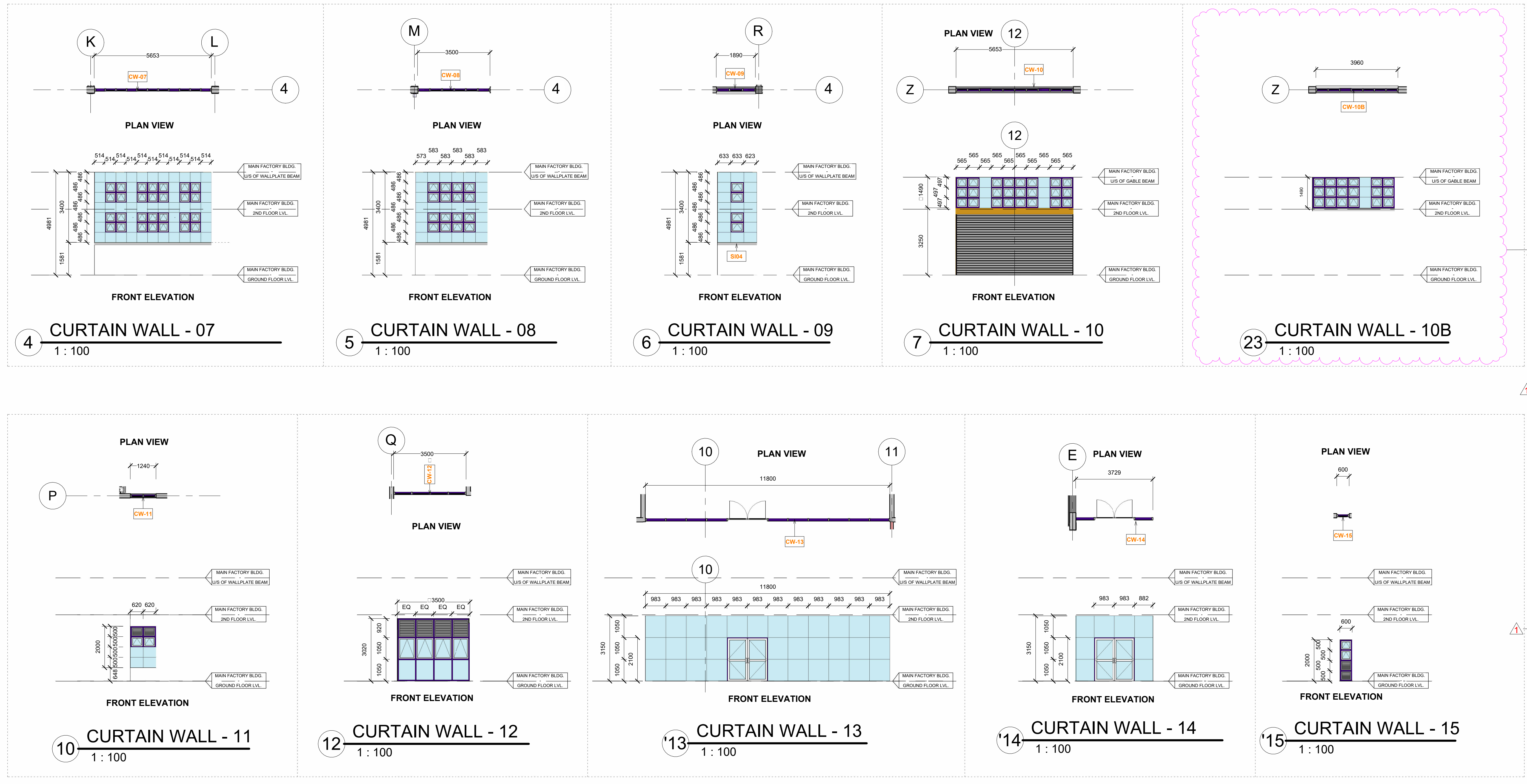
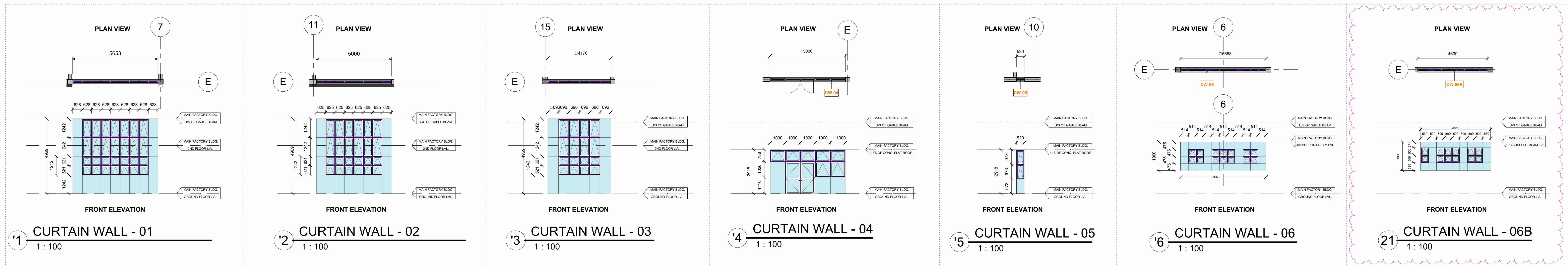
ELECTRICAL, MECHANICAL & FIRE ENGINEER

REVISION SCHEDULE

No.	Description	Date
1	Tenancy Subdivision Revisions	30-10-2023

REPAIRS AND REFURBISHMENT NOTES:

- ALL MEASUREMENT MUST BE DOUBLE CHECK ON SITE AND ON ACTUAL.
- ANY DISCREPANCIES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION FOR WAY-FORWARD.
- ALL EXISTING MATERIALS, OPENINGS, SUBSTRATES, SIZES AND ETC. VARIES FROM EACH OTHER AND MUST BE TREATED AND ADJUSTED INDIVIDUALLY TO SUIT THE NEW PROPOSAL.
- REPAIRS AND REFURBISHMENT WORKS MUST BE READ IN COORDINATION WITH THE OTHER DRAWINGS, SCHEDULES, DETAILS, KEY PLANS, SHOP DRAWINGS AND ETC.
- ALL WALLS OPENINGS CAUSE BY NEW REPAIRS/REPLACEMENT OR REFURBISHMENT OF WINDOWS, DOORS, CURTAIN WALLS AND ETC., THAT IS



MAIN FACTORY - CURTAIN WALL SCHEDULE REV00		
KEYNOTE	QUANTITY	DESCRIPTIONS
CW-01	3	Curtain Wall Panel 01: 4969 X 5653mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-02	1	Curtain Wall Panel 02: 4969 X 5000mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-03	1	Curtain Wall Panel 03: 4969 X 4176mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-04	1	Curtain Wall Panel 04: 2918 X 5000mm (HxW), Mullions (vertical & horizontal) & infills/inserts (double door, awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-05	1	Curtain Wall Panel 05: 2918 X 520mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-06	13	Curtain Wall Panel 06: 1900 X 5653mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-06B	1	Curtain Wall Panel 06B: 1900 X 4640mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-07	2	Curtain Wall Panel 07: 3400 X 5653mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-08	1	Curtain Wall Panel 08: 3400 X 3500mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-09	1	Curtain Wall Panel 09: 3400 X 1890mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-10	17	Curtain Wall Panel 10: 1490 X 5653mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-10B	1	Curtain Wall Panel 10B: 1490 X 3980mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-11	12	Curtain Wall Panel 11: 2000 X 1240mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-12	2	Curtain Wall Panel 12: 3020 X 3500mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-13	1	Curtain Wall Panel 13: 3150 X 11800mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-14	1	Curtain Wall Panel 14: 3150 X 3729mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-15	4	Curtain Wall Panel 15: 2000 X 600mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-16	2	Curtain Wall Panel 16: 2100 X 3000mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-17	2	Curtain Wall Panel 17: 1600 X 3000mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-18	2	Curtain Wall Panel 18: 1600 X 2400mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-19	2	Curtain Wall Panel 19: 1600 X 2400mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-20	1	Curtain Wall Panel 20: 1200 X 2300mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.

Consultant: Pinoy Pride Architecture
Project Architect: Project Architect
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ARCHITECT

Consultant: MMDP Quantity Surveyors
Project Quantity Surveyor: Project Quantity Surveyor
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QUANTITY SURVEYOR

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Project Civil & Structural Engineer: Project Civil & Structural Engineer
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e-mail: l.coetzer@lukhozi.co.za

CIVIL & STRUCTURAL ENGINEER

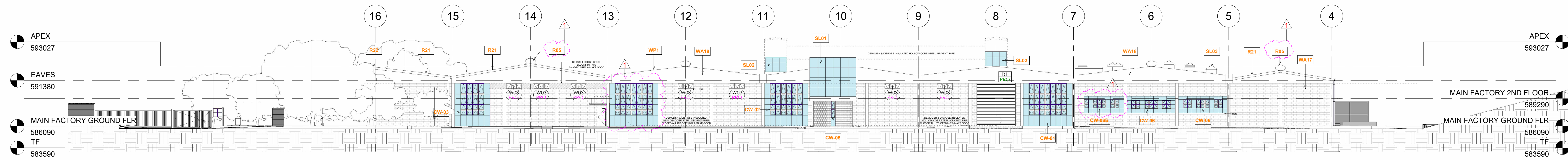
Consultant: RNA Consulting Engineer
Appointment: Electrical, Mechanical & Fire Engineer
Address: 11 Bonza Bay Road, Beacon Bay, East London, 5241
Phone: 083 381 8985
e-mail: travisw@rnaconsulting.co.za

ELECTRICAL, MECHANICAL & FIRE ENGINEER

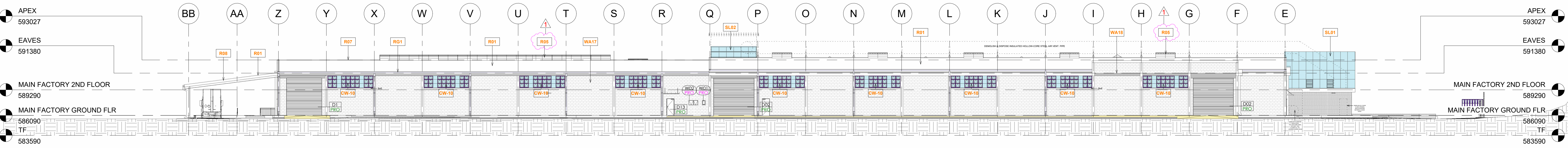
REVISION SCHEDULE		
No.	Description	Date
1	Tenancy Subdivision Revisions	30-10-2023

REPAIRS AND REFURBISHMENT NOTES:		
1.	ALL MEASUREMENT MUST BE DOUBLE CHECK FOR DISCREPANCY.	
2.	ANY DISCREPANCIES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION FOR WAY-FORWARD.	
3.	ALL EXISTING MATERIALS, OPENINGS, SUBSTRATES, SIZES AND ETC., VARIES FROM EACH OTHER AND MUST BE TREATED AND ADJUSTED INDIVIDUALLY TO SUIT THE NEW PROPOSAL.	
4.	REPAIRS AND REFURBISHMENT WORKS MUST BE READ IN COORDINATION WITH THE OTHER DRAWINGS, SCHEDULES, DETAILS, KEY PLANS, SHOP DRAWINGS AND ETC.	
5.	ALL WALLS OPENINGS CAUSE BY NEW REPAIRS, REPLACEMENT OR REFURBISHMENT OF WINDOWS, DOORS, CURTAIN WALLS AND ETC., THAT IS WITHOUT BEAM PROTECTION/SUPPORT ON ROOFTOP/SIDE, MUST BE PROVIDED EITHER WITH BRICK LINTEL FOR BLOCK WALLS, LINTEL MUST BE PLASTERED, PAINTED & MAKE GOOD. REFER TO ENGRS DRAWING FOR DETAILS.	
6.	ARCHITECTS DRAWING MUST BE READ, PLANNED AND COORDINATED WITH OTHER PROFESSIONAL DRAWINGS, DETAILS, SCHEDULES AND ETC.	
7.	ALL REPAIRS, REFURBISHMENT AND REPLACEMENT WORKS MUST EITHER SUIT OR ADJUSTED TO ACCOMMODATE THE NEW PROPOSAL AND MAKE GOOD.	
8.	ANY UNFORESEEN NEW ITEMS, ISSUES OR SCOPE OF WORKS MUST BE BROUGHT TO THE ARCHITECTS AND PRINCIPAL AGENT ATTENTION FOR WAY-FORWARD.	
9.	NO NEW OR ADDITIONAL SCOPE OF WORKS OR WORK DONE WILL BE ENTERTAIN OUTSIDE OR EXTRA FROM THE ORIGINAL SCOPE OF WORKS WITHOUT THE PRINCIPAL AGENT AUTHORIZATION OR APPROVAL.	
10.	CHANGING OR SCOPE ALTERATION MUST BE DONE IN WRITING OR GIVEN UNDER THE SITE INSTRUCTION BOOK BY THE PRINCIPAL AGENT, SPECIALLY CHANGES THAT HAS "EOT" EXTENSION OF TIME CLAIM AND COST IMPLICATION.	
11.	ALL WORKS MUST COMPLY WITH THE CURRENT SOUTH AFRICAN BUILDING CODES/STANDARDS/REGULATIONS AND THE CONTRACT AGREEMENTS.	
12.	THE DESIGN IS SPECIFIC FOR SANS OCCUPANCY CLASS: "D3 & D1" WHICH ARE LOW-RISK INDUSTRIAL & LOW-RISK STORAGE.	

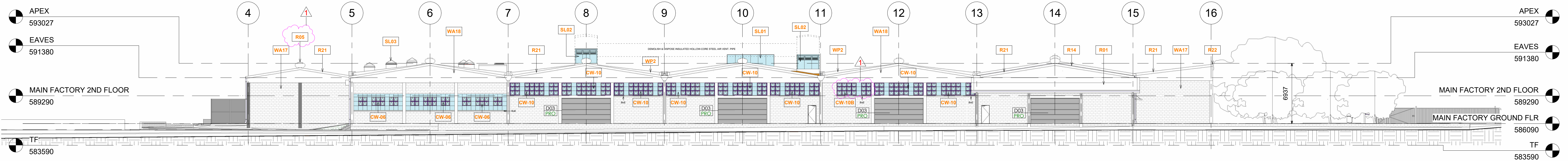
DESIGN DEVELOPMENT		
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Drawing name:	MAIN FACTORY CURTAIN WALL SCHEDULES	
Site address:	ERF 2973 DIMBAZA INDUSTRIAL PARK SITE 3	
Project number:	RFQ00868/2022	
Date:	12 JUNE 2023	
Drawn by:	Author	
Checked by:	Checker	
Sheet no.:	DS3-PRO-06	
Scale:	1 : 100	



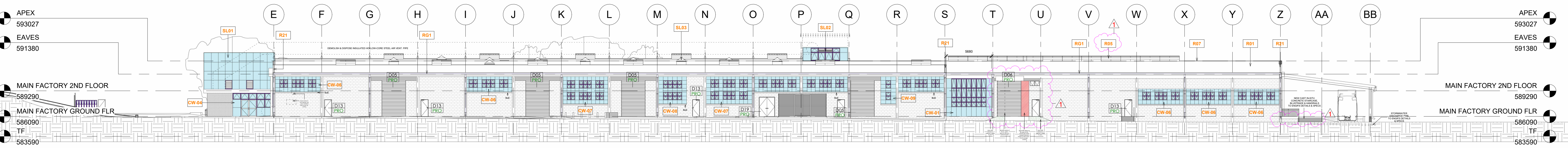
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2 West Elevation
1 : 200



3 North Elevation
1 : 200



4 East Elevation
1 : 200

Numbers	KEYNOTES Specifications
CW-01	Curtain Wall Panel 01: 4969 X 5653mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-02	Curtain Wall Panel 02: 4969 X 5000mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-03	Curtain Wall Panel 03: 4969 X 4176mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-04	Curtain Wall Panel 04: 2918 X 5000mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-05	Curtain Wall Panel 05: 2918 X 5200mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-06	Curtain Wall Panel 06: 1900 X 5653mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-06B	Curtain Wall Panel 06: 1900 X 4640mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-07	Curtain Wall Panel 07: 3400 X 5653mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-08	Curtain Wall Panel 08: 3400 X 3500mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-09	Curtain Wall Panel 09: 3400 X 1890mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-10	Curtain Wall Panel 10: 1490 X 5653mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
CW-10B	Curtain Wall Panel 10: 1490 X 3960mm (HxW), Mullions (vertical & horizontal) & infills/inserts (awning & louvers) measurements & quantities as per Architects schedules/drawings; that needs to be coordinated with the "Specialist" shop drawings, specifications & requirements. All dimensions are to be confirmed on-site & its detailed drawing approval prior to manufacturing. Compliance reqs.: AAAMSA, SAGGA & SANS 10400. Complete AAAMSA fenestration certificate to be provided before works can be fully approved & certified as work done.
R01	Safintra 0.55mm thick 686mm cover Tufdek® IBR Desert Sand COLORPLUS® roof sheathing, fixed to steel purlins at 1892mm centres and eaves and end-span purlins at 1634mm centres (final spacing to be calculated by an engineer) using Filtite® self tapping fasteners or Safintra approved fasteners with EPDM seals. Purlin fixed to every second crest of each sheet and at all crests at sheet ends. Side laps to be secured using Filtite® stitching fasteners or Safintra approved fasteners at centres not exceeding 500mm and sealed with Butyl tape with minimum 230mm end laps sealed with a double row of Butyl tape, installation includes fixing of all flashing i.e. ridge, barge, close-end and etc., all in accordance with the manufacturer's recommendations. > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R05	Seaspray COLORPLUS® ridge mounted roof ventilator, to Mechanical Engineer details and specifications
R07	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 9degree x 462mm girth ridge flashing > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R08	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 462mm girth barge flashing (231 X 231MM) > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R14	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 308mm girth side wall flashing > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R21	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 730mm girth custom-made barge flashing (280 X 450MM) > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
R22	Safintra Tufdek® profile Seaspray COLORPLUS® accessories, fixed in accordance with the manufacturer's recommendations. > Accessory: 730mm girth custom-made apex flashing (280 X 450MM) > Installation region: inland - heavy industrial > Atmospheric corrosion category: C4.
RG1	Industrial Seamless Aluminium Gutter 150mm Box/Square profile, overall size 150mm x 150mm x 0.9mm thick coated internally and externally with ColourTech G4 in colour Marble White with matching splashplate including cut and mitred angles covered with a mitre strip externally, stop ends riveted and all sealed on the inside with Dow Corning 813 silicone sealer, secured to purposely made end timber purlins' with 25 x 2.5mm L - Shaped internal brackets at 600mm centres using selfdrilled screw as shown on architects details, including expanded aluminium mesh leaf guard set over gutter with 150mm x 150mm x 0.6mm thick Marble White aluminium downpipe @ every 2nd column or 12meters apart, fixed to wall with straps at 1500mm centres using masonry screw & plugs, with downpipes riveted and silicone sealed to gutter outlets, including all necessary bends, elbows, shoes, link into the underground storm water pipes & etc. > Gutter profile: 150mm Box > Gutter size: 150mm x 150mm x 0.9mm thick > Gutter colour: Marble White > Downpipe size: 150mm x 150mm x 0.6mm thick aluminium > Downpipe colour: Marble White.
SL01	New custom-made box Skylight with an external dimension of (LxWxH) 5398 x 8873 x 4572mm (to be confirmed on site) installed on top of the air vent, mechanical room flat concrete roof, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
SL02	New custom-made box Skylight with an external dimension of (LxWxH) 2552 x 5707 x 1676mm (to be confirmed on site) installed on top of the air vent, shaft, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
SL03	New custom-made pyramid Skylight with an external dimension of (LxWxH) 1000 x 1000 x 514mm (to be confirmed on site) installed on top of the air vent, shaft, glazing to be flushed, hail proof, and light blue colour, to be manufactured and installed by a specialist. See Engr's/specialist design for specs & details. The skylight must comply with AAAMSA requirements & SANS 10400. COC required
WA17	Aquestop Brick Seal: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements > Ensure that substrate is completely dry. > Apply 2-3 coats of Aquestop by brush, roller or by spray to saturate the substrate. Use a cross hatching method to apply so as to ensure that whole surface is evenly covered. Low pressure atomised spray is the preferred method of application. > Allow to dry between coats. Over coating Time: 12 hours > Wet Film Thickness: 1000-333 microns per coat Dry Film Thickness: 50-17 microns per coat > This product is supplied ready for use. Thinning is not recommended at all. > Theoretical Spread rate 1-3 sq. m / L / coat, dependent on substrate porosity. This figure is indicative, and subject to applicator skill and substrate type and conditions. See paint schedules for details
WA18	Marmoran Permacrete 1.5mm on all exterior Concrete Beams: Surface cleaning, repair & preparation as per manufacturer recommendations & requirements. > Apply 1 coat of Marmoran RBP TEXTURED ACRYLIC PRIMER, at a spread rate of 8-10 sq. m / L / coat and allow to cure. > Apply one full coat of MARMORAN RBP TEXTURED ACRYLIC PRIMER, at a spread rate of 4 sq. m / L / coat. > Schedule to achieve complete obliteration of the substrate & allow to cure. Apply 1.5mm PERMACRETE VERTICAL > apply product with a steel trowel and then float with a plastic trowel > Indicative spread rate per sq. m 1.5 mm Permacrete 3.0 kg / sq. m. This figure is indicative, and subject to applicator skill and substrate type and conditions. See paint schedules for details
WP1	Waterproofing on top of the MF bldg. concrete roof & concrete/steel box gutter, remove ex. waterproofing & comply with the waterproofing manufacturer on surface preparation before the new waterproofing application can be done. 1st step: apply a single coat of bitulo primer followed by the application of abedex 4mm unigum torched on applied waterproofing. 2nd step: finish it with 2 coats of silvokote final coating. (COC) Certificate of Compliance for the work done required.
WP2	Waterproofing on top of the MF bldg. on the section where IBR Sheets & Concrete roof meets, remove ex. waterproofing & comply with the waterproofing manufacturer on surface preparation before the new waterproofing application can be done. 1st step: apply new abedex 4mm unigum flashing into the IBR sheets valley 50mm through; torched on applied, 2nd step: apply abe.proof paintable counter flashing 100mm in the IBR sheets valley with silvokote final coating, 3rd step: apply super laykold and membrane counter flashing on 4mm unigum terminations & finish with silvokote final coating. (COC) Certificate of Compliance for the work done required.

Consultant: Pinoy Pride Architecture
 Project Architect
 Address: 28 Candleberry Drive Nahoon Valley Park, EL
 Phone: 084 055 4233
 e-mail: pinoypride8791@gmail.com

ARCHITECT

Consultant: MMDP Quantity Surveyors
 Project Quantity Surveyor
 Address: 1st Floor Hammer Mill House, The Quarry, Selborne, EL
 Phone: 083 348 1228
 e-mail: felicity@mmdp.co.za

QUANTITY SURVEYOR

Consultant: Lukhozi Consulting Engineers
 Project Civil & Structural Engineer
 Address: Kwa-Lukhozi, Quartzite Dr, The Quarry, Selborne, EL
 Phone: 082 894 0816
 e-mail: l.coetzer@lukhozi.co.za

CIVIL & STRUCTURAL ENGINEER

Consultant: RNA Consulting Engineer
 Project Electrical, Mechanical & Fire Engineer
 Address: 11 Bonza Bay Road, Beacon Bay, East London, 5241
 Phone: 083 381 8985
 e-mail: travisw@rnaconsulteng.co.za

ELECTRICAL, MECHANICAL & FIRE ENGINEER

REVISION SCHEDULE

No.	Description	Date
1	Tenancy Subdivision Revisions	30-10-2023

REPAIRS AND REFURBISHMENT NOTES:

1. ALL MEASUREMENT MUST BE DOUBLE CHECK ON SITE AND ON ACTUAL.
2. ANY DISCREPANCIES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION FOR WAY-FORWARD.
3. ALL EXISTING MATERIALS, OPENINGS, SUBSTRATES, SIZES AND ETC., VARIES FROM EACH OTHER AND MUST BE TREATED AND ADJUSTED INDIVIDUALLY TO SUIT THE NEW PROPOSAL.
4. REPAIRS AND REFURBISHMENT WORKS MUST BE READ IN COORDINATION WITH THE OTHER DRAWINGS, SCHEDULES, DETAILS, KEY PLANS, SHOP DRAWINGS AND ETC.
5. ALL WALLS OPENINGS CAUSE BY NEW REPAIRS, REPLACEMENT OR REFURBISHMENT OF WINDOWS, DOORS, CURTAIN WALLS AND ETC. THAT IS WITHOUT BEAM PROTECTION/SUPPORT ON SOFFIT/TOPSIDE, MUST BE PROVIDED EITHER WITH BRICK LINTEL FOR BRICK WALLS OR BLOCKS LINTEL FOR BLOCK WALLS, LINTEL MUST BE PLASTERED, PAINTED & MAKE GOOD. REFER TO ENGRS DRAWING FOR DETAILS.
6. ARCHITECTS DRAWING MUST BE READ, PLANNED AND COORDINATED WITH OTHER PROFESSIONAL DRAWINGS, DETAILS, SCHEDULES AND ETC.
7. ALL REPAIRS, REFURBISHMENT AND REPLACEMENT WORKS MUST EITHER SUIT OR ADJUSTED TO ACCOMMODATE THE NEW PROPOSAL AND MAKE GOOD.
8. ANY UNFORESEEN NEW ITEMS, ISSUES OR SCOPE OF WORKS MUST BE BROUGHT TO THE ARCHITECTS AND PRINCIPAL AGENT ATTENTION FOR WAY-FORWARD.
9. NO NEW OR ADDITIONAL SCOPE OF WORKS OR WORK DONE WILL BE ENTERTAIN OUTSIDE OR EXTRA FROM THE ORIGINAL SCOPE OF WORKS WITHOUT THE PRINCIPAL AGENT AUTHORIZATION OR APPROVAL.
10. CHANGES OR SCOPE ALTERATION MUST BE DONE IN WRITING OR GIVEN UNDER THE SITE INSTRUCTION BOOK BY THE PRINCIPAL AGENT. SPECIALLY CHANGES THAT HAS "EOT" EXTENSION OF TIME CLAIM AND COST IMPLICATION.
11. ALL WORKS MUST COMPLY WITH THE CURRENT SOUTH AFRICAN BUILDING CODES/REGULATIONS, REGULATIONS AND THE CONTRACT AGREEMENTS.
12. THE DESIGN IS SPECIFIC FOR SANS OCCUPANCY CLASS: "D3 & D4" WHICH ARE LOW-RISK INDUSTRIAL & LOW-RISK STORAGE.

DESIGN DEVELOPMENT

Client: ECDC

Project name: REPAIRS & REFURBISHMENTS IN DIMBAZA INDUSTRIAL PARK SITE 3

Drawing name: PROPOSE MAIN FACTORY BUILDING ELEVATIONS

Site address: ERF 2973 DIMBAZA INDUSTRIAL PARK SITE 3

Project number: RFQ00868/2022

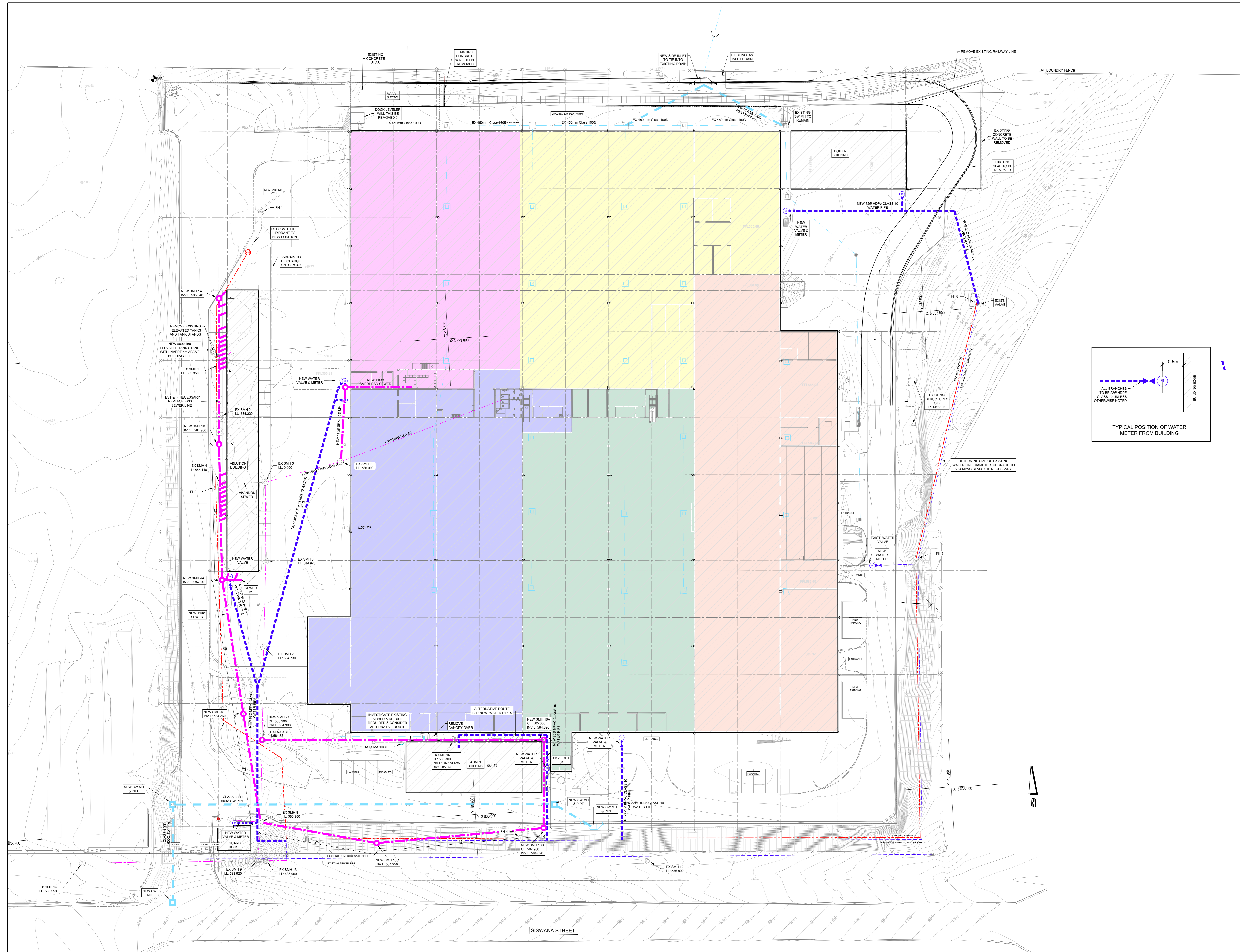
Date: 12 JUNE 2023

Drawn by: Author

Checked by: Checker

Sheet no.: DSS-PRO-03

Scale: As indicated



LEGEND:

EXISTING SERVICES:

WATER

- Water Meter
- Isolating Valve
- Fire Hydrant
- Stand Pipe Tap
- Fire Pipe
- Domestic Water Pipe

ROADS AND STORMWATER

- Stormwater Catchpit
- Stormwater Manhole
- Kerb Inlet
- Stormwater Pipe
- Barrier Kerb

SEWER

- Sewer Manhole
- Sewer Pipe

PROPOSED SERVICES:

WATER

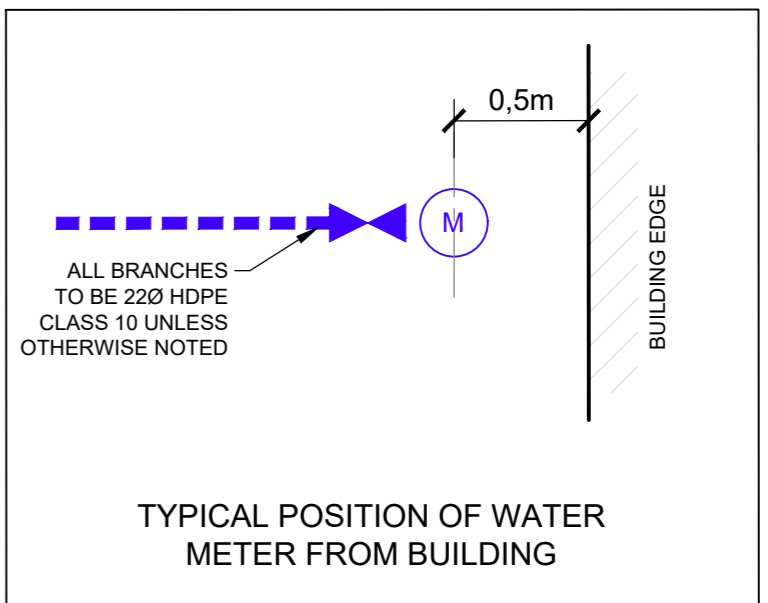
- 200mm Water Meter
- Isolating Valve
- Fire Hydrant
- Stand Pipe Tap
- Fire Pipe
- Domestic Water Pipe

ROADS AND STORMWATER

- Stormwater Catchpit
- Stormwater Manhole
- Kerb Inlet
- Stormwater Pipe
- Barrier Kerb

SEWER

- Sewer Manhole
- Sewer Pipe



NOTES:

- SURVEY COORDINATE SYSTEM LOZ7
- POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES
- THE DRAWING SHOULD BE READ IN CONJUNCTION WITH THE FOLLOWING LAYOUT DRAWINGS: DWG NO'S: 1749-RDS-010 AND 1749-S-001

No	APPROVED	AMENDMENTS	DATE
T1	LC	WATER BRANCH SPECS ADDED	08/11/2023
T0	LC	ISSUED FOR TENDER	07/11/2023
SURVEYED FLATELA AND ASSOCIATED MAR 2023			
DRAWN C SCHWEDHELM OCT 2023			
DESIGNED L COETZER OCT 2023			
CHECKED L COETZER OCT 2023			
APPROVED PR REGISTRATION NO 20190266 DATE: 07/11/2023			

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LUKHOZI

LUKHOZI CONSULTING ENGINEERS (PTY) LTD

KWANA LUKHOZI, QUARTZITE DRIVE, THE QUARRY, SELBORNE, 2021

TEL: 043 721 1311
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 WEB: www.lukhozi.co.za

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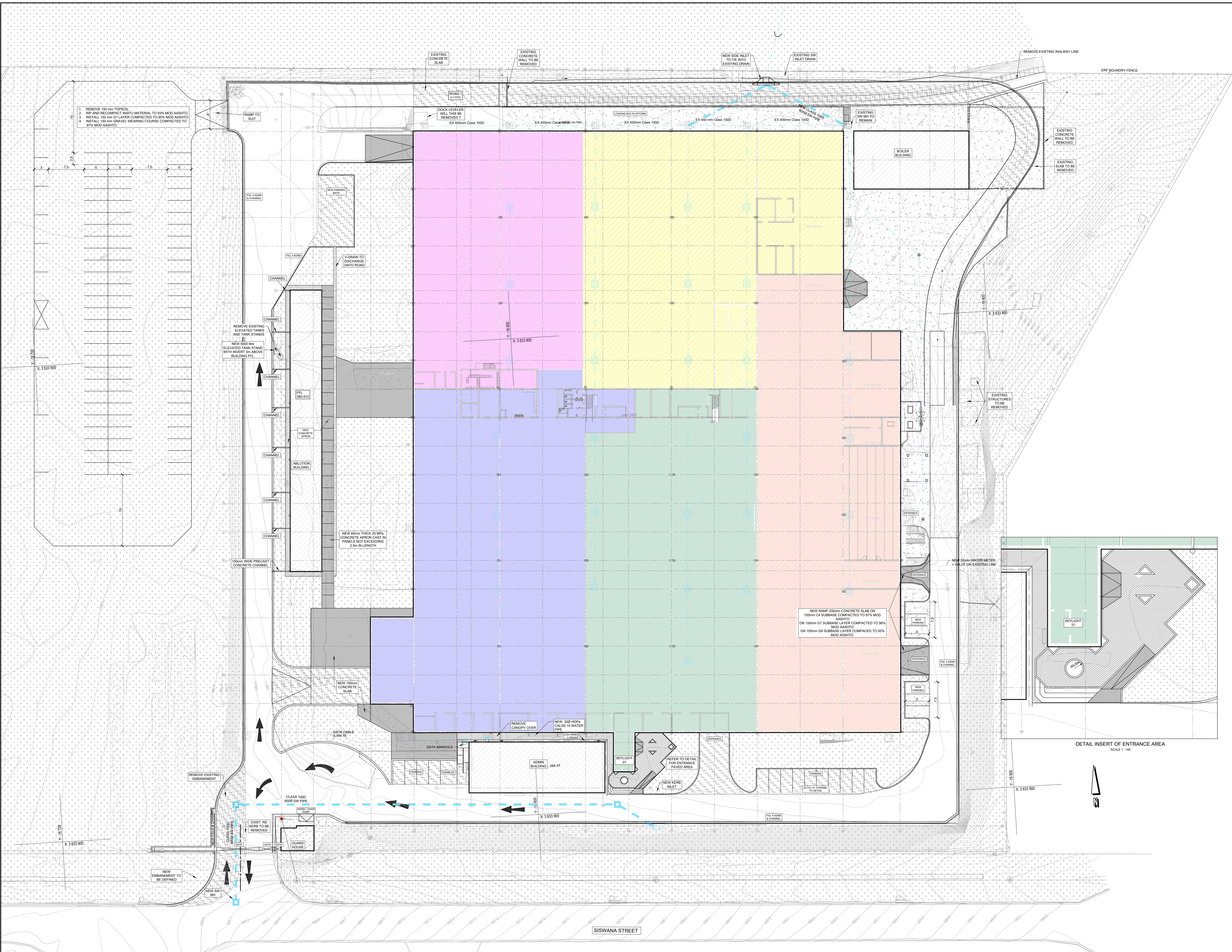
EASTERN CAPE DEVELOPMENT CORPORATION

DIMBAZA INDUSTRIAL PARK SITE 3

EXISTING AND PROPOSED STORMWATER SEWER AND WATER LAYOUT

SCALE: 1:250 SHEET SET: SHEET 1 OF 1 SHEETS SHEET SIZE: A0

DRAWING NO: 1749-GEN-021 REVISION: T1



LEGEND:

SURFACE FINISHES:

- NEW BLACK TOP ROAD
- RE-SURFICED BLACK TOP ROAD
- 100mm CONCRETE
- BOND PAVING
- GRASS AREA
- PROPOSED STORMWATER MANHOLE
- PROPOSED STORMWATER PIPE
- PROPOSED KERB INLET
- PROPOSED STORMWATER PIPE

NOTES:

- SEWER:** THE CONTRACTOR IS TO INSPECT THE SEWER SYSTEM AND REPORT THE CONDITION THEREOF TO THE ENGINEER. IT IS THE RESPONSIBILITY OF THE ENGINEER TO DECIDE ON THE COURSE OF ACTION IN TERMS OF THE REPLACEMENT OR REPAIR OF ANY OF THE SEWER LINES.
- STORMWATER:** THE CONTRACTOR IS TO INSPECT THE STORMWATER SYSTEM AND REPORT THE CONDITION THEREOF TO THE ENGINEER. THE EXTERNAL LINE FROM THE BUILDING EDGE TO THE OUTSIDE OF THE PROPERTY IS TO BE CHECKED AND THE OUTFALL IS TO BE CLEARED OF DEBRIS.
- ROOF WATERPROOFING:** ON THE MAIN STRUCTURE AND THE GUARDHOUSE, ALL THE WATERPROOFING ON THE CONCRETE ROOFS MUST BE REMOVED AND THE ROOF CLEANED. THEREAFTER A SINGLE COAT OF BUTY PRIME IS TO BE APPLIED FOLLOWED BY THE APPLICATION OF ABE DERISOM 4 mm WATERPROOFING MEMBRANE AND TWO COATS OF SALVADOL, ALL AS SUPPLIED BY ABE OR SIMILAR APPROVED PRODUCT.
- BUILDINGS:** ALL CONCRETE IS TO BE CHECKED BY THE CONTRACTOR AND ALL DAMAGED AND SPALLED CONCRETE IS TO BE REPORTED TO THE ENGINEER.

ALL TIMBER FURLING ON THE ABLUTION AND THE ADMINISTRATION BLOCKS MUST BE REPLACED.

THE ENTIRE STEEL STRUCTURE IS TO BE CLEANED USING HIGH-PRESSURE HOISING AND ALL CORRODED AND DAMAGED ELEMENTS MUST BE EITHER REPLACED OR REPAIRED. THE ENTIRE STEEL STRUCTURE IS TO BE PAINTED IN ACCORDANCE WITH THE PAINT SPEC AS PER THE DRAWINGS.

NOTES:

- SURVEY COORDINATE SYSTEM LOT 27
- POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES.
- THE DRAWING SHOULD BE READ IN CONJUNCTION WITH THE FOLLOWING LAYOUT DRAWINGS: DWG NO'S: 1749-RD-S-010 AND 1749-L-S-001

No	APPROVED	AMENDMENTS	DATE
0	GXT	ISSUED FOR TENDER	21-11-2023
01	GXT	ISSUED FOR MEASUREMENT	15-11-2023
02	GXT	ISSUED FOR INFORMATION	03-11-2023
SURVEYED		FLATELA AND ASSOCIATED	MAR 2023
DRAWN		G SCHWEDHELM	OCT 2023
DESIGNED		G.TOLOBISA	OCT 2023
CHECKED		G.TOLOBISA	OCT 2023
APPROVED		PR REGISTRATION NO 20190483	DATE: 03-11-2023

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LUKHOZI

LUKHOZI CONSULTING ENGINEERS (PTY) LTD

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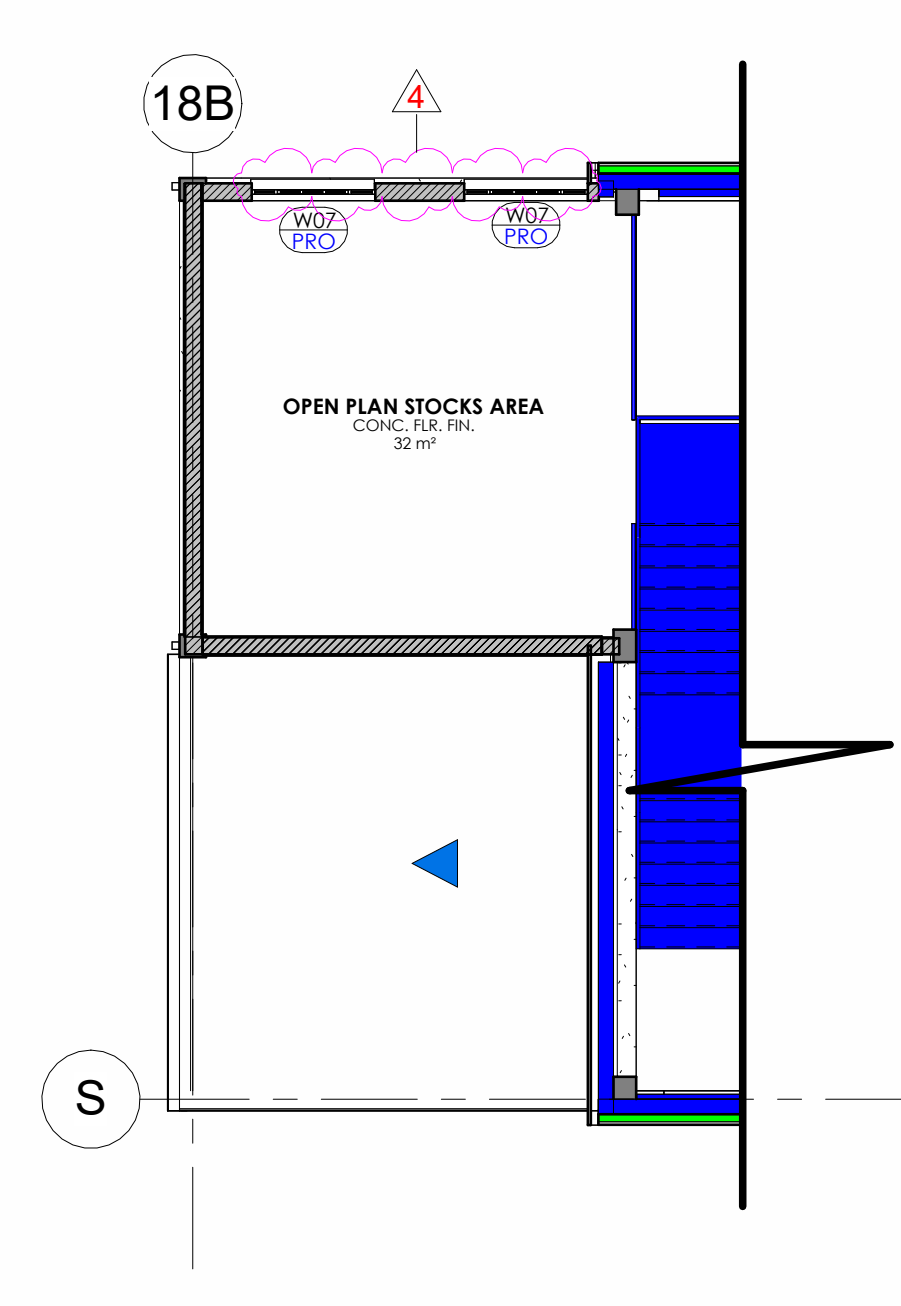
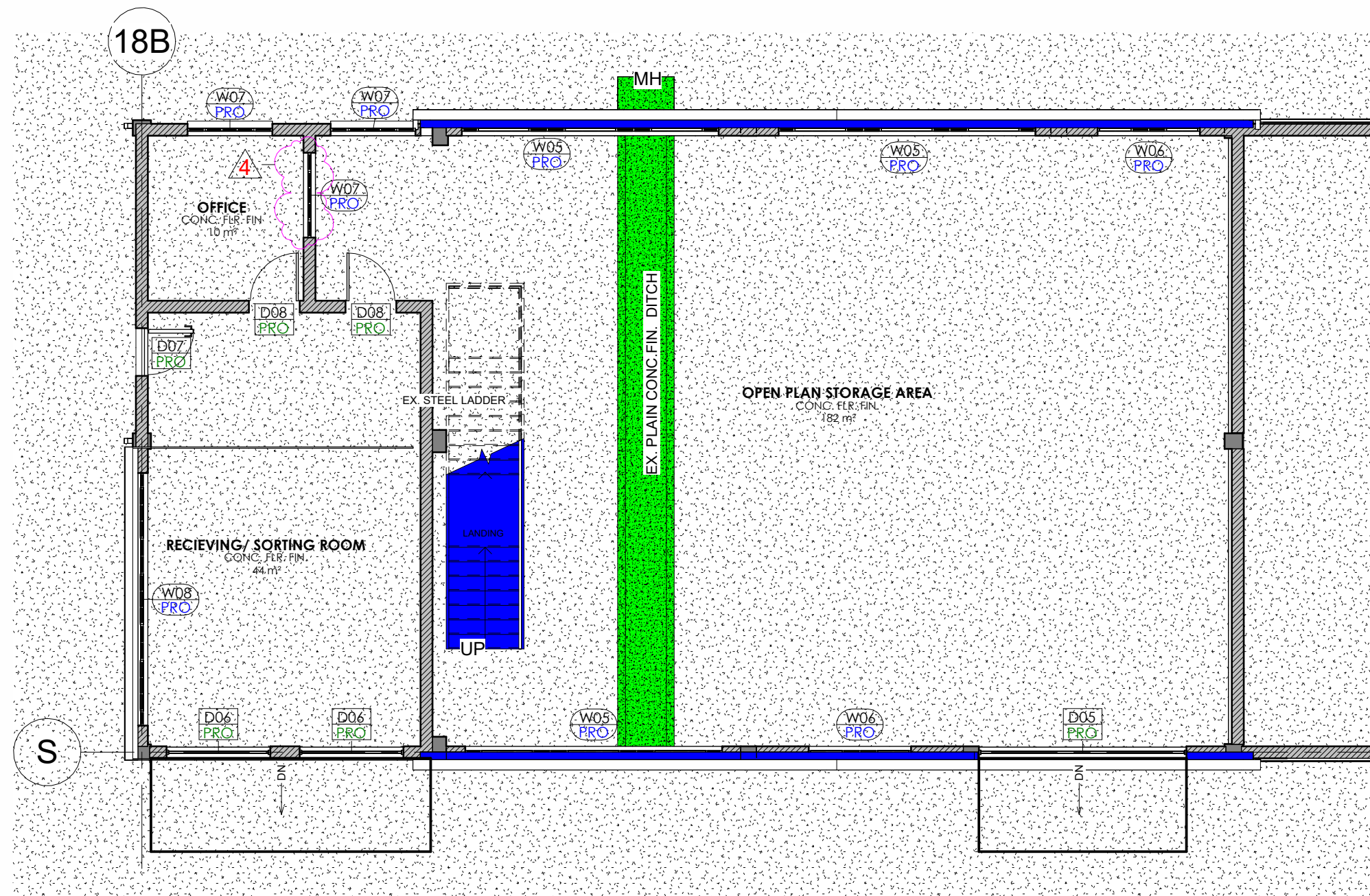
EASTERN CAPE DEVELOPMENT CORPORATION

PROJECT TITLE: **DIMBAZA INDUSTRIAL PARK SITE 3**

DRAWING TITLE: **EXISTING AND PROPOSED ROADS AND WALKWAYS**

SCALE	SHEET SET	SHEET NO	SHEET TOTAL
1 : 250	SHEET 1 OF 1 SHEETS	A0	0

DRAWING NO: **1749-GEN-020**



DOOR SCHEDULE									
FAMILY	MARK	COUNT	HEIGHT	WIDTH	DOOR FRAME	LEVEL			
BOI-D05-PRO-ROLL-UP DOOR 4000X4545	D05	1	4545	4000	STEEL GUIDE RAIL	BOI GRND FLR UFFL			
BOI-D06-PRO-ROLL-UP DOOR 2000X2000	D06	2	2713	2000	STEEL GUIDE RAIL	BOI GRND FLR UFFL			
BOI-D07-PRO-2100 X 900MM STEEL ENTRANCE DOOR	D07	1	2100	900	STEEL FRAME	BOI GRND FLR UFFL			
BOI-D08-PRO-2140 X 980MM SLATTEDOOR W/ GLASS & LOUVER	D08	2	2140	980	TIMBER FRAME	BOI GRND FLR UFFL			
Grand total: 6									

WINDOW SCHEDULE									
FAMILY	MARK	COUNT	HEIGHT	WIDTH	LEVEL				
BOI GRND FLR UFFL									
BOI-W05-PRO-ALUM. WINDOW 1410X4951	W05	3	1410	4951	BOI GRND FLR UFFL				
BOI-W06-PRO-ALUM. WINDOW 1410X1973	W06	2	1410	1973	BOI GRND FLR UFFL				
BOI-W07-PRO-ALUM. WINDOW 965X1635	W07	3	965	1635	BOI GRND FLR UFFL				
BOI-W08-PRO-ALUM. WINDOW 965X4870	W08	1	965	4870	BOI GRND FLR UFFL				
BOI 2ND FLR BEAM UFFL									
BOI-W07-PRO-ALUM. WINDOW 965X1635	W07	2	965	1635	BOI 2ND FLR BEAM UFFL				

2 DOORS & WINDOWS KEY PLAN
1:100

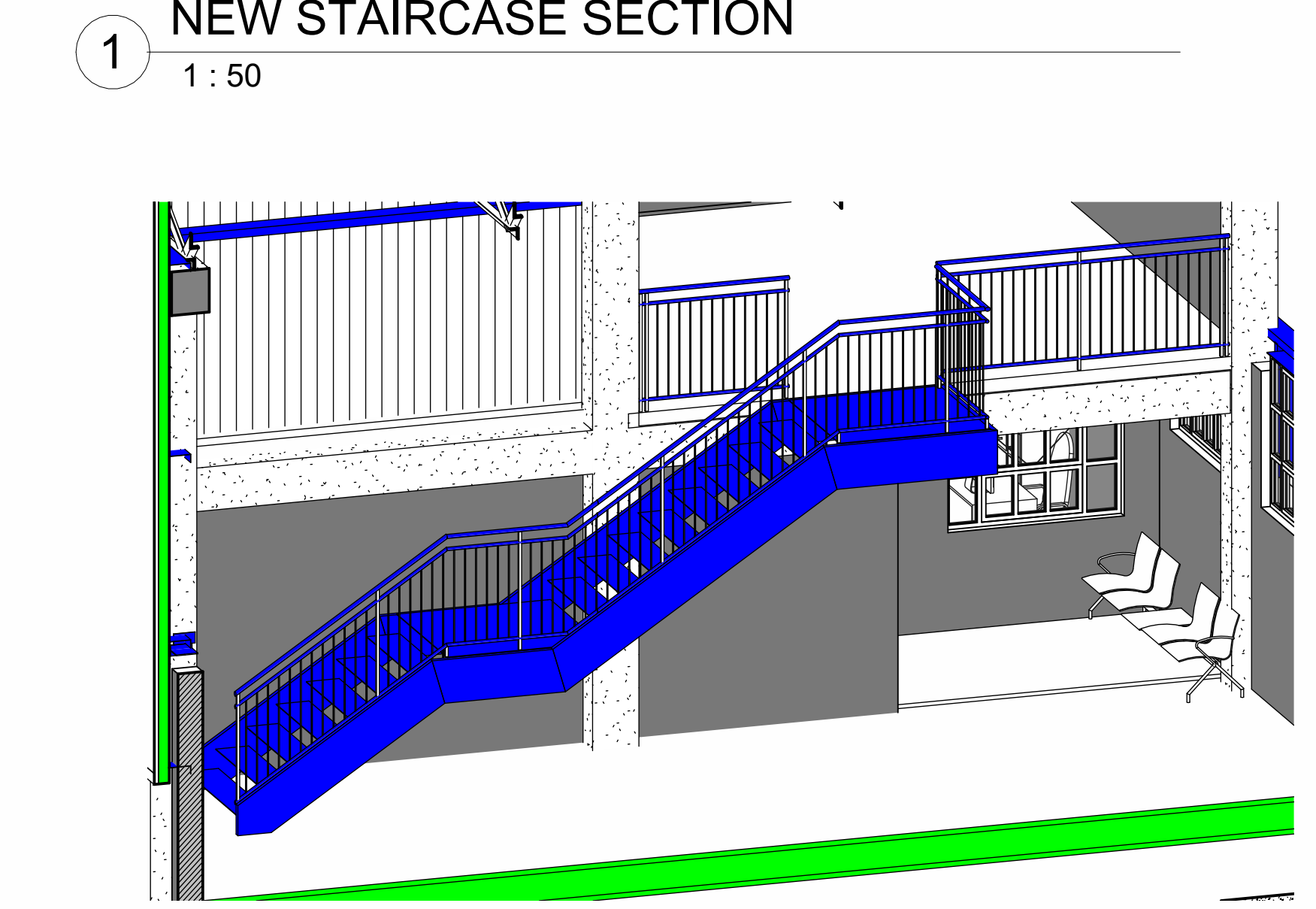
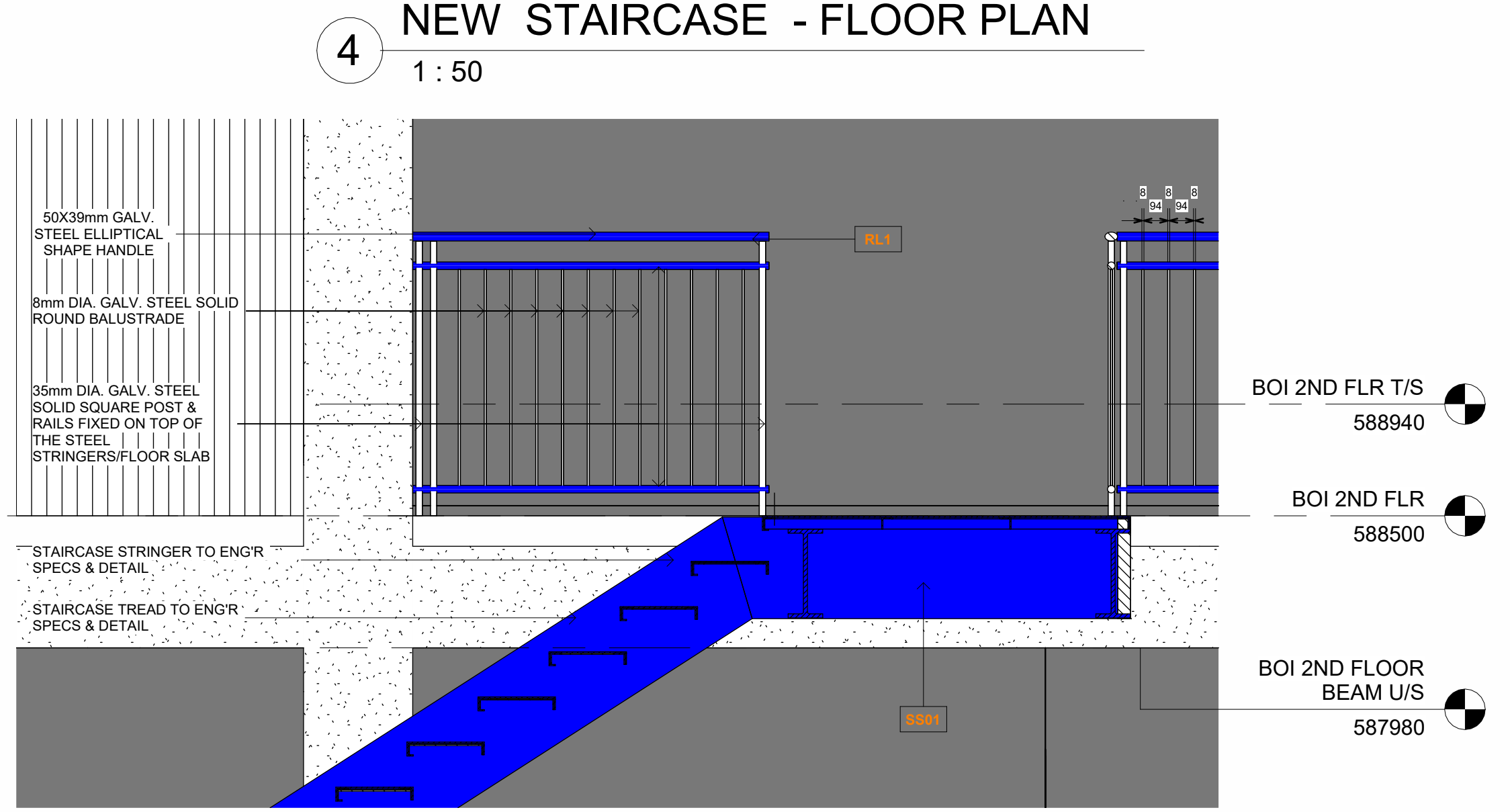
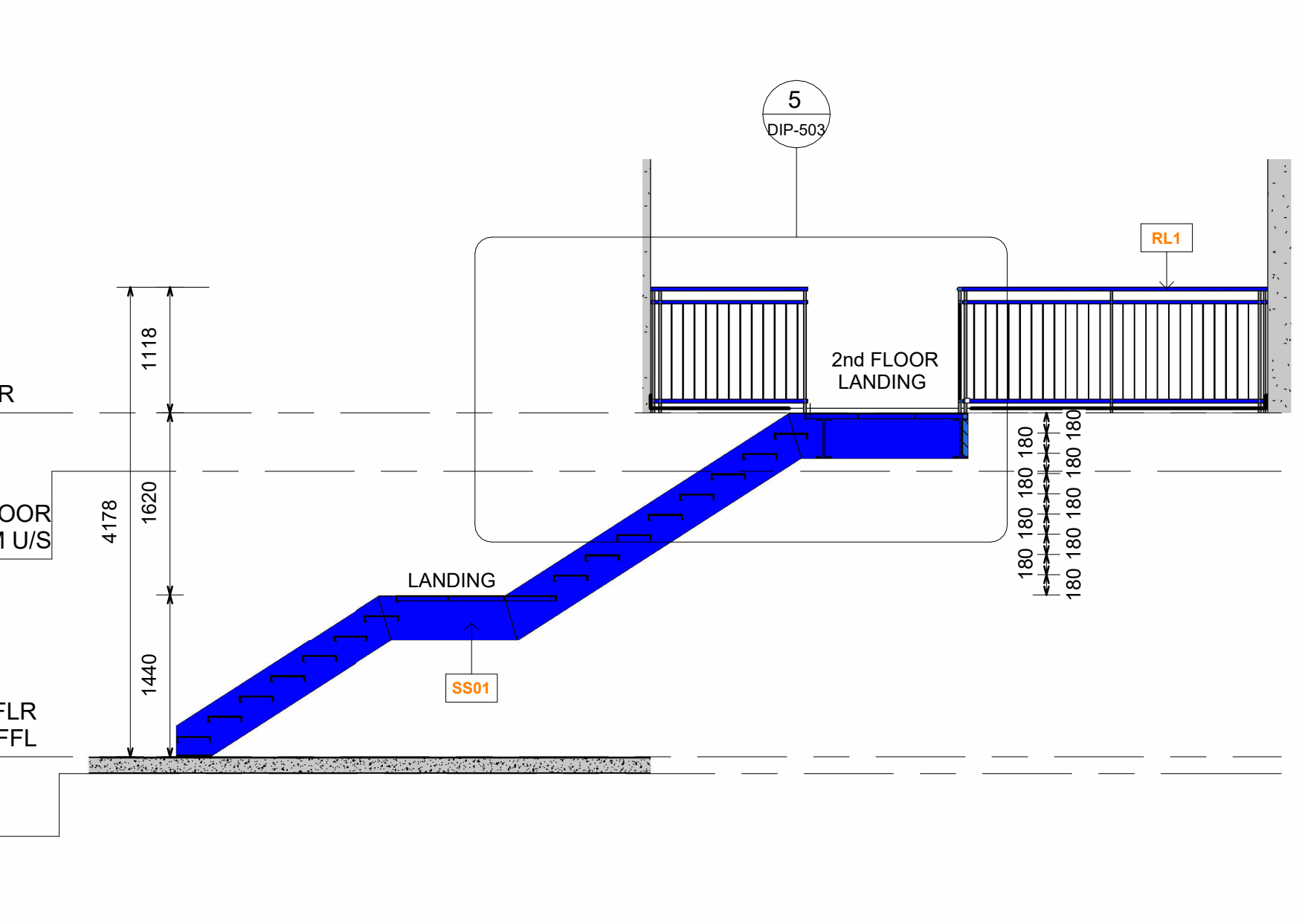
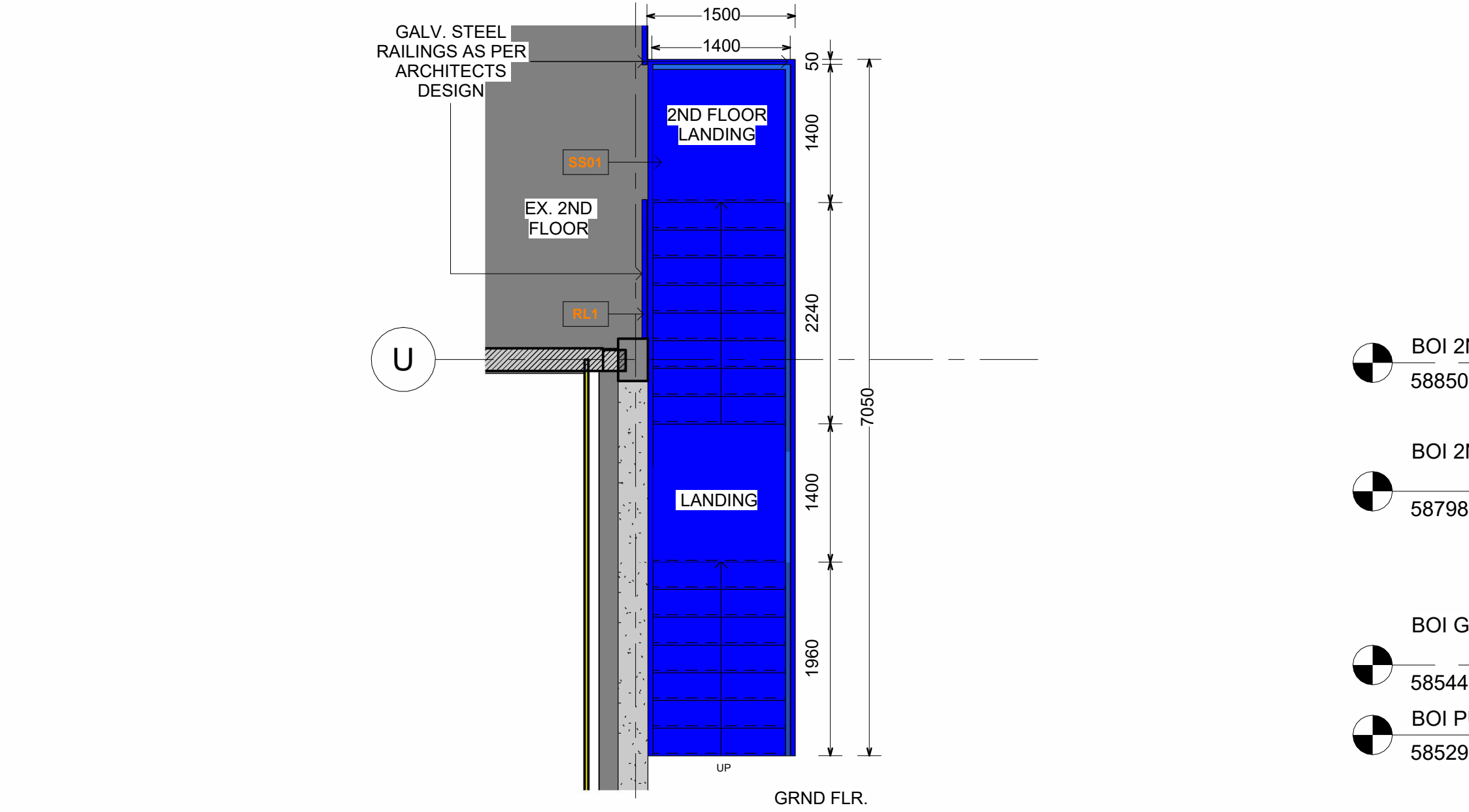
3 2ND FLR. WINDOWS KEY PLAN
1:100

FRONT ELEVATION	FLOOR PLAN	STATUS QUID									
		<table border="1"> <tr> <td>NAME</td> <td>D05 PRO</td> <td>BOI-D05-PRO-ROLLER SHUTTER DOOR</td> </tr> <tr> <td>CATEGORY</td> <td>AS-BUILT</td> <td>PROPOSAL</td> </tr> <tr> <td>SPECIFICATION</td> <td colspan="2">Standard electrically operated roller shutter in Galvanised finish, overall size 4000mm x 4545mm high with 550mm headroom with 130mm clearance on free side and 315mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Roll-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.</td> </tr> </table>	NAME	D05 PRO	BOI-D05-PRO-ROLLER SHUTTER DOOR	CATEGORY	AS-BUILT	PROPOSAL	SPECIFICATION	Standard electrically operated roller shutter in Galvanised finish, overall size 4000mm x 4545mm high with 550mm headroom with 130mm clearance on free side and 315mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Roll-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.	
NAME	D05 PRO	BOI-D05-PRO-ROLLER SHUTTER DOOR									
CATEGORY	AS-BUILT	PROPOSAL									
SPECIFICATION	Standard electrically operated roller shutter in Galvanised finish, overall size 4000mm x 4545mm high with 550mm headroom with 130mm clearance on free side and 315mm clearance on operator side. 75mm wide x 1mm thick slates, 75mm wide side guides, Xpanda Roll-Lok, with pressed steel canopy cover and weather strip T-bar to bottom edge, with perimeter framing plugged and screwed to face at maximum 300mm centres to concrete or brickwork.										
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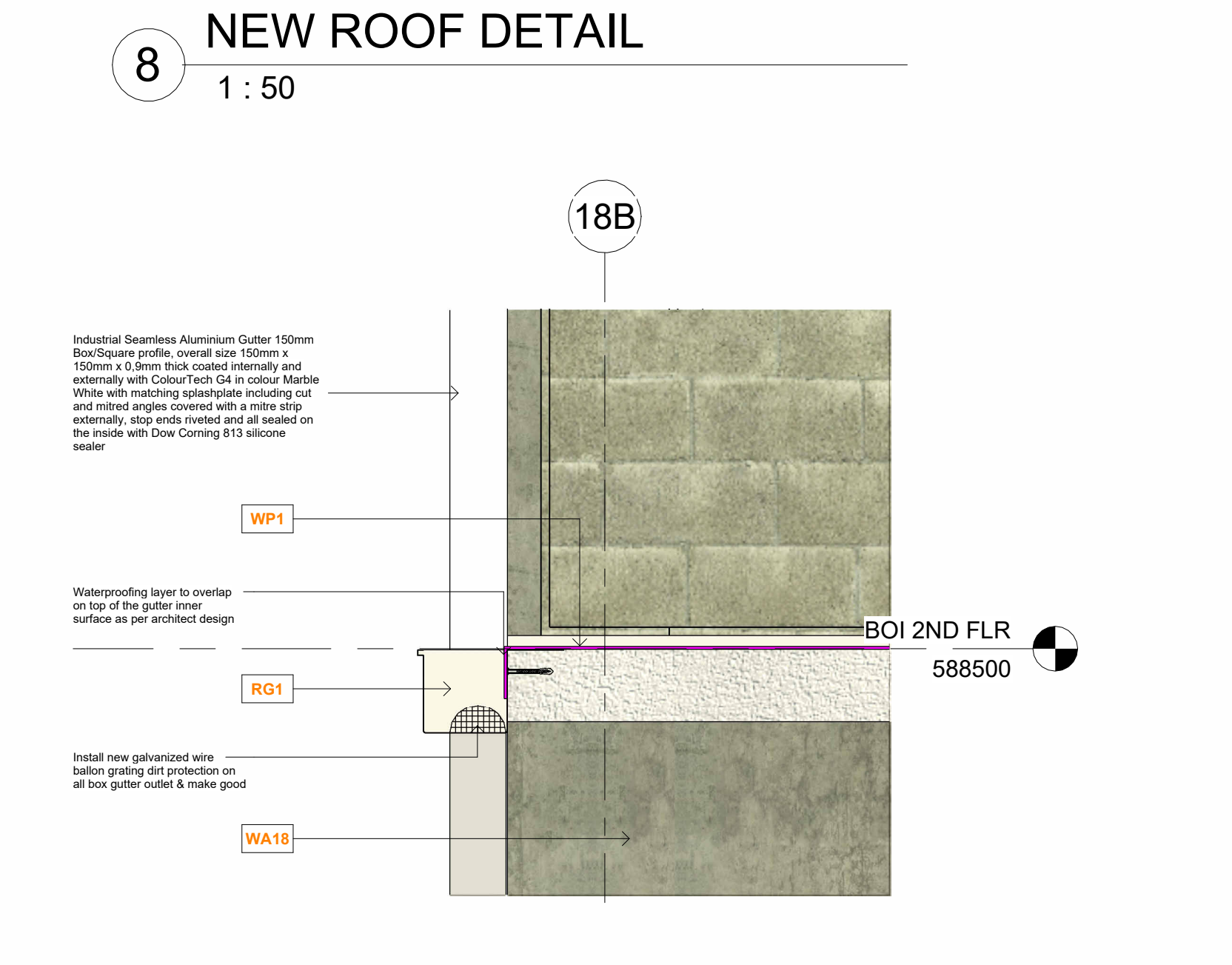
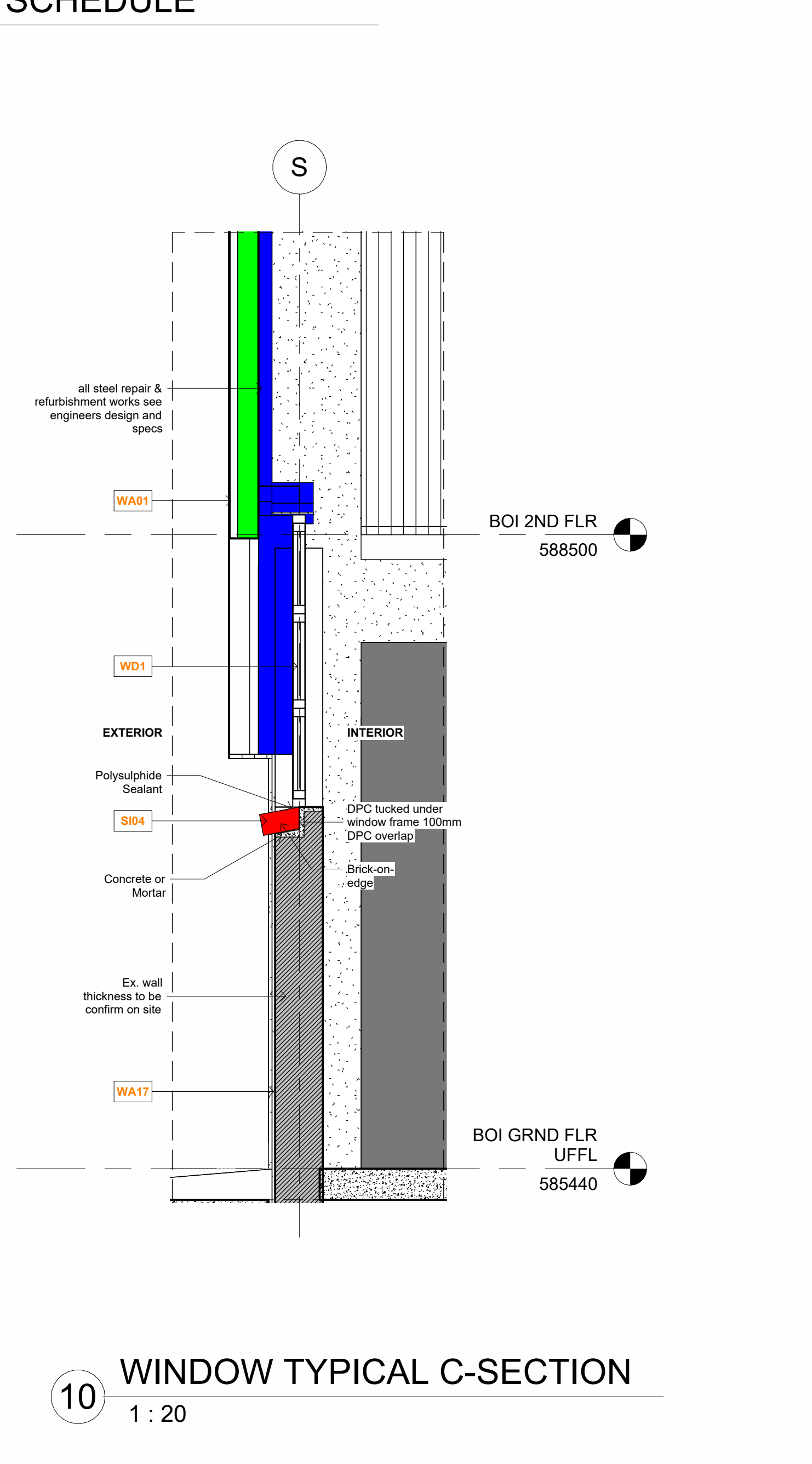
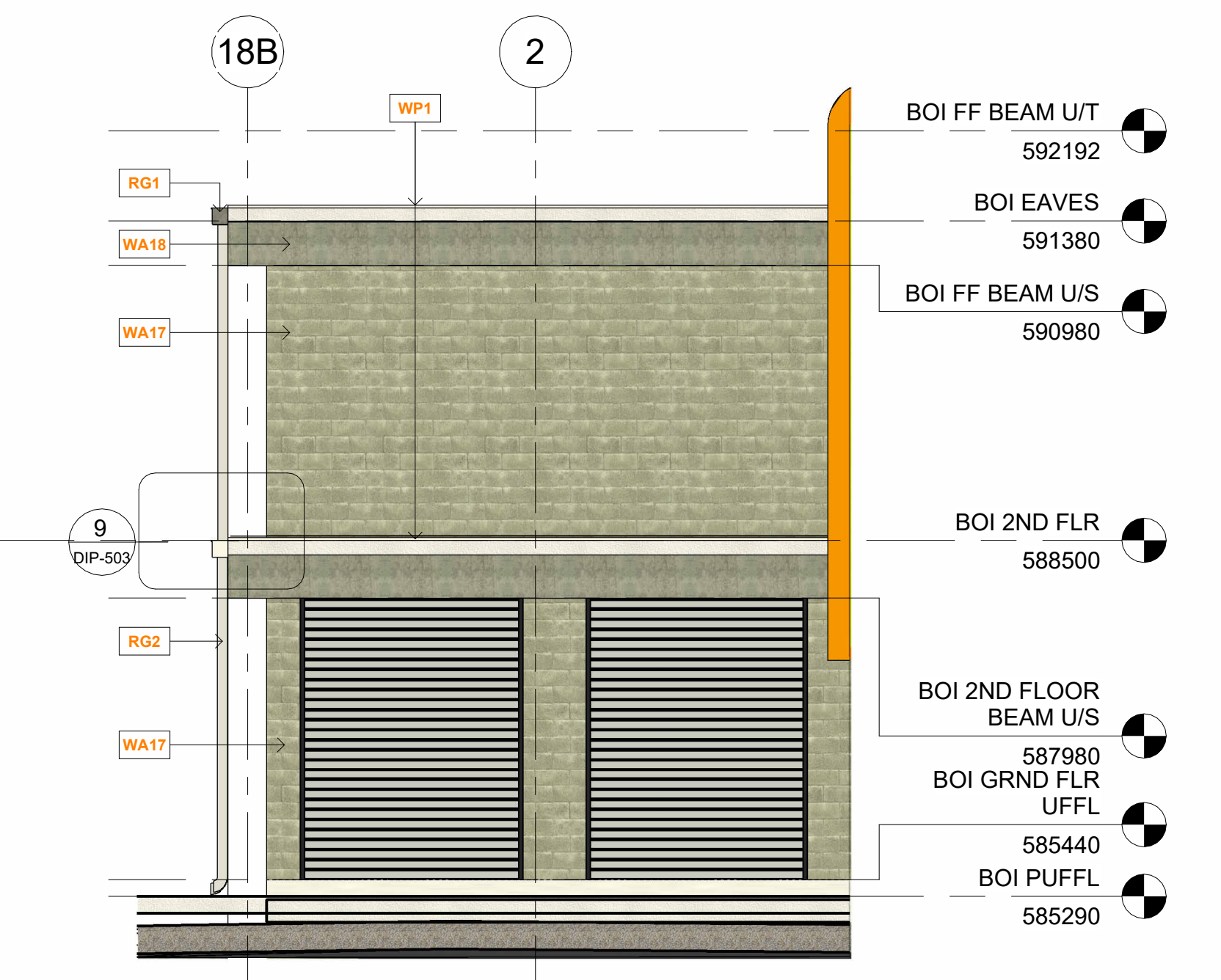
BOI-AS-DOOR SCHEDULE
1:50

BOI-AS-WINDOW SCHEDULE
1:50



NEW STAIRCASE SECTION - CALL OUT 01
1:20

NEW STAIRCASE
1:20



WINDOW TYPICAL C-SECTION
1:20

EAVES DETAIL
1:10



Consultant: Pinoy Pride Architecture
Appointment: Project Architect
Address: 28 Candleberry Drive Nahoon Valley Park, EL
Phone: 084 055 4233
e-mail: pinoypride8791@gmail.com

ARCHITECT

Consultant: MMDP Quantity Surveyors
Appointment: Project Quantity Surveyor
Address: 1st Floor Hammer Mill House, The Quarry, Selborne, EL
Phone: 083 348 1228
e-mail: felicity@mmdp.co.za

QUANTITY SURVEYOR

Consultant: Lukhozi Consulting Engineers
Appointment: Project Civil & Structural Engineer
Address: Kwa-Lukhozi, Quartzite Dr. The Quarry, Selborne, EL
Phone: 082 894 0816
e-mail: l.coetzer@lukhozi.co.za

CIVIL & STRUCTURAL ENGINEER

Consultant: RNA Consulting Engineers
Appointment: Project Mech. & Electrical Engineer
Address: 11 Bonza Bay Road, Beacon Bay, EL
Phone: 083 381 9985
e-mail: travis@rnaconsulteng.co.za toby@rnaconsulteng.co.za

MECHANICAL & ELECTRICAL ENGINEER

REVISION SCHEDULE		
No.	Description	Date
4	Boiler Rm. W07 Amendments	16-11-2023

- REPAIRS AND REFURBISHMENT NOTES:**
- ALL MEASUREMENT MUST BE DOUBLE CHECK ON SITE AND ON ACTUAL.
 - ANY DISCREPANCIES MUST BE BROUGHT TO THE ARCHITECTS ATTENTION FOR WAY-FORWARD.
 - ALL EXISTING MATERIALS, OPENINGS, SUBSTRATES, SIZES AND VARIATIONS FROM EACH OTHER AND MUST BE TREATED AND ADJUSTED INDIVIDUALLY TO SUIT THE NEW PROPOSAL.
 - REPAIRS AND REFURBISHMENT WORKS MUST BE READ IN COORDINATION WITH THE OTHER DRAWINGS, SCHEDULES, DETAILS, KEY PLANS, SHOP DRAWINGS AND ETC.
 - ALL WALLS OPENINGS CAUSE BY NEW, REPAIRS, REPLACEMENT OR REFURBISHMENT OF WINDOWS, DOORS, CURTAIN WALLS AND ETC., THAT IS WITHOUT BEAM PROTECTION OR SOFFIT/TOPSIDE, MUST BE PROVIDED EITHER WITH BRICK LINTEL FOR BRICK WALLS OR BLOCKS LINTEL FOR BLOCK WALLS. LINTEL MUST BE PLASTERED, PAINTED & MAKE GOOD. REFER TO ENCRS DRAWING FOR DETAILS.
 - ARCHITECTS DRAWING MUST BE READ, PLANNED AND COORDINATED WITH OTHER PROFESSIONAL DRAWINGS, DETAILS, SCHEDULES AND ETC.
 - ALL REPAIRS, REFURBISHMENT AND REPLACEMENT WORKS MUST EITHER SUIT OR ADJUSTED TO ACCOMMODATE THE NEW PROPOSAL AND MAKE GOOD.
 - ANY UNFORESEEN NEW ITEMS, ISSUES OR SCOPE OF WORKS MUST BE BROUGHT TO THE ARCHITECTS AND PRINCIPAL AGENT ATTENTION FOR WAY-FORWARD.
 - NO NEW OR EXTRA WORK BEYOND THE ORIGINAL SCOPE OF WORKS WITHOUT THE PRINCIPAL AGENT AUTHORIZATION OR APPROVAL.
 - CHANGES OR SCOPE ALTERATION MUST BE DONE IN WRITING OR GIVEN UNDER THE SITE INSTRUCTION BOOK BY THE PRINCIPAL AGENT. SPECIALLY CHANGES THAT HAS "EOT" EXTENSION OF TIME CLAIM AND COST IMPLICATION.
 - ALL WORKS MUST COMPLY WITH THE CURRENT SOUTH AFRICAN BUILDING CODES/STANDARDS/NORMS, REGULATIONS AND THE CONTRACT AGREEMENTS.

FOR CONSTRUCTION

Client: ECDC

Project name: REPAIRS & REFURBISHMENTS IN DIMBAZA INDUSTRIAL PARK SITE 3

Drawing name: BOILER BUILDING DOORS & WINDOWS SCHEDULE, SPECS & DETAILS

Site address: ERF 2973 DIMBAZA INDUSTRIAL PARK SITE 3

Project number: RFQ00868/2022

Date: 29MAY2023

Drawn by: AAC

Checked by: AMD

Sheet no.: DIP-503

Scale: As indicated

