water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

DUE AT 11:00 ON

(CLOSING DATE 11 September 2025)

BID DWS09-0825WTE

TZANEEN VILLAGE PHASE 2: CONSTRUCTION OF 2 X 2 BEDROOM HOUSES AT TZANEEN VILLAGE. ONLY BIDDERS WITH CIDB CONTRACTOR GRADING DESIGNATED OF CIDB 4GB OR HIGHER

SUBMIT COMPLETED BID DOCUMENTS TO:

POSTAL ADDRESS:
DIRECTOR-GENERAL
WATER AND SANITATION
PRIVATE BAG X313
PRETORIA, 0001

OR

TO BE DEPOSITED IN:
THE BID BOX AT THE ENTRANCE
OF ZWAMADAKA BUILDING
157 FRANCIS BAARD STREET
PRETORIA, 0001

COMPULSORY BRIEFING SESSION
Date: 19 August 2025
Time: 10:00 am
Venue: Department of Water and Sanitation Tzaneen Area Office Voortrekker Street, Tzaneen Dam, (between Tzaneen Dam and SAPS Community Centre).
Coordinates: 23°48'23.12"S, 30° 9'26.55"E

BIDDER: **(Company address or stamp)**

COMPILED BY:

DEPARTMENT OF WATER AND SANITATION

BID DWS09-0825WTE

TZANEEN VILLAGE PHASE 2: CONSTRUCTION OF 2 X 2 BEDROOM HOUSES AT TZANEEN VILLAGE. ONLY BIDDERS WITH CIDB CONTRACTOR GRADING DESIGNATED OF CIDB 4GB OR HIGHER

CONTENTS

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (*NAME OF DEPARTMENT/ PUBLIC ENTITY*)					
BID NUMBER:	BID DWS09-0825WTE	CLOSING DATE:	11 September 2025	CLOSING TIME:	11:00
DESCRIPTION	Tzaneen Village Phase 2: Construction 2 X 2 bedroom houses at Tzaneen Village. Only bidders with CIDB contractor grading designated of 4 GB or higher .				

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT *(STREET ADDRESS)*
THE ENTRANCE OF ZWAMADAKA BUILDING
157 FRANCIS BAARD STREET
PRETORIA
0001

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO		TECHNICAL ENQUIRIES MAY BE DIRECTED TO:	
CONTACT PERSON	Bid Office	CONTACT PERSON	Mr. Walter Berg Rodriguez
TELEPHONE NUMBER		TELEPHONE NUMBER	**082 874 5638**
FACSIMILE NUMBER	N/A	FACSIMILE NUMBER	N/A
E-MAIL ADDRESS	bidenquirieswte@dws.gov.za	E-MAIL ADDRESS	Berg-RodriguezW@dws.gov.za

SUPPLIER INFORMATION				
NAME OF BIDDER				
POSTAL ADDRESS				
STREET ADDRESS				
TELEPHONE NUMBER	CODE		NUMBER	
CELL PHONE NUMBER				
FACSIMILE NUMBER	CODE		NUMBER	
E-MAIL ADDRESS				
VAT REGISTRATION NUMBER				
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR CENTRAL SUPPLIER DATABASE No:	MAAA

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN-BASED SUPPLIER OF THE GOODS /SERVICES OFFERED?	☐Yes ☐No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS	
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES ☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES ☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES ☐ 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 SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED (NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER: ……

CAPACITY UNDER WHICH THIS BID IS SIGNED: ……
(Proof of authority must be submitted e.g. company resolution)

DATE: ……

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF WATER AND SANITATION

BID DWS09 0825 WTE

TZANEEN VILLAGE PHASE 2: CONSTRUCTION OF 2 X 2 BEDROOM HOUSES AT TZANEEN VILLAGE. ONLY BIDDERS WITH CIDB CONTRACTOR GRADING DESIGNATED OF 4GB OR HIGHER

TENDER NOTICE AND INVITATION TO TENDER

The Department of Water and Sanitation (DWS) invites tenderers experienced in contraction for the, construction of 2 X 2 bedroom houses at Tzaneen Village .

This contract will be based on The General condition of the Contract for Construction Works (3rd Edition 2015) as published by the South African Institute of Civil Engineering (SAICE)

Documents may be downloaded from Department of Water and Sanitation website at www.dws.gov.za and from National Treasury website at www.etenders.gov.za.

Queries relating to the issue of these documents may be addressed in writing to bidenquirieswte@dws.gov.za and Berg-RodriguezW@dws.gov.za

A compulsory site clarification meeting with representatives of the Employer will take place at Department of Water and Sanitation Tzaneen Area Office Voortrekker Street, Tzaneen Dam (between Tzaneen Dam and SAPS Community Centre) (GPS coordinates: 23°48'23.12"S, 30° 9'26.55"E) – see Submission Data for further particulars) on 19/08/2025 starting at 10:00 hrs.

The closing time for receipt of tenders is 11:00 hrs on 11/09/2025. Telegraphic, telephonic, telex, facsimile, e-mail 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.

DEPARTMENT OF WATER AND SANITATION

BID DWS09-0825WTE

TZANEEN VILLAGE PHASE 2: CONSTRUCTION OF 2 X 2 BEDROOM HOUSES AT TZANEEN VILLAGE. ONLY BIDDERS WITH CIDB CONTRACTOR GRADING DESIGNATED OF CIDB 4GB OR HIGHER

SECTION 1: LEGALITIES

CONTENTS

DEPARTMENT OF WATER AND SANITATION

BID DWS09-0825WTE

TZANEEN VILLAGE PHASE 2: CONSTRUCTION OF 2 X 2 BEDROOM HOUSES AT TZANEEN VILLAGE. ONLY BIDDERS WITH CIDB CONTRACTOR GRADING DESIGNATED OF CIDB 4GB OR HIGHER

1. INSTRUCTIONS TO BIDDERS

CONTENTS

INSTRUCTIONS TO BIDDERS

1. ISSUING OF DOCUMENTS

(a) A complete set of bid documents are available from the DWS website.

(b) Bidders must satisfy themselves that the document is complete and conform to the index of this document. Should any figures or writing be indistinct, or should any pages be missing from this document or should this document or the drawing(s) contain any obvious errors, the Bidders must immediately notify the Department in order to have any discrepancy rectified or clarified before submitting his bid. Such clarification will be valid only if made by the Department by means of formal amendment as described hereunder prior to the date of submission of bids. The Department may issue amendments to clarify or modify the Bid Documents. A copy of each amendment will be issued to each bidder and shall be acknowledged on the form issued with the amendments. No claim whatsoever will be entertained for faults in the bid price resulting from the above-mentioned discrepancies.

(c) No alterations, omissions or additions shall be made to this document, but should it be deemed necessary to do so, the Bidder is at liberty to qualify his bid.

(d) All Bidders shall be deemed to have waived, renounced and abandoned any conditions printed or written upon any stationery used by them for the purpose of or in connection with the submission of bids which are in conflict with the conditions laid down in this document.

2. QUERIES WITH RESPECT TO THIS BID

Queries of a specific technical nature should be directed to Walter Berg Rodriguez (Berg-RodriguezW@dws.gov.za) and bidenquirieswte@dws.gov.za

3. COMPLETION OF BIDS

(a) The bid must be signed on the Invitation to Bid form (SBD 1) annexed hereto with all blanks in the bid and the appendix filled in.

(b) All spaces in the bid forms and other annexures shall be completed in full.

(c) Section 3 in the bid document and the Pricing Schedule must be fully completed and priced out by the bidder. Failure to do so will deem your bid invalid.

(d) The bid documents shall not be separated in any way, nor must any pages be detached from the original documents.

4. SUBMISSION OF BIDS

The Bid Document shall be completed, signed and submitted as follows:

a) The original Bid, together with a cover letter and supporting documents, shall be sealed in an envelope endorsed:

and the name of the Bidder shall be clearly shown.

b) Bids sealed and endorsed as above, may be deposited in the bid box at the entrance of the ZwaMadaka Building, 157 Francis Baard Street, Pretoria and not later than 11:00 on the date stipulated on the front cover of this document.

5. SIGNATURE ON BIDS

If the bid is submitted by a joint venture of more than one person and/or Companies and/or firms it shall be accompanied by the following:

(a) The original or a notarially certified copy of the original document under which such joint venture was constituted which must define precisely inter alia the conditions under which the joint venture will function, its period of duration and the participation of the several constituent persons and/or companies and/or firms.

(b) A certificate signed by or on behalf of each participating person and/or company and/or firm authorising the person who signed the bid to do so.

6. GENERAL CONDITIONS OF THE CONTRACT

This contract will be based on The General condition of the Contract for Construction Works (3rd Edition 2015) as published by the South African Institute of Civil Engineering (SAICE)

7. BIDDERS TO COMPLY WITH DOCUMENTS

Where applicable, Bidders must allow in their Bids for all labour, material, machinery, and everything necessary for the execution and completion of the Contract in accordance with the bid documents. No alterations may be made in the Invitation to Bid, Schedule of Quantities or other documents and the bid will be deemed to comply entirely with the terms of the documents.

8. TELEGRAPHIC BIDS

No bid forwarded by telegram, telex, or facsimile will be considered.

9. THE DEPARTMENTS RESERVE A RIGHT TO DECLINE ANY BID

The Department does not bind itself to accept the lowest or any bid.

10. THE DEPARTMENT IS NOT LIABLE FOR THE BIDDER'S EXPENSES

The Department will not be held liable for any expenses incurred in preparing and submitting bids.

11. PAYMENTS UNDER THE CONTRACT

All payments due to the Bidder in terms of the contract will be done by means of Electronic Fund Transfer.

12. EVALUATION CRITERIA

Bids will be evaluated in four (4) phases as per PPPFA, Act No.5 of 2000 (PPPFA). The bidder scoring the highest points in phase 4 (Preference Points System) will be recommended for award. Four (4) evaluation phases as follows:

- **Phase 1: Mandatory Requirements**
- **Phase 2: Technical Evaluation and Specification Compliance**
- **Phase 3: Administrative Compliance**
- **Phase 4: Preference Points system**

Phase 1: Mandatory requirements

Bidders are required to comply with the following listed below. Failure to submit any of the documents listed below will render your bid non-responsive and will be disqualified.

No	Criteria	Yes	No
1.	Registered Contractor with CIDB, grading 4GB or Higher, and active status valid for the duration of the Contract.		
2.	Active registration with NHBRC valid for the duration of the Contract.		
3.	The project leader to be Civil Engineer / Technologist / Technician and professionally registered with ECSA as Professional Engineer (Pr.		

	Eng) / Professional Technologist (Pr. Tech Eng) or Professional Technician. Certificate / Registration number to be attached as proof.		
4.	Civil Engineering Artisan Foreman in a possession as minimum of National Diploma qualification. ND to be attached as proof.		
5.	Full completion of pricing schedule (SBD 3.1 form)		
6.	Compulsory briefing and site visit to be attended. The attendance register will be utilized as proof.		

Phase 2: Functionality criteria / Technical Evaluation Criteria

The bidder is expected to achieve a minimum required scores of 70% for functionality to qualify to the next phase. Bids that do not meet the minimum required scores will be disqualified.

The weight that will be allocated to the Functional/Technical criteria are as follows :0 = no response, 40 = poor, 70 = average, 90 = good and 100 = Excellent

No.	Technical Evaluation Criteria	Weighting	
1.	• **Bidders experience:** The Bidder shall list all works on the Annexure H of a similar nature which has been successfully executed by him/her during in the past five years. The minimum cost values of those completed projects shall be R 2 000 000. 1.1. The Tenderer must provide five final completion certificates confirming the implementation, sites where previous building projects or similar work/projects were implemented. • Certificate of Completion: The Certificate of Completion must be on the letterhead of the client, must be addressed to the contractor who was awarded the contract and must include the tender/service order number and the contract amount. The Letter of Completion must be signed and dated by an official from the client. **Scoring:** ✓ 5 + successfully completed building projects or similar projects: 30 ✓ 4 successfully completed building projects or similar projects: 27 ✓ 2 - 3 successfully completed building projects or similar projects: 21 ✓ 1 successfully completed building project or similar project: 12 ✓ 0 successfully completed building projects or similar projects: No response.	30	
2	**Personnel capability**: Bidders to submit a Company Organogram of all the personal that will support the execution of the works. (From the Director of the company to the unskilled labors) Note: Qualification and experience of the following key personnel to be indicated by the Tenderer. (*The key personnel to be in the employ of the bidder or letters of intent for personnel outside the employ of the bidding company must be included with the CV's*.)		20

No.	Technical Evaluation Criteria	Weighting	
	2.1. Project Leader / Project Manager experience: 2.1.1 Project Leader = 5+ years of experience: scores 10 2.1.2 Project Leader = 4 > 5 years of experience: scores 9 2.1.3 Project Leader = 3 > 4 years of experience: scores 7 2.1.4 Project Leader = 1 > 3 years of experience: scores 4 2.1.5 Project Leader = >1 years of experience: 0	10	
	2.2. Civil Engineering Artisan Foreman experience: 2.2.1. Civil Engineering Foreman = 5+ years of experience: 10 2.2.2. Civil Engineering Foreman = 4 > 5 years of experience: 9 2.2.3. Civil Engineering Foreman = 3 > 4 years of experience: 7 2.2.4. Civil Engineering Foreman = 1 > 3 year of experience: 4 2.2.5. Civil Engineering Foreman = >1 years of experience: 0	10	

3	**Methodology / Method Statement:** Bidders exhibits a clear understanding of the Project and has shown correct sequencing with a concise method statement for all activities incorporating best practices. The method statement must respond to the following: a) Is aligned to the project scope of work and it must show guidance on how the works will be executed on different activities within the project. b) Indicates the plant and the materials that will be utilized in the project. c) Refers to the program of works stating the commencement of the construction works, durations of the project, major resource utilized, the critical path, and the project's milestones demonstrating that the project can be delivered within stated period. d) Refers to the quality management plan indicating how the quality assurance and the quality control measures will be managed to ensure that the constructions procedures, the method statement, and where applicable remedial actions are performed in compliance with the relevant SANS standards, the approved drawings, and the project specifications. e) Refers to the health and safety plan and the foreseeable project risks. f) Refers to environmental management. **Scoring:** ✓ 6 aspects have been covered: 20 ✓ 5 aspects have been covered: 18 ✓ 3 - 4 aspects have been covered: 14 ✓ 1 - 2 aspect have been covered: 8 ✓ 0 aspect has been covered: No response.	20	

No.	Technical Evaluation Criteria	Weighting
4.	**Quality Management Plan** The Bidder indicates the following on the Quality Management Plan: 1. How the quality assurance and quality control measures will be managed. 2. Indicate the quality assurance activities. 3. Indicate the quality control activities and assessment of compliance. 4. Indicate acceptable quality standards. 5. Indicate methods of inspection, and testing. (Eg: Test, inspection plan, etc) 6. Indicate reporting, non-conformance, corrective measures, and documenting. **Scoring:** ✓ 6 aspects are reflected on the Quality Management Plan: 20 ✓ 5 aspects are reflected on the Quality Management Plan: 18 ✓ 4 aspects are reflected on the Quality Management Plan: 14 ✓ 1-3 aspects are reflected on the Quality Management Plan: 8 0 aspects are reflected on the Quality Management Plan: No response.	20
5.	**Equipment Capabilities (Form I):** Capability to provide the construction equipment required for the project. Minimum equipment required (owned or to be hired refer to **Form I** under returnable documents) a. 1 x TLB. b. 1 x Surface Plate Vibrator. c. 1 x Concrete mixer. d. 1 x Vibratory Rammer. **Scoring:** ✓ 4 Equipment on the list: 10 ✓ 3 Equipment on the list: 9 ✓ 2 Equipment on the list: 7 ✓ 1 Equipment on the list: 4 ✓ 0 Equipment on the list: No response.	10

	Maximum Scoring	**100**

Phase 3: Administrative Compliance

Bidders are required to comply with the following listed below:

No	Criteria	Yes	No
1.	Companies must be registered with National Treasury's Central Supplier Database must submit CSD report. Provide MAAA number on SBD1		
2.	Tax compliant with SARS (to be verified through CSD and SARS). Attach Tax Compliance status PIN page		
3.	Active registration with Company Intellectual Property Commission (to be verified through CSD and CIPC). Attach a copy of CIPC / CIPRO certificate.		
4.	A valid copy of B-BBEE Status Level Verification Certificate or a valid original sworn affidavit (failure to submit, the Bidder will forfeit the relevant points allocated for B-BBEE under specific goals)		
5.	A valid letter of Good Standing with the Compensation Commissioner in terms of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 and or third parties' insurance registered with Financial Service Board		
6.	Letter of appointment of duly authorized person to sign bid. Proof of such authority must be submitted with the bid. If by an individual, must be signed by that individual or by someone on his behalf duly authorised thereto and proof of such authority must be produced. If the bid is by a Company, it must be signed by a person duly authorised thereto by a Resolution of a Board of Directors a copy of which Resolution, duly certified by the Chairman of the Company is to be submitted with the bid.		
7.	Complete, sign, and submit SBD 1, SBD 3.1 SBD 4, SBD 6.1.		

Phase 4: Preference Points system

The bid will be awarded in terms of Regulation 4: Preferential Procurement Regulations, 2022 pertaining to the Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000).

Bid proposals will be evaluated based on the 80/20 preference points where a maximum of 80 points will be awarded in respect of price and a maximum of 20 points will be awarded for goals.

Points claimed will be according to a bidder's specific goals claimed as indicated in Table 4 below.

Table 4: Specific goals for the tender and points allocation are indicated as per the table below:

In terms of Regulation 4(2); 5(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this bid the bidder will be allocated points based on the bidder's goals claimed as per table 4. Bidder's goal claimed must be supported by proof/ documentation stated as per table 4 and the special conditions of this bid where applicable.

Table 4

The specific goals allocated points in terms of this tender	Number of maximum points allocated (80/20 system)	Bidder's points claimed for specific goals (To be completed by Bidder)
Women	**Up to 5**	
People with disability	**Up to 5**	
Youth (35 and below)	**Up to 5**	
Location of enterprise Limpopo Province	**Up to 2**	
B-BBEE status level contribution from levels 1 to 2 which are QSE or EME	**Up to 3**	
Total points for SPECIFIC GOALS	**Up to 20**	

Specific goals" means specific goals as contemplated in section 2(1)*(d)* of the PPPFA Act which may include contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender and disability including the implementation of programmes of the Reconstruction of Development Programme as published in *Government Gazette* No. 16085 date 23 November 1994.

"Ownership" means the percentage of ownership and control, exercised by individuals within an enterprise.

"Disability" means, in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform an activity in the manner, or within the range, considered normal for a human being.

i. A blind person (in terms of the Blind Persons Act, 1968 (Act no.26 of 1968);
ii. A deaf person, whose hearing is impaired to such an extent that he/she cannot use it as a primary means of communication;
iii. A person who, as a result of permanent disability, requires a wheelchair, caliper or crutch to assist him/her to move from one place or another;
iv. A person who requires an artificial limb; or
v. A person who suffers from a mental illness (in terms of the Mental Health Act, 1973 (Act no. 18 of 1973).

"Youth" means, in respect a person younger than 35 years of age.

"Location of enterprise" Local equals province. Where a project cuts across more than one province, the bidder may be located in any of the relevant provinces to claim and be allocated the points.

Women, disability, and youth will be measured by calculating the pro-rata percentage of ownership of the bidding company which meets the criterion. E.g., Company A has five shareholders each of whom owns 20% of the company. Three of the five shareholders meet the criterion, i.e., they are women/disabled/youth. Therefore, this bidder will obtain 60% of the points allowable for this goal.

Table 5: Documents required for verification of Bidder's claimed points

Documents/ information listed on the below table 5 must be submitted to support and verify points claimed as per table 4 above

Table 5

Specific Goal	Requires Proof Documents
Ownership by Women	Completed Percentage Ownership Affidavit (Annexure 1)
Ownership by people with disabilities	

Ownership by Youth	
Location of enterprise – Eastern Cape	Completed Location of Enterprise Affidavit (Annexure 2) and proof of such premises
B-BBEE status level1 or level 2 contributor who are Exempted Mico Enterprise or Qualifying Small Enterprise	B-BBEE verification certificate issued by a verification agency accredited by South African National Accreditation Agency (SANAS0 or in the case of an EME or a QSE, if permitted in terms of the relevant cade, a duly completed sworn affidavit on the relevant and appropriate form.

Failure on the part of a bidder to submit proof of documentation required in terms of this tender to claim for specific goals with the bid, will be interpreted to mean that preference points for specific goals are not claimed and will not be allocated.

Only fair market prices will be accepted, and the Department reserves the right to not to award the bid to the lowest scoring bidder if it is determined that the prices quoted is not market related.

13. REJECTION OF BID

Bids not complying with the above-mentioned requirements and specifications will be regarded as incomplete and will not be considered.

14. RESULTS OF BIDS

Results of non-acceptance of bids will be sent to individual unsuccessful bidders in due course. Particulars of accepted bids are published weekly in the Government Tender Bulletin.

SBD4

BIDDER'S DISCLOSURE

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

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.

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:

……

……

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.

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.

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 OF PFMA 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

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

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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).

1.2 **To be completed by the organ of state**

a) The applicable preference point system for this tender is the 80/20 preference point system.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

(a) Price; and

(b) Specific Goals.

1.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	**80**
SPECIFIC GOALS	**20**
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

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to 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

3.1. POINTS AWARDED FOR PRICE

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

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

80/20

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scoresd for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

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

3.2.1. **POINTS AWARDED FOR PRICE**

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

80/20 **or** **90/10**

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right) \text{ or } \quad Ps = 90\left(1 + \frac{Pt - P\,max}{Pmax}\right)$$

Where

Ps = Points scoresd for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. 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:

4.2. 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—

(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.

SBD 6.1

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 (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Ownership by Women	**5**	
Ownership by people with disabilities	**5**	
Ownership by Youth	**5**	
Location of enterprise: Limpopo	**2**	
B-BBEE status level 1 or level 2 contributor who is an EME or QSE	**3**	
Total points for SPECIFIC GOALS	**20**	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm…….

4.4. Company registration number: ……...

4.5. 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]

4.6. 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:	…… …… ……

PREFERENCING SCHEDULE IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

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

1 Preference

Preferences shall be granted in respect of the following:

1.1 Ownership by women, people with disabilities and youth

The percentage shareholding of an enterprise as at the closing time for submissions of natural persons who are women, people with disabilities or youth as evidenced by:

a) voting rights that are not subject to any limitation; and

b) economic interest.

where
people with disabilities are people who have a long-term or recurring physical or, mental, intellectual or sensory impairment which, in interaction with various barriers, may substantially limit their prospects of entry into, or advancement in, employment

youth are people aged between 14 and 35

1.2 Local enterprise

An enterprise which operates from a building together with its land and outbuildings located within the boundaries of the. . . . . ., ... or . . . . . Province as at the closing time for submissions

1.2 B-BBEE status level contributors from level 1 or level 2 who are Exempted Micro Enterprises or Qualifying Small Enterprises

The status of an enterprise is measured in accordance with the provisions of **an applicable code of good practice** issued in terms of Section 9(1) of the B-BBEE Act of 2003 at the closing time for submissions.

Note: The Construction Sector Code applies to the B-BBEE compliance measurement of all entities that fall within the Construction Sector i.e. all enterprises that derive more than 50% of their annual Revenue from Construction Related Activities.

2 Conditions associated with the granting of preferences

Tenderers who claim a preference shall provide in support of their claim the following in relation to their claim, failing which their claims for preferences will be rejected:

Preference applied for	**Verification document**
Ownership by women	Completed Percentage Ownership Affidavit (Annexure 1)
Ownership by people with disabilities	
Ownership by youth	
Location of enterprise	Completed Location of enterprise affidavit (Annexure 2) and proof of ownership of premises or a valid rental agreement with the owner of such premises
B-BBEE status level of contributor	B-BBEE Verification Certificates issued by a verification agency accredited by the South African National Accreditation System (SANAS) (see www.sanas.co.za/Pages/index.aspx) or, in the case of an Exempted Micro Enterprise or a Qualifying Small

	Enterprise, if permitted in terms of the relevant code, a duly completed sworn affidavit on the relevant and appropriate form obtained from one the following websites: o www.thedtic.gov.za/wp-content/uploads/BEE_Affidavit-QSE-Gen.pdf o www.thedtic.gov.za/wp-content/uploads/BEE_Affidavit-EME-Gen.pdf o www.abp.org.za/wp-content/uploads/2018/03/Final-CSC-EME-Affidavit-March-2018-2.pdf

3 Preferences points offered and claimed

The preference points offered by the Employer in accordance with the provisions of the Preferential Procurement Policy Framework Act of 2022 and claimed by the tenderer are as follows:

Preference claimed		**Number of preference points allocation**		**Preference claimed** (tick relevant block)
		90/10 preference points system	**80/20 preference points system**	
Ownership	by women	Up to 2	Up to 5	
	by people with disabilities	Up to 2	Up to 5	
	by youth	Up to 2	Up to 5	
Location of enterprise	*[Limpopo]*	1	2	
B-BBEE status	Level 1 or level 2 contributors who are Exempted Micro Enterprises or Qualifying Small Enterprises	3	3	

where points claimed for ownership are calculated separately for each type of ownership in terms of the following formula:

90 / 10 preference points system: NO = 2 x PS / 100
80 / 20 preference points system: NO = 5 x PS / 100

where

NO = number of points awarded to tenderer claiming a preference for ownership by women, people with disabilities or youth

PS = percentage shareholding by women, people with disabilities or youth as declared in the Percentage Ownership Affidavit

4 Declaration

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the tenderer, confirms that he/she understands the conditions under which such preferences are granted and confirms that the tenderer satisfies the conditions pertaining to the granting of tender preferences which are claimed.

Signature:.....

Name:.....

Duly authorised to sign on behalf of:.....

Telephone: ..... Date: .....

Name of witness: ..... Signature of witness:.....

Note: Failure to complete the declaration will lead to the rejection of a claim for a preference.

ANNEXURE 1: Percentage Ownership Affidavit

I, the undersigned,

full name and surname . . . . . .

identity number . . . . . .

hereby declare under oath that

1) I am a member / director / owner of the enterprise:

name : . . . . . .

trading name, if applicable . . . . . .

registration number: . . . . . .

physical address: . . . . . .

. . . . . .

in which the following natural persons who are women, people with disabilities or youth at the time of the tender submission have

a) voting rights that are not subject to any limitation; and

b) economic interest.

as indicated below

Name	Economic interest (%)			Identity number
	Women	People with disabilitie	Youth	

Appointment of/ Procurement of/ Supply and Delivery of/

Where:

people with disabilities are people who have a long-term or recurring physical or, mental, intellectual or sensory impairment which, in interaction with various barriers, may substantially limit their prospects of entry into, or advancement in, employment

Note: The Code of Good Practice on Employment of Persons with Disabilities (2015) considers "substantially limit" as "*if in its nature, duration or effects it substantially limits the person's ability to perform the essential functions of the job for which they are being considered"* and points out that *"some impairments"* are so easily controlled, corrected or lessened that they have no limiting effects.

youth are people aged between 14 and 35

2) the contents of this statement are to the best of my knowledge a true reflection of the facts;

3) I know and understand the contents of the affidavit and I have no objection to take the prescribed oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.

Deponent signature: **Date:**

Commissioner of oaths
Signature and stamp

ANNEXURE 2: Location of enterprise affidavit

I, the undersigned, full name and surname . . . . . .
Identity number . . . . . .

hereby declare under oath that

1) I am a member / director / owner of the enterprise:

   name : . . . . . .

   trading name, if applicable . .. .

   registration number: . . . . . .

   physical address: . . . . . .

   . . . . . .
   which is an enterprise which operates from a building together with its land and outbuildings located within the boundaries of the *(name)* Province as at the closing time for submissions
2) the contents of this statement are to the best of my knowledge a true reflection of the facts;

3) I know and understand the contents of the affidavit and I have no objection to take the prescribed oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.

Attach proof of ownership of premises or a valid rental agreement with the owner of such premises

Deponent signature: **Date:**

Commissioner of oaths
Signature and stamp

DETAILED SPECIFICATION

The details of the Specification details shall be captured on the SBD 3.1 as contained below

water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

SBD 3.1

PRICING SCHEDULE – FIRM PRICES
(PURCHASES)

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES (INCLUDING PRICES SUBJECT TO RATES OF EXCHANGE VARIATIONS) WILL NOT BE CONSIDERED

-	-	-	-		
Item	**Bill description**	**Unit**	**Quantity**	**Rate**	**Amount**
	2 X 2 BEDROOM HOUSES IN TZANEEN VILLAGE				
Bill A	**PRELIMINARY AND GENERAL**				
A.1	**TIME RELATED ITEMS**				
A.1.1	Site Establishment - Security Fence and Office	Sum	1		
A.1.2	Site Establishment - Ablution Facilities	Sum	1		
A.1.3	De- Establishment	Sum	1		
A.1.4	Other	Sum	1		
A.1.5	Construction supervision	Sum	1		
A.1.6	Plant and transport on site	Sum	1		
A.1.7	Density test	Sum	1		
A.1.8	Concrete test	Sum	1		
A.1.9	Compliance with the Environmental Management Particular Specification	Sum	1		
A.1.10	Compliance with the Occupational Health and Safety Particular Specification	Sum	1		

A.1.11	Overhead Costs for the Duration of the Contract	Sum	1		
A.1.12	Security of the work for the duration of the contract	Sum	1		
A.2	**DAYWORK**				
A.2.1	**Existing services**				
A.2.2	Supply or hire of specialist for the detection of a particular service.	Sum	1		
A.2.3	The use of equipment referred to in (a) above.	Sum	1		
Bill B	**2 BEDROOMS HOUSE No 1 & 2**				
B.1	**DEMOLITION WORKS**				
B.1.2	**Take up and remove:**				
B.1.3	concrete foundations	m3	7		
B.1.4	**FILLING AND COMPACTION**				
B.1.5	**Earth filling obtained from the excavations and/or prescribed stock piles on site,compacted to 95%Mod AASHTO denstity**				
B.1.6	Backfill with G5/G6 material below surface bed ripped deep 200mm compacted to 93% MOD AASHTO	m3	49		
B.2	**BUILDING WORKS**				
B.2.1	**SITE CLEARANCE**				
B.2.2	Clear and Grub	ha	0,14		
B.2.3	Transport materials and debris to unspecified sites and dump	m3.km	20		
B.2.4	**EARTHWORKS (SMALL WORKS)**				
B.2.5	**Restricted Excavation**				

B.2.6	Excavate for restricted foundations, footings and trenches in all materials and use for backfill or dispose. The rate shall cover the cost of excavating, selecting, and keeping selected material separate (where relevant) , temporary stock pili ng (unless, in exceptional circumstances, specifically authorized for separate payment), loading, transportation within freehaul distance, off loading, backfilling , watering, compacting, testing , and disposal of spoil	m3	50		
B.2.7	**Extra - over for**				
B.2.8	intermediate excavation 10%	m3	5		
B.2.9	hard rock excavation 5%	m3	2,5		
B.2.10	**Overhaul**				
B.2.11	limited overhaul	m3	10		
B.2.12	long overhaul	m3.km	5		
B.2.13	**Risk of collapse of excavations**				
B.2.14	Sides of trench and holes excavations not exceediing 1.5m deep	m2	160		
B.2.15	**Keep excavations free of water**				
B.2.16	Keep excavations free of all water other than subterranean water	item	1		
B.2.17	**PROTECTION AGAINST TERMITES**				
B.2.18	Termite treatment in trenches by safe and effective specialist application of soil insecticide beneath floors for protection from sub-terranean wood destroying termites, all in accordance with SABS 0124-1977	m2	120		
B.2.19	Termite treatment by safe and effective specialist application of soil insecticide beneath floors for protection from sub-terranean wood destroying termites, all in accordance with SABS 0124-1977	m2	267		
B.2.20	**FILLING AND COMPACTION**				
B.2.21	Earth filling obtained from the excavations and/or prescribed stock piles on site,compacted to 95%Mod AASHTO denstity				

B.2.22	Backfilling to trenches, holes etc	m3	27		
B.2.23	Hardcore filling Under floors etc	m3	83		
B.2.24	**CONCRETE**				
B.2.25	**Reinforcement**				
B.2.26	R8 Steel Reinforcement bars	t	0,73		
B.2.27	high tensile steel bars Y12	t	0,18		
B.2.28	Mesh wire reinforcement	m2	237		
B.2.29	**Concrete**				
B.2.30	**Strength mix**				
B.2.31	Class 25/19 Strip footing - 600 X 250	m3	30		
B.2.32	Class 25/19 Strip footing - 450 X 250	m3	9,5		
B.2.33	Class 25/19 concrete slab 10mm thick	m3	30		
B.2.34	Blinding layer in class 15/19 concrete and 50mm thick as per instruction of the Engineer.	m3	7		
B.2.35	**Unformed concrete surface finishes**				
B.2.36	wood-floated finish	m2	267		
B.2.37	**MASONRY**				
B.2.38	**Joints**				
B.2.39	Slip joint between concrete slab and brickwork formed with two galvanized sheet metal strips over wall width, in:				
B.2.40	220mm wide walls	m	40		
B.2.41	**WALLS**				
B.2.42	Brickwork (stretcherbond) Foundation walling with clay bricks type NFX to SABS 227: 2007 in 270mm brickwall in foundation	m2	150		

B.2.43	Walling with clay stock bricks type NFP to SABS 227: 2007 in:				
B.2.44	270mm brickwall in superstructure	m2	58		
B.2.45	220mm brickwall in superstructure	m2	235		
B.2.46	110mm brickwall in superstructure	m2	120		
B.2.47	**OUTSIDE WALLS**				
B.2.48	Walling with clay face bricks RED Smooth FBS Roan travertine to SABS 227: 2007 in:Type FBX 115mm walls	m2	210		
B.2.49	Extra over for fairface	m2	102		
B.2.50	Extra over brickwork for brick-on -edge soldier course Lintels doors and windows	m	95		
B.2.51	270mm brickwall in boundary wall of 1,8 m high between the houses	m2	14		
B.2.52	110mm brickwall in service yard	m2	36		
B.2.53	110mm brickwall in in storage	m2	26		
B.2.54	**Brickforce 2.5mm in the following widths**				
B.2.55	150mm Wide reinforcement	m	2 879,00		
B.2.56	75mm Wide reinforcement	m	500,00		
B.2.57	**Prestressed fabricated concrete lintels including necessary temporary support**				
B.2.58	110mm x 75mm Lintels in length not exceeding 3m	no	44		
B.2.59	110mm x 75mm Lintels in length exceeding 3m	no	2		
B.2.60	**Air bricks**				
B.2.61	235 x 157mm cast plate air grating ficed flush face brick	no	16		
B.2.62	**Galvanised hoop irons fitted into walls at CC to match roof trusses**				

B.2.63	Roof hoop iron double,with one end built into brick work and other end built to timber 1m cc 700mm	no	40		
B.2.64	**WATERPROOFING**				
B.2.65	Waterproofing of roofs, basements, etc shall be laid under a ten year guarantee. Waterproofing to roofs shall be laid to even falls to outlets etc with necessary ridges, hips and valleys.				
B.2.66	Under-tile Membranes SABS 250 Micron mono layer white low density polyethelyne damp-proof membrane laid on top of trusses. The membrane is to be installed across rafters, under the purlins or tiling battens with at least 150mm overlaps. The membrane shall be affixed to the trusses by using galvanised clout nails.	m2	240		
B.2.67	**DAMPPROOFING OF WALLS AND FLOORS**				
B.2.68	**One layer 375 micron orange polyethelene waterproof sheeting (SANS 952-1985 type A)sealed at laps with PVC self - adhesive tape.**				
B.2.69	Under walls and window sills.	m2	53		
B.2.70	**Colour coded polyethylene sheeting complying with SABS 952, Type C in widest practicable widths with all joints lapped and sealed in accordance with the manufacturer's instructions**				
B.2.71	Under floor slab 250 Micron green medium density damp-proof membrane laid loose on top of sand bed (elsewhere) under solid floors with pressure sensitive tape jointing.	m2	209		
B.2.72	**ROOF COVERINGS AND TRUSSES CONCRETE TILE COVERED ROOFING**				
B.2.73	Factory coloured concrete tiles on 38x38 mm battens at centres according to suppliers specifications on sisalation 405 RSA supportedby 2mm dia galv straining wires @ 300mm centres nailed on SAP roof trusses. Trusses manufactured from grade 6 SA pine at 760mm max centres fastened with hoop irons build into top three brick courses on 75x38 mm SA pine wall plates.	m2	300		

B.2.74	Plate nailed timber truss construction to rectangle shape with Hipped end roof pitch 26 degrees rafters and tie beams 114 x 38 mm, struts and post 114 x 38 mm, standard galvanised metal gusset plates, trusses to be hoisted and fixed in position approximately 2.72m above ground level				
B.2.75	Supply and install trusses manufactured from grade 6 SA pine at 760mm max centres.	no	38		
B.2.76	76 x 38 mm SA pine wall plate	m	77		
B.2.77	Ridge capping	m	31,6		
B.2.78	**Roof step wall flashing.**				
B.2.79	Supply and install galvanized aluminion step flashing agaist the wall combined with under tile flashing.	m	12		
B.2.80	Step flashing on the wall to be painted with waterproofing red tile color.	m2	1,73		
B.2.81	**Fascias and barge boards**				
B.2.82	Fibre cement fascia boards 12 x 150 x 3000 mm	m	61		
B.2.83	250x15mm Barge boards	m	20		
B.2.84	**CAPENTRY AND JOINERY**				
B.2.85	Supply and installation of Kitchen cupboards. Door and all exposed panels of saligna solid wood. Door handles and 38 mm granite top work must be included as well as preparation bowl and mixer taps.				
B.2.86	Kitchen cupboard	no	2		
B.2.87	Bedroom Cupboard	no	4		
B.2.88	Bedroom cupboard of 16mm 'Nonowhite' particle board 1270mm wide x 2700mm high x 600mm deep, consisting of five shelf sections, one hanging section of 900mm wide, with top, sides , two double doors on top and bottom, edge strip etc. hinges,handles, cupboard locks, brass necked barrel bolts to double doors				
B.2.89	Linen cupboard	no	2		

B.2.90	**DOORS**				
B.2.91	Steel framed and ledged three panel meranti, door size 813x2 032-D1	no	2		
B.2.92	Steel framed and ledged two panel meranti hardwood door. Size 813x2 032-D2	no	8		
B.2.93	Steel frame and ledged slatted harwood meranti, door size 813 x 2032 -D3	no	2		
B.2.94	Single panel 1.0 mm thick steel chawl door with vertical flutes combined with 1.2 mm thick deep section cross braces welded in. Door size 813 x 2032 mm D4	no	2		
B.2.95	Garage door roll up sheet metal interlocking curtain slats with factory paint finish roll up type garage door.-D5	no	2		
B.2.96	**STEEL FRAME**				
B.2.97	Single panel 1.0 thick ,steel chawl with vertical flutes combined with 1.2mm deep cross braces welded in door size 813X 2032-D4	no	14		
B.2.98	**CEILING,PARTIONS AND ACCESS FLOORING**				
B.2.99	6mm Fibre Cement ceiling board with H-profile PVC jointing strip Ceiling including 38x50 ssap brandering at 400 centers generally in one direction 38x50 branders and cross	m2	237		
B.2.100	Polystyrene Cornice 79mm x 81mm	m	93		
B.2.101	**IRON MONGERY**				
B.2.102	100 mm brass butt hinges	no	28		
B.2.103	Three-lever upright mortice lock set, 3 x75 mm brass hinges.	no	4		
B.2.104	Two-lever upright mortice lock set, 3 x75 mm brass hinges.	no	8		
B.2.105	Three-lever upright mortice lock set, 3 x75 mm brass hinges. 2 x brass sliding bolts one door to frame & one top part to bottom part of the door.	no	2		
B.2.106	30mm rubber door stop	no	14		

B.2.107	**PELMETS AND CURTAIN TRACKS**				
B.2.108	Double curtain track 2.1m	no	4		
B.2.109	Double curtain track 1.6m	no	12		
B.2.110	**METAL WORK**				
B.2.111	**Security Door**				
B.2.112	Security gate door similar to Trellidor or Maxidor, size 900 x 2100mm high SABS stardard white bolted in brick wall as per the Engineer specifications.	no	8		
B.2.113	**Steel Gate**				
B.2.114	Mild steel welded gate size 1800 x 900 mm as per drawing specifications.	no	4		
B.2.115	**Foldaway Washing Line**				
B.2.116	Supply and install foldaway washing lines 2300 x 800 mm, mounted on the wall with Stainless Steel Screws, as per project specification C.3.21.	no	2		
B.2.117	**STEEL WINDOWS,DOORS ,ETC**				
B.2.118	Standard residential windows including the supply and installation of burglar bars similar to Trellidor in all opening. 16 window burglar bars shall be installed.				
B.2.119	Prime with red oxide metal etch primer (SABS 723) and paint one undercoat (SABS 681-type 2) and two coats of high gloss enamel paint (SABS 630 -type I or II).with 6mm clear glass, sealant, etc, including burglar proofing. plugged to brickwork.				
B.2.120	Window TYPE-NE4NC4 (1511 X 1704)	no	6		
B.2.121	Window TYPE-NC2F(1022 X 949)	no	2		
B.2.122	Window TYPE-NE4 (1511 X 654)	no	2		
B.2.123	Window TYPE-NE2 (1022 X 864)	no	2		
B.2.124	Window TYPE- D52F (1045 X 1500)	no	2		

B.2.125	Window TYPE NES2 (1022 X 799)	no	2		
B.2.126	Mosquito screen	no	16		
B.2.127	Burglar Proofing similar to Trellidor in all opening sections.	no	16		
B.2.128	**GLAZING TO STEEL WITH PUTTY**				
B.2.129	3mm Clear float glass panes exceeding 2m2	m2	30		
B.2.130	**Frosted Glass**				
B.2.131	Panes exceeding 0.5m2 and not exceeding 2m2	m2	4		
B.2.132	**SHOWER**				
B.2.133	Size: 900 x 1850 mm; Glass Thickness: 5 mm White Pivot frosted glass shower door Steinless steel white color.	no	2		
B.2.134	Mirror type K9(900mm x 450mm)	no	4		
B.2.135	**PLASTERING**				
B.2.136	**SCREED**				
B.2.137	Screeds wood floated ,on concrete	m2	239		
B.2.138	**INTERNAL PLASTER**				
B.2.139	Cement plaster on walls with wood floated	m2	531		
B.2.140	**AIR GRATING**				
B.2.141	235 x 157mm Cast plaster air grating fixed flush with facebrick.	no	8		
B.2.142	**TILING**				
B.2.143	**WALL TILING**				
B.2.144	300mm x 300mm x 5m color code baige glazed ceramic tiles fixed with adhesive to plaster and flush pointed with tinted grout.				
B.2.145	On bathroom walls and toilet up to ceiling level	m2	63		
B.2.146	Kitchen wall up to window top level	m2	30		

B.2.147	**FLOOR TILING**				
B.2.148	**NON SLIP CERAMIC TILE**				
B.2.149	600mm x 600mm x 10mm thick ceramic tiles in matt finish laid to approved pattern using approved adhesive and grout. use 2mm spacers. light grey grout color. All to be manufactured and installed in strict compliance to the latest SABS approved standards. Colour and end finish to architects approval.				
B.2.150	On floors including garage	m2	380		
B.2.151	On skirting	m	100		
B.2.152	**RAINWATER DISPOSAL**				
B.2.153	Guttering and Downwards pipes - Colour coated Chromadeck seamless gutters 125 mm Diameter				
B.2.154	125 mm x 85mm roof gutters	m	122		
B.2.155	Colour coated Chromadeck seamless 100mm x 75 mm diameter downpipe with crimp and shoe 2.7m hi	no	8		
B.2.156	Extra over rainwater pipe for stop end	no	8		
B.2.157	Extra over rainwater pipe for eaves or plinth offset	no	8		
B.2.158	Extra over eave gutter for outlet for 100mm x 75 mm Diameter	no	8		
B.2.159	Extra over rainwater pipe for bend	no	8		
B.2.160	**Colour coated Chromadeck seamless pipes 100 mm x 75 mm**				
B.2.161	100mm Pipe ramped inspection eyes	m	3		
B.2.162	100mm Pipe laid in	m	26		
B.2.163	**Extra over Chromadeck pipes for fittings**				
B.2.164	100mm Bend	no	6		
B.2.165	100 mm Junction	no	6		

B.2.166	100 mm Rodding eye cover in end pipe	no	3		
B.2.167	100 mm inspection pipe	no	6		
B.2.168	100 Access Junction	no	6		
B.2.169	**SANITARY FITTINGS**				
B.2.170	Toilet Roll Holder 150 x 150mm White glazed toilet roll holder with spring loaded roller and building into tiled or plastered wall including forming recess in brickwork and making good.	no	3		
B.2.171	White Ceramic, Close coupled 90 degree Water Closet suite comprising pan with "P' or "S' trap, 9 litre cistern complete with lid, fitments, flush pipe elbow, ball valve, and heavy duty double flap 'white timber' plastic seat.	no	2		
B.2.172	Wash hand basin with pedestal size: 550 x 500 x 865 mm; with one taphole complete with and including two chromium plated pillar taps, waste, plug, chain and concealed brackets.	no	4		
B.2.173	Bath with handles size: 1800 x 800 mm; color white of 250 lt, including waste, overflow and taps.	no	2		
B.2.174	Soap tray	no	4		
B.2.175	Towel rail 750x 20mm	no	4		
B.2.176	**WASTE UNIONS, ETC**				
B.2.177	32mm Chromium-plated basin waste union	no	2		
B.2.178	40mm Chromium-plated Bath size: 1800 x 800 mm waste union	no	2		
B.2.179	40mm Chromium-plated sink waste union	no	2		
B.2.180	**TRAPS,ETC**				
B.2.181	32x40MM Deep seal 'P'trap	no	2		
B.2.182	Concrete Gully 400 x 400 x 125 mm	no	2		
B.2.183	**TAPS, VALVES, ETC**				

B.2.184	Sink Mixer	no	2		
B.2.185	Basin mixer	no	4		
B.2.186	Hand Shower Bath mixer	no	2		
B.2.187	Shower mixer	no	2		
B.2.188	No 11923 'Master '100 kPa pressure reducing valve	no	2		
B.2.189	**SANITARY PLUMBING**				
B.2.190	uPVC Pipes				
B.2.191	50mm pipes	m	40		
B.2.192	110mm pipes	m	30		
B.2.193	**Extra Over uPVC pipes for fittings**				
B.2.194	uPVc bends and fittings	no	20		
B.2.195	**WATER SUPPLIES**				
B.2.196	Class 1 copper pipes				
B.2.197	15 mm pipe	m	10		
B.2.198	22mm pipes	m	50		
B.2.199	**Extra Over Class 1 copper pipes for fittings**				
B.2.200	15mm fittings	No	7		
B.2.201	22mm fittings	No	20		
B.2.202	25mm fittings	No	3		
B.2.203	**Isolating valve to cut off main supply**				
B.2.204	22mm dia isolating valve @ geysers	No	2		
B.2.205	25mm dia isolating valve	No	2		
B.2.206	**ELECTRIC WATER GEYSER**				

B.2.207	Supply and installation of 150 L "Econoflo" floor/wall electric water geyser	No	2		
B.2.208	**EXTERNAL WATER RETICULATION SUPPLIES**				
B.2.209	Excavation in earth not exceeding 1m deep for pipe trenches.	m3	75		
B.2.210	Backfill to pipe trenches	m3	70		
B.2.211	50 mm Pipe laid ground in and including trenches not exceeding 1 m deep .	m	377		
B.2.212	50 mm fitting	no	15		
B.2.213	**Overhaul**				
B.2.214	Short haul: over 0,5km up to 1,0km	m3 x k	10		
B.2.215	**PAINTWORK**				
B.2.216	**PAINTWORK TO INTERNAL FLOATED PLASTER SURFACES**				
B.2.217	ALKYD (ENAMEL) PAINT-FULL HEIGHT 2 no. coats matt (egg shell) finish alkyd (enamel) paint to SABS 630, type 2 applied on plastered surfaces with 1 no coat alkali resistant plaster primer to SABS 1416 and 1 no. coat undercoat to SABS 681 grade1, in accordance to manufacturer's instructions.				
B.2.218	On walls	m2	530		
B.2.219	ON FIBRE CEMENT				
B.2.220	One coat sealer and two coats interior quality PVA emulsion paint				
B.2.221	On ceilings	m2	237		
B.2.222	On cornice	m	93		
B.2.223	ON WOOD				
B.2.224	On meranti door frames	m2	63		
B.2.225	**ON Metal**				

B.2.226	One coat prime with red oxide, one undercoat and three coats of enamel paint on steel On double door frame	m2	25		
B.2.227	**CONSTRUCTION OF APRON, PAVING AND RAMP**				
B.2.228	**EARTHWORKS**				
B.2.229	Excavation in earth not exceeding 2m deep below reduced level (Pipe laying)	m3	5,72		
B.2.230	Backfilling to trenches, holes etc	m3	4,95		
B.2.231	**Compaction of surface**				
B.2.232	Compaction of ground surface under paving, etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% Mod AASHTO density	m3	4,5		
B.2.233	Cement paving bricks with butt joints on 50mm think river sand bed with sand cement mixture swept				
B.2.234	into joints and hosed down				
B.2.235	Supply and place 20mm sand for bedding of paving on compacted surface	m3	0,66		
B.2.236	Paving in herringbone pattern	m2	31		
B.2.237	**RAMP AT GARAGE & COURTYARD**				
B.2.238	Concrete ramp in front of garage min 100mm thick cast in 3.44m lenghts joints where aplicable with 10mm softboard between joints and against building. Max slope 1:10				
B.2.239	Compaction of ground surface under apron including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% Mod AASHTO density	m2	10		
B.2.240	Concrete supply and place 25MPa	m3	1,5		
B.2.241	Concrete floor in Courtyard min 100 mm thick cast in 3.44m lenghts joints where applicable				

B.2.242	Compaction of ground surface under apron including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% Mod AASHTO density	m2	64		
B.2.243	Concrete supply and place 25MPa	m3	7		
B.2.244	Joints	No	2		
B.2.245	**APRON**				
B.2.246	1200mm x 100mm thick concrete apron around building joints where aplicable cast in 2m lengths				
B.2.247	with 10mm softboard between joints and against building				
B.2.248	Compaction of ground surface under apron including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% Mod AASHTO density	m2	97		
B.2.249	Concrete supply and place 25MPa	m3	10		
B.2.250	Joints	no	46		
B.2.251	**CONSTRUCTION OF 1,8 M HIGH BOUNDARY WALL**				
B.2.252	**EARTHWORKS (SMALL WORKS)**				
B.2.253	**Restricted Excavation**				
B.2.254	Excavate for restricted foundations, footings and trenches in all materials and use for backfill or dispose. The rate shall cover the cost of excavating, selecting, and keeping selected material separate (where relevant) , temporary stock pili ng (unless, in exceptional circumstances, specifically authorized for separate payment), loading, transportation within freehaul distance, off loading, backfilling , watering, compacting, testing , and disposal of spoil	m3	10		
B.2.255	**Extra - over for**				
B.2.256	intermediate excavation 10%	m3	1		

B.2.257	hard rock excavation 5%	m3	0,5		
B.2.258	**Overhaul**				
B.2.259	limited overhaul	m3	2		
B.2.260	long overhaul	m3.km	1		
B.2.261	**Risk of collapse of excavations**				
B.2.262	Sides of trench and holes excavations not exceediing 1.5m deep	m2	30		
B.2.263	**Keep excavations free of water**				
B.2.264	Keep excavations free of all water other than subterranean water	item	1		
B.2.265	**FILLING AND COMPACTION**				
B.2.266	Earth filling obtained from the excavations and/or prescribed stock piles on site,compacted to 95%Mod AASHTO denstity				
B.2.267	Backfilling to trenches, holes etc	m3	5		
B.2.268	Hardcore filling Under floors etc	m3	21		
B.2.269	**CONCRETE**				
B.2.270	**Reinforcement**				
B.2.271	Mesh wire reinforcement	m2	60		
B.2.272	**Concrete**				
B.2.273	**Strength mix**				
B.2.274	Class 25/19 Strip footing - 450 X 250	m3	4		
B.2.275	Class 25/19 concrete slab 10mm thick	m3	7		
B.2.276	Blinding layer in class 15/19 concrete and 50mm thick as per instruction of the Engineer.	m3	1,5		
B.2.277	**Unformed concrete surface finishes**				
B.2.278	wood-floated finish	m2	60		

B.2.279	**MASONRY**				
B.2.280	**Joints**				
B.2.281	Slip joint between concrete slab and brickwork formed with two galvanized sheet metal strips over wall width, in:				
B.2.282	220mm wide walls	m	4		
B.2.283	**WALLS**				
B.2.284	Brickwork (stretcherbond) Foundation walling with clay bricks type NFX to SABS 227: 2007 in 270mm brickwall in foundation	m2	12		
B.2.285	Walling with clay face bricks RED Smooth FBS Roan travertine to SABS 227: 2007 in:Type FBX 115mm walls				
B.2.286	220mm brickwall in superstructure	m2	62		
B.2.287	**Brickforce 2.5mm in the following widths**				
B.2.288	150mm Wide reinforcement	m	204,00		
B.2.289	**DRY POWDER EXTINGUISHERS**				
B.2.290	Provisional sum for: Supply and Install two (2) Dry Powder Extinguishers STP 1.5 Kg for type A,B & C Fires with mono ammonium phosphate base grade 2A / 2B hanged with an appropiate steel bracket on a 100 mm x 20 mm x 500 mm timber backing fixed to the wall with top 1500 mm above FFL.	Sum	4		
BILL B.3	**ELECTRICAL WORKS**				
B.3.1	The Contractor shall quote for the installation of electrical circuits: conduit, accessories, switches, socket outlets, switchgear, swichtboard, luminaires and fans, stove and airconditioners.				
B.3.2	**ELECTRIC STOVE**				

B.3.3	Suply and install 600mm Cookerhood Island/Wall-Mounted Hood, Wall mounted,Fan Speed of 3 speed and Alluminim Filter. Control Type: Push button. Color: Black. The service guarantee shall be minimum 2 years.	no	2		
B.3.4	Supply and Install 600mm Multifunction Oven plus Knob Control Hob Box Set. Stainless steel surface, with four (4) plates. Knob control and Hot surface indicator. Oven capacity of 81L. The service guarantee shall be minimum 2 years.	no	2		
B.3.5	Supply and installation of Wall Split 9000 Btu/hr Non Inverter Air conditioner. Cooling and Heating. Good Sleep Mode. HD Filter with Anti-Bacterial Coating. Supplied with installation kit with 3 m piping, bracket and interconnecting cable. The equipment must have a minimum of 12 Month Standard Warranty, plus 5 years on all parts and 10 years on the compressor.	sum	4		
B.3.6	**ELECTRICAL MATERIALS**				
B.3.7	12 Way flushed mount electrical DB - with both earth & neutral bar	no.	2		
B.3.8	20A, 1P, 230V AC,3kA circuit breaker - Geyser	no.	2		
B.3.9	20A, 1P, 230V AC, 3kA circuit breaker - Plugs	no.	8		
B.3.10	10A, 1P, 230V AC, 3kA circuit breaker - lights	no.	8		
B.3.11	60A, 2P, 230V AC,3kA circuit breaker - main circuit	no.	2		
B.3.12	63A, 2P, 30mA earth leakage	no.	2		
B.3.13	30A, 1P, 230V AC, 3kA circuit breaker - Stove	no.	2		
B.3.14	20A , 1P,230V AC, 3kA circuit breaker - Spare Lighting, Switches, Sockets & other electrical accessories	no.	2		
B.3.15	4x4 wall box - flush mount	no.	20		
B.3.16	4x2 wall box - flush mount	no.	22		
B.3.17	2 x 16A flush mount wall socket, 230V (refer to the attached drawing for specified mounting positions)	no.	10		

B.3.18	Wall socket cover - refer to item no. 11	no.	10		
B.3.19	1 x 16A, 1x10A,2 x USB 5V,300mA output socket,230V,AC	no.	10		
B.3.20	Wall socket cover - refer to item no. 13	no.	10		
B.3.21	30A, 2P, 230V isolator - stove	no.	2		
B.3.22	Stove Isolator cover - refer to item 15	no.	2		
B.3.23	20A, 2P, 230V isolator - geyser	no.	2		
B.3.24	Geyser Isolator cover - refer to item 17	no.	2		
B.3.25	2 lever, 1 way domestic flush mount switch	no.	10		
B.3.26	2 lever switch cover - refer to item 19	no.	10		
B.3.27	1 lever, 1 way domestic flush mount switch	no.	8		
B.3.28	1 lever switch cover - refer to item 21	no.	8		
B.3.29	2 Way switch module,	no.	4		
B.3.30	1.2m Special flourescent light with 2 x 36W tubes clip on polycarbonate diffuser, glass reinforced polyester body, dust and moisture proof.	no.	8		
B.3.31	TV outlet, Wall box	no.	2		
B.3.32	TV outlet, Wall box cover	no.	2		
B.3.33	Open bottom ceiling fitting with conical shaped lamp holder	no.	4		
B.3.34	One light suspension fitting with fan	no.	2		
B.3.35	336 x 290 x 200mm Wall mounted luminaire (1 x 125W MH) with eyelid for downward and side ways illumination, aluminium diecast cast body and polycarbonate diffuser, complete weather and insect proof	no.	12		
B.3.36	220 mm Ø x 120 mm round bulkhead with diecast alluminium body, two x 9w PL Lamps and polycarbonate diffuser. Complete weather and insect proof.	no.	8		

B.3.37	14W energy saving lights - quality equivalent to eurolux, phillips or osram; push and twist type (with two securing lugs)	no.	16		
B.3.38	125W Metal Halide (MH) globes	no.	4		
B.3.39	20mm PVC conduit	no.	60		
B.3.40	IP 68 junction boxes	no.	2		
B.3.41	GP wires - Red (1.5mm²)	100m r	4		
B.3.42	GP wires -Black (1.5mm²)	100m r	4		
B.3.43	GP wires - Earth (Yellow & Green); (1.5mm²)	100m r	4		
B.3.44	GP wires - Red (2.5mm²)	100m r	4		
B.3.45	GP wires -Black (2.5mm²)	100m r	4		
B.3.46	GP wires - Earth (BCEW); (2.5mm²)	5kg ro	2		
B.3.47	GP wires - Red (4.0mm²)	100m r	2		
B.3.48	GP wires -Black (4.0mm²)	100m r	2		
B.3.49	GP wires - Earth (BCEW); (4.0mm²)	5kg ro	2		
B.3.50	50mm ? (dia), 6m each Galvanised Mild Steel Sleeve	no.	2		
B.3.51	COC - certificate of compliance	no.	2		
B.3.52	Main electrical supply cable (16.0mm²)	m	100		
B.3.53	35mm² , 4 core, PVC/SWA/PVC; 600/1000V cable - (require a drum of 500 metres)	drum	1		
B.3.54	10mm², BCEW cable	m	100		
B.3.55	16mm², 4 core, PVC/SWA/PVC; 600/1000V cable - (require a drum of 500 metres)	drum	2		

B.3.56	Distribution kiosks (back & front access) - 1200mm X 1800mm X 700mm; drip roof, stainless steel, type 304, stainless steel hinges, locks, colour code: Light orange (B26) - other details such as cable entry, backplate shall be provided during briefing)	no.	1		
B.3.57	Plinth	no.	2		
B.3.58	100A, 3P, 400V circuit breaker - quality equivalent to Schneider Electric	no.	1		
B.3.59	60A, 3P, 400V circuit breaker - quality equivalent to Schneider electric	no.	3		
B.3.60	Earth bar - 400A	no.	1		
B.3.61	Sectional busbars complete with mounting kit (R Y B) & N - 400A current carrying capacity	sum	1		
B.3.62	Mounting frame/ Din rail	m	3		
B.3.63	Labelling	sum	1		
B.3.64	25mm² Trailing cable, single core (RED) - to be used inside the kiosk	m	60		
B.3.65	25mm² Trailing cable, single core (Blue) - to be used inside the kiosk	m	60		
B.3.66	25mm² Trailing cable, single core (Yellow) - to be used inside the kiosk	m	60		
B.3.67	25mm² Trailing cable, single core (Black) - to be used inside the kiosk	m	60		
B.3.68	Cable accessories - lugs, heatshrink, marking tape, ferrules, etc	sum	1		
B.4	**CONSTRUCTION OF SEPTIC TANK AND FRENCH DRAIN**				
B.4.1	**EARTHWORKS (SMALL WORKS)**				
B.4.2	**Restricted Excavation**				

B.4.3	Excavation (measured 0,5m beyond wall perimeter with 1:1,5 side slopes and 0,55m below structure invert level) and use for backfill at 90% MOD AASHTO density, around septic tank or dispose of, as ordered within 0,5km freehaul distance of septic tank site.	m3	40		
B.4.4	**Extra over item 12.1.1 for:**				
B.4.5	a) Intermediate material	m3	4		
B.4.6	b) Hard rock excavation	m3	2		
B.4.7	Importation of approved gravel material from an open borrow pit within 0,5km freehaul distance, place in backfill below septic tank and compact to 90% MOD AASHTO density	m3	37		
B.4.8	**CONCRETE WORK**				
B.4.9	**Formwork**				
B.4.10	Smooth off shutter : all vertical surfaces	m2	20		
B.4.11	Smooth off shutter horizontal, underside roof slab	m2	46		
B.4.12	Boxed-out openings all as per drawing	no	4		
B.4.13	**Reinforcement**				
B.4.14	a) High tensile steel reinforcement	t	0,1		
B.4.15	**Concrete**				
B.4.16	a) Blinding layer - 50mm thick in prescribed mix 15 concrete below septic tank	m2	44		
B.4.17	b) Strength mix 25/19 reinforced concrete in septic tank floor and roof	m3	10		
B.4.18	**Surface finish**				
B.4.19	a) Wood floated surface finish to floor, roof and internal walls horizontal surfaces	m2	52		
B.4.20	b) 20mm chamfer on all exposed concrete edges	m	14		
B.4.21	**BUILDING WORK**				

B.4.22	**Brickwork**				
B.4.23	a) 230mm brickwork with type FBS bricks both sides in manhole walls	m2	64		
B.4.24	b) 115mm brickwork	m2	8		
B.4.25	**Brickforce 2.5mm in the following widths**				
B.4.26	225mm Wide reinforcement	m	448		
B.4.27	**PIPE LAYING**				
B.4.28	**Supply, lay, joint and test 110 mm perforated pitch fibre, drainage pipe:**				
B.4.29	Slotted	m	20		
B.4.30	**EARTHWORKS : FRENCH DRAIN**				
B.4.31	Excavate in all materials for trenches, backfill and compact, including disposal of surplus or unsuitable material for septic tank disposal drains	m3	26		
B.4.32	Importation of crushed stone, graded 40-70mm, from a suitable source and place in effluent disposal drain trench.	m3	16		
B.4.33	Importation of crushed stone, graded 70-150mm, from a suitable source and place in seepage pit at termination of pipe drains	m3	16		
B.4.34	Supply and lay geotextile fabric lining (type U24 or equal)	m2	140		
B.5	**SUPPLY AND INSTALLATION SECURITY FENCING**				
B.5.1	**SITE CLEARING**				
B.5.2	Clear and grub	km	0,13		
B.5.3	**EARTHWORKS (SMALL WORKS)**				
B.5.4	**Restricted excavation**				

B.5.5	Excavate for restricted foundations, footings and trenches in all materials and use for backfill or dispose.	m3	4		
B.5.6	**CONCRETE**				
B.5.7	**Concrete**				
B.5.8	Prescribed mix 1:3:6; Strength mix Class 25/19 to foundation of Corner, End, Straining, Standards, Droppers and Gate Posts.	m3	3,8		
B.5.9	Security Fence 1.35 m high for houses				
B.5.10	New 1,35m high security fence Erection of new 1,35m security fence erected to the specifications C.3.18. as detailed on plan, including intermediate post, straining post and standard. Rate per metre of fencing where structural members are:				
B.5.11	hot dip galvanised	km	0,16		
B.5.12	Corner and gate posts in 88mm diameter pipe section, having a 3.25 mm wall thickness, 2.15 m long as detailed on plan, where members are :				
B.5.13	hot dip galvanised	no	6		
B.5.14	Straining posts in 88mm diameter pipe section, having a 3.25mm wall thickness, 2.15 m long as detailed on plan, where members are :				
B.5.15	hot dip galvanised	no	4		
B.5.16	Standards of I - section fencing post of mass 2.5 kg/m, 1.85 m long are recommended as there are notches at 25 mm interval, allowing versatility of spacing wires. Spacing of standards is to be 3 m and they are to be tied to each wire.	no	23		
B.5.17	Stays and struts in 48mm diameter pipe section having a 2,8mm wall thickness				
B.5.18	hot dip galvanised	no	4		
B.5.19	Zinc coated diamond mesh (to SABS CKS 229); 3,15mm dia mild steel with 50 mesh and 1,8m width with bottom end barbed and top end open	km	0,13		

B.5.20	Manufacturing and installtion of steel Gate: 7000 x 1400 mm having a 3.25 mm wall thickness to details on plan.	no	2		
B.5.21	Prime with red oxide metal etch primer (SABS 723) and paint one undercoat (SABS 681-type 2) and two coats of high gloss enamel paint (SABS 630 -type I or II)	m2	9		
B.5.22	Supply and installation of Electrical motor gate with 12 volts battery back-up and Anti-Theft Bracket	no	2		
B.6	**PLANTING OF GRASS**				
B.6.1	Provisional sum for Site clearance, preparation of the ground. Topsoiling and planting of 390 m2 of kikuyu grass per house.	m2	300		

SUMMARY OF BILL OF QUANTITIES

CONSTRUCTION OF 2 X 2 HOUSES AT TZANEEN DAM.

SUMMARY		
SECTION	WORK AREA	TOTAL
Bill A	**GENERAL**	
	Preliminary and General	
	Time Related Items	
	Dayworks	
	Total Bill A	
Bill B	**2 x 2 BEDROOM HOUSE No 1 & 2**	
B.1	DEMOLITION WORKS AND FILLING AND COMPACTION	
B.2	BUILDING WORKS	
B.3	ELECTRICAL WORKS	

Appointment of/ Procurement of/ Supply and Delivery of/

B.4	CONSTRUCTION OF SEPTIC TANK AND FRENCH DRAIN	
B.5	SUPPLY AND INSTALLATION SECURITY FENCING	
B.6	PLANTING OF GRASS	
	Total Bill B	
	Add 5% Contingencies	
	Grand Total	

TECHNICAL SPECIFICATION:

Appointment of/ Procurement of/ Supply and Delivery of/

DEPARTMENT OF WATER AND SANITATION

PROJECT SPECIFICATIONS

FOR THE CONSTRUCTION OF 2 X 2 BEDROOMS HOUSES IN TZANEEN VILLAGE PHASE 2

C O N T E N T S

ABREVIATIONS

DWS	Department Of Water And Sanitation
GCC	General Condition of the Contract
SABS	South Africa Bureau Standards
SAICE	South African Institute of Civil Engineering
SANS	South Africa National Standards
AASHTO	American Association of State Highway and Transportation Officials
MPa	Megapascals
MOD	Modified AASHTO density
OSH Act	Occupational Safety and Health Act
IEC	International Electrotechnical Commission
EBPG	Environmental Best Practice Guidelines
ESM&RS	Environmental Site Management and Rehabilitation Specifications
EMP	Environmental Management Plan
B-BBEE	Broad-Based Black Economic Empowerment

A.CONDITION OF CONTRACT

The General condition of the Contract for Construction Works (3rd Edition 2015) as published by the South African Institute of Civil Engineering (SAICE) shall apply.

B.STANDARD SPECIFICATIONS

Although not included in this document the following standard specifications apply to this contract.

SABS 1200 STANDARDIZED SPECIFICATIONS

SANS 1200 A	Section A	General
SANS 1200 AA	Section AA:	General (small works)
SANS 1200 AB	Section AB:	Engineers office
SANS 1200 AH	Section AH:	General (structural)
SANS 1200 C	Section C:	Site clearance
SANS 1200 D	Section D:	Earthworks
SANS 1200 DA	Section DA:	Earthworks (small works)
SANS 1200 DB	Section DB:	Earthworks (pipe trenches)
SANS 1200 DM	Section DM:	Earthworks (roads subgrade)
SANS 1200 G	Section G:	Concrete (structural)
SANS 1200 GA	Section GA:	Concrete (small works)
SANS 1200 GB	Section GB:	Concrete (ordinary buildings)
SANS 1200 LB	Section LB:	Bedding (pipes)
SANS 1200 LC	Section LC:	Cable ducts
SANS 1200 LD	Section LD:	Sewer
SANS 1200 HB	Section HB:	Cladding and sheeting
SANS 1200 LE	Section LE:	Stormwater drainage
SANS 1200 M	Section M:	Roads (general)
SANS 1200 MFL	Section MFL:	Base (light pavement structures)
SANS 1200 ME	Section ME:	Subbase
SANS 1200 MJ	Section MJ:	Segmented Paving
SANS 1200 MK	Section MK:	Kerbing and channelling

C. PROJECT SPECIFICATIONS

The Project Specification forms an integral part of the contract and supplements the Standard Specifications.

In the event of any discrepancy between the Standard and the Project Specification, the Standard Specification shall take precedence. In the event of a discrepancy between the Specifications, (including the Project Specifications) and the drawings and / or the Bill of Quantities, the discrepancy shall be resolved by the Engineer before the execution of the work under the relevant item.

C.1. PROJECT DESCRIPTION

C.1.1. General

Tzaneen Dam is an earth-fill dam located on the Groot Letaba River, in Tzaneen Town, Limpopo. The dam supplies domestic water to Polokwane and Tzaneen, and irrigation water to the Letaba valley. See Site Locality Plan below.

Tzaneen Dam: *Location of the stands for the construction of the 2x2 bedroom houses in Tzaneen village..*

The main aim of this project is the construction of 2 x 2-bedroom houses, to accommodate DWS's officials and their families. These officials work in Tzaneen Area Office and are responsible of running the scheme: Operational Water Control Officer and Water Control Aid.

C.1.2. Geotechnical information

The contractor shall investigate the soil profile on the area where the buildings are to be built by manually excavating test pits. Each pit must be fully profiled, and the samples shall be taken for laboratory testing. Each sample shall be subjected to grading analysis and Atterberg Limits testing.

C.2. SCOPE OF WORKS

C.2.1. Construction of 2 x 2-bedroom houses according to the standards drawings and specifications. (See attached drawings).
C.2.2. Installation chain link galvanized class D fence, around the new houses. (See attached drawings).
C.2.3. Installation of electrical reticulation layout, circuits, and conduits.
C.2.4. Construction of 1 septic tank and a French drain.
C.2.5. Construction of a sewer reticulation system connected to the Septic Tank.
C.2.6. Installation of window burglar bars and washing lines.
C.2.7. Landscaping.

C.3. SPECIFICATIONS:

C.3.1. Excavation

C.3.1.1. The depth of the strip foundation trenches shall be the sum of the two brick courses plus foundation thickness but minimum of 600 mm.

C.3.1.2. The excavation shall be trimmed with exact vertically sides. The horizontal floor of the trench shall be square with the sides of the trench, of even surface and free from any lose material and protruding rocks.

C.3.1.3. On sloping building sites, the trenches shall be stepped with 250 mm minimum high steps and kept horizontal. The higher part of the foundation shall overlap the lower part for at least 500 mm.

C.3.1.4. All water seepage shall be removed before the casting of the concrete.

C.3.1.5. Removal of the topsoil before excavation shall be according to the project specifications.

C.3.1.6. All foundation excavation shall be inspected and approved by the engineer before placing of reinforcement or casting of concrete. If the founding level as per drawing is not suitable, further excavations shall be done to a depth as determine by the engineer on site. The Engineer may instruct that certain excavation be backfilled with mass concrete to the required level.

C.3.2. Concrete strip foundation

C.3.2.1. Reinforced concrete class E, 25 Mpa/19 mm for strip foundation with section of 600 mm wide x 250 mm deep or 450 mm wide x 250 mm deep according to the drawing.

C.3.2.2. Concrete cover to reinforcement in the foundation and for slab shall be 30 mm. The material in situ below the foundation shall be ripped 200 mm deep and compacted to 93% Mod AASHTO.

C.3.2.3. Selected backfilling well compacted below surface bed of the slab.

C.3.2.4. The concrete floor slab shall be 100 mm thick, with concrete class 25 Mpa/ 19 mm reinforced with ref. 193 mesh reinforcing.

C.3.2.5. Dam proof membrane 250-micron polyethylene shall be used under the concrete bed surface, with edges turned up.

C.3.2.6. Soft board 10 mm thick impregnated with bitumen to be used as indicated in the drawing.

C.3.2.7. The brick force shall be used in each course of the foundation wall up to floor level.

C.3.2.8. The foundation walls up to 1.0 m height shall be 220 mm thick and above 1.0 m in height 330 mm thick.

C.3.2.9. FILLING: Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted to 95%Mod AASHTO density.

C.3.2.10. All the sleeve pipes, electrical conduits, waste pipes, etc. below and up the ground floor level shall be installed inside the building before casting of ground floor concrete bedding.

C.3.3. Reinforcement

C.3.3.1. All bending shall be done in accordance with SANS 82 (with the latest amendments).

C.3.3.2. Welded mesh reference: All steel fabric shall be in accordance with SANS 1024-2005 with the latest amendments having a minimum 0.2% proof stress of 480 MPa.

C.3.3.3. The cover of the reinforcement in the strip foundation is 30 mm unless otherwise indicated.

C.3.3.4. The lap length for main steel = 40 x Ø but minimum of 500 mm.

C.3.4. Surface bed, screed and floor finishes

C.3.4.1. Hardcore filling below surface bed compacted in layers of 200 mm maximum 93% Mod AASHTO and treated with soil poisoning as specified.

C.3.4.2. 250 Micro polyethylene membrane installed underneath surface beds.

C.3.4.3. Approved dam proof courses installed underneath of all walls interior and exterior at floor level.

C.3.4.4. Where specified 25 Mpa concrete surface beds 100 mm thick installed on hardcore filling and reinforced with ref. 193 welded mesh.

C.3.4.5. Where specified 20 Mpa concrete surface beds 85 mm thick where instructed or specified on well compacted hardcore filling.

C.3.4.6. Cement screed as specified (1 cement: 4 sands by volume) 30 mm thick on surface beds with joints according to drawings.

C.3.5. Brick work

C.3.5.1. Brick walls shall comply with SAN 0400 – 1990 and specification DWS 1710.

C.3.5.2. The first two courses above the surface of the slab shall be reinforced with brick force.

C.3.5.3. The two courses below opening shall be reinforced with brick force.

C.3.5.4. DPC shall be placed below the edge brick in the exterior windowsill.

C.3.5.5. Pre- stressed concrete lintels shall have 300 mm on both sides of the opening.

C.3.5.6. Two courses above opening shall be reinforced with brick force.

C.3.5.7. Movement joint (MJ) shall be built in the brick work of the wall using 40 x 1.6 mm galvanized hoop iron wall tie in every 3rd course.

C.3.5.8. Brick force shall be placed in the wall every 4 brick courses.

C.3.5.9. Wall ties shall be installed at 4 per square meters of wall surface in the cavity wall.

C.3.5.10. Four air bricks of 250 mm shall be built in the gable walls, below the roof line.

C.3.5.11. The fire wall shall be built up to the underside of the roof tiles or roof cladding or minimum of 2000 mm high and finished with plaster and paint.

C.3.6. Exterior and interior wall and finishes to wall

C.3.6.1. Building and plater bricks shall be approved hard – burnt clay bricks. Face bricks shall be approved hard – burnt clay bricks to match face bricks of existing buildings where applicable.

C.3.6.2. Interior wall finish shall be 10 to 15 mm thick, steel troweled plaster and shall be primed with plaster primer and finished with two topcoats wash and wear superior matt finish emulsion paint. (color as instructed for the engineer).

C.3.6.3. WALL TILING: Beige shiny ceramic wall tile - 400 x 250 x 6.8 mm thick, quality of A-Grade. Approved adhesive, tile spacers of 3 mm and white grout color shall be used. All to be manufactured and installed in strict compliance to the latest SABS approved standards. Finished floor level up to cornice level in the bathroom and up to window top level in the kitchen.

C.3.6.4. Interior windowsill shall be fibred cement length to suit x 200 x 15 mm paint finish to match walls. Tiled sills in cloak rooms and kitchens.

C.3.6.5. External windowsill bricks on edge to match face brick walls.

C.3.6.6. Mortar on brick joints on face brick walls shall be flush scraped and smoothed between bricks with square jointing tool. A sample wall of one square meter shall be built for approval of the Engineer to be used as benchmark for joint finishing of all face brick walls.

C.3.7. Roof

C.3.7.1. Roof structure shall be braced and stiffened to the Engineer satisfaction and approval.

C.3.7.2. The contractor shall use prefabricated trusses. Shop drawings shall be submitted by the supplier of the trusses for approval.

C.3.7.3. The contractor shall provide clay tiles for roof covering on 38 x 38 mm battens at centres according to supplier's specifications on sisalation 405 RSA supported by 2 mm Ø galvanized strain wires @ 300 mm centres nailed on SA pine roof trusses.

C.3.7.4. Trusses manufactured from grade 6 SA pine at 760 mm centres fastened with 4 mm Ø galvanized wire ties built into the top through 3 brick courses on 75 x 38 mm SA pine wall plate.

C.3.7.5. Purlins shall have a section of 76 x 50 mm and must be placed at 960 mm of distance between each other.

C.3.7.6. Continuous bottom chord runners of 76 x 38 mm shall be nailed to each truss.

C.3.7.7. All joints shall be bolted and nailed. Bolts shall be hot dipped galvanized M10 of appropriate length leaving minimum of 20 mm for a flat washer and nut.

C.3.7.8. Nails shall be wire cut of appropriate length leaving minimum of 25 mm for bending on exit side.

C.3.7.9. The tie beam shall have a section of 150 x 38 mm.

C.3.7.10. CEILING: Gypsum or fibre cement board ceiling with metal connecting strips on 38 x 38 mm SAP brandering.

C.3.7.11. Polystyrene Cornice 79mm x 81mm shall be used as cornices. Skirting shall be nailed to plastered wall with steel cut nails and quadrant to skirting with panel pin.

C.3.9 WATERPROOFING

C.3.8.1 Waterproofing of roofs, basements, etc shall be laid under a ten-year guarantee. Waterproofing to roofs shall be laid to even falls to outlets etc with necessary ridges, hips and valleys.

C.3.8.2 Under-tile Membranes SABS 250 Micron mono layer white low density polyethelyne damp-proof membrane laid on top of trusses. The membrane is to be installed across rafters, under the purlins or tiling battens with at least 150mm overlaps. The membrane shall be affixed to the trusses by using galvanized clout nails.

C.3.10 DAMPPROOFING OF WALLS

C.3.9.1 One layer 375-micron orange polyethelene waterproof sheeting (SANS 952-1985 type A) sealed at laps with PVC self - adhesive tape.

C.3.11 DAMP-PROOFING UNDER FLOORS

C.3.10.1 Color coded polyethylene sheeting complying with SABS 952, Type C in widest practicable widths with all joints lapped and sealed in accordance with the manufacturer's instructions.

C.3.12. Apron, Ramps, Driveways and Pathways

C.3.11.1. Concrete ramp class 25 Mpa/19mm in front of garage min 100mm thick cast in 3.44m lengths joints where applicable with 10mm soft board between joints and against building. Max slope 1:10.

C.3.11.2. Compaction of ground surface under the ramp including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% Mod AASHTO density.

C.3.11.3. Concrete of apron shall be class 25 Mpa/19 mm; 1000mm width x 100mm thick around building joints where applicable cast in 2m lengths with 10mm soft board between joints and against building.

C.3.11.4. Compaction of ground surface under apron including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% Mod AASHTO density.

C.3.13. Steel work

C.3.13.1. The proposed work will consist in the manufacturing and installation of security gate doors size 900 x 2100mm SABS standard, bolted in brick wall as per drawing or as specified by the engineer.

C.3.13.2. Manufacturing and installation of window burglar bars to be installed in all the opening only if the windows procured for the project do not have the burglar bars built in.

C.3.13.3. Manufacturing and installation of mild steel welded gate size 1800 x 900 mm at the back yard as per drawing's specifications.

C.3.13.4. Manufacturing and installation of two steel gates for the 2 x 2-bedroom houses: 7000 x 1400 mm diameter. Rectangular tube frame of 75 x 38 x 3.25 mm and square rods of 25 x 25 mm.

C.3.13.5. All welds to be 6 mm continuous fillet weld, unless otherwise.

C.3.13.6. Holes for bolts shall be for bolts diameter of 12 mm.

C.3.13.7. Cold formed profile shall comply with a minimum guaranteed tensile strength of 250 MPa SANS 10162 – 2.

C.3.13.8. All spacers used for erection shall be of laminated cut – offs and shall be used only where necessary.

C.3.13.9. All workshop details drawings shall be approved by the engineer before manufacturing begins.

C.3.13.10. All site welds shall be done under supervision of a qualified welder.

C.3.13.11. All measurements to be checked on site before erection commences.

C.3.13.12. Protective treatment: Degrease all steel and wire brush to ST3 of Swedish standard SIS 055900 – 1967.

C.3.13.13. Paint all steel with a 25-micron red lead primary each coat.

C.3.13.14. According to SABS 312 – 1975 type II, grade II (applied in workshop).

C.3.13.15. Painting after erection: Prime with one coat approved primer for steel on site after erection. Finishing paint to be two coats polyurethane enamel color by the Engineer.

C.3.14. Carpentry

C.3.12.1. All steel window frames dimensions as per drawings specifications.

C.3.12.2. The steel window frames shall be supplied with the burglar bars built in.

C.3.12.3. The Burglar Bars must be similar to the Trellidor proofing bars.

C.3.14.1. Windowpane sizes shall be of 230 x 290mm.

C.3.14.2. The windows must be supplied with heavy duty steel Handles and Stays.

C.3.14.3. The following doors shall be used:

C.3.14.4. One framed and ledged three panel meranti or other hardwood door.

C.3.14.5. Two framed and ledged two panel meranti hardwood door.

C.3.14.6. One framed and ledged slatted meranti hardwood door.

C.3.14.7. One single panel 1.0 mm thick steel chawl door with vertical flutes combined with 1.2 mm thick deep section cross braces welded in. Standard sheet metal frame 1.2 mm thick combined with hinges as per supplier.

C.3.14.8. One sheet metal interlocking curtain slat with factory paint finish roll – up type garage door. Wild steel corrosion protected frame raw bolted on inside of the wall opening.

C.3.14.9. All door frames shall be standard sheet metal frame 1.2 mm thick combined with hinges as per supplier, for door size: 813 x 2 032 mm.

Built in Cupboards:

Carcasses shall be white melamine, dowelled and glued fixed components.

C.3.14.10. Doors shall be solid saligna with sheen varnish finish.

C.3.14.11. Exposed sides shall be solid timber sheen varnish finished.

C.3.14.12. Backs shall be white Masonite grooved in.

C.3.14.13. Hinges – concealed metal hinges.

C.3.14.14. Handles – 128 mm barrel handles.

C.3.14.15. Worktops – Rustenburg granite 30 mm.

C.3.14.16. Locks where applicable – Chrome camlocks.

C.3.14.17. Plynths – Timber 6 ply.

C.3.14.18. Runners – Metal roller runners.

C.3.14.19. WALL SHELVING: Shelving worktop shall be laminated SA pine, solid saligna or okoume timber.

C.3.14.20. Supporting frame shall be manufactured out of 25 x 50 mm SA pine.

C.3.14.21. All timber shall be matt finished with scratch and water-resistant poly – urethane.

C.3.15. Sewer reticulation

C.3.13.1. All concrete for bedding and encasing shall be class 02 concrete.

C.3.13.2. All house connection for residential erven shall be 100 mm Ø.

C.3.13.3. Minimum sewer gradients in erf boundary 1:50 with minimum earth cover 300 mm.

C.3.13.4. All covers and frames according to SABS 558.

C.3.13.5. Concrete classes according to standards departmental specifications.

C.3.13.6. Lying of sewer pipeline according to SABS 058.

C.3.13.7. A vent pipe is to be supplied on each branch line longer that 6.0 m from main pipe on erf.

C.3.13.8. PIPE MATERIALS: Unpasticised polyvinylchloride (uPVC).

C.3.16. Water reticulation

C.3.14.1. COPPER PIPES: Maximum allowable distance between pipe supports (Clamps, holder bats or hangers) for copper pipes shall be as per specifications on the drawings.

C.3.14.2. GEYSER: Install geyser with Vacuum breaker and cold and hot water pipes. Safety valve with drainpipe to exterior wall. Unions and isolating globe valves on cold and hot water pipes for future removal of geyser.

C.3.14.3. GEYSER TYPE: High pressure horizontally wall mounted as shown on drawing.

C.3.14.4. WATER CONNECTION: Main cold-water supply connects to the cold-water supply point with the necessary pipe fittings with class 10 hope 25 mm Ø pipe and 20 mm Ø brass gate valve in a bricked up valve box with cast iron frame and lid as specified.

C.3.14.5. Cold and hot water supply to individual sanitary fitting shall be 15 mm Ø, copper class 1.

C.3.14.6. Cold and hot water supply to more than two sanitary fittings in series shall be 22 mm Ø, copper class 1.

C.3.14.7. All exposed hot and cold-water pipes shall be protected with pipe isolation to prevent heat loss excluding water pipes chased in brick walls.

C.3.14.8. Cold water supply to flush masters and hot water cylinder shall be 22 mm Ø, copper class 1.

C.3.14.9. Main cold and hot water supply pipes shall be copper class 1 with conex compression fittings as specified allowing capillary soldered joints to be used on the last 2.0 m length of pipe to sanitary fittings.

C.3.14.10. GENERAL RULE: The cold water and hot water main supply pipes shall be 22 Ø CU and the last length to each sanitary fitting shall be 15Ø CU except to the shower and bath which stays 22Ø.

C.3.14.11. Fit a ballostop isolating valve to cold water supply pipes to WC and WC.

C.3.14.12. Water Reticulation: Position of pipe routes shall be the shortest and most practical routes either mounted in the roof construction, surface mounted on exterior walls or chased in interior walls.

C.3.14.13. All other specifications regarding isolation valves, ballostops, minimum pipe diameter, etc. shall be applicable.

C.3.14.14. The geyser shall be horizontally mounted directly under the roof overhang of the building.

C.3.17. Rainwater Disposal

C.3.17.1. Material for guttering and downwards pipes shall be color coated Chroma deck.

C.3.17.2. Roof gutters shall be installed seamless with a diameter of 125 mm x 85 mm.

C.3.17.3. Downpipes must have a diameter of 100 mm x 75 mm.

C.3.18. Electrical

C.3.15.1. Supply and install electrical circuits: Conduit and accessories, switches, socket outlets, switchgear, switchboard, luminaires and fans. Supply and install connection for telephone with a connection box. Supply and install outlet for TV Arial, conduit, cable and connecting box. All the works shall be completed according to the electrical design and specifications.

C.3.15.2. All the electrical work shall comply with DWS''s Standards Electrical Specifications, 9900 Section C8 attached.

C.3.15.3. THE DISTRIBUTION BOARD: shall be positioned in the main entrance foyer in an enclosed cupboard as show on the drawings.

C.3.15.4. Circuit isolators, amperes, earth leakage, etc. shall be according to the specifications of the electrical engineer design.

C.3.15.5. EXTERIOR CABLE ENTRANCE CHAMBER TO DISTRIBUTION BOARD: The main electrical supply cable shall be entering the building from outside the entrance door to the distribution board through a 50 mm Ø galvanized mild steel sleeve below ground level routed under the concrete floor bedding and with a slow bend chased vertical up the wall to the distribution board. Cable size and type etc. shall be according to the electrical engineer's specification.

C.3.15.6. The number of wiring circuits, specifications, position of conduits and complete reticulation layout shall be according to the electrical Engineer design.

C.3.15.7. All work shall comply with the electrical board of control and certificate of compliance shall be issued within seven days after the final successful commissioning of the electrical installation.

C.3.15.8. The installation of more than one luminaire's on – off – switch in the same position shall be installed as a combination multi – switch unit.

C.3.15.9. EXTERNAL ELECTRIC WORK: Supply and install 300 meters exterior cable: 4 cord PVC insolated inner steel type armoured power cable 3 x 35 mm^2 + 1 x 16 mm^2. The cable shall be laid underground with minimum depth of 400 mm.

C.3.15.10. Supply and install an outdoor steel electric kiosk IP 54 for 15 breakers. Connection of exterior cable to 3 phase magneto- thermic circuit breaker (CB) 150 A. Installation of 12 circuit breakers (CB) x 100 A (2 Poles) and connection from the distribution board to each house.

C.3.15.11. Supply and install 1 CB x 50 A (4P)

C.3.15.12. Supply and install Bare Copper Earth Wire 10 mm2.

C.3.15.13. Supply and installation of Electrical motor gate with 12 volts battery back-up and anti-theft bracket.

C.3.15.14. Connection from the kiosk to each house shall be with PVC 2 x 10 mm^2 + Bare earth wire 4 mm^2.

The electrical works shall comply in every respect with the latest relevant rules and regulations including following:

- Occupational Safety and Health Act (OSH Act)
- The South African Bureau of Standards Code of Practice SANS 10142
- Normal requirements laid down by Eskom
- The latest requirements of the IEC and the British Standard Institute, where no SANS codes of practice exist
- All rules and regulations issued by local and other authorities having jurisdiction over the contract.

C.3.19. Security Fence

C.3.19.1. The work comprises the removal of the existing fence and the erection of new fence around the houses. The installation of the new galvanized fence shall follow the layout of the existing fence.

C.3.19.2. The contractor shall clear the fence line 2 m strip including amongst others the removal of trees, stones, and other obstructions and the disposal of all waste material resulting from clearing operations.

C.3.19.3. The fence to be installed shall be 1.375 m high chain link galvanized class D fence. All elements to be hot – Dip galvanised (Class A) according to SABS 793. The fencing material and gate shall comply with DWS 1110 clauses 3.1 and 15.1.

C.3.19.4. The corner, end, straining and gate posts shall be 108 mm outside diameter steel tubing with a wall thickness of 3 mm, 2.15 m long.

C.3.19.5. All posts are to be braced as show and are to be provided with restraining bolts to accommodate wires as determined by the class of fencing.

C.3.19.6. The Standards Y- section fencing posts of mass 2.5 kg/m, 1.85 m long are recommended as there are notches at 25 mm intervals, allowing versatility of spacing wires. Spacing of standards is to be 12 m and they are to be tied to each wire.

C.3.19.7. The Droppers ridgeback T – section mild steel droppers of 1.35 m length are to be spaced at 3 m intervals between standards and tied to each wire.

C.3.19.8. The Fencing wire: Caution should be exercised to ensure that wires are not over tensioned since when temperature drop at night, tension will build up in the wires causing damage to the galvanising and /or corner posts to be pulled over. Diameter of wire mesh shall be 3.15 mm and aperture size of mesh not greater than 50 mm.

C.3.19.9. Gates are to be conformed to the standards of the surroundings fence with respect to the height and mesh. The frames shall be fabricated from mild steel tubing having continuously welded seams and this tubing shall have a diameter of 50 mm and a wall thickness of 2.5 mm in the case of main frame members and 25 mm and 2.0 mm respectively in the case of bracing members. The clear opening of the driving gates is to be 4.27 m.

C.3.19.10. The galvanized diamond mesh fencing to be installed shall be 50 mm with the wire diameter of 3.1 mm; the mesh shall be properly strained and secure to the posts.

C.3.19.11. The installation of the new galvanized fence shall follow the layout of the attached sketch or otherwise as indicated by the Engineer.

C.3.19.12. The walk and drive gate to be positioned facing the main door of the house and garage door respectively or as specified by the Engineer. The drive gate shall be 4m wide comprising 2 x1.375 m leaves per set.

C.3.19.13. The foundation shall be casted with concrete class 25/19mm, according to the dimension reflected in the drawings or otherwise as indicated by the Engineer. The concrete work shall comply with the standard specification SANS 1200 GA, for Small Concrete works.

C.3.19.14. A razor wire flat wrap coil of 500 mm height shall be installed against the new fences. The completed fence shall be plumb, taut, true to line and ground contour, with all posts, standards and stay firmly set.

C.3.19.15. The Contractor shall close the openings under the fence. A bottom tension wire shall be installed to secure the bottom of the chaink link fence.

C.3.19.16. Where a new fence joins an existing fence whether in line or at an angle, the new fence shall be erected with a new terminal post positioned at the starting point of the existing fence.

C.3.19.17. The erected fences shall follow the contour of the ground and the Contractor shall grade any surface irregularities in order to achieve this.

C.3.19.18. All the material to be galvanized and SABS approved. The Contractor shall comply with the applicable Standards Specifications, Codes and Practice and Regulations for the erection of fence: SABS 1200, 1373; CKS 229.

C.3.20. Landscaping

C.3.20.1. The contractor shall clean the weeds and debris, level and prepare the soil of the yards of the houses or areas indicated by the Engineer to plant Whitte Kikuyo (kikujo) sod.

C.3.20.2. Where the condition of the existing soil is not optimal for the planting of the sod, topsoil should be added previous planting the lawn.

C.3.20.3. The sods shall be lay as closed to each other as possible to prevent gaps. No broken sods or old sods with yellow leave shall be planted.

C.3.20.4. The Contractor shall water the grass three times a week for 4 weeks in a rod.

C.3.21. Septic Tank and French drain.

C.3.16.1. The new septic tank should have the following dimension: Length = 4600 mm; Width= 2500 mm; Depth= 1800 mm. The concrete floor slab and roof should be class 25 Mpa/19 mm.

C.3.16.2. The concrete finishing should be of wood float to the upper surface of the roof slab and steel float to the floor slab. The concrete roof slab should be 125 mm thick reinforced with mesh fabric ref no. 311, with cover of 40 mm and the floor slab 100 mm thick reinforced mesh fabric ref. no 311 with cover of 40 mm.

C.3.16.3. The wall of the tank should be plastered inside and outside. Inside of the tank should receive 12mm thick 2:1 sand/cement plaster and then 2 coat epoxy coal tar paint: Abecote 356 or equal approved. 600 mm x 600 mm medium duty cast iron manholes cover and frame SABS. The brick should be hard burnt clay brick. The inlet and outlet pipe to be 110 mm uPVC pipe. A terrace should be formed around the septic tank with 1:3 cut and fill slopes.

C.3.16.4. The French drain shall be 600 mm x 2000 mm deep, and 15 meters long filled with 100 mm rocks. Geotextile fabric lining (type U24 or equal) should be installed to the sides and top of the trench; laps should be of 300 mm minimum. A 100 mm diameter perforated pitch fibre

(total length 6 m) should be installed with end cap perforated with closely spaced 8 mm diameter holes.

C.3.16.5. Hard durable gravel or crushed stone graded 40 - 70 mm should be placed (not builder's rubble). The inspection pipe should be uPVC 110 mm diameter with sealed cap set in 450 x 450 x 200 mm thick concrete slab.

C.3.22. Installation steel washing lines and windows burglar bars.

C.3.22.1. The proposed work will consist in installation of window burglar bars for each window and one foldaway washing line, per house. The installation of the burglar bars shall comply with the drawing and all the applicable SABS or SANS specifications.

C.3.22.2. The washing lines shall have a T shape and are to be of steel tubing of 75 or 80 mm outside diameter with a wall thickness of 3 mm. The posts are to be provided with restraining bolts to accommodate the 3.15 mm Ø wires. The material for the post shall be hot dip galvanized.

C.3.22.3. The installation of burglar bars and washing lines shall comply with SABS code of practice and specifications of 684, 727 and 909 and all applicable SABS or SANS specifications.

C.3.23. SCHEDULE OF FINISHES

Only materials of first-class quality shall be used, and all materials shall be subject to the approval of the Engineer.

DESCRIPTION OF FINISHES		Lounge/Dinning Room	Bed Rooms	Passages	Bath Room/WC	Kitchen	Entrance Stoep	Back Exit Stoep	Shower	Garages	Exterior	Ramps
FLOORS	Non- Slip ceramic: 600mm x 600mm x 10mm thick non slip ceramic tiles in matt finish laid to approved pattern using approved adhesive and grout. use 2mm spacers. light grey grout color. All to be manufactured and installed in strict compliance to the latest SABS approved standards. Colour and end finish to Engineer approval.	x	x	x	x	x	x	x		x		
	Wood float finish (Non slip)											x
SKIRTING	Floor tile skirting	x	x	x	x	x	x			x		
WALLS	Cement Plaster(Interior)	x	x	x	x	x	x			x		
	Face Bricks: Corobrick Topaz Travertine FBS face brick in common running bond to comply with SABS 227 and forming part of the structural work. Mortar joints keyed to approval.										x	
WALLS FINISHES	Interior acrylic PVA paint (washable)	x	x	x						x		
	Eggshell enamel for untiled plaster surfaces				x	x						
	Wall tiles areas as specified				x	x			x			
TILES	FFL(Finished Floor Level) to 2.1 m high				x	x						
	FFL(Finished Floor Level) to 2.7 m high								x			
CURTAINS	Curtain rails / Vertical or horizintal blinds	x	x	x	x	x	x	x	x	x		
CEILING	Gypsum Ceiling Board	x	x	x	x	x	x	x	x	x	x	x
MISCELANEOUS	Soap dish				x				x			
	750 x 20 mm 450 x 20 mm towel rails				x				x			
	Toilet paper holder (Vitreous China)				x							

C.4. FEATURES REQUIRING SPECIAL ATTENTION

C.4.1. Health and safety

The Contractor shall comply with the Occupational Health and Safety Act (Act No. 85 of 1993) (OHS Act) and with the 2003 Construction Regulations.

C.4.2. Sanitary conditions

Unhygienic habits and other behaviour that may cause contamination of any part of the Works or the surrounding areas are strictly prohibited. The Contractor shall ensure that sanitary conditions prevail throughout the Site and that all his workmen are aware of, and comply with, this rule.

Appointment of/ Procurement of/ Supply and Delivery of/

C.4.3. Neatness of the working area

The Contractor shall, on a day-to-day basis, keep his working area in a condition acceptable to the Engineer.

C.4.4. Permits

The Contractor shall be responsible for obtaining all necessary permits to transport materials and equipment to the Site.

C.5. ACCESS TO THE SITE

See the site locality plan–

Vehicles accessing the site shall be required to keep their speeds below a reasonable limit to minimize the creation of dust and so as not to endanger residents.

C.6. SITE FACILITIES AVAILABLE

C.6.1. Water and power supply and other services

The Contractor shall make his own arrangements and pay all installation and consumption charges for the supply of water, electrical power and other services required.

C.6.2. Camps

The Contractor shall make his own arrangements for his site facilities, to house his employees and transport them to and from the Site. No Contractor's camp will be allowed within the boundaries of the DWS land or sites.

C.6.3. Disposal sites

The Contractor shall locate suitable sites, off site, for the disposal of cleared vegetation not to be re-used, and rubble. The Contractor shall inform the Engineer of any disposal site he proposes to use.

C.7. PROGRAMME

The Contractor shall provide a programme in a bar chart form which should show as a minimum:

- The various activities, related to a time scale, for each element of the Works, in sufficient detail to be able to assess construction progress.
- Critical path activities and their dependencies.
- Key dates in respect of work to be carried out by others and.
- Key dates in respect of practical completion and commissioning of the work.

The programme shall be in sufficient details to clearly show how the works will be performed, within the time for completion as stated in the Contract Data. If any change to the critical path occurs, the Contractor shall as soon as practicable notify the Engineer in writing.

The Contractor's programme and method statements will not be accepted as the basis for claims for additional compensation without due reference to all relevant associated factors.

C.8. CONSTRUCTION MANAGEMENT

C.8.1. General

The Contractor is referred to SANS 1921: 2004: Construction and Management Requirements for Works Contracts, Part 1: General Engineering and Construction Works. This specification shall be applicable to the contract under consideration and the Contractor shall comply with all requirements relevant to the project. Certain aspects however require further attention as described hereafter.

C.8.2. Quality Assurance (QA)

The Contractor will be solely responsible to produce work that complies with the Specifications to the satisfaction of the Engineer. To this end it will be the full responsibility of the Contractor to institute an appropriate Quality Assurance (QA) system on site. The Engineer will audit the Contractor's QA system on a regular basis to verify that adequate independent checks and tests are being carried out and to ensure that the Contractor's own control is sufficient to identify any possible quality problems which could cause a delay or failure.

The Contractor shall ensure that efficient supervisory staff, the required transport, instruments, equipment, and tools are available to control the quality of his own workmanship in accordance with his QA-system. His attention is drawn to the fact that it is not the duty of the Engineer or of the Engineer's representative to act as foreman.

C.8.3. Process control

The Contractor must submit the results of tests carried out on materials and workmanship when submitting work for acceptance by the Engineer. The costs for these tests shall be deemed to be included in the relevant rates and no additional payment will be made for testing as required. The Contractor is required to give at least 48 hours notice to the Engineer before undertaking any tests.

C.8.4. Survey beacons

The Contractor shall take special precautions to protect all permanent survey beacons or pegs such as benchmarks, stand boundary pegs and trigonometrical beacons, regardless of whether such beacons or pegs were placed before or during the execution of the Contract. If any such beacons or pegs have been disturbed by the Contractor or his employees, the Contractor shall have them replaced by a registered land surveyor at his own cost.

C.8.5. Attendance at Site Meetings

The Contractor will be required to attend site meetings as and when these are required by the Engineer. The cost of attending such meetings shall be deemed to be included in the rates. Instructions given by the Engineer or agreement reached at such meetings and confirmed in the minutes shall be considered as a "written instruction by the Engineer" as referred to in the General Conditions of Contract.

Formal site meetings will be held once per month. Technical meetings will be held as required during the contract.

C.8.6. Certificates of Payment

The statement to be submitted by the Contractor shall be prepared in accordance with the standard payment certificate prescribed by the Engineer and shall consist of at least **one full** set of A4-sized paper copies. The certificates shall be submitted to the Engineer for approval by the 15th of each month.

All costs resulting from the preparation and submission of the statements shall be borne by the Contractor

Appointment of/ Procurement of/ Supply and Delivery of/

D. PARTICULAR SPECIFICATIONS

In addition to the Standard and Project Specifications the following Particular Specifications shall apply to this contract.

C O N T E N T S

D.1 ENVIRONMENTAL MANAGEMENT PLAN

D.1.1 INTRODUCTION

The Environmental Management Plan (EMP) is a basic but site-specific document and will not include reference to standard activities such as site establishment, fencing, general housekeeping, etc, unless called for by site conditions. Such measures are contained in the Environmental Site Management and Rehabilitation Specifications (ESM&RS) for DWA construction sites, which forms part of the DWA's "Environmental Best Practice Guidelines (EBPG) for Construction Sites, Infrastructure Upgrades and Maintenance Works" (Edition 3, February 2005). The ESM&RS define the preferred extent, location and relationship of the various components of a Government Water Works site, bearing in mind the environmental parameters identified and highlighted in the EMP.

D.1.2 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Site Management and Construction Specifications (ESM&RS) of DWS and the EMP must be complied with under this contract, to reduce or mitigate any negative impacts and to maximise any benefits that the project may have. The provisions of the ESM&RS and this EMP are binding on the contractor during the life of the contract. Specific measures for the project site, that need to be emphasised, are listed in the table below. Reference is made to the relevant sections in the DWS EBPG and, to Annexures to the EMP report.

MITIGATION MEASURES		REFERENCE
1.	The Contractor's **movements** during construction will be restricted to the construction domain.	
2.	The Contractor shall ensure that all construction routes are effectively watered to prevent excessive **dust** being generated during construction activities.	
3.	**A construction camp** site is to be agreed with the Engineer, including for site office, parking, temporary storage of fuel, storage of plant, equipment and material, and sleeping/accommodation facilities etc.	

	MITIGATION MEASURES	REFERENCE
4.	**Access** to the Site , must be restricted for visitors, except for construction related visitors (e.g. PSP, DWS personnel) An A3 sized, laminated notice on a board notifying the public that access is prohibited during the construction period must be placed at the entrances to the construction domain.	See **Sections 3.2.7** and **3.3.11** of the DWS EBPG
5.	**Fuel** for the construction works may only be stored on site above ground with a total volume not exceeding 30 cubic metres and in compliance with the SANS specification for that type of fuel (petrol or diesel). As a minimum, the fuel storage tank must be lined and a bunded area provided to contain a spill 1.5 times the content of the fuel tank. The fuelling area must be cleared of any topsoil, lined and paved. A separate container must be made available for the biological treatment of soil polluted by oil. A person trained in first aid and the handling of fuels must be available to the construction team at all times.	See **Section 3.6.4** of Appendix 1 of the DWS EBPG See **Section 3.3.11** (p23) of the DWS EBPG
6.	Rubbish from the construction site must be collected in a **waste** skip and disposed of at a licensed domestic waste landfill site.	See **Section 3.3.2** of EBPG
7.	No open **fires** that could damage the sensitive grasslands should be allowed on site. Green waste, however, will be allowed to be burnt in the works area only, on condition that fire breaks are established and maintained around the works area if necessary.	See **Section 5.5.2** of the DWS EBPG
8.	**Materials** for the construction of the Works, sourced from within the boundaries of the Government Water Works or designated borrow pits, may only be used in compliance with section 106(3) of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) (which signifies that the material may not be sold or used for any other purpose other than improvement of the property on which it was sourced).	See **Section 3.4.1 of Appendix 1** of the DWS EBPG

	MITIGATION MEASURES	REFERENCE
	After the completion of the construction works, the disturbed by construction are to be rehabilitated as per the specification with regard to topsoil and seeding. Should commercial sources be used, the contractor must ensure that these sources are licensed in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002).	
9.	Environmental Awareness **Training** must be provided to all personnel. Adhere to the requirements of the Occupational Health and Safety Act (Act 85 of 1993). The Contractor shall ensure that all plant and equipment complies with the relevant safety standard at all times. Construction sites must be clearly marked and not be left unattended.	See **Section 6** (p55) of the DWS EBPG
10.	Measures to limit **erosion** and improper drainage caused by construction vehicles must be in place. Slopes must be restored to an acceptable level. In general, no environmental rehabilitated slopes steeper than 1(V):3(H) will be allowed.	See **Sections 3.7** and **3.5.3**: Cut and Fill of **Appendix 1** of EBPG
11.	**Fauna** (including snakes, hares and fish) may not be trapped, speared, injured or killed.	See **Section 3.1.3** Protection of Fauna (DWS EBPG)
12.	Except for the removal of **vegetation** as required in terms of the project specification, trees and shrubs should not be damaged or used for fire wood. Invasive alien vegetation within the works area is limited but shall be removed from the construction domain and destroyed by burning, although care should be taken not to cause runaway veld fires. It is not the responsibility of the Contractor to remove alien vegetation which is not invasive from the rest of the demarcated site.	See **Sections 3.1.2** and **Section 3.2.6** and **Appendix 2**: Principles and Methods of Alien Plant Control in the DWS EBPG
13.	Should any **heritage** artefacts be uncovered during the construction, all construction activities must be halted immediately, and a heritage specialist must be appointed to recommend site and situation specific mitigation measures.	See **Section 3.1.4** in the DWS EBPG, National Heritage

MITIGATION MEASURES		REFERENCE
		Resources Act (Act No. 25 Of 1999)
14.	Agreement to the EMP must be acknowledged between the Contractor and the Approved Professional Person prior to site hand-over. The Engineer will monitor compliance with the EMP using a checklist. In the event of a dispute between the Engineer and the Contractor, contractual dispute resolution proceedings will be followed.	See **Section 6** in the DWS EBPG

D.1.3 PAYMENT

The cost for the Contractor to implement the environmental management measures shall be deemed to be included in the Tenderer's rates and prices for Preliminary and General Items.

No special items will be scheduled for the implementation of the environmental management plan.

D.2 SAFETY SPECIFICATION

D.2.1 SCOPE

To ensure a continued safe and healthy environment for all workers, employees and subcontractors under his control and for all other persons entering the site of works, the Contractor shall comply with all the requirements of the Occupational Health and Safety Act (Act No 85 and Amendment Act No 181) 1993, and the corresponding Construction Regulations 2003, and all other safety codes and specifications referred to in the said Construction Regulations.

Significant hazards associated with the works along with their mitigation are tabulated under the Project Data section of this document. **The Contractor is to show how he intends to minimize the risk of these hazards occurring in his Health and Safety Plan.**

The Contractor's own Safety Plan as well as the Construction Regulations 2003, shall be available on site for inspection by all workers, employees, inspectors and any other persons entering the site of works.

D.2.2 COMPLIANCE WITH THE CONSTRUCTION REGULATIONS 2003

In terms of the Construction Regulations the Contractor shall:

(a) submit a documented Health and Safety Plan based on the Construction Regulations 2003, subject to approval by the Employer or its representative.

(b) have a risk assessment performed and recorded in writing by a competent person, which risk assessment shall identify and evaluate the risks and hazards that may be expected during the execution of the work under the contract.

(c) conduct, before commencement of construction work, a health and safety induction training course by a competent person to all employees under his control, including subcontractors and their employees.

(d) appoint a full-time Construction Supervisor with the duty of supervising the performance of the construction work.

(e) appoint a full-time or part-time Construction Safety Officer if so decided by the Inspector of the Department of Labour.

(f) keep records and registers related to health and safety on site, which shall be **available for** inspection at all times.

(g) before commencement of work under the contract, enter into an agreement with the Employer (Client) to confirm his status as mandatory (employer) for the contract under consideration.

D.2.3 PAYMENT

D.2.3.1 Principles

It is a condition of this contract that Contractors submitting tenders for this project shall make adequate provision in their tendered rates and prices for the cost of compliance with all health and safety requirements of the Construction Regulations 2003.

E. DRAWING LIST

The drawings issued to tenders as part of the tender documents must be regarded as provisional and preliminary for the tenderer's benefit to generally assess the scope of work.

The work shall be carried out in accordance with the latest available revision of the drawings approved for construction.

At commencement of the contract, the Engineer shall deliver to the Contractor copies of the drawings and any instructions required for the commencement of the works. From time to time thereafter during the progress of the works, the Engineer may issue further drawings for construction purposes as may be necessary for adequate construction, completion and defects correction of the works.

All drawings and specifications and copies thereof remain the property of the Employer, and the Contractor shall return all drawings and copies thereof to the Employer at the completion of the contract.

Drg No.	Description	Rev.
N/A	SITE LAYOUT	N/A
01	LIST OF DRAWINGS AND GENERAL NOTES	
02	FLOOR PLAN, SECTION AND ELEVATIONS	
03	WINDOW AND DOOR SCHEDULE	
04	STRIP FOUNDATION LAYOUT AND DETAILS	
05	SEWER AND WATER RETICULATION LAYOUT	
06	ELECTRICAL SERVICES AND FIRE PROTECTION	
07	GENERAL BUILDING DETAILS	
08	ROOF AND CEILING	

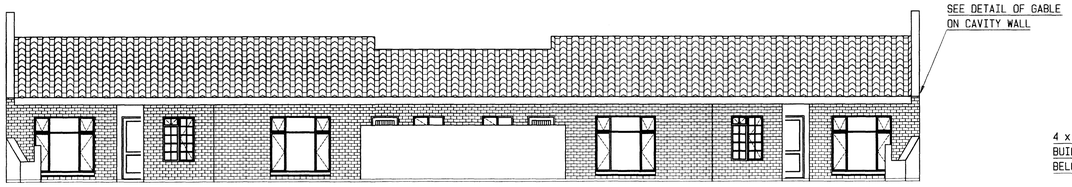
Drg No.	Description	Rev.
09	TYPE DRAWING: WATER SUPPLY DETAILS AND NOTES	
10	TYPE DRAWING: SEWER DETAILS AND NOTES	
11	SECTION 1 – 1: SECTION ON BUILDING	
12	SECTION 2 – 2: BEDROOM BUILT – IN- CUP	

DELIVERY

Delivery address	**Tzaneen Dam**
Delivery period / Completion date	
Duration of contract	**90**

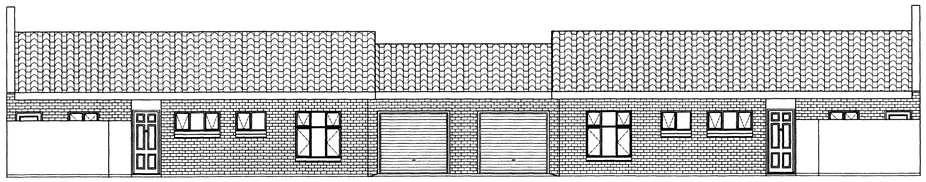
COMPILED BY

Walter Berg Rodriguez		
Project Manager/Project Leader	**Signature**	**Date**



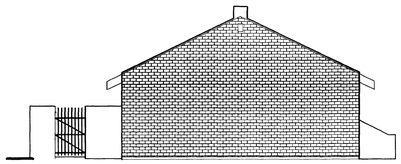
REAR ELEVATION

SCALE 1:100



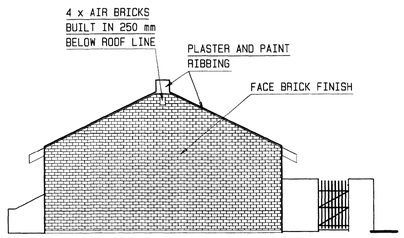
FRONT ELEVATION

SCALE 1:100



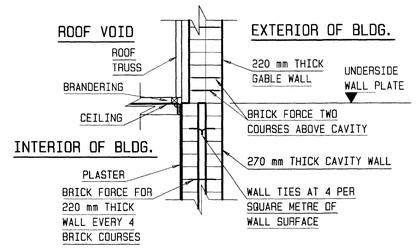
SIDE ELEVATION

SCALE 1:100



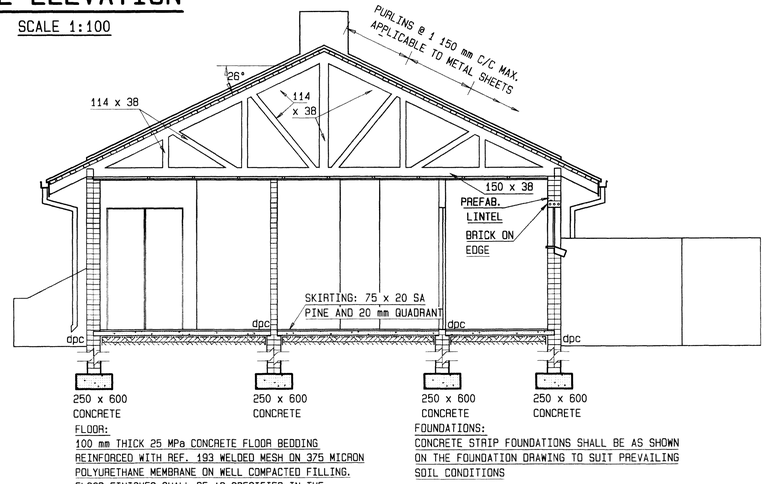
SIDE ELEVATION

SCALE 1:100



DETAIL J: GABLE WALL CONNECTION TO CAVITY WALL

SCALE 1:20

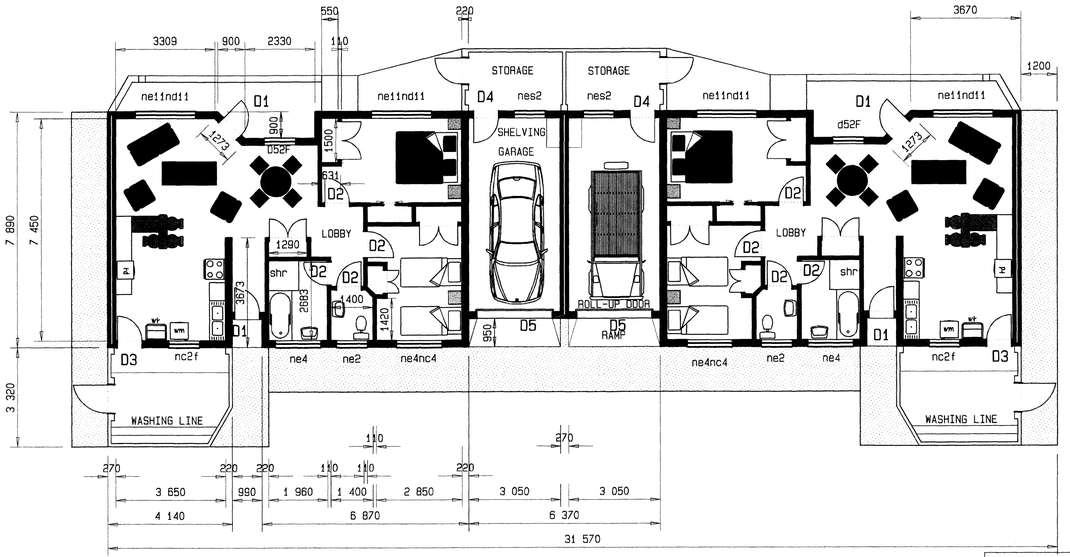


FLOOR:
100 mm THICK 25 MPa CONCRETE FLOOR BEDDING REINFORCED WITH REF. 193 WELDED MESH ON 375 MICRON POLYURETHANE MEMBRANE ON WELL COMPACTED FILLING. FLOOR FINISHES SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

FOUNDATIONS:
CONCRETE STRIP FOUNDATIONS SHALL BE AS SHOWN ON THE FOUNDATION DRAWING TO SUIT PREVAILING SOIL CONDITIONS

SECTION 01-01

SCALE 1:50



FLOOR PLAN

SCALE 1:100

SECTION
07/3
SECTION NUMBER
SHEET NUMBER

SCALE 1:20 0 0,5 1 1,5 2 4 m

SCALE 1:100 0 1 2 3 4 5 10 20 m

N

TWO BEDROOM FLAT SOUTH OR NORTH ENTRY WITH GARAGE ATTACHED

NOTES:

(FLOOR AREA INCLUDING WALL FOOTPRINTS)

FLAT 94.70 m²

GARAGE 22.10 m²

TOTAL 110 m²

2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

SHEET	DESCRIPTION	OTHER No.	REG. No.

LIST OF DRAWINGS

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 FRANCIS BAARD STREET
PRETORIA
(012) 336-7500

M. DIEDERICKS
DIRECTOR GENERAL

CHECKED: DATE:
ENGINEER: N.J. VAN DEVENTER DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / [illegible] DATE: 11/8/2016

DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
EXTERNAL APPROVAL: DATE:
DIRECTOR (Pr. Eng): 19/08/2016 DATE:

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

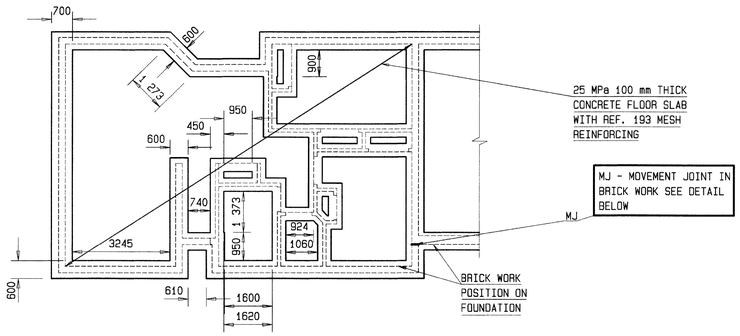
FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
PROPOSED PLAN, ELEVATIONS AND SECTION

PROVINCE: NORTH WEST	DISTRICT: TLOKWE	KEYCODES:	HOU	PNG	FLP	ELE	DAH	OTHER NUMBER	S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET	REG. No.						REV.
CALCULATION FILE: X		2 OF 9	172 414/15						00

NOTES:

1. PRE-INVESTIGATION TO BE EXECUTED ON SOIL CONDITIONS BEFORE CONSTRUCTION COMMENCES. NOMINAL REINFORCING IN STRIP FOUNDATIONS ESSENTIAL AT POOR SOIL CONDITIONS. DECISION BY SUPERVISING ENGINEER.
2. BRICK FORCE IN EACH COURSE OF FOUNDATION WALLS UP TO FLOOR LEVEL COMPULSARY.
3. **FOUNDATION WALLS UP TO 1,0 m IN HEIGHT SHALL BE 220 mm THICK AND ABOVE 1,0 m IN HEIGHT 330 mm THICK.**
4. ALL SLEEVE PIPES, ELECTRICAL CONDUITS, WASTE PIPES, ETC. BELOW AND UP TO GROUND FLOOR LEVEL SHALL BE INSTALLED INSIDE THE BUILDING BEFORE CASTING OF GROUND FLOOR CONCRETE BEDDING.

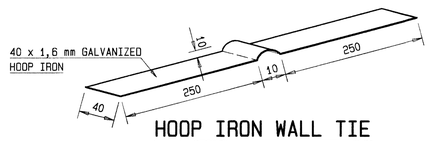
UNIT 1



FOUNDATION PLAN LAYOUT

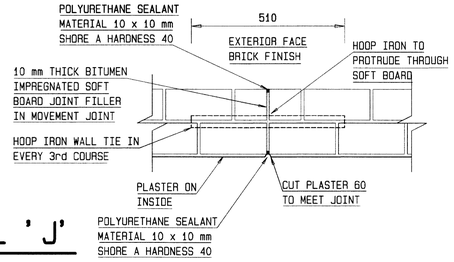
SCALE 1:100

UNIT 2

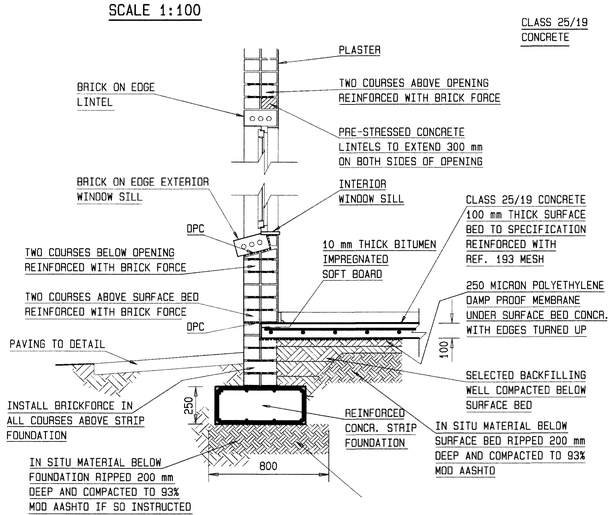


HOOP IRON WALL TIE

SCALE N.T.S.



DETAIL 'J'

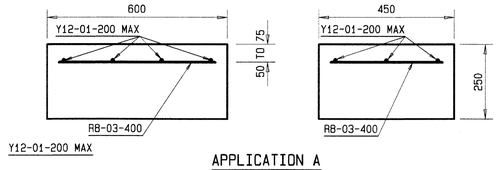


SECTION ON TYPICAL FOUNDATION REINFORCING

SCALE 1:20

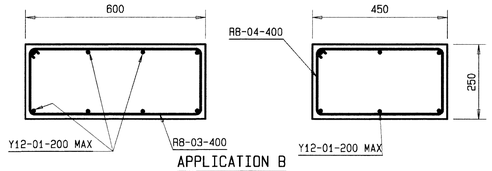
PLAN EXTERIOR WALL MOVEMENT JOINT

SCALE 1:10



APPLICATION A

NOTE:
THIS STRIP FOUNDATION STRUCTURE IS APPLICABLE TO NORMAL UNIFORM SOIL CONDITIONS OVER THE TOTAL LENGTH OF THE FOUNDATION STRIPS AND A SOIL PRESSURE NOT LESS THAN 180 kPa



APPLICATION B

NOTE:
THIS STRIP FOUNDATION STRUCTURE IS APPLICABLE TO VARYING SOIL BEARING CAPACITY OVER THE LENGTH OF THE FOUNDATION STRIPS WITH SOIL PRESSURE NOT LESS THAN 150 kPa

SECTIONS: STRIP FOUNDATION REINFORCMENT

SCALE 1:10

SCALE 1:10 0 0,1 0,2 0,3 0,4 0,5 1 2 m

SCALE 1:50 0 0,5 1 2 3 4 5 10 m

NOTES:

1. ALTHOUGH THE BENDING SCHEDULES WERE PREPARED WITH CARE, MISTAKES MAY HAVE BEEN MADE THEREFORE, BEFORE ORDERING, CUTTING AND BENDING OF REINFORCEMENT COMMENCES THE CONTRACTOR MUST CHECK ALL SCHEDULES TO ENSURE CORRECTNESS OF TYPE OF REINFORCEMENT AND BENDING DIMENSIONS.

   IN CASE CHANGES ARE NECESSARY, THEY SHOULD CONFORM TO THE REQUIREMENTS SHOWN ON THE DRAWINGS AND BE IN ACCORDANCE WITH SABS 0144 (WITH THE LATEST AMENDMENTS).

   ALL BENDING SHALL BE DONE IN ACCORDANCE WITH SANS 82 (WITH THE LATEST AMENDMENTS).

2. FOUR TYPES OF REINFORCING STEEL CAN BE SPECIFIED ON REINFORCEMENT DRAWINGS AND BENDING SCHEDULES (IN ACCORDANCE WITH SABS 920 AND SANS 1024 WITH THE LATEST AMENDMENTS) viz.

   R REINFORCEMENT SHALL BE TYPE A: HOT ROLLED MILD STEEL BARS OF PLAIN ROUND CROSS-SECTION HAVING A MINIMUM YIELD STRESS OF 250 MPa FOR BARS OF DIAMETER UP TO AND INCLUDING 20 mm AND HAVING A MINIMUM YIELD STRESS OF 230 MPa FOR BARS WITH DIAMETER GREATER THAN OR EQUAL TO 25 mm.

   Z REINFORCEMENT SHALL BE TYPE B: GRADE 1: HOT ROLLED DEFORMED MILD STEEL BARS HAVING A MINIMUM YIELD STRESS AS FOR TYPE A.

   Y REINFORCEMENT SHALL BE TYPE C: CLASS 2: GRADE 1: HOT ROLLED DEFORMED HIGH YIELD STRESS STEEL BARS HAVING A MINIMUM YIELD STRESS OR A MINIMUM 0,25% PROOF STRESS OF 450 MPa.

   WELDED MESH REFERENCE
   ALL STEEL FABRIC SHALL BE IN ACCORDANCE WITH SANS 1024-2005 WITH THE LATEST AMENDMENTS HAVING A MINIMUM 0,2% PROOF STRESS OF 480 MPa.

   FOR EXAMPLE: R20 DENOTES A 20 mm DIAMETER PLAIN ROUND BAR OF MILD STEEL.
   Z12 DENOTES A 12 mm DIAMETER DEFORMED BAR OF MILD STEEL.
   Y25 DENOTES A 25 mm DIAMETER DEFORMED BAR OF HIGH TENSILE STEEL.
   REF. 655 DENOTES FABRIC REFERENCE 655 (MESH).

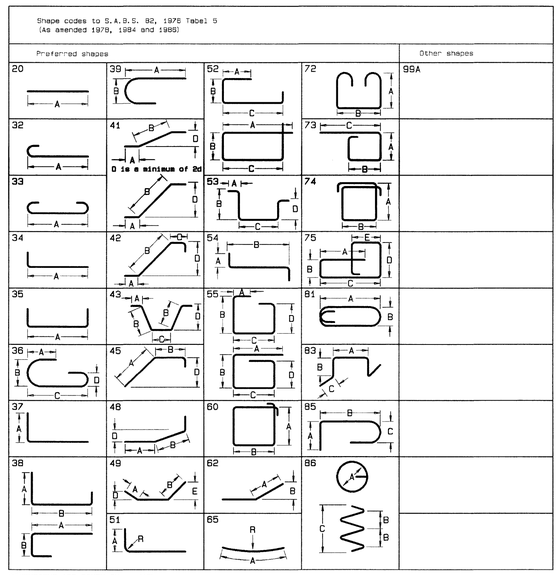
3. COVER TO REINFORCEMENT IN STRIP FOUNDATIONS ARE 30 mm UNLESS OTHERWISE INDICATED.
4. LAP LENGTH FOR MAIN STEEL = 40 x Ø BUT MINIMUM OF 500 mm.
5. SEE LISTED DRAWINGS FOR NOTES AND FLOOR LAYOUT.

EXCAVATION NOTES:

1. THE DEPTH OF STRIP FOUNDATION TRENCHES SHALL BE THE SUM OF TWO BRICK COURSES PLUS FOUNDATION THICKNESS BUT MINIMUM 450 mm.
2. THE EXCAVATION SHALL BE TRIMMED WITH EXACT VERTICALLY SIDES. THE HORIZONTAL FLOOR OF THE TRENCH SHALL BE SQUARE WITH THE SIDES OF THE TRENCH, OF EVEN SURFACE AND FREE FROM ANY LOOSE MATERIAL AND PROTRUDING ROCKS.
3. ON SLOPING BUILDING SITES THE TRENCHES SHALL BE STEPPED WITH 250 mm MINIMUM HIGH STEPS AND KEPT HORIZONTAL. THE HIGHER PART OF THE FOUNDATION SHALL OVERLAP THE LOWER PART FOR AT LEAST 500 mm.
4. ALL WATER SEEPAGE SHALL BE REMOVED BEFORE THE CASTING OF CONCRETE.
5. REMOVAL OF TOP SOIL BEFORE EXCAVATION SHALL BE ACCORDING TO THE PROJECT SPECIFICATIONS.

Shape codes to S.A.B.S. 82, 1978 Tabel 5
(As amended 1979, 1984 and 1985)

Preferred shapes



DIMENSIONS ARE GIVEN IN mm AND m.
DIMENSIONS OF BARS ARE OVERALL OUTSIDE DIMENSIONS.

UNDER CERTAIN CIRCUMSTANCES WHERE HIGH YIELD STRESSES MIGHT BE INDUCED, THE STANDARD RADIUS (i.e. 2d FOR MILD STEEL AND 3d FOR HIGH YIELD STEEL) MAY BE INCREASED TO 7,5d BUT THIS SHALL NOT APPLY TO END ANCHORAGES DENOTED BY h OR n. THIS CHANGE SHOULD BE INDICATED BY ADDING THE LETTER S AFTER THE SHAPE CODE NUMBER.

FOR WELDED MESH FABRIC, DIMENSIONS A & B DEFINE THE NET OVERALL AREA OF MESH. NO ALLOWANCE HAS BEEN MADE FOR LAPS.

DEPARTMENT OF WATER AFFAIRS AND FORESTRY
BAR BENDING SCHEDULE

SCHEME REGION, DAM OR GWS — SHEET –
STRUCTURE HOUSING — DRAWN –
PLAN REG NO. – — CHECKED –

Member Location	No. of	Type, Ø & mark	No. in each	TOTAL LENGTH OF S.F.	Cut length mm	Shape code	Bending Dimensions (mm) A	B	C	D	E/R	Mass kg
DEPENDING ON SOIL CONDITION APPLICATION THE STEEL SUPPLIER WILL CALCULATE THE STEEL QUANTITIES PER UNIT MAINLY IN SHAPE CODE 20 AND SHAPE CODE 60 FOR Y12 AND R8 STEEL REINFORCING BARS. REFER TO THE DETAILS ON THIS DRAWING											—	–
											—	–
											—	–

Member Location	No. of	Type, Ø & mark	No. in each	TOTAL NO.	Cut length mm	Shape code	Bending Dimensions (mm) A	B	C	D	E/R	Mass kg
–	–	–	–	–	–	–	–	–	—	—	—	–
–	–	–	–	–	–	–	–	–	—	—	—	–
–		–	–	–	–	–	–	–	—	—	—	–
							SUMMARY	TOTAL Y				–
								TOTAL R				–

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

APPLICATION C

NOTE ON POOR SOIL CONDITIONS:

IN POOR SOIL CONDITIONS WHERE EXCAVATION IS DONE IN E.G. FILLING MATERIAL OR CLAY CONDITIONS A FORMAL GEO-TECHNICAL INVESTIGATION SHALL BE DONE AFTER WHICH THE DESIGN OF A RAFT FOUNDATION WILL PROBABLY BE APPLICABLE

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

CHECKED: DATE: — DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
ENGINEER: N.J. VAN DEVENTER DATE:
EXTERNAL APPROVAL: DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / DES: DATE: 11/8/2016
DIRECTOR (Pr. Eng): 14/08/2016 DATE:

11/8/2016

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
PROPOSED PLAN AND ELEVATIONS
FOUNDATION PLAN AND DETAILS

PROVINCE: ALL	DISTRICT: ALL	KEYCODES: HOU PNG FLP ELE DAH	OTHER NUMBER S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET 4 OF 9	REG. No. 172 416/15 REV. 00
CALCULATION FILE: X			

LIST OF DRAWINGS

No. J	DESCRIPTION	REVISION No.	SHEET	REG No.
01	LIST OF DRAWINGS AND GENERAL NOTES		1/10	172 413/15
02	FLOOR PLAN, SECTION AND ELEVATIONS		2/10	172 414/15
03	WINDOW AND DOOR SCHEDULE		3/10	172 415/15
04	STRIP FOUNDATION LAYOUT AND DETAILS		4/10	172 416/15
05	SEWER AND WATER RETICULATION LAYOUT		5/10	172 417/15
06	ELECTRICAL SERVICES AND FIRE PROTECTION		6/10	172 418/15
07	GENERAL BUILDING DETAILS		7/10	172 419/15
08	ROOF AND CEILING		8/10	172 420/15
09	TYPE DRAWING: WATER SUPPLY DETAILS AND NOTES		9/10	172 421/15
10	TYPE DRAWING: SEWER DETAILS AND NOTES		10/10	172 422/15
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

SECTIONS AND DETAILS

DESCRIPTION	SHEET NO.	REFER TO DRAWING
SECTION 1-1: SECTION ON BUILDING	2	172 414/15
SECTION 2-2: BEDROOM BUILT-IN CUPBOARD	7	172 419/15
SECTION 3-3		X
SECTION 4-4		X
SECTION 5-5		X
SECTION 6-6		X
SECTION 7-7		X
SECTION 8-8		X
SECTION 9-9		X
SECTION 10-10		X
DETAIL A: KITCHEN CUPBOARDS	7	X
DETAIL B: TV SHELVE IN LOUNGE	7	X
DETAIL C: BEDROOM CUPBOARD	7	X
DETAIL D: SHELVE LEFT OF BEDROOM CUPBOARD	7	X
DETAIL E: SHELVE RIGHT OF BEDROOM CUPBOARD	7	X
DETAIL F; BEDROOM SHELVE	7	X
DETAIL G: BEDROOM CORNER SHELVE	7	X
DETAIL H: SECURITY GATE AT EXTERIOR DOORS	3	X
DETAIL I: CEILING CORNICE	8	X
DETAIL J: EXTERIOR WALL MOVEMENT JOINT	4	X
DETAIL K:		X
DETAIL L:		X
DETAIL M:		X
DETAIL N:		X
DETAIL O:		X
DETAIL P:		X
DETAIL Q:		X

NOTES ON BUILDING SPECIFICATIONS:

A. FOUNDATIONS:

A1. CONCRETE STRIP FOUNDATION ACCORDING TO ENGINEER'S DESIGN DRG REG. NO. XXX XXX/XX. TOP OF FOUNDATION AT LEAST 350 mm BELOW N.G.L.
A2. 220 mm BRICK FOUNDATION WALLS WITH BRICK FORCE BUILT IN EVERY COURSE UP TO FLOOR LEVEL.
A3. 220 mm BRICK FOUNDATION WALLS UNDER ALL INTERIOR WALLS WITH BRICK FORCE BUILT IN EVERY COURSE UP TO FLOOR LEVEL.

B. SURFACE BED, SCREED AND FLOOR FINISHES:

B1. HARDCORE FILLING BELOW SURFACE BED COMPACTED IN LAYERS OF 200 mm MAXIMUM 93% MOD AASHTO AND TREATED WITH SOIL POISINING AS SPECIFIED.
B2. 250 MICRON POLYETHELINE MEMBRANE INSTALLED UNDERNEATH SURFACE BEDS. APPROVED DAMP PROOF COURSES INSTALLED UNDERNEATH ALL WALLS INTERIOIR AND EXTERIOR AT FLOOR LEVEL.
B3. WHERE SPECIFIED: 25 MPa CONCRETE SURFACE BEDS 100 mm THICK INSTALLED ON HARDCORE FILLING AND REINFORCED WITH REF. 193 WELDED MESH.
B4. WHERE SPECIFIED: 20 MPa CONCRETE SURFACE BEDS 85 mm THICK WHERE INSTRUCTED OR SPECIFIED ON WELL COMPACTED HARDCORE FILLING.
B5. CEMENT SCREED AS SPECIFIED (1 CEMENT: 4 SAND BY VOLUME) 30 mm THICK ON SURFACE BEDS WITH JOINTS ACCORDING TO DRAWINGS.

C. EXTERIOR AND INTERIOR WALLS AND FINISHES TO WALLS:

C1. BUILDING AND PLASTER BRICKS SHALL BE APPROVED HARD-BURNT CLAY BRICKS. FACE BRICKS SHALL BE APPROVED HARD-BURNT CLAY BRICKS TO MATCH FACE BRICKS OF EXISTING BUILDINGS WHERE APPLICABLE.
C2. BRICK FORCE AND WALL REINFORCING SHALL BE INSTALLED ACCORDING TO THE RELEVANT DETAILS AS SHOWN ON DRAWINGS.
C3. AS A GENERAL RULE, BRICK FORCE SHALL BE INSTALLED IN EVERY 5TH BRICK COURSE UNLESS OTHERWISE SPECIFIED.
C4. WHERE 330 mm WALLS ARE SPECIFIED, EVERY THIRD COURSE OF BRICKWORK SHALL BE A HEADER COURSE.
C5. INTERIOR WALL FINISH SHALL BE 10 TO 15 mm THICK STEEL TROWELLED PLASTER AND SHALL BE PRIMED WITH PLASTER PRIMER AND FINISHED WITH TWO TOP COATS WASH AND WEAR SUPERIOR MATT FINISH EMULSION PAINT. (COLOUR AS PER ENGINEER)
C6. INTERIOR WINDOW SILLS SHALL BE FIBRE CEMENT LENGTH TO SUIT x 200 x 15 mm PAINT FINISH TO MATCH WALLS. TILED SILLS IN CLOAK ROOMS AND KITCHENS.
C7. EXTERNAL WINDOW SILLS BRICK ON EDGE TO MATCH FACE BRICK WALLS.
C8. MORTAR ON BRICK JOINTS ON FACE BRICK WALLS SHALL BE FLUSH SCRAPED AND SMOOTHED BETWEEN BRICKS WITH A SQUARE JOINTING TOOL. A SAMPLE WALL OF ONE SQUARE METER SHALL BE BUILT FOR THE APPROVAL OF THE ENGINEER TO BE USED AS BENCH MARK FOR JOINT FINISHING OF ALL FACE BRICK WALLS.
C9. INTERIOR SKIRTINGS TO WALLS SHALL BE AS SPECIFIED IN SECTION B OF THE 'PROJECT SPECIFICATIONS'.

D. CEILING MATERIAL AND INSTALLATION:

D1. LAMINATED 6 mm THICK GYPSUM BOARD CEILINGS NAILED TO 38 x 38 mm S A PINE BRANDERING WITH JOINTING STRIPS. BRANDERING SHALL BE SPACED AT 450 mm MAXIMUM CENTRES AND SHALL BE FIXED WITH AN ADDITIONAL NAIL TO EACH TRUSS DRIVEN IN AT AN ANGLE. 70 x 19 mm S A PINE SKIRTING AND 20 mm QUADRANT SHALL BE USED AS CORNICES. SKIRTING SHALL BE NAILED TO PLASTERED WALL WITH STEEL CUT NAILS AND QUADRANT TO SKIRTING WITH PANEL PINS. PAINT FINISH TO CORNICES SHALL ACCORDING TO THE DRAWINGS OR 'PROJECT SPECIFICATIONS'.
D2. FIBRE CEMENT BOARDS, WHERE APPLICABLE 4 mm THICK WITH FIXING SPECIFICATIONS AND FINISHES AS PER D1.

LIST OF ELECTRICAL DRAWINGS

No.	DESCRIPTION	REVISION No.	SHEET	REG No.
01	ELECTRICAL LAYOUT		6 OF 10	172 418/15
02	X			X
03	X			X
04	X			X
05	X			X
06	X			X
07	X			X
08	X			X
09	X			X
10	X			X

GENERAL NOTES:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ARCHITECTURAL AND SERVICES DRAWINGS. ANY UNCERTAINTIES OR ANY DISCREPENCIES BETWEEN THE SPECIFICATIONS AND THE DRAWINGS MUST BE REPORTED TO THE ENGINEER IMMEDIATELY.

2. NO DEVIATION FROM THE DETAILS ON THE DRAWINGS WILL BE ALLOWED WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

3. THESE DRAWINGS MAY NOT BE COPIED OR RE-USED WITHOUT THE WRITTEN CONSENT OF THE DEPARTMENT OF WATER AFFAIRS AND RESPONSIBLE ENGINEER.

4. IN GENERAL, CONCRETE (STRUCTURAL) SHALL COMPLY WITH SANS 1200-G SERIES AND THE PARTICULAR SPECIFICATION DWS. 0750.

5. CONCRETE CLASS: MASS CONCRETE - CLASS A 10/19
   BLINDING LAYER (COLUMN BASES) - CLASS C 15/19
   STRIP FOOTINGS (BRICKWALLS) - CLASS E 25/19
   SURFACE BEDS - CLASS E 25/19
   COLUMN BASES AND COLUMNS - CLASS F 25/19
   CONCRETE BEAMS AND CONCRETE SLABS - CLASS F 25/19

6. CONCRETE COVER TO REINF. : FOUNDATIONS - 30 mm
   COLUMNS - 30 mm
   CONCRETE SLABS - 30 mm
   CONCRETE BEAMS - 30 mm
   GROUND FLOOR SLABS (SURFACE BEDS) -AS SHOWN

7. ALL FOUNDATION EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE PLACING OF REINFORCEMENT OR CASTING OF CONCRETE. IF THE FOUNDING LEVEL AS PER DRAWING IS NOT SUITABLE, FURTHER EXCAVATIONS SHALL BE DONE TO A DEPTH AS DETERMINED BY THE ENGINEER ON SITE. THE ENGINEER MAY INSTRUCT THAT CERTAIN EXCAVATIONS BE BACKFILLED WITH MASS CONCRETE TO THE REQUIRED LEVEL. (CLASS AS PER ITEM 5 ABOVE).

8. AFTER PLACING, ALL REINFORCEMENT MUST BE CHECKED AND APPROVED BY THE ENGINEER ON SITE BEFORE CASTING OF CONCRETE.

9. NO HOLES OR NOTCHES SHALL BE CUT, CHIPPED OR FORMED IN CONCRETE UNLESS APPROVED BY THE ENGINEER.

10. DURING COLD OR WET WEATHER CONCRETE MUST BE HANDLED IN ACCORDANCE WITH SPECIFICATIONS.

11. LOADINGS ON STRUCTURES DURING CONSTRUCTION:-
    MAXIMUM ON SLABS = 100 kg/m².

12. REMOVAL OF SHUTTERING TO BE DONE IN ACCORDANCE WITH SPECIFICATIONS.

13. ALL EXPOSED SHARP CORNERS SHALL BE CHAMFERED AS FOLLOWS:
    ALL CORNERS (EXCEPT WHERE OTHERWISE SHOWN) - 25 x 25 mm.

14. ALL WORK SHALL COMPLY WITH THE NATIONAL BUILDING REGULATIONS SABS 0400.

BRICKWORK:

1. IN GENERAL, BRICKWALLS SHALL COMPLY WITH SANS 0400-1990 AND THE PARTICULAR SPECIFICATION DWS 1710.

2. WIRE TIES TO BE BUILT INTO CAVITY WALLS IN ACCORDANCE WITH THE SPECIFICATION.

3. MASONARY WORK:
   a.) ALLOW FOR MOVEMENT JOINTS IN POSITIONS AS SHOWN ON THE DRAWINGS AND MARKED 'MJ' ON DRAWING PLAN.

4. BRICKFORCE:
   BRICKFORCE TO BE PLACED IN EVERY 5th LAYER AND IN EVERY LAYER FOR 3 LAYERS ABOVE AND BELOW CONCRETE SLABS, DOOR - AND WINDOW OPENINGS. MINIMUM LAP LENGTH = 150 mm.

5. NO HOLES OR CUTS IN WALLS SHALL BE ALLOWED UNLESS APPROVED BY THE ENGINEER.

6. ALL BRICKWORK ON ONE FLOOR SHALL BE COMPLETED BEFORE COMMENCING WITH BRICKWORK ON THE NEXT FLOOR, WHERE APPLICABLE, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

7. ALL LOADBEARING BRICKWALLS AS INDICATED MUST BE COMPLETED BEFORE ANY CONCRETE SLABS ARE CAST ON TOP.

8. MOVEMENT JOINTS:
   a.) BRICKWORK BUTT-JOINTS MUST BE CLEAN AND FREE FORM ANY OBSTRUCTION.
   b.) DEPTH 'd' OF SEALANT SHALL COMPLY WITH THE MANUFACTURER'S SPECIFICATIONS.
   c.) IN ADDITION TO THE HOOP IRON WALL TIE, ALL BRICKFORCE MUST BE CONTINUOUS THROUGH ALL MOVEMENT JOINTS IN BRICKWALLS.

STRUCTURAL STEELWORK: (WHERE APPLICABLE)

1. DESIGN AND MANUFACTURING OF ALL STRUCTURAL STEELWORK SHALL COMPLY WITH THE PROJECT SPECIFICATIONS SANS 10162-1, SANS 10162-2, SANS 1200H AND SANS 1200HA.

2. STRUCTURAL STEEL GRADE TO BE 300W, UNLESS SHOWN OTHERWISE.

3. ALL WELDS TO BE 6 mm CONTINUOUS FILLET WELDS, UNLESS SHOWN OTHERWISE.

4. HOLES FOR BOLTS SHALL BE BOLT DIAMETER + 2 mm.

5. COLD FORMED PROFILES SHALL COMPLY WITH A MINIMUM GUARANTEED TENSILE STRENGTH OF 250 MPa SANS 10162-2.

6. ALL SPACERS USED FOR ERECTION SHALL BE OF LAMINATED CUT-OFFS AND SHALL BE USED ONLY WHERE NECCESARY.

7. ALL WORKSHOP DETAIL DRAWINGS SHALL BE APPROVED BY THE ENGINEER BEFORE MANUFACTURING BEGINS.

8. ALL SITE WELDS SHALL BE DONE UNDER SUPERVISION OF A QUALIFIED WELDER.

9. ALL MEASUREMENTS TO BE CHECKED ON SITE BEFORE ERECTION COMMENCES.

10. PROTECTIVE TREATMENT:
    a.) DEGREASE ALL STEEL AND WIRE BRUSH TO ST3 OF SWEDISH STANDARD SIS 055900-1967.
    b.) PAINT ALL STEEL WITH A 25 MICRON RED LEAD PRIMARY ETCH COAT, ACCORDING TO SABS 312-1975 TIPE II, GRADE II (APPLIED IN WORKSHOP).

    PAINTING AFTER ERECTION:
    a) PRIME WITH ONE COAT APPROVED PRIMER FOR STEEL ON SITE AFTER ERECTION. FINISHING PAINT TO BE TWO COATS POLYURETHANE ENAMEL COLOUR BY THE ENGINEER.
    b) ALTERNATIVELY PAINT SPECIFICATION AS SHOWN ON THE DRAWINGS.

SUPERIMPOSED LOADS:

1. SAFE MAXIMUM ALLOWABLE EARTH PRESSURE = 180 kPA OR AS PER GEOTECHNICAL REPORT.

2. IMPOSED LOAD FOR ROOF SLABS = 1,5 kPA.

ROOF SHEETINGS: (WHERE APPLICABLE)

1. IBR-PROFILE FACTORY PAINTED, TO SUPPLIER'S SPECIFICATION AND APPROVED BY THE ENGINEER, 0,6mm THICK SHEET STEEL FASTENED WITH APPROPRIATE HOOK BOLTS OR HIGH SPEED SCREW IN FASTENERS AND NEOPRENE SEAL WASHERS, ON STEEL OR TIMBER PURLINS AS SPECIFIED, ON SISALATION 420 RSA ON THE MAIN PORTAL FRAMES OR ROOF TRUSSES.

2. SISALATION SHALL BE SUPPORTED ON 1,5 mm Ø GALVANISED STRAIN WIRES FROM FRAME TO FRAME AT 300 mm CENTRES. SISALATION OVERLAP 200 mm MINIMUM.

BACKFILL:

BACKFILL BENEATH SURFACE BEDS TO BE SELECTED GRANULAR MATERIAL COMPACTED IN 150 mm LAYERS TO 95% MOD. AASTHO DENSITY.

GROUND FLOOR BEDDINGS:

REINFORCED GROUND FLOOR BEDDINGS

100 mm THICK 25 MPa CONCRETE BEDDING REINFORCED WITH REF 193 MESH CAST ON 250 MICRON WATERPROOFING MEMBRANE IN BLOCK SIZES AS SHOWN ON DRAWINGS. SEE EXPANSION JOINT DETAIL. FLOOR FINISH POWER FLOATED.

GROUND FLOOR BEDDINGS WITHOUT REINFORCING (WHEN APPLICABLE)

85 mm THICK 20 MPa CONCRETE BEDDING CAST ON 250 MICRON WATERPROOFING MEMBRANE ON BACKFILLING COMPACTED TO SPECIFICATION.

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

DESIGN: C.M. MOKONE
CHECKED: DATE:
DRAWN: C.M. MOKONE
ENGINEER: N.J. VAN DEVENTER DATE:
EXTERNAL APPROVAL: DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / DES: DATE: 11/8/2016
DIRECTOR (Pr. Eng): 19/08/2016 DATE:

SHEET	DESCRIPTION	OTHER No.	REG. No.
	LIST OF DRAWINGS		

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
LIST AND DETAILS OF DRAWINGS

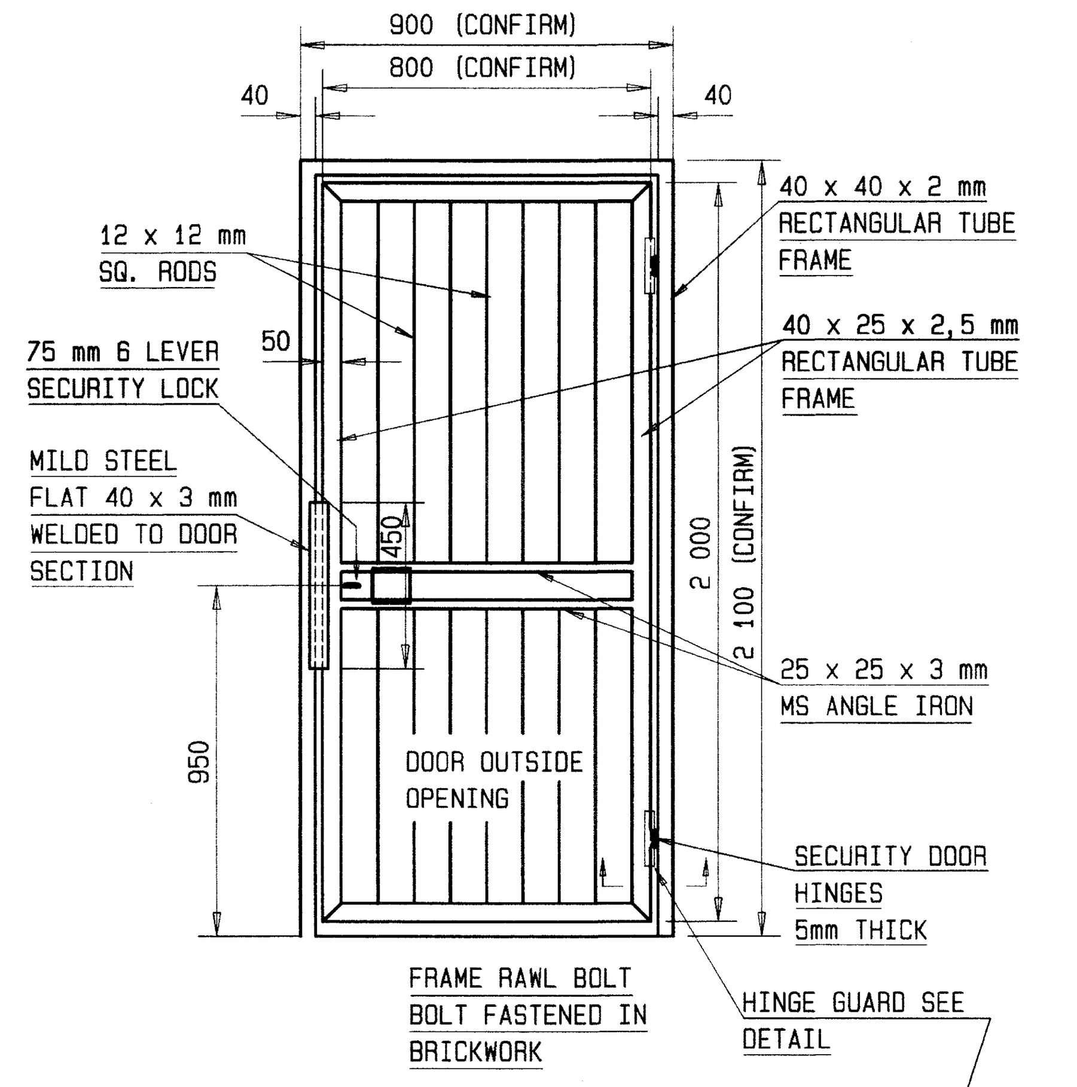
PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HOU	PNG	FLP	ELE	DAH	OTHER NUMBER: S7-JH
LOCALITY No.: -	TENDER/ CONTRACT No.	SHEET	REG. No.					REV.
CALCULATION FILE: -		1 OF 10	172 413/15					00

STEEL WINDOW FRAMES

WINDOW SCHEDULE	1511 × 1704		1 511 × 654	1022 × 864
WINDOW REF.	W1	W2	W3	W4
TYPE	NE4NC4	NC2F	NE4	NE2
NO. REQUIRED PER FLAT	2	2	2	2
FRAME	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE
GLAZING	CLEAR GLASS	CLEAR GLASS	FROSTED GLASS	FROSTED GLASS
MOSQUITO SCREENS	REQUIRED	REQUIRED	REQUIRED	NOT REQUIRED
BURGLAR PROOFING	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS
FINISH (INLAND AREAS)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)
FINISH HUMID INLAND AREAS BUT NOT COASTAL AREAS	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)

STEEL WINDOW FRAMES

WINDOW SCHEDULE	2000 × 1999	1045 × 1500	1022 × 799
WINDOW REF.	W1	W2	W3
TYPE	NE11ND11	D52F	NES2
NO. REQUIRED PER FLAT	4	2	2
FRAME	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE
GLAZING	CLEAR GLASS	CLEAR GLASS	FROSTED GLASS
MOSQUITO SCREENS	REQUIRED	REQUIRED	REQUIRED
BURGLAR PROOFING	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS
FINISH (INLAND AREAS)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)
FINISH HUMID INLAND AREAS BUT NOT COASTAL AREAS	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)

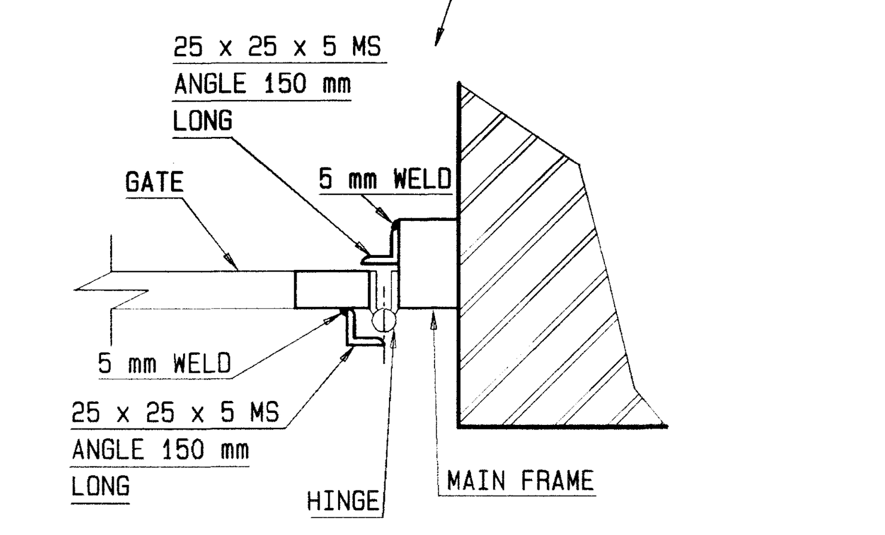


DETAIL OF SECURITY DOOR AT BLDG. EXITS

SCALE 1:20

NOTES:

ALL WINDOWS TO HAVE BURGLAR PROOFING



DETAIL OF HINGE GUARD

SCALE 1:5

DOOR SCHEDULE	933 × 2100, WOOD PANELS, DOOR SIZE: 813 x 2 032	933 × 2100, WOOD PANELS, DOOR SIZE: 813 x 2 032	933 × 2100, WOOD SLATS, DOOR SIZE: 813 x 2 032	933 × 2100, SHEET METAL, DOOR SIZE: 813 x 2 032	
DOOR REF.	D1	D2	D3	D4	D5
No. REQUIRED PER FLAT	4	8	2	2	2
DOOR	FRAMED AND LEDGED THREE PANEL MERANTI OR OTHER HARDWOOD DOOR.	FRAMED AND LEDGED TWO PANEL MERANTI HARDWOOD DOOR.	FRAMED AND LEDGED SLATTED MERANTI HARDWOOD DOOR.	SINGLE PANEL 1.0 mm THICK STEEL CHAWL DOOR WITH VERTICAL FLUTES COMBINED WITH 1.2 mm THICK DEEP SECTION CROSS BRACES WELDED IN	SHEET METAL INTERLOCKING CURTAIN SLATS WITH FACTORY PAINT FINISH ROLL-UP TYPE GARAGE DOOR.
FRAME	MERANTI HARDWOOD	MERANTI HARDWOOD	MERANTI HARDWOOD	STANDARD SHEET METAL FRAME 1.2 mm THICK COMBINED WITH HINGES AS PER SUPPLIER	MILD STEEL CORROSION PROTECTED FRAME RAW BOLTED ON INSIDE OF WALL OPENING.
LOCK AND FURNITURE	3 LEVER UPRIGHT MORTICE LOCK SET, 3 x 75 mm BRASS HINGES.	2 LEVER UPRIGHT MORTICE LOCK SET, 3 x 75 mm BRASS HINGES.	3 LEVER UPRIGHT MORTICE LOCK SET, 3 x 75 mm BRASS HINGES. 2 x BRASS SLIDING BOLTS ONE DOOR TO FRAME & ONE TOP PART TO BOTTOM PART OF DOOR.	3 LEVER UPRIGHT MORTICE LOCK SET, 3 x 75 mm BRASS HINGES.	INSERT LOCK ATTACHED TO DOOR CENTRE WITH SLIDING RODS TO LOCK INTO DOOR FRAME.
DOOR FINISH	SAND AND STOP. FINISH WITH THREE COATS CLEAR MATT EXTERIOR POLYURETHANE	SAND AND STOP. FINISH WITH THREE COATS CLEAR MATT EXTERIOR POLYURETHANE	SAND AND STOP. FINISH WITH THREE COATS CLEAR MATT EXTERIOR POLYURETHANE	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND THREE COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PAINT FINISH SHALL BE DONE AT MANUFACTURER COMPLYING TO A CORROSION RESISTING PAINT SPECIFICATION TO THE ENGINEER'S APPROVAL.
FRAME FINISH	STANDARD STEEL FRAME TO BE PAINTED ON SITE (COLOUR TO BE DECIDED)	STANDARD STEEL FRAME TO BE PAINTED ON SITE (COLOUR TO BE DECIDED)	STANDARD STEEL FRAME TO BE PAINTED ON SITE (COLOUR TO BE DECIDED)	STANDARD STEEL FRAME TO BE PAINTED ON SITE (COLOUR TO BE DECIDED)	CORROSION PROTECTED ACCORDING TO THE MANUFACTURER'S SPECIFICATION.

FOR COMPLETE DESCRIPTION OF FINISHES SEE DETAILED SPECIFICATION IN CONTRACT DOCUMENT

		LOUNGE/DINIG ROOM	BED ROOMS	PASSAGE & ENTR. FOYER	BATH ROOM/WC	KITCHEN	ENTRANCE STOEP	BACK EXIT STOEP	SHOWERS	EXTERNALLY	RAMPS
FLOOR	HEAVY DUTY CARPETING		•								
	WOOD FLOAT FINISH (NON SLIP)										•
	NON-SLIP CERAMIC OR QUARRY TILES	•			•	•					
SKIRTING	76 x 19 mm SKIRTINGS AND 19 mm QUADRANT ANGLE MOULDS (SA PINE)	•	•								
	FLOOR TILE SKIRTING				•	•					
	76 mm GRANOLITHIC										
	FACE BRICKS										
WALLS	CEMENT PLASTER (INTERIOR)	•	•		•	•					
	FACE BRICKS									•	
WALL FINISHES	INTERIOR ACRYLIC PVA PAINT (WASHABLE)	•	•								
	EGGSHELL ENAMEL FOR UNTILED PLASTER SURFACES				•	•					
	WALL TILES AREAS AS SPECIFIED				•	•			•		
TILES	FFL TO 1,5 m HIGH				•	•					
	FFL TO 2,1 m HIGH								•		
CURTAINS	CURTAIN RAILS/VERTICAL OR HORIZONTAL BLINDS	•	•		•						
CEILING	GYPSUM CEILING BOARD / FIBRE CEMENT CEILING BOARD	•	•		•	•					
MISCELANEOUS	SOAP DISH				•	•			•		
	750 x 20 mm AND 450 x 20 mm TOWEL RAILS (450 x 20 IN KITCHEN)				•	•			•		
	TOILET PAPER HOLDER (VITREOUS CHINA)				•						

SCHEDULE OF FINISHES FOR LABOURER HOUSES

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

SCALE 1:5 — 0, 0,05, 0,1, 0,2, 0,3, 0,4, 0,5, 1 m

SCALE 1:20 — 0, 0,5, 1, 1,5, 2, 4 m

SECTION — SECTION NUMBER 07 / SHEET NUMBER 3

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

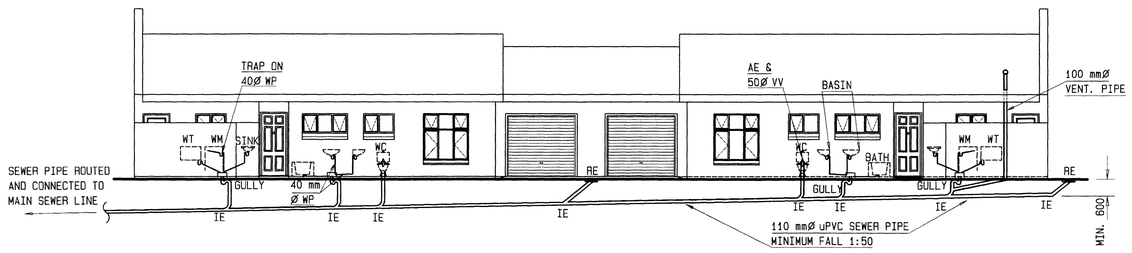
CHECKED: DATE:
DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
ENGINEER: N. J. VAN DEVENTER DATE:
EXTERNAL APPROVAL: DATE:
N. J. VAN DEVENTER
CHIEF ENGINEER / DATE: 11/8/2016
DIRECTOR (Pr. Eng): amolope 19/08/2016 DATE:

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

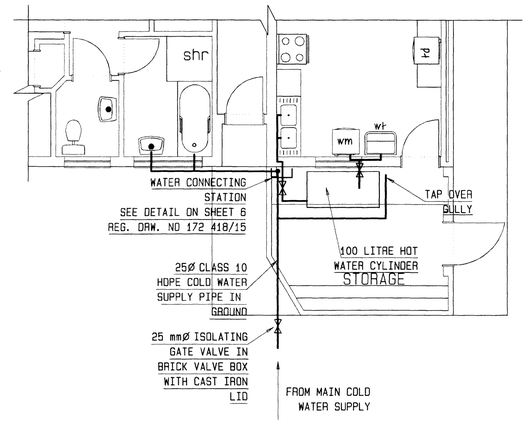
FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
PROPOSED PLAN AND ELEVATIONS
WINDOW AND DOOR SCHEDULE

PROVINCE: ALL	DISTRICT: ALL	KEYCODES: HOU PNG FLP ELE DAH	OTHER NUMBER S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET 3 OF 10	REG. No. 172 415/15 REV. 00
CALCULATION FILE: X			



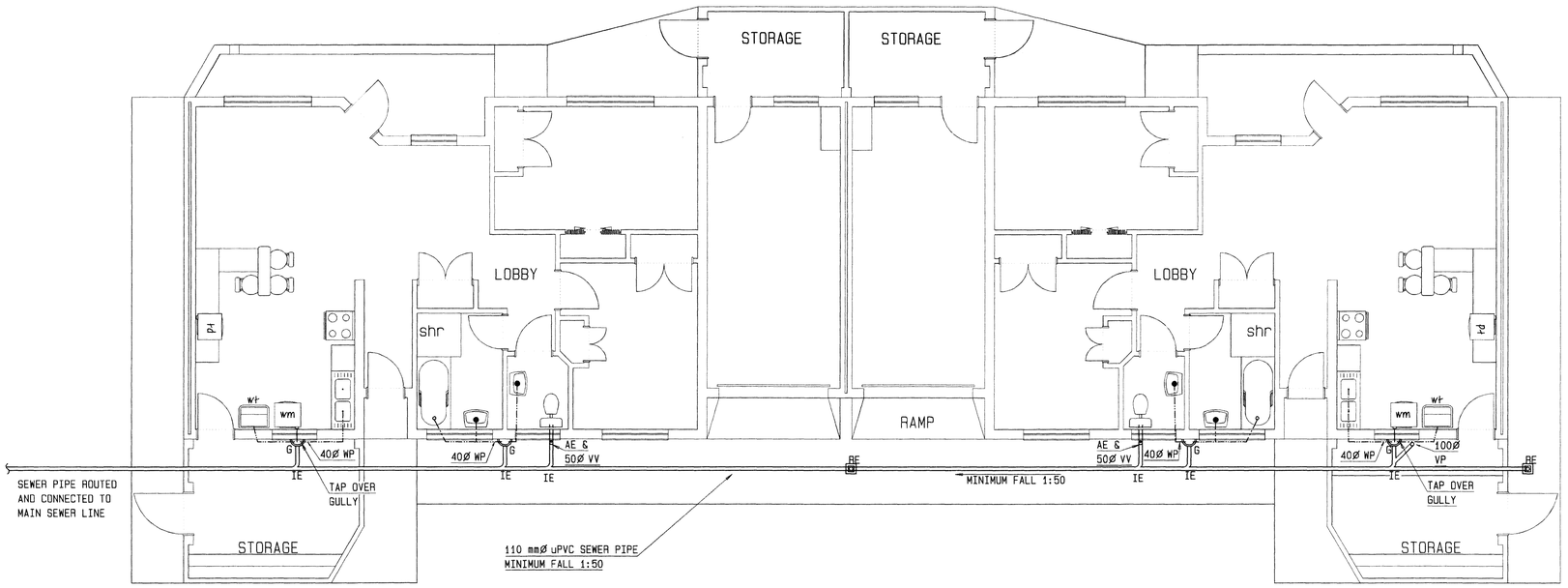
SEWER ELEVATION

SCALE 1:100



WATER RETICULATION LAYOUT

SCALE 1:100



SEWER PLAN LAYOUT

SCALE 1:50

SCALE 1:50 0 0,5 1 2 3 4 5 10 m

SCALE 1:100 0 1 2 3 4 5 10 20 m

NOTE:

DIRECTION FOR MAIN SEWER DEPENDS ON POSITION OF MAIN SEWER CONNECTION POINT.

NOTE:

WC	WATER CLOSET
B	BATH
WHB	WASH HAND BASIN
WM	WASHING MACHINE
WT	WASH TROUGH
SHR	SHOWER
SINK	STAINLESS STEEL SINK
WP	WASTE WATER PIPE
VV	VENT VALVE
VP	VENTILATION PIPE
CE	CLEANING EYE
AE	ACCESS EYE
IE	INSPECTION EYE
RE	RODDING EYE
G	GULLY

NOTE:

FOR GENERAL NOTES ON WATER RETICULATION INSIDE THE BUILDING SEE DRAWING ON WATER RETICULATION DETAILS

LEGEND:

CU	CLASS 0 COPPER PIPE WITH CAPILLARY SOLDERED JOINTS
CW	COLD WATER PIPE ———
HW	HOT WATER PIPE ———
	BALLOSTOP ISOLATING VALVE

GENERAL RULE:

1. THE COLD AND HOT WATER MAIN SUPPLY PIPES SHALL BE 22Ø CU AND THE LAST LENGTH TO EACH SANITARY FITTING SHALL BE 15Ø CU EXCEPT TO THE SHOWER AND BATH WHICH STAYS 22Ø
2. FIT A BALLOSTOP ISOLATING VALVE TO COLD WATER SUPPLY PIPES TO WC AND WM —⋈—

NOTES ON WATER RETICULATION:

1. POSITION OF PIPE ROUTES SHALL BE THE SHORTEST AND MOST PRACTICAL ROUTES EITHER MOUNTED IN THE ROOF CONSTRUCTION, SURFACE MOUNTED ON EXTERIOR WALLS OR CHASED IN INTERIOR WALLS.
2. ALL OTHER SPECIFICATIONS REGARDING ISOLATION VALVES, BALLOSTOPS, MINIMUM PIPE DIAMETERS, ETC. SHALL BE APPLICABLE.
3. THE GEYSER SHALL BE HORIZONTALLY MOUNTED DIRECTLY UNDER THE ROOF OVERHANG OF THE BUILDING.
4. SEE NOTE 3 UNDER 'IMPORTANT NOTES' ON THIS DRAWING.

SEWERAGE RETICULATION NOTES

1. ALL SANITARY FITTINGS SHALL BE PROVIDED WITH A WATER TRAP SEAL - TYPE ASSPECIFIED.
2. ALL WASTE PIPES SHALL BE FULLY ACCESSIBLE FOR CLEANING AND MAINTENANCE PURPOSES.
3. ALL SOIL PIPES ABOVE GROUND LEVEL SHALL BE PROVIDED WITH ACCESS EYES AND UNDERGROUND PIPES WITH RODDING EYES FOR CLEANING PURPOSES.
4. WASTE PIPES SHALL DISCHARGE BELOW GULLY GRID.
5. SOIL AND WASTE PIPE MATERIALS SHALL BE SPECIFIED AND DESCRIBED AS SHOWN ON THE DRAWINGS.
6. SOIL AND WASTE WATER PIPE LAYOUT SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. ANY DEVIATION SHALL BE APPROVED BEFOREHAND BY THE ENGINEER.
7. THE CONTRACTOR SHALL REQUEST THE ENGINEER TO CARRY OUT INSPECTIONS ON ALL COMPLETED WORK OR PARTIAL COMPLETED WORK BEFORE THE WORK IS CLOSED OFF BY BUILDING IN, PLASTERED IN, PANELLING IN OR BACK FILLED.
8. THE ENGINEER MAY ORDER THE OPENING-UP OF ANY CONCEALED WORK WHICH WAS NOT INSPECTED BY HIM, AT THE COST OF THE CONTRACTOR.
9. WASTE PIPES FOR WASH HAND BASINS AND SINKS SHALL BE 40 mm DIA. PVC.
10. WASTE PIPES FOR URINALS AND SHOWERS SHALL BE 50 mm DIA. PVC AND SHALL DISCHARGE INDEPENDANTLY IN THE SYSTEM AS SHOWN.

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

CHECKED: DATE:

ENGINEER: N.J. VAN DEVENTER DATE:

N.J. VAN DEVENTER
CHIEF ENGINEER / OCS DATE:

DESIGN: C.M. MOKONE

DRAWN: C.M. MOKONE

EXTERNAL APPROVAL: DATE:

DIRECTOR (Pr. Engr): 19/08/2016 DATE:

11/8/2016

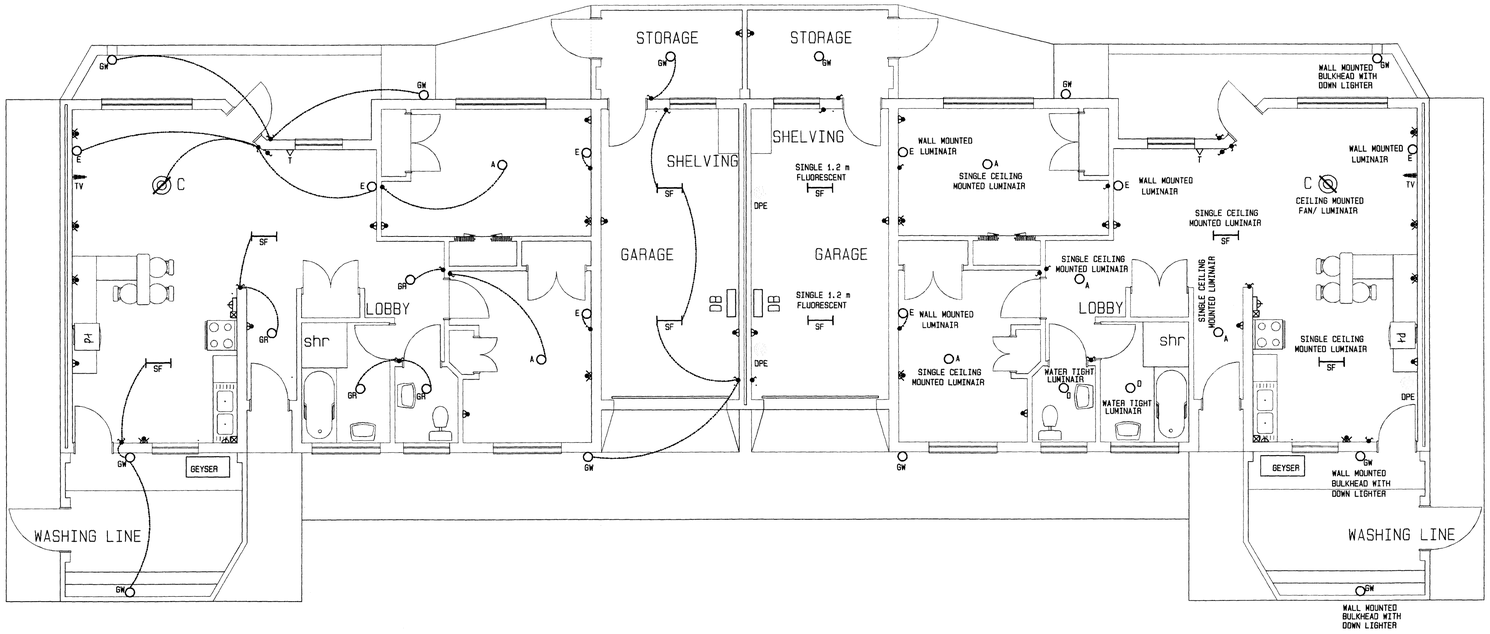
DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)

PROPOSED SEWER AND WATER RETICULATION

PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HOU	PNG	FLP	ELE	DAH	OTHER NUMBER	S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET	REG. No.						REV.
CALCULATION FILE: X		5 OF 9	172 417/15						00



FLOOR PLAN: ELECTRICAL LIGHT SWITCHES

SCALE 1: 100

FLOOR PLAN: POSITION OF SWITCHES, LIGHT FITTINGS AND DRY POWDER FIRE EXTINGUISHERS.

SCALE 1: 100

ELECTRICAL REFERENCE AND NOTES:

- — 16A SINGLE SOCKET OUTLETS ON WALLS. 1 060 mm ABOVE FFL IN KITCHENS AND GARAGE AND 460 mm ABOVE FFL ELSEWHERE.
- — 16A DOUBLE SOCKET OUTLETS ON WALLS. 1 060 mm ABOVE FFL IN KITCHENS AND GARAGE AND 460 mm ABOVE FFL ELSEWHERE.
- — STOVE AND GEYSER ISOLATOR
- — STOVE OUTLET - 1 500 mm HIGH
- — GEYSER CONNECTION IN ROOF
- A — SEE CLAUSE 12.20.1 OPEN BOTTOM CEILING FITTING WITH CONICAL SHAPED LAMP HOLDER
- B — SEE CLAUSE 12.20.2 OPEN TYPE ROD SUSPENSION FITTING
- C — SEE CLAUSE 12.20.2 OPEN TYPE ROD SUSPENSION FITTING
- C — SEE CLAUSE 12.20.3 OPEN TYPE ROD SUSPENSION FITTING
- D — SEE CLAUSE 12.20.3 BATHROOM WATER TIGHT FITTING
- S.F. — SPECIAL 1,2 m FLUORESCENT WITH 2x36w TUBES, CLIP ON POLYCARBONATE DIFFUSER, GLASS REINFORCED POLYESTER BODY AND SHALL BE DUST AND MOISTURE PROOF.
- F2 — 1,2 m FLUSH MOUNTED FLUORESCENT LOUVERED LUMINAIRE 2x36w TUBES WITH LOW BRIGHTNESS REFLECTOR.
- GR — 220 mm Ø x 120 mm ROUND BULKHEAD WITH DIECAST ALLUMINIUM BODY, TWO x 9w PL LAMPS AND POLYCARBONATE DIFFUSER. COMPLETE WEATHER AND INSECT PROOF.
- GW — 336 x 290 x 200 mm WALL MOUNTED LUMINAIRE (1 x 125 MV LAMP) WITH EYELID FOR DOWNWARD AND SIDE WAYS ILLUMINATION, ALLUMINIUM DIECAST BODY AND POLYCARBONATE DIFFUSER. COMPLETE WEATHER AND INSECT PROOF.
- — METER BOARD
- DB — DISTRIBUTION BOARD
- — LUMINAIRE SWITCH
- T — DENOTES CONNECTION FOR TELEPHONE. PROVIDE VERTICAL CONDUIT IN WALL ROUTED TO ABOVE CEILING LEVEL AND THEN TO ROOF OVERHANG AND END WITH A CONNECTING BOX.
- TV — OUTLET FOR TV ARIAL. CONDUIT CHASED INTO WALL ROUTED VERTICAL TO ABOVE CEILING LEVEL AND THEN SHORTEST ROUTE TO CONNECTING BOX.

DISTRIBUTION BOARD

THE DISTRIBUTION BOARD SHALL BE POSITIONED IN THE MAIN ENTRANCE FOYER IN AN ENCLOSED CUPBOARD AS SHOWN ON THE DRAWINGS.
CIRCUIT ISOLATORS, AMPERES, EARTH LEAKAGE, ETC. SHALL BE ACCORDING TO THE SPECIFICATIONS OF THE ERLECTRICAL ENGINEER'S DESIGN.

EXTERIOR CABLE ENTRANCE CHAMBER TO DISTRIBUTION BOARD:

THE MAIN ELECTRICAL SUPPLY CABLE SHALL ENTER THE BUILDING FROM OUTSIDE THE ENTRANCE DOOR TO THE DISTRIBUTION BOARD THROUGH A 50 mm Ø GALVANIZED MILD STEEL SLEEVE BELOW GROUND LEVEL ROUTED UNDER THE CONCRETE FLOOR BEDDING AND WITH A SLOW BEND CHASED VERTICAL UP THE WALL TO THE DISTRIBUTION BOARD. CABLE SIZE AND TYPE ETC. SHALL BE ACCORDING TO THE ELECTRICAL ENGINEER'S SPECIFICATION.

NOTES:

1. NUMBER OF WIRING CIRCUITS, SPECIFICATIONS, POSITION OF CONDUITS AND COMPLETE RETICULATION LAYOUT SHALL BE ACCORDING TO THE ELECTRICAL ENGINEER'S DESIGN.
2. ALL WORK SHALL COMPLY WITH THE "ELECTRICAL BOARD OF CONTROL" AND A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED WITHIN SEVEN DAYS AFTER THE FINAL SUCCESSFUL COMMISSIONING OF THE ELECTRICAL INSTALLATION.
3. THE INSTALLATION OF MORE THAN ONE LUMINAIRE'S ON-OFF-SWITCH IN THE SAME POSITION SHALL BE INSTALLED AS A COMBINATION MULTI-SWITCH UNIT.

FIRE FIGHTING NOTES:

DRY POWDER FIRE EXTINGGUISHERS:

DPE - DRY POWDER EXTINGUISHER STP 1,5 kg FOR TYPE A, B & C FIRES WITH MONO AMMONIUM PHOSPHATE BASE GRADE 2A/2B HANGED WITH AN APPROPRIATE STEEL BRACKET ON A 100 mm x 20 mm x 600 mm TIMBER BACKING FIXED TO THE WALL WITH TOP 1 500 mm ABOVE FFL.

FIRE HOSE REELS WHERE APPLICABLE:

FHR - 600 mm Ø NOMINAL DISC RED ZINC PAINTED AND EPOXY STOVED INTERIOR AND STAINLESS STEEL EXTERIOR FIRE HOSE REEL COMPLETE WITH 30 m SANS 1086 PVC PRESSURE HOSE AND NOZZLE.

1. WATER SUPPLY FOR FIRE HOSE REELS ACCORDING TO THE RELEVANT DRAWINGS.
2. EXTERIOR FIRE HOSE REELS SHALL BE FIXED UNDERNEATH THE BUILDING'S ROOF OVERHANG WITH TOP OF REEL 1 800 mm ABOVE PAVING LEVEL.

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

CHECKED: DATE:
ENGINEER: N.J. VAN DEVENTER DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / DES DATE: 11/5/2016

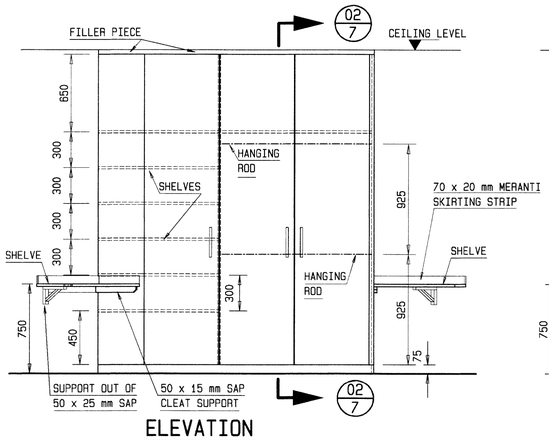
DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
EXTERNAL APPROVAL: DATE:
DIRECTOR (Pr. Eng): 19/08/2016 DATE:

DEPARTMENTAL HOUSING POLICY

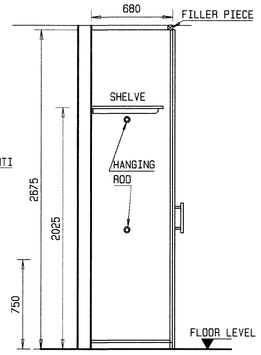
DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
ELECTRICAL LAYOUT

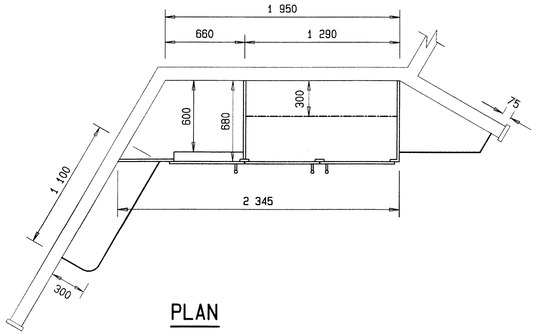
PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HDU	PNG	FLP	ELE	DAH	OTHER NUMBER S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET 6 OF 10	REG. No. 172 418/15					REV. 00
CALCULATION FILE: X								



ELEVATION



SECTION 02-02



PLAN

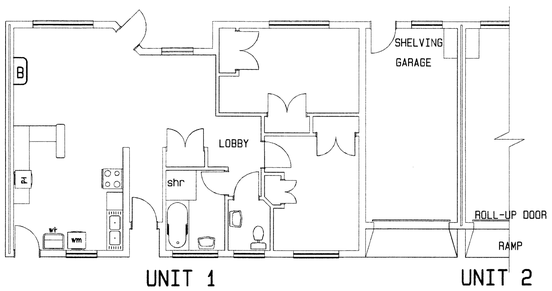
NOTES ON BUILT-IN CUPBOARDS:

1. CARCASSES SHALL BE WHITE MELAMINE, DOWELLED AND GLUED FIXED COMPONENTS.
2. DOORS SHALL BE SOLID SALIGNA OR OKOUME WITH SHEEN VARNISH FINISH.
3. EXPOSED SIDES SHALL BE SOLID TIMBER SHEEN VARNISH FINISHED.
4. BACKS SHALL BE WHITE MASONITE GROOVED IN.
5. HINGES - CONCEALED METAL HINGES.
6. HANDLES - 128 mm BARREL HANDLES.
7. WORKTOPS - RUSTENBURG GRANITE 30 mm.
8. LOCKS WHERE APPLICABLE - CHROME CAMLOCKS.
9. PLYNTHS - TIMBER 6 PLY.
9. RUNNERS - METAL ROLLER RUNNERS.

DETAIL D, C & E: BEDROOM CUPBOARDS & SHELVES

SCALE 1:25

FOR COMPLETE BUILDING LAYOUT SEE SHEET 2

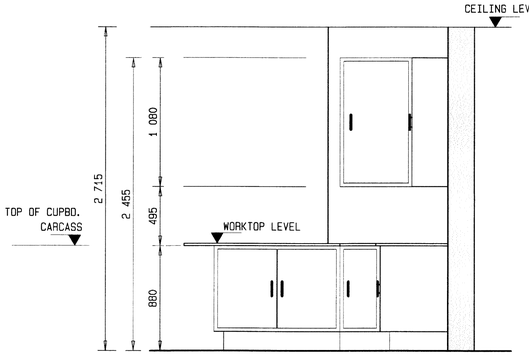


PLAN LAYOUT

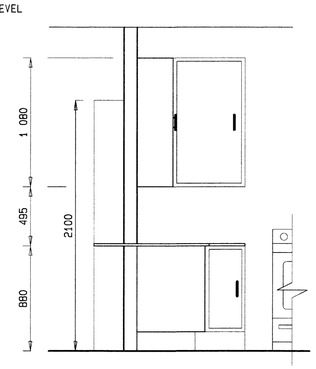
SCALE 1:100

SCALE 1:50 0 0,5 1 2 3 4 5 10 m

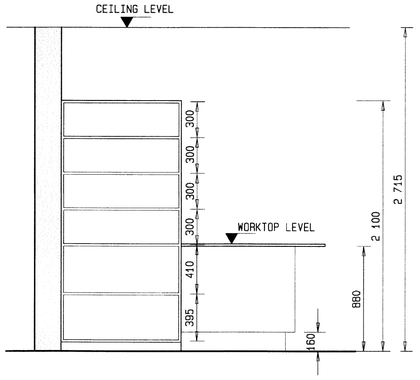
SCALE 1:100 0 1 2 3 4 5 10 20 m



ELEVATION



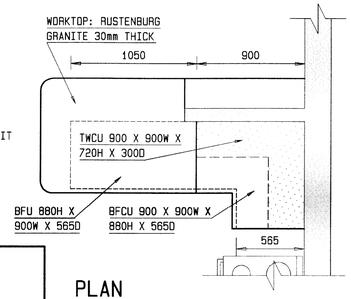
ELEVATION



ELEVATION

LEGEND:

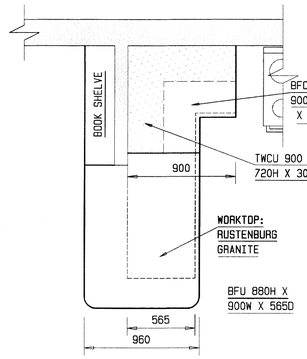
BFU - BOTTOM FLOOR UNIT
BFCU - BOTTOM FLOOR CORNER UNIT
TWCU - TOP WALL CORNER UNIT



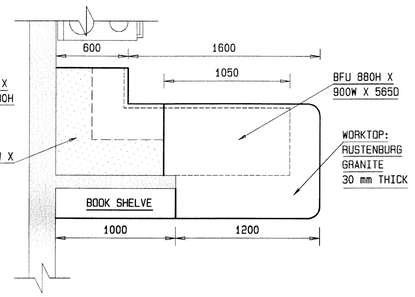
PLAN

NOTE:

DIMENSION 880H DENOTES HEIGHT FROM FLOOR LEVEL TO TOP OF CUPBOARD CARCASS HEIGHT. WORKTOP THICKNESS MUST BE ADDED.



PLAN



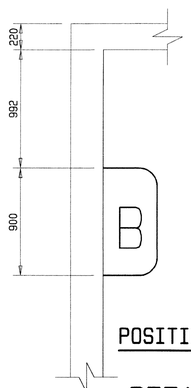
PLAN

DETAIL A: KITCHEN CUPBOARDS

SCALE 1:25

NOTES ON FIXED AGAINST WALL SHELVING:

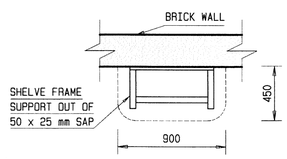
1. SHELVING WORKTOP SHALL BE EITHER LAMINATED SA PINE, SOLID SALIGNA OR OKOUME TIMBER.
2. SUPPORTING FRAME SHALL BE MANUFACTURED OUT OF 25 x 50 mm SA PINE TIMBER GLUED AND SCREWED.
3. SUPPORTING CLEATS AGAINST WALLS OR CUPBOARD SIDES SHALL BE 50 x 15 mm SA PINE.
4. ALL TIMBER SHALL BE MATT FINISHED WITH SCRATCH AND WATER RESISTANT POLY-URETHANE.



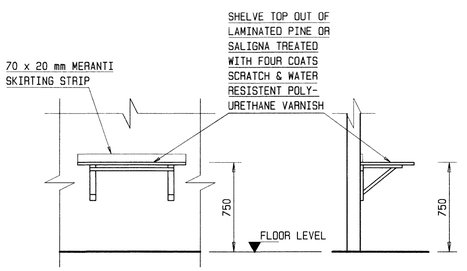
POSITION

NOTE:

DETAIL B IS TYPICAL FOR SHELVING F AND G BUT SIZING AND SUPPORT TO SUIT.



PLAN



FRONT ELEVATION

SIDE ELEVATION

DETAIL B: TV SHELVE LOUNGE

SCALE 1:25

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

SECTION
SECTION NUMBER
SHEET NUMBER

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

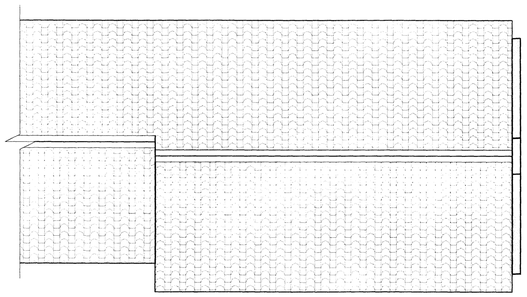
DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
CHECKED: DATE:
ENGINEER: N.J. VAN DEVENTER DATE:
EXTERNAL APPROVAL: DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / DATE: 11/8/2016
DIRECTOR (Pr. Eng): 19/08/2016 DATE:

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
PROPOSED PLAN AND ELEVATIONS
BUILDING DETAILS

PROVINCE: ALL	DISTRICT: ALL	KEYCODES: HOU PNG FLP ELE DAH	OTHER NUMBER: S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET: 7 OF 10	REG. No.: 172 419/15
CALCULATION FILE: X			REV.: 00



ROOF COVERING PLAN

SCALE 1:100

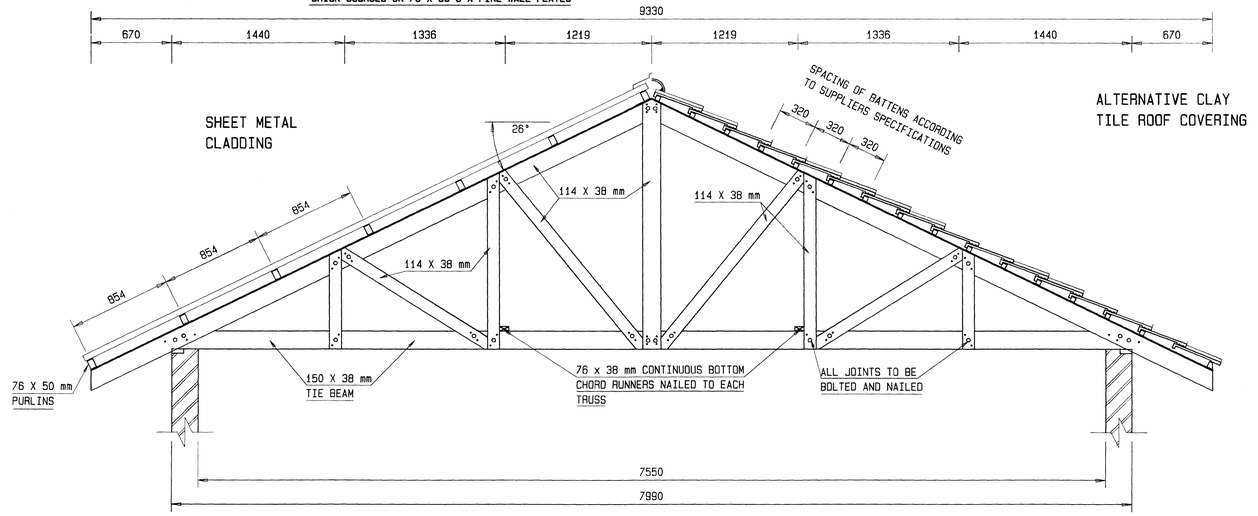
SHEET METAL COVERED ROOFING:

FACTORY PAINTED KINGKLIP 700 OR SIMILAR 0,5 mm THICKNESS METAL ROOF SHEETS FASTENED ACCORDING TO THE SUPPLIER'S INSTRUCTIONS ON 75 x 50 mm SAP PURLINS AT 1 150 mm MAX. CENTRES ON SISALATION 405 RSA SUPPORTED BY 2 mm Ø GALV. STRAINING WIRES @ 300 mm CENTRES ON TRUSSES. TRUSSES MANUFACTURED FROM GRADE 6 S A PINE AT 1 050 mm CENTRES FASTENED WITH 4 mm Ø GALV. WIRE TIES BUILT INTO TOP THREE BRICK COURSES ON 75 X 38 S A PINE WALL PLATES

OR

CONCRETE TILE COVERED ROOFING:

FACTORY COLOURED CEMENT TILES ON 38 x 38 mm BATTENS AT CENTRES ACCORDING TO SUPPLIER'S SPECIFICATIONS ON SISALATION 405 RSA SUPPORTED BY 2 mm Ø GALV. STRAINI WIRES @ 300 mm CENTRES NAILED ON SAP ROOF TRUSSES. TRUSSES MANUFACTURED FROM GRADE 6 S A PINE AT 760 mm CENTRES FASTENED WITH 4 mm Ø GALV. WIRE TIES BUILT IN TOP THREE BRICK COURSES ON 75 X 38 S A PINE WALL PLATES



ROOF TRUSS ELEVATION

SCALE 1:25

NOTE:

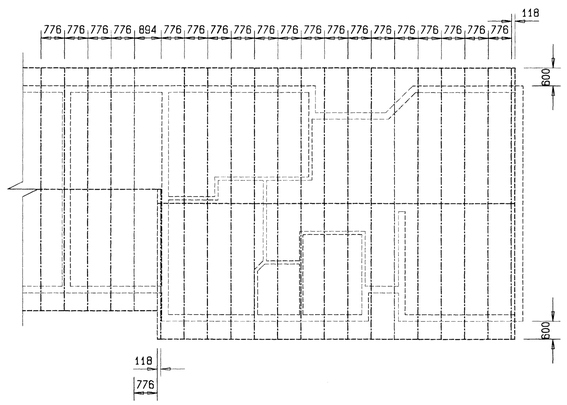
TIMBER ROOF STRUCTURE SHALL BE BRACED AND STIFFENED TO THE ENGINEER'S SATISFACTION AND APPROVAL.
WHEN USING PRE-FABRICATED TRUSSES, SHOP DRAWINGS SHALL BE SUBMITTED BY THE SUPPLIER AND THE ROOF STRUCTURE SHALL BE CERTIFIED BY A REGISTERED ENGINEER AS A SAFE STRUCTURE.

NOTE:

FOR ALL OTHER ROOFING DETAILS, GUTTERS, FASCIAS, SPECIFIC TYPE OF ROOF COVERING, COLOUR, ETC. SEE BUILDING SECTION AND CONTRACT SPECIFICATIONS.

NOTE:

ALL JOINTS SHALL BE BOLTED AND NAILED.
BOLTS SHALL BE HOT DIPPED GALVANIZED M10 OF APPROPRIATE LENGTH LEAVING 20 MINIMUM mm FOR A FLAT WASHER AND NUT.
NAILS SHALL BE WIRE CUT OF APPROPRIATE LENGTH LEAVING MINIMUM 25 mm FOR BENDING ON EXIT SIDE.

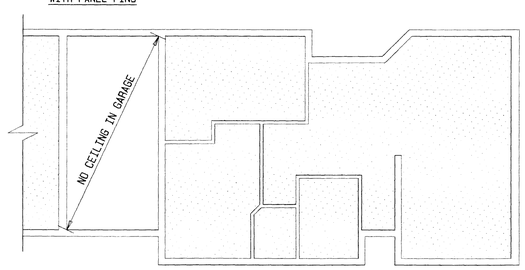


ROOF PLAN TRUSS POSITIONS

SCALE 1:100

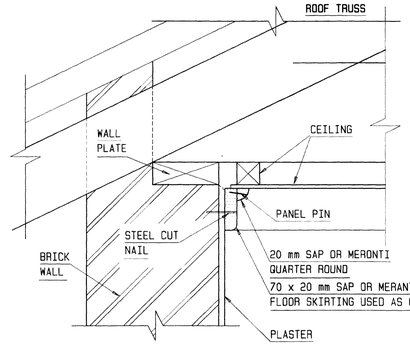
CEILING:

GYPSUM OR FIBRE CEMENT BOARD CEILING WITH METAL CONNECTING STRIPS ON 38 x 38 mm SAP BRANDERING. 70 x 19 mm SAP SKIRTING AND 20 mm QUADRANT TO BE USED AS CORNICES. SKIRTING TO BE NAILED TO PLASTERED WALL WITH STEEL CUT NAILS AND QUADRANT TO SKIRTING WITH PANEL PINS



CEILING PLAN LAYOUT

SCALE 1:100



DETAIL I: CEILING CORNICE

SCALE 1:5

NOTE:

CEILING CORNICE PAINT SPECIFICATION:
SA PINE & MERANTI - PREPARE & SAND AND APPLY 3 COATS MATT POLY-URETHANE VARNISH.

ALTERNATIVELY FOR SA PINE - PRIME WITH PINK WOOD PRIMER AND APPLY 2 TOP COATS EGGSHELL OR GLOSS ENAMEL PAINT COLOUR TO MATCH CEILING.

SCALE 1:5 — 0 0,05 0,1 0,2 0,3 0,4 0,5 1 m

SCALE 1:25 — 0 0,5 1 1,5 2 2,5 5 m

SCALE 1:100 — 0 1 2 3 4 5 10 20 m

SECTION: SECTION NUMBER / SHEET NUMBER

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA
HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001
SEDIBENG BUILDING
185 FRANCIS BAARD STREET
PRETORIA
(012) 336-7500
M. DIEDRICKS
DIRECTOR GENERAL

CHECKED:	DATE:	DESIGN: C.M. MOKONE
ENGINEER: N.J. VAN DEVENTER	DATE:	DRAWN: C.M. MOKONE
N.J. VAN DEVENTER CHIEF ENGINEER / DE	DATE: 11/8/2016	EXT. APPROVAL / DESIGN CHECKED: DIRECTOR (Pr. Engr.)

DEPARTMENTAL HOUSING POLICY

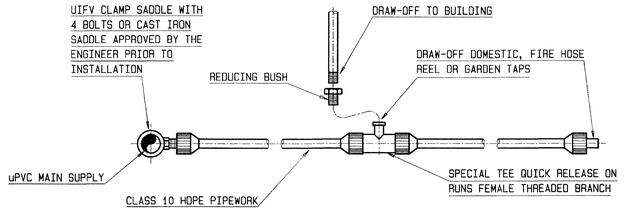
DWS REGION, DAM OR GWS

TYPE DRAWING

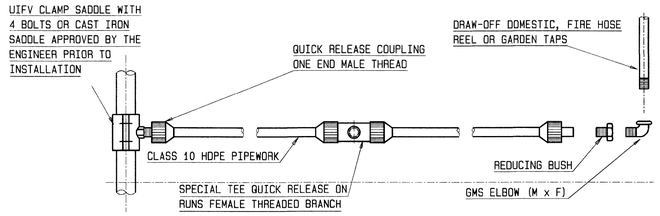
FLAT: TWO BED WITH GARAGE (TYPE F-2P+G)

ROOF & CEILING PLAN

PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HOU	PNG	FLP	ELE	OAH	OTHER NUMBER S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET 8 OF 10	REG. No. 172 420/15					REV. 00
CALCULATION FILE: X								



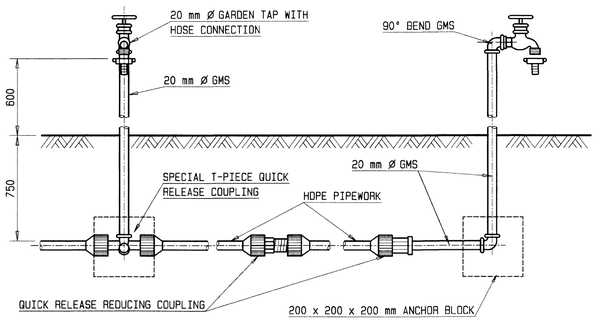
ELEVATION



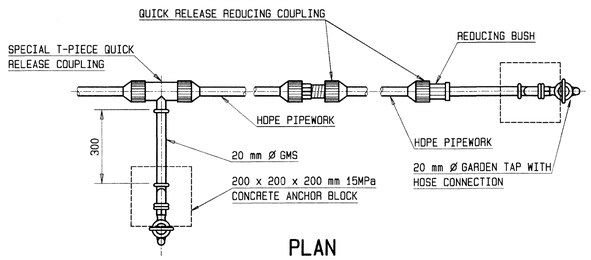
PLAN

TYPICAL CONNECTION ON MAIN SUPPLY TO BUILDINGS, FHR AND GARDEN TAPS

NTS



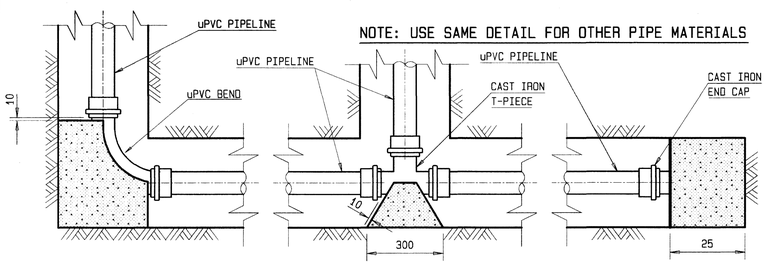
ELEVATION



PLAN

GARDEN TAP INSTALLATION

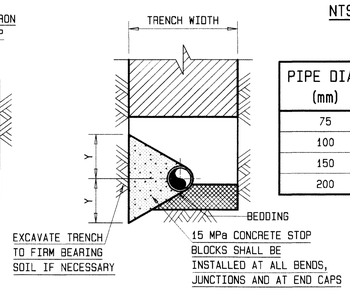
NTS



BEND T-JUNCTION STOP END

PLAN: DETAIL OF STOP BLOCKS

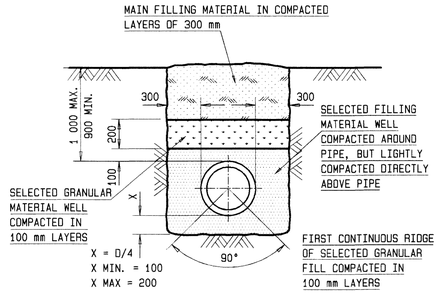
NTS



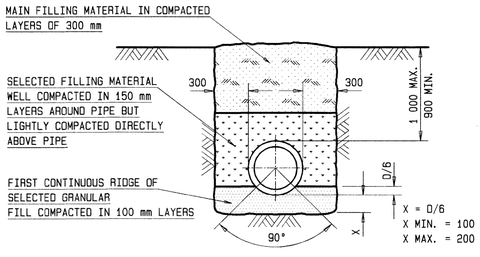
PIPE DIA. (mm)	Y MIN. (mm)
75	150
100	175
150	200
200	225

STOP BLOCK TYPICAL SECTION

NTS



CLASS B BEDDING FLEXIBLE PIPES



CLASS C BEDDING NON-FLEXIBLE PIPES

DETAIL OF BEDDINGS

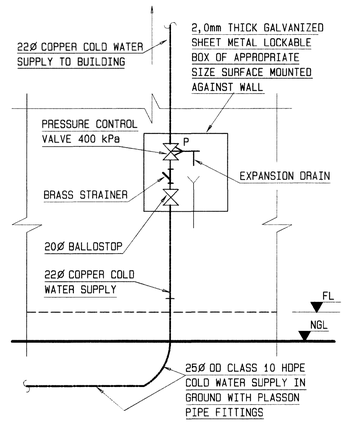
NTS

NOTE:

1. WHERE THE IN-SITU MATERIAL AT THE BOTTOM OF THE TRENCH IS LOOSE, COMPACT TO 90% AASHTO MINIMUM.
2. TRENCH WIDTH IS AS FOLLOWS:
   600 mm MINIMUM
   700 mm MAXIMUM
   OR
   D + 500 NOT EXCEEDING ABOVE
   (D = OUTSIDE DIA. OF PIPE).

HDPE COMPRESSION FITTINGS

1. ALL HDPE FITTINGS SHALL BE COMPRESSION FITTINGS. NO GLUED OR ELECTROFUSION WELDED JOINTS SHALL BE USED.
2. COMPRESSION FITTINGS SPECIALS TO GALVANISED MILD STEEL PIPES SHALL BE THREADED FOR STANDARD M.S. PIPEWORK.



DETAIL OF COLD WATER SUPPLY POINT CONNECTION AT BUILDING

NTS

BUILDING SERVICES: WATER RETICULATION NOTES

1. GENERAL:
   1.1 ALL WORK SHALL COMPLY TO SABS 1 200 L FOR MEDIUM PRESSURE PIPELINES.
   1.2 THE CONTRACTOR SHALL GUARANTEE THAT ALL INSTALLED PIPES ARE INTERNALLY CLEAN.
   1.3 PIPE JOINTS SHALL NOT BE BUILT IN. WHERE IMPOSSIBLE AND APPROVED BY THE ENGINEER, THE PIPES SHALL BE TESTED PRIOR TO BUILDING IN OF JOINTS.
   1.4 SUPPLY AND FIT BALLOSTOPS AT EACH FLUSH VALVE, CISTERN AND AT EACH TAP, HOT OR COLD WATER AT ALL SANITORY APPLIANCES.
   1.5 FINAL SIZES OF PIPE CONNECTION AT SANITARYWARE SHALL NOT BE LESS THAN:

FLUSHMASTER STANDARD	32 mm DIA.
FLUSHMASTER JUNIOR	20 mm DIA.
LAVATORY BASIN, SINK, WASH TROUGH ETC.	15 mm DIA.
BATHS ANB SHOWERS.	20 mm DIA.

   1.6 PIPES SHALL BE FIXED WITH APPROVED HOLDERBATS OR CLAMPS AS PRESCRIBED BY THE MANUFACTURER.

2. GALVANISED PIPES:
   2.1 MATERIAL SHALL BE HEAVY GRADE HOT DIPPED GALVANISED TO SABS 763-1977 (HEAVY GRADE) MILD STEEL PIPES TO SABS 62.
   2.2 PIPES SHALL BE WITH SCREWED JOINTS SEALED WITH HEMP FIBRE AND STAG (RED LEAD) SEALANT.
   2.3 ALL PIPE FITTINGS SHALL BE MANUFACTURED FROM HOT DIPPED GALVANISED TO SABS 763-1977 (HEAVY GRADE) MALLEABLE IRON TO SABS 509-1975.
   2.4 ONLY GALVANISED MILD STEEL PIPES SHALL BE USED FOR FIRE WATER RETICULATION TO FIRE HYDRANTS, FIRE HOSE REELS AND FOR CONNECTIONS TO BOOSTER PUMPS AND STORAGE TANK UNLESS OTHERWISE SPECIFIED. WHERE COPPER PIPING IS THUS SPECIFIED, CONEX PIPE FITTINGS SHALL BE USED SUPPLYING WATER TO FIRE FIGHTING FITTINGS AND EQUIPMENT.
   2.5 MAXIMUM ALLOWABLE DISTANCE BETWEEN PIPE SUPPORTS (CLAMPS HOLDER BATS OR HANGERS) FOR GMS PIPES, SHALL BE:

NOM. DIA. (mm)	MIN. DIA. OF HANGER BOLT (mm)	DISTANCE BETWEEN SUPPORTS (mm)
UP TO 32	10	2 000
40 TO 65	10	2 500
80 TO 100	12	3 000
125 TO 150	16	2 500

   PIPE SUPPORTS AND HANGERS SHALL PROVIDE FOR EXPANSION AND CONTRACTION OF PIPES AND SHALL BE MANUFACTURED OF BRASS OR NYLON. METAL ANCHORS SHALL BE PROVIDED WITH A RUBBER SEAL BETWEEN THE COPPER PIPE AND METAL. PIPES CROSSING ROOF TRUSSES SHALL BE ANCHORED ON EACH TRUSS.

3. COPPER PIPES:
   3.1 MATERIAL FOR DOMESTIC & FIRE FIGHTING WATER RETICULATION SHALL COMPLY TO SABS 460 HARD SOLID DRAWN TUBES CLASS 0 FOR DIAMETRES 15 & 22 AND CLASS 1 FOR LARGER THAN 22Ø WITH CONEX (DEZINCIFICATION RESISTENT COMPRESSION FITTINGS) CAPILLARY SOLDERED JOINTS AND FITTINGS MAY BE USED ON THE LAST 3,0 m LENGTH TO A SANITARY FITTING.
   3.3 MAXIMUM ALLOWABLE DISTANCE BETWEEN PIPE SUPPORTS (CLAMPS, HOLDER BATS OR HANGERS) FOR COPPER PIPES, SHALL BE:

NOM. DIA. (mm)	MIN. DIA. OF HANGER BOLT (mm)	DISTANCE BETWEEN SUPPORTS (mm)
15	10	1 200
22 TO 28	10	1 800
35 TO 54	10	2 000
67 TO 108	12	2 500

NOTES (GEYSER)

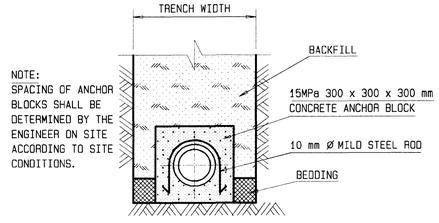
INSTALL GEYSER WITH:
a). VACUUM BREAKER ON COLD AND HOT WATER PIPES.
b). SAFETY VALVE WITH DRAIN PIPE TO EXTERIOR WALL.
c). UNIONS AND ISOLATING GLOBE VALVES ON COLD AND HOT WATER PIPES FOR FUTURE REMOVAL OF GEYSER.
GEYSER TYPE: HIGH PRESSURE HORIZONTALLY MOUNTED AS SHOWN ON DRAWING.

NOTE WATER CONNECTION:

MAIN COLD WATER SUPPLY CONNECTING:
CONNECT TO THE COLD WATER SUPPLY POINT WITH THE NECESSARY PIPE FITTINGS WITH CLASS 10 HDPE 25 mmØ (OD) PIPE AND 20 mmØ BRASS GATE VALVE IN A BRICKED UP VALVE BOX WITH CAST IRON FRAME AND LID AS SPECIFIED.

IMPORTANT NOTES

1. COLD AND HOT WATER SUPPLY TO INDIVIDUAL SANITARY FITTINGS SHALL BE 15 mm DIA. COPPER CLASS 1.
2. COLD AND HOT WATER SUPPLY TO MORE THAN TWO SANITARY FITTINGS IN SERIES SHALL BE 22 mm DIA. COPPER CLASS 1.
3. ALL EXPOSED HOT AND COLD WATER PIPES SHALL BE PROTECTED WITH PIPE ISOLATION TO PREVENT HEAT LOSS EXCLUDING WATER PIPES CHASED IN BRICK WALLS.
4. COLD WATER SUPPLY TO FLUSHMASTERS AND HOT WATER CYLINDERS SHALL BE 22 mm DIA COPPER CLASS 1.
5. MAIN COLD AND HOT WATER SUPPLY PIPES SHALL BE COPPER CLASS 1 WITH CONEX COMPRESSION FITTINGS AS SPECIFIED ALLOWING CAPILLARY SOLDERED JOINTS TO BE USED ON THE LAST 2,0 m LENGTH OF PIPE TO SANITARY FITTINGS.



CONCRETE ANCHOR BLOCK

NTS

LIST OF DRAWINGS

SHEET	DESCRIPTION	OTHER No.	REG. No.
1/10	LIST OF DRAWINGS & GENERAL NOTES		X
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X

SECTION
07
3
SECTION NUMBER
SHEET NUMBER

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA
HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001
SEDIBENG BUILDING
185 FRANCIS BAARD STREET
PRETORIA
(012) 336-7500
M. DIEDRICKS
DIRECTOR GENERAL

CHECKED:	DATE:	DESIGN: C.M. MOKONE	
ENGINEER: N.J. VAN DEVENTER	DATE:	DRAWN: C.M. MOKONE	
N.J. VAN DEVENTER CHIEF ENGINEER / CE:	DATE:	EXT. APPROVAL / DESIGN CHECKED: DIRECTOR (Pr. Eng.):	DATE: 19/08/2016

11/8/2016

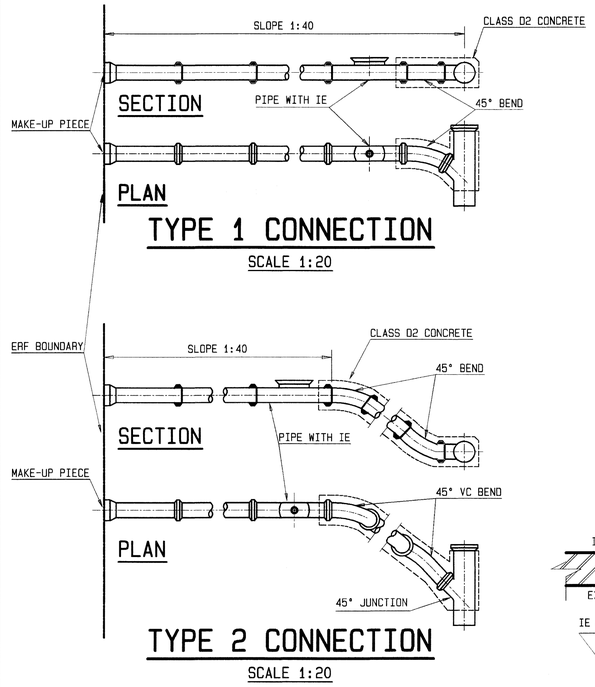
DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

TYPE DRAWING

WATER RETICULATION DETAILS & NOTES

PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HOU	PNG	FLP	ELE	DAH	OTHER NUMBER: S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET	REG. No.					REV.
CALCULATION FILE: X		9 OF 10	172 421/15					00

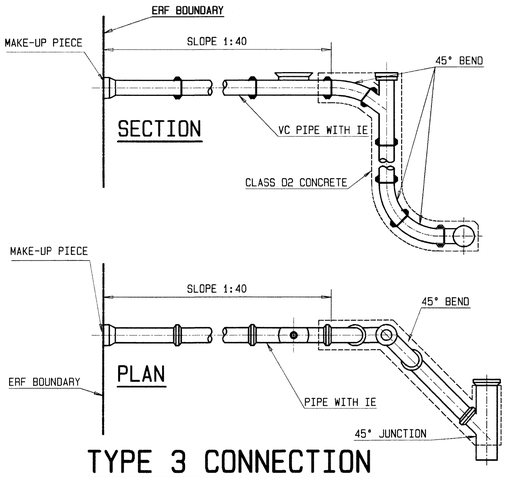


TYPE 1 CONNECTION

SCALE 1:20

TYPE 2 CONNECTION

SCALE 1:20



TYPE 3 CONNECTION

SCALE 1:20

DETAIL OF CONNECTIONS

NOTES:

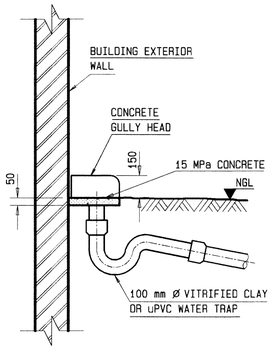
INSTALLATION AND CONNECTION:

TYPE 1 WHEN MAIN SEWER IS OF SAME HEIGTH AT CONNECTION POINT.
TYPE 2 WHEN DIFFERENCE OF HEIGTH BETWEEN MAIN SEWER AND CONNECTION POINT IS ONE METRE OR LESS.
TYPE 3 WHEN DIFFERENCE OF HEIGTH BETWEEN MAIN SEWER AND CONNECTION POINT IS MORE THAN ONE METRE.

SCALE 1:5 0 0,05 0,1 0,2 0,3 0,4 0,5 1 m

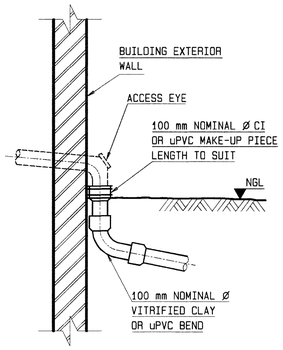
SCALE 1:50 0 0,5 1 2 3 4 5 10 m

SCALE 1:100 0 1 2 3 4 5 10 20 m



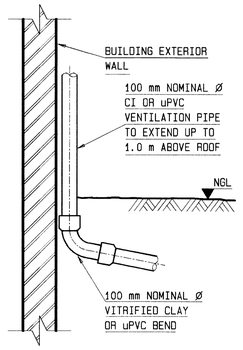
GULLY

SCALE 1:20



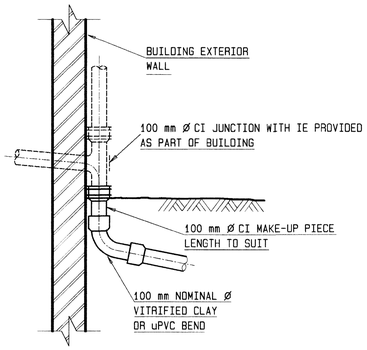
WC PAN

SCALE 1:20



VENT PIPE (TYPE 1)

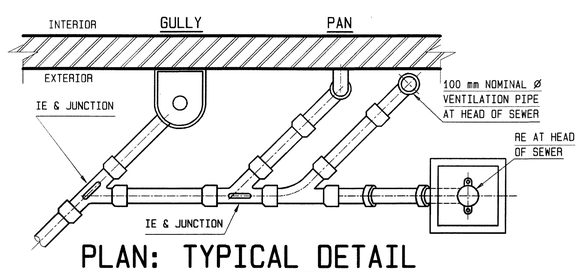
SCALE 1:20



VENT PIPE (TYPE 2)

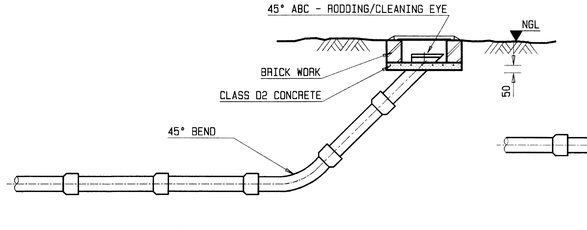
SCALE 1:20

SECTIONAL ELEVATIONS AT EXTERIOR WALL OF BUILDING



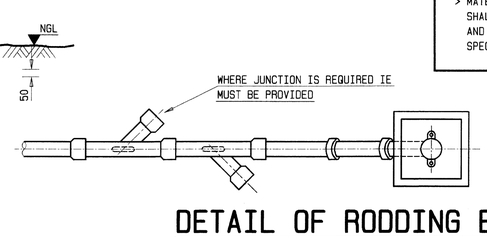
PLAN: TYPICAL DETAIL AT BUILDING

SCALE 1:20



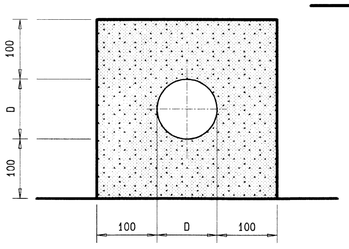
SECTION: RE DETAIL AT HEAD OF SEWER

SCALE 1:20



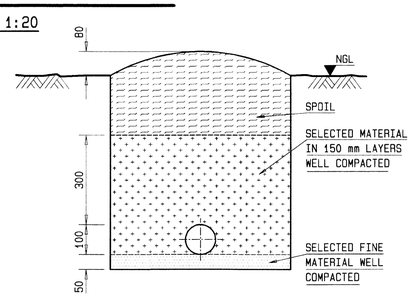
DETAIL OF RODDING EYE

SCALE 1:20



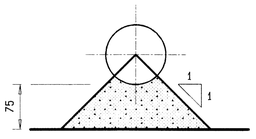
CONCRETE ENCASING OF PIPE

SCALE 1:5



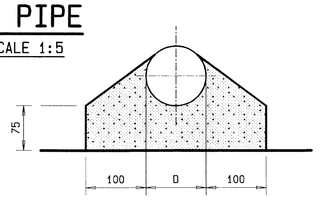
SECTION THROUGH TRENCH SHOWING BACKFILL

SCALE 1:10



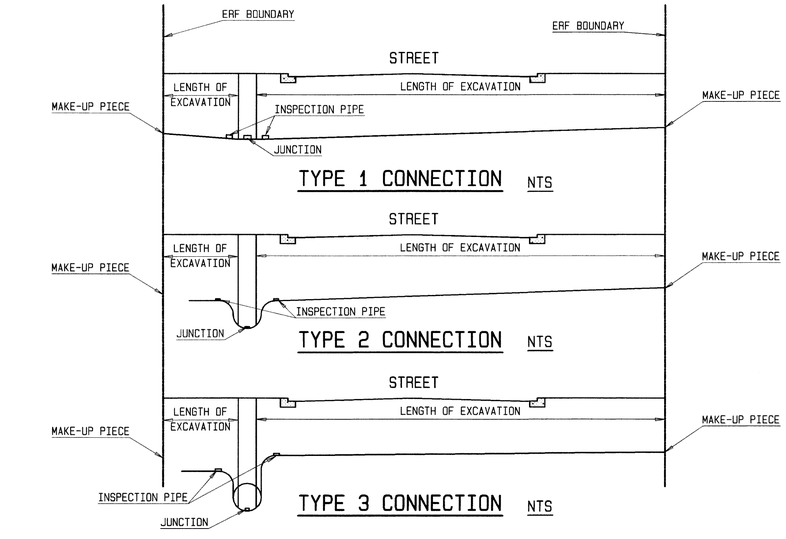
CONCRETE BEDDING UNDER PIPE TYPE 1

SCALE 1:5



CONCRETE BEDDING UNDER PIPE TYPE 2

SCALE 1:5



LINE DIAGRAMS OF CONNECTIONS

NOTES:

1. ALL CONCRETE FOR BEDDING AND ENCASING SHALL BE CLASS 02 CONCRETE.
2. ALL HOUSE CONNECTIONS FOR RESIDENTIAL ERVEN SHALL BE 100 mm Ø.
3. ALL CONNECTIONS FOR FLATS AND INDUSTRIAL ERVEN SHALL BE 150 mm Ø.
4. MINUMUM SEWER GRADIENTS INSIDE ERF BOUNDARY 1:50 WITH MINUMUM EARTH COVER 300 mm.
5. ALL COVERS AND FRAMES ACCORDING TO SABS 558.
6. CONCRETE CLASSES ACCORDING TO STANDARD, DEPARTMENTAL SPECIFICATION.
7. VITRIFIED CLAY PIPES AND SPECIALS ACCORDING TO SABS 559.
8. LAYING OF SEWER PIPE LINE ACCORDING TO SABS 058.
9. A VENT PIPE IS TO BE SUPPLIED ON EACH BRANCH LINE LONGER THAN 6,0 m FROM MAIN PIPE ON ERF.

PIPE MATERIALS:

a) VITRIFIED CLAY (EARTERN WARE)
b) CAST IRON
c) UNPASTICISED POLYVINYLCHLORIDE (uPVC)

> ABOVE MATERIALS ARE USED WITH VARYING JOINTING METHODS.
> uPVC MATERIAL IS MORE WIDELY USED.
> MATERIAL FOR PIPES AND PIPE JOINTING METHODS SHALL BE ACCORDING TO THE DESIGN SPECIFICATIONS AND SHALL BE DESCRIBED IN DETAIL IN THESE SPECIFICATIONS.

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 FRANCIS BAARD STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

CHECKED: DATE:
DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
ENGINEER: N.J. VAN DEVENTER DATE:
EXT. APPROVAL / DESIGN CHECKED: DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / QCS DATE:
DIRECTOR (Pr. Eng.) amokapa 19/08/2016 DATE:
11/8/2016

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

TYPE DRAWING

SEWER DETAILS

PROVINCE: ALL | DISTRICT: ALL | KEYCODES: HOU PNG FLP ELE DAH | OTHER NUMBER: S7-JH
LOCALITY No.: X | TENDER/CONTRACT No.: | SHEET: 10 OF 10 | REG. No.: 172 422/15 | REV.: 00
CALCULATION FILE: X

LIST OF DRAWINGS

No. J	DESCRIPTION	REVISION No.	SHEET	REG No.
01	LIST OF DRAWINGS AND GENERAL NOTES		1/10	172 413/15
02	FLOOR PLAN, SECTION AND ELEVATIONS		2/10	172 414/15
03	WINDOW AND DOOR SCHEDULE		3/10	172 415/15
04	STRIP FOUNDATION LAYOUT AND DETAILS		4/10	172 416/15
05	SEWER AND WATER RETICULATION LAYOUT		5/10	172 417/15
06	ELECTRICAL SERVICES AND FIRE PROTECTION		6/10	172 418/15
07	GENERAL BUILDING DETAILS		7/10	172 419/15
08	ROOF AND CEILING		8/10	172 420/15
09	TYPE DRAWING: WATER SUPPLY DETAILS AND NOTES		9/10	172 421/15
10	TYPE DRAWING: SEWER DETAILS AND NOTES		10/10	172 422/15
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

SECTIONS AND DETAILS

DESCRIPTION	SHEET NO.	REFER TO DRAWING
SECTION 1-1: SECTION ON BUILDING	2	172 414/15
SECTION 2-2: BEDROOM BUILT-IN CUPBOARD	7	172 419/15
SECTION 3-3		X
SECTION 4-4		X
SECTION 5-5		X
SECTION 6-6		X
SECTION 7-7		X
SECTION 8-8		X
SECTION 9-9		X
SECTION 10-10		X
DETAIL A: KITCHEN CUPBOARDS	7	X
DETAIL B: TV SHELVE IN LOUNGE	7	X
DETAIL C: BEDROOM CUPBOARD	7	X
DETAIL D: SHELVE LEFT OF BEDROOM CUPBOARD	7	X
DETAIL E: SHELVE RIGHT OF BEDROOM CUPBOARD	7	X
DETAIL F; BEDROOM SHELVE	7	X
DETAIL G: BEDROOM CORNER SHELVE	7	X
DETAIL H: SECURITY GATE AT EXTERIOR DOORS	3	X
DETAIL I: CEILING CORNICE	8	X
DETAIL J: EXTERIOR WALL MOVEMENT JOINT	4	X
DETAIL K:		X
DETAIL L:		X
DETAIL M:		X
DETAIL N:		X
DETAIL O:		X
DETAIL P:		X
DETAIL Q:		X

NOTES ON BUILDING SPECIFICATIONS:

A. FOUNDATIONS:

A1. CONCRETE STRIP FOUNDATION ACCORDING TO ENGINEER'S DESIGN DRG REG. NO. XXX XXX/XX. TOP OF FOUNDATION AT LEAST 350 mm BELOW N.G.L.
A2. 220 mm BRICK FOUNDATION WALLS WITH BRICK FORCE BUILT IN EVERY COURSE UP TO FLOOR LEVEL.
A3. 220 mm BRICK FOUNDATION WALLS UNDER ALL INTERIOR WALLS WITH BRICK FORCE BUILT IN EVERY COURSE UP TO FLOOR LEVEL.

B. SURFACE BED, SCREED AND FLOOR FINISHES:

B1. HARDCORE FILLING BELOW SURFACE BED COMPACTED IN LAYERS OF 200 mm MAXIMUM 93% MOD AASHTO AND TREATED WITH SOIL POISINING AS SPECIFIED.
B2. 250 MICRON POLYETHELINE MEMBRANE INSTALLED UNDERNEATH SURFACE BEDS. APPROVED DAMP PROOF COURSES INSTALLED UNDERNEATH ALL WALLS INTERIOIR AND EXTERIOR AT FLOOR LEVEL.
B3. WHERE SPECIFIED: 25 MPa CONCRETE SURFACE BEDS 100 mm THICK INSTALLED ON HARDCORE FILLING AND REINFORCED WITH REF. 193 WELDED MESH.
B4. WHERE SPECIFIED: 20 MPa CONCRETE SURFACE BEDS 85 mm THICK WHERE INSTRUCTED OR SPECIFIED ON WELL COMPACTED HARDCORE FILLING.
B5. CEMENT SCREED AS SPECIFIED (1 CEMENT: 4 SAND BY VOLUME) 30 mm THICK ON SURFACE BEDS WITH JOINTS ACCORDING TO DRAWINGS.

C. EXTERIOR AND INTERIOR WALLS AND FINISHES TO WALLS:

C1. BUILDING AND PLASTER BRICKS SHALL BE APPROVED HARD-BURNT CLAY BRICKS. FACE BRICKS SHALL BE APPROVED HARD-BURNT CLAY BRICKS TO MATCH FACE BRICKS OF EXISTING BUILDINGS WHERE APPLICABLE.
C2. BRICK FORCE AND WALL REINFORCING SHALL BE INSTALLED ACCORDING TO THE RELEVANT DETAILS AS SHOWN ON DRAWINGS.
C3. AS A GENERAL RULE, BRICK FORCE SHALL BE INSTALLED IN EVERY 5TH BRICK COURSE UNLESS OTHERWISE SPECIFIED.
C4. WHERE 330 mm WALLS ARE SPECIFIED, EVERY THIRD COURSE OF BRICKWORK SHALL BE A HEADER COURSE.
C5. INTERIOR WALL FINISH SHALL BE 10 TO 15 mm THICK STEEL TROWELLED PLASTER AND SHALL BE PRIMED WITH PLASTER PRIMER AND FINISHED WITH TWO TOP COATS WASH AND WEAR SUPERIOR MATT FINISH EMULSION PAINT. (COLOUR AS PER ENGINEER)
C6. INTERIOR WINDOW SILLS SHALL BE FIBRE CEMENT LENGTH TO SUIT x 200 x 15 mm PAINT FINISH TO MATCH WALLS. TILED SILLS IN CLOAK ROOMS AND KITCHENS.
C7. EXTERNAL WINDOW SILLS BRICK ON EDGE TO MATCH FACE BRICK WALLS.
C8. MORTAR ON BRICK JOINTS ON FACE BRICK WALLS SHALL BE FLUSH SCRAPED AND SMOOTHED BETWEEN BRICKS WITH A SQUARE JOINTING TOOL. A SAMPLE WALL OF ONE SQUARE METER SHALL BE BUILT FOR THE APPROVAL OF THE ENGINEER TO BE USED AS BENCH MARK FOR JOINT FINISHING OF ALL FACE BRICK WALLS.
C9. INTERIOR SKIRTINGS TO WALLS SHALL BE AS SPECIFIED IN SECTION B OF THE 'PROJECT SPECIFICATIONS'.

D. CEILING MATERIAL AND INSTALLATION:

D1. LAMINATED 6 mm THICK GYPSUM BOARD CEILINGS NAILED TO 38 x 38 mm S A PINE BRANDERING WITH JOINTING STRIPS. BRANDERING SHALL BE SPACED AT 450 mm MAXIMUM CENTRES AND SHALL BE FIXED WITH AN ADDITIONAL NAIL TO EACH TRUSS DRIVEN IN AT AN ANGLE. 70 x 19 mm S A PINE SKIRTING AND 20 mm QUADRANT SHALL BE USED AS CORNICES. SKIRTING SHALL BE NAILED TO PLASTERED WALL WITH STEEL CUT NAILS AND QUADRANT TO SKIRTING WITH PANEL PINS. PAINT FINISH TO CORNICES SHALL ACCORDING TO THE DRAWINGS OR 'PROJECT SPECIFICATIONS'.
D2. FIBRE CEMENT BOARDS, WHERE APPLICABLE 4 mm THICK WITH FIXING SPECIFICATIONS AND FINISHES AS PER D1.

LIST OF ELECTRICAL DRAWINGS

No.	DESCRIPTION	REVISION No.	SHEET	REG No.
01	ELECTRICAL LAYOUT		6 OF 10	172 418/15
02	X			X
03	X			X
04	X			X
05	X			X
06	X			X
07	X			X
08	X			X
09	X			X
10	X			X

GENERAL NOTES:

1. READ THIS DRAWING IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ARCHITECTURAL AND SERVICES DRAWINGS. ANY UNCERTAINTIES OR ANY DISCREPENCIES BETWEEN THE SPECIFICATIONS AND THE DRAWINGS MUST BE REPORTED TO THE ENGINEER IMMEDIATELY.

2. NO DEVIATION FROM THE DETAILS ON THE DRAWINGS WILL BE ALLOWED WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

3. THESE DRAWINGS MAY NOT BE COPIED OR RE-USED WITHOUT THE WRITTEN CONSENT OF THE DEPARTMENT OF WATER AFFAIRS AND RESPONSIBLE ENGINEER.

4. IN GENERAL, CONCRETE (STRUCTURAL) SHALL COMPLY WITH SANS 1200-G SERIES AND THE PARTICULAR SPECIFICATION DWS. 0750.

5. CONCRETE CLASS: MASS CONCRETE - CLASS A 10/19
   BLINDING LAYER (COLUMN BASES) - CLASS C 15/19
   STRIP FOOTINGS (BRICKWALLS) - CLASS E 25/19
   SURFACE BEDS - CLASS E 25/19
   COLUMN BASES AND COLUMNS - CLASS F 25/19
   CONCRETE BEAMS AND CONCRETE SLABS - CLASS F 25/19

6. CONCRETE COVER TO REINF. : FOUNDATIONS - 30 mm
   COLUMNS - 30 mm
   CONCRETE SLABS - 30 mm
   CONCRETE BEAMS - 30 mm
   GROUND FLOOR SLABS (SURFACE BEDS) -AS SHOWN

7. ALL FOUNDATION EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE PLACING OF REINFORCEMENT OR CASTING OF CONCRETE. IF THE FOUNDING LEVEL AS PER DRAWING IS NOT SUITABLE, FURTHER EXCAVATIONS SHALL BE DONE TO A DEPTH AS DETERMINED BY THE ENGINEER ON SITE. THE ENGINEER MAY INSTRUCT THAT CERTAIN EXCAVATIONS BE BACKFILLED WITH MASS CONCRETE TO THE REQUIRED LEVEL. (CLASS AS PER ITEM 5 ABOVE).

8. AFTER PLACING, ALL REINFORCEMENT MUST BE CHECKED AND APPROVED BY THE ENGINEER ON SITE BEFORE CASTING OF CONCRETE.

9. NO HOLES OR NOTCHES SHALL BE CUT, CHIPPED OR FORMED IN CONCRETE UNLESS APPROVED BY THE ENGINEER.

10. DURING COLD OR WET WEATHER CONCRETE MUST BE HANDLED IN ACCORDANCE WITH SPECIFICATIONS.

11. LOADINGS ON STRUCTURES DURING CONSTRUCTION:-
    MAXIMUM ON SLABS = 100 kg/m².

12. REMOVAL OF SHUTTERING TO BE DONE IN ACCORDANCE WITH SPECIFICATIONS.

13. ALL EXPOSED SHARP CORNERS SHALL BE CHAMFERED AS FOLLOWS:
    ALL CORNERS (EXCEPT WHERE OTHERWISE SHOWN) - 25 x 25 mm.

14. ALL WORK SHALL COMPLY WITH THE NATIONAL BUILDING REGULATIONS SABS 0400.

BRICKWORK:

1. IN GENERAL, BRICKWALLS SHALL COMPLY WITH SANS 0400-1990 AND THE PARTICULAR SPECIFICATION DWS 1710.

2. WIRE TIES TO BE BUILT INTO CAVITY WALLS IN ACCORDANCE WITH THE SPECIFICATION.

3. MASONARY WORK:
   a.) ALLOW FOR MOVEMENT JOINTS IN POSITIONS AS SHOWN ON THE DRAWINGS AND MARKED 'MJ' ON DRAWING PLAN.

4. BRICKFORCE:
   BRICKFORCE TO BE PLACED IN EVERY 5th LAYER AND IN EVERY LAYER FOR 3 LAYERS ABOVE AND BELOW CONCRETE SLABS, DOOR - AND WINDOW OPENINGS. MINIMUM LAP LENGTH = 150 mm.

5. NO HOLES OR CUTS IN WALLS SHALL BE ALLOWED UNLESS APPROVED BY THE ENGINEER.

6. ALL BRICKWORK ON ONE FLOOR SHALL BE COMPLETED BEFORE COMMENCING WITH BRICKWORK ON THE NEXT FLOOR, WHERE APPLICABLE, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

7. ALL LOADBEARING BRICKWALLS AS INDICATED MUST BE COMPLETED BEFORE ANY CONCRETE SLABS ARE CAST ON TOP.

8. MOVEMENT JOINTS:
   a.) BRICKWORK BUTT-JOINTS MUST BE CLEAN AND FREE FORM ANY OBSTRUCTION.
   b.) DEPTH 'd' OF SEALANT SHALL COMPLY WITH THE MANUFACTURER'S SPECIFICATIONS.
   c.) IN ADDITION TO THE HOOP IRON WALL TIE, ALL BRICKFORCE MUST BE CONTINUOUS THROUGH ALL MOVEMENT JOINTS IN BRICKWALLS.

STRUCTURAL STEELWORK: (WHERE APPLICABLE)

1. DESIGN AND MANUFACTURING OF ALL STRUCTURAL STEELWORK SHALL COMPLY WITH THE PROJECT SPECIFICATIONS SANS 10162-1, SANS 10162-2, SANS 1200H AND SANS 1200HA.

2. STRUCTURAL STEEL GRADE TO BE 300W, UNLESS SHOWN OTHERWISE.

3. ALL WELDS TO BE 6 mm CONTINUOUS FILLET WELDS, UNLESS SHOWN OTHERWISE.

4. HOLES FOR BOLTS SHALL BE BOLT DIAMETER + 2 mm.

5. COLD FORMED PROFILES SHALL COMPLY WITH A MINIMUM GUARANTEED TENSILE STRENGTH OF 250 MPa SANS 10162-2.

6. ALL SPACERS USED FOR ERECTION SHALL BE OF LAMINATED CUT-OFFS AND SHALL BE USED ONLY WHERE NECCESARY.

7. ALL WORKSHOP DETAIL DRAWINGS SHALL BE APPROVED BY THE ENGINEER BEFORE MANUFACTURING BEGINS.

8. ALL SITE WELDS SHALL BE DONE UNDER SUPERVISION OF A QUALIFIED WELDER.

9. ALL MEASUREMENTS TO BE CHECKED ON SITE BEFORE ERECTION COMMENCES.

10. PROTECTIVE TREATMENT:
    a.) DEGREASE ALL STEEL AND WIRE BRUSH TO ST3 OF SWEDISH STANDARD SIS 055900-1967.
    b.) PAINT ALL STEEL WITH A 25 MICRON RED LEAD PRIMARY ETCH COAT, ACCORDING TO SABS 312-1975 TIPE II, GRADE II (APPLIED IN WORKSHOP).

    PAINTING AFTER ERECTION:
    a) PRIME WITH ONE COAT APPROVED PRIMER FOR STEEL ON SITE AFTER ERECTION. FINISHING PAINT TO BE TWO COATS POLYURETHANE ENAMEL COLOUR BY THE ENGINEER.
    b) ALTERNATIVELY PAINT SPECIFICATION AS SHOWN ON THE DRAWINGS.

SUPERIMPOSED LOADS:

1. SAFE MAXIMUM ALLOWABLE EARTH PRESSURE = 180 kPA OR AS PER GEOTECHNICAL REPORT.

2. IMPOSED LOAD FOR ROOF SLABS = 1,5 kPA.

ROOF SHEETINGS: (WHERE APPLICABLE)

1. IBR-PROFILE FACTORY PAINTED, TO SUPPLIER'S SPECIFICATION AND APPROVED BY THE ENGINEER, 0,6mm THICK SHEET STEEL FASTENED WITH APPROPRIATE HOOK BOLTS OR HIGH SPEED SCREW IN FASTENERS AND NEOPRENE SEAL WASHERS, ON STEEL OR TIMBER PURLINS AS SPECIFIED, ON SISALATION 420 RSA ON THE MAIN PORTAL FRAMES OR ROOF TRUSSES.

2. SISALATION SHALL BE SUPPORTED ON 1,5 mm Ø GALVANISED STRAIN WIRES FROM FRAME TO FRAME AT 300 mm CENTRES. SISALATION OVERLAP 200 mm MINIMUM.

BACKFILL:

BACKFILL BENEATH SURFACE BEDS TO BE SELECTED GRANULAR MATERIAL COMPACTED IN 150 mm LAYERS TO 95% MOD. AASTHO DENSITY.

GROUND FLOOR BEDDINGS:

REINFORCED GROUND FLOOR BEDDINGS

100 mm THICK 25 MPa CONCRETE BEDDING REINFORCED WITH REF 193 MESH CAST ON 250 MICRON WATERPROOFING MEMBRANE IN BLOCK SIZES AS SHOWN ON DRAWINGS. SEE EXPANSION JOINT DETAIL. FLOOR FINISH POWER FLOATED.

GROUND FLOOR BEDDINGS WITHOUT REINFORCING (WHEN APPLICABLE)

85 mm THICK 20 MPa CONCRETE BEDDING CAST ON 250 MICRON WATERPROOFING MEMBRANE ON BACKFILLING COMPACTED TO SPECIFICATION.

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

DESIGN: C.M. MOKONE
CHECKED: DATE:
DRAWN: C.M. MOKONE
ENGINEER: N.J. VAN DEVENTER DATE:
EXTERNAL APPROVAL: DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / DES: DATE: 11/8/2016
DIRECTOR (Pr. Eng): 19/08/2016 DATE:

SHEET	DESCRIPTION	OTHER No.	REG. No.
	LIST OF DRAWINGS		

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
LIST AND DETAILS OF DRAWINGS

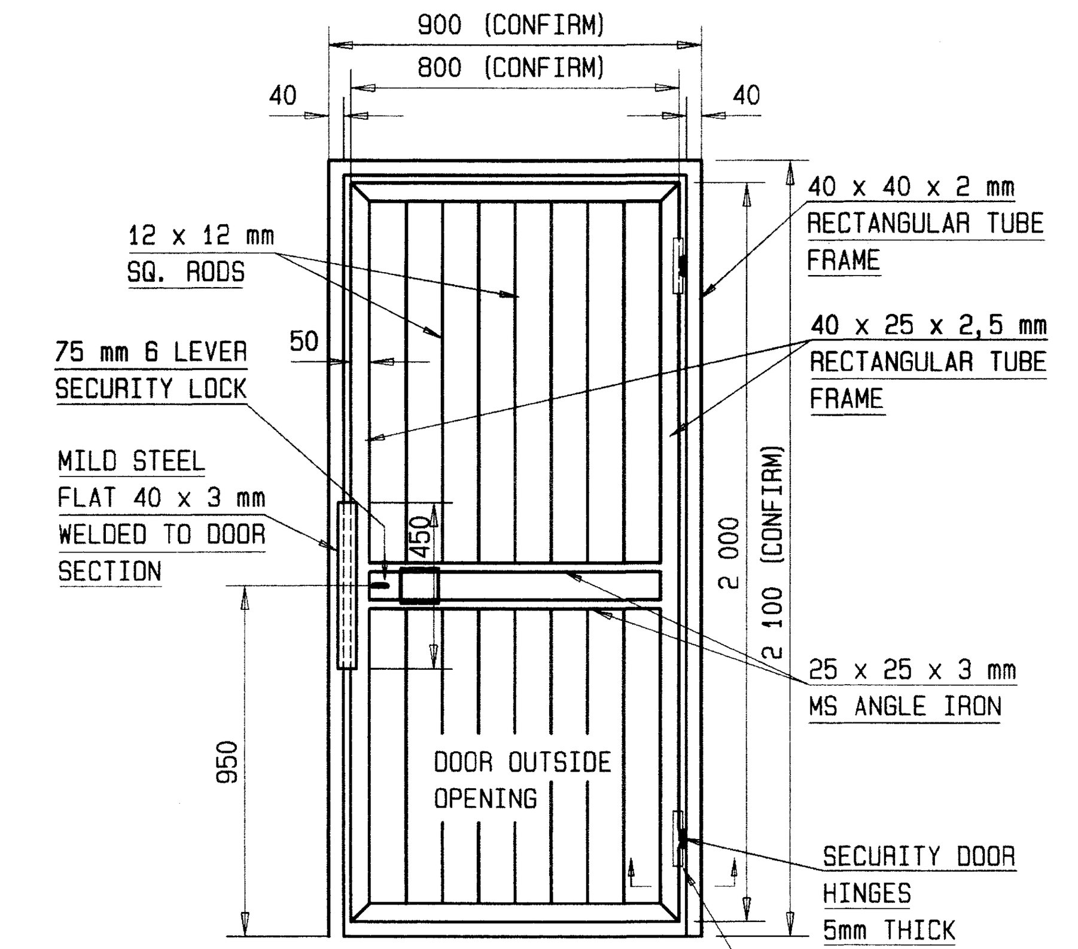
PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HOU	PNG	FLP	ELE	DAH	OTHER NUMBER: S7-JH
LOCALITY No.: -	TENDER/ CONTRACT No.	SHEET	REG. No.					REV.
CALCULATION FILE: -		1 OF 10	172 413/15					00

STEEL WINDOW FRAMES

WINDOW SCHEDULE	1511 x 1704		1 511 x 654	1022 x 864
WINDOW REF.	W1	W2	W3	W4
TYPE	NE4NC4	NC2F	NE4	NE2
NO. REQUIRED PER FLAT	2	2	2	2
FRAME	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE
GLAZING	CLEAR GLASS	CLEAR GLASS	FROSTED GLASS	FROSTED GLASS
MOSQUITO SCREENS	REQUIRED	REQUIRED	REQUIRED	NOT REQUIRED
BURGLAR PROOFING	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS
FINISH (INLAND AREAS)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)
FINISH HUMID INLAND AREAS BUT NOT COASTAL AREAS	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)

STEEL WINDOW FRAMES

WINDOW SCHEDULE	2000 x 1999	1045 x 1500	1022 x 799
WINDOW REF.	W1	W2	W3
TYPE	NE11ND11	D52F	NES2
NO. REQUIRED PER FLAT	4	2	2
FRAME	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE	STANDARD RESIDENTIAL TYPE
GLAZING	CLEAR GLASS	CLEAR GLASS	FROSTED GLASS
MOSQUITO SCREENS	REQUIRED	REQUIRED	REQUIRED
BURGLAR PROOFING	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS	TO ALL OPENING SECTIONS
FINISH (INLAND AREAS)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND TWO COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)
FINISH HUMID INLAND AREAS BUT NOT COASTAL AREAS	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)	HOT-DIP GALVANISED TO SABS SPECIFICATION 763. PRIME WITH GALVOGRIP ETCH PRIMER (SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE I) AND TWO COATS HIGH GLOSS POLY-URETHANE ENAMEL PAINT (SABS 630)

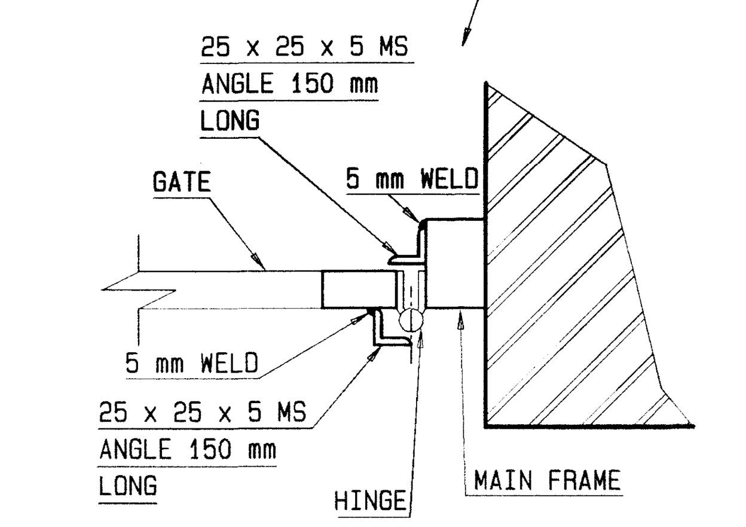


DETAIL OF SECURITY DOOR AT BLDG. EXITS

SCALE 1:20

NOTES:

ALL WINDOWS TO HAVE BURGLAR PROOFING



DETAIL OF HINGE GUARD

SCALE 1:5

DOOR SCHEDULE	933 x 2100, WOOD PANELS, DOOR SIZE: 813 x 2 032	933 x 2100, WOOD PANELS, DOOR SIZE: 813 x 2 032	933 x 2100, WOOD SLATS, DOOR SIZE: 813 x 2 032	933 x 2100, SHEET METAL, DOOR SIZE: 813 x 2 032	
DOOR REF.	D1	D2	D3	D4	D5
No. REQUIRED PER FLAT	4	8	2	2	2
DOOR	FRAMED AND LEDGED THREE PANEL MERANTI OR OTHER HARDWOOD DOOR.	FRAMED AND LEDGED TWO PANEL MERANTI HARDWOOD DOOR.	FRAMED AND LEDGED SLATTED MERANTI HARDWOOD DOOR.	SINGLE PANEL 1.0 mm THICK STEEL CHAWL DOOR WITH VERTICAL FLUTES COMBINED WITH 1.2 mm THICK DEEP SECTION CROSS BRACES WELDED IN	SHEET METAL INTERLOCKING CURTAIN SLATS WITH FACTORY PAINT FINISH ROLL-UP TYPE GARAGE DOOR.
FRAME	MERANTI HARDWOOD	MERANTI HARDWOOD	MERANTI HARDWOOD	STANDARD SHEET METAL FRAME 1.2 mm THICK COMBINED WITH HINGES AS PER SUPPLIER	MILD STEEL CORROSION PROTECTED FRAME RAW BOLTED ON INSIDE OF WALL OPENING.
LOCK AND FURNITURE	3 LEVER UPRIGHT MORTICE LOCK SET, 3 x 75 mm BRASS HINGES.	2 LEVER UPRIGHT MORTICE LOCK SET, 3 x 75 mm BRASS HINGES.	3 LEVER UPRIGHT MORTICE LOCK SET, 3 x 75 mm BRASS HINGES. 2 x BRASS SLIDING BOLTS ONE DOOR TO FRAME & ONE TOP PART TO BOTTOM PART OF DOOR.	3 LEVER UPRIGHT MORTICE LOCK SET, 3 x 75 mm BRASS HINGES.	INSERT LOCK ATTACHED TO DOOR CENTRE WITH SLIDING RODS TO LOCK INTO DOOR FRAME.
DOOR FINISH	SAND AND STOP. FINISH WITH THREE COATS CLEAR MATT EXTERIOR POLYURETHANE	SAND AND STOP. FINISH WITH THREE COATS CLEAR MATT EXTERIOR POLYURETHANE	SAND AND STOP. FINISH WITH THREE COATS CLEAR MATT EXTERIOR POLYURETHANE	PRIME WITH RED OXIDE METAL ETCH PRIMER (SABS SABS 723) AND PAINT ONE UNDERCOAT (SABS 681-TYPE II) AND THREE COATS HIGH GLOSS ENAMEL PAINT (SABS 630-TYPES I OR II)	PAINT FINISH SHALL BE DONE AT MANUFACTURER COMPLYING TO A CORROSION RESISTING PAINT SPECIFICATION TO THE ENGINEER'S APPROVAL.
FRAME FINISH	STANDARD STEEL FRAME TO BE PAINTED ON SITE (COLOUR TO BE DECIDED)	STANDARD STEEL FRAME TO BE PAINTED ON SITE (COLOUR TO BE DECIDED)	STANDARD STEEL FRAME TO BE PAINTED ON SITE (COLOUR TO BE DECIDED)	STANDARD STEEL FRAME TO BE PAINTED ON SITE (COLOUR TO BE DECIDED)	CORROSION PROTECTED ACCORDING TO THE MANUFACTURER'S SPECIFICATION.

FOR COMPLETE DESCRIPTION OF FINISHES SEE DETAILED SPECIFICATION IN CONTRACT DOCUMENT

		LOUNGE/DINIG ROOM	BED ROOMS	PASSAGE & ENTR. FOYER	BATH ROOM/WC	KITCHEN	ENTRANCE STOEP	BACK EXIT STOEP	SHOWERS	EXTERNALLY	RAMPS
FLOOR	HEAVY DUTY CARPETING		●								
	WOOD FLOAT FINISH (NON SLIP)										●
	NON-SLIP CERAMIC OR QUARRY TILES	●			●	●					
SKIRTING	76 x 19 mm SKIRTINGS AND 19 mm QUADRANT ANGLE MOULDS (SA PINE)	●	●								
	FLOOR TILE SKIRTING				●	●					
	76 mm GRANOLITHIC										
	FACE BRICKS										
WALLS	CEMENT PLASTER (INTERIOR)	●	●		●	●					
	FACE BRICKS									●	
WALL FINISHES	INTERIOR ACRYLIC PVA PAINT (WASHABLE)	●	●								
	EGGSHELL ENAMEL FOR UNTILED PLASTER SURFACES				●	●					
	WALL TILES AREAS AS SPECIFIED				●	●			●		
TILES	FFL TO 1,5 m HIGH				●	●					
	FFL TO 2,1 m HIGH								●		
CURTAINS	CURTAIN RAILS/VERTICAL OR HORIZONTAL BLINDS	●	●		●						
CEILING	GYPSUM CEILING BOARD / FIBRE CEMENT CEILING BOARD	●	●		●	●					
MISCELANEOUS	SOAP DISH				●	●			●		
	750 x 20 mm AND 450 x 20 mm TOWEL RAILS (450 x 20 IN KITCHEN)				●	●			●		
	TOILET PAPER HOLDER (VITREOUS CHINA)				●						

SCHEDULE OF FINISHES FOR LABOURER HOUSES

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

SCALE 1:5 — 0, 0,05, 0,1, 0,2, 0,3, 0,4, 0,5, 1 m

SCALE 1:20 — 0, 0,5, 1, 1,5, 2, 4 m

SECTION — SECTION NUMBER 07 / SHEET NUMBER 3

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

CHECKED: DATE:
DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
ENGINEER: N. J. VAN DEVENTER DATE:
EXTERNAL APPROVAL: DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / ... : DATE: 11/8/2016
DIRECTOR (Pr. Eng): ramolope 19/08/2016 DATE:

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

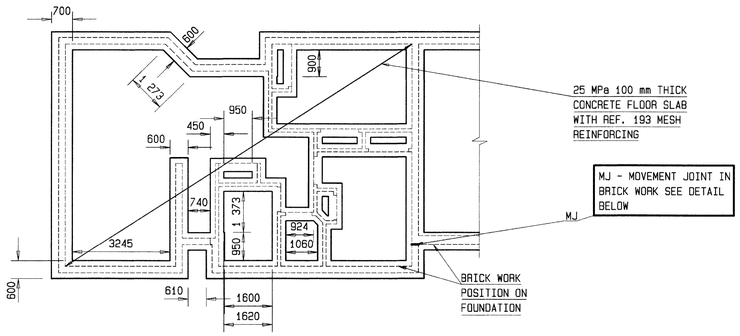
FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
PROPOSED PLAN AND ELEVATIONS
WINDOW AND DOOR SCHEDULE

PROVINCE: ALL	DISTRICT: ALL	KEYCODES: HOU PNG FLP ELE DAH	OTHER NUMBER S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET 3 OF 10	REG. No. 172 415/15 REV. 00
CALCULATION FILE: X			

NOTES:

1. PRE-INVESTIGATION TO BE EXECUTED ON SOIL CONDITIONS BEFORE CONSTRUCTION COMMENCES. NOMINAL REINFORCING IN STRIP FOUNDATIONS ESSENTIAL AT POOR SOIL CONDITIONS. DECISION BY SUPERVISING ENGINEER.
2. BRICK FORCE IN EACH COURSE OF FOUNDATION WALLS UP TO FLOOR LEVEL COMPULSARY.
3. **FOUNDATION WALLS UP TO 1,0 m IN HEIGHT SHALL BE 220 mm THICK AND ABOVE 1,0 m IN HEIGHT 330 mm THICK.**
4. ALL SLEEVE PIPES, ELECTRICAL CONDUITS, WASTE PIPES, ETC. BELOW AND UP TO GROUND FLOOR LEVEL SHALL BE INSTALLED INSIDE THE BUILDING BEFORE CASTING OF GROUND FLOOR CONCRETE BEDDING.

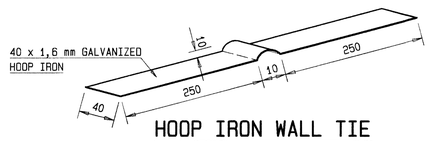
UNIT 1



FOUNDATION PLAN LAYOUT

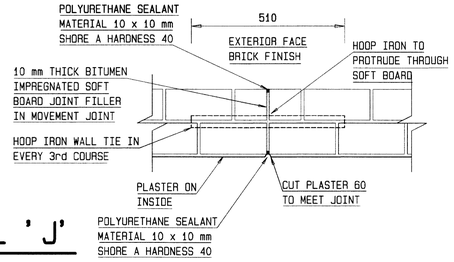
SCALE 1:100

UNIT 2

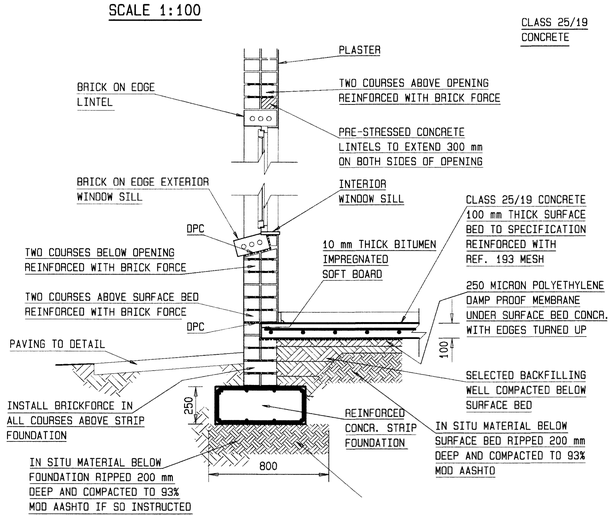


HOOP IRON WALL TIE

SCALE N.T.S.



DETAIL 'J'

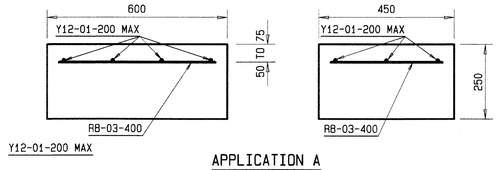


SECTION ON TYPICAL FOUNDATION REINFORCING

SCALE 1:20

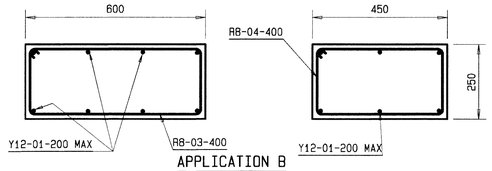
PLAN EXTERIOR WALL MOVEMENT JOINT

SCALE 1:10



APPLICATION A

NOTE:
THIS STRIP FOUNDATION STRUCTURE IS APPLICABLE TO NORMAL UNIFORM SOIL CONDITIONS OVER THE TOTAL LENGTH OF THE FOUNDATION STRIPS AND A SOIL PRESSURE NOT LESS THAN 180 kPa



APPLICATION B

NOTE:
THIS STRIP FOUNDATION STRUCTURE IS APPLICABLE TO VARYING SOIL BEARING CAPACITY OVER THE LENGTH OF THE FOUNDATION STRIPS WITH SOIL PRESSURE NOT LESS THAN 150 kPa

SECTIONS: STRIP FOUNDATION REINFORCMENT

SCALE 1:10

SCALE 1:10 0 0,1 0,2 0,3 0,4 0,5 1 2 m

SCALE 1:50 0 0,5 1 2 3 4 5 10 m

NOTES:

1. ALTHOUGH THE BENDING SCHEDULES WERE PREPARED WITH CARE, MISTAKES MAY HAVE BEEN MADE THEREFORE, BEFORE ORDERING, CUTTING AND BENDING OF REINFORCEMENT COMMENCES THE CONTRACTOR MUST CHECK ALL SCHEDULES TO ENSURE CORRECTNESS OF TYPE OF REINFORCEMENT AND BENDING DIMENSIONS.

   IN CASE CHANGES ARE NECESSARY, THEY SHOULD CONFORM TO THE REQUIREMENTS SHOWN ON THE DRAWINGS AND BE IN ACCORDANCE WITH SABS 0144 (WITH THE LATEST AMENDMENTS).

   ALL BENDING SHALL BE DONE IN ACCORDANCE WITH SANS 82 (WITH THE LATEST AMENDMENTS).

2. FOUR TYPES OF REINFORCING STEEL CAN BE SPECIFIED ON REINFORCEMENT DRAWINGS AND BENDING SCHEDULES (IN ACCORDANCE WITH SABS 920 AND SANS 1024 WITH THE LATEST AMENDMENTS) viz.

   R REINFORCEMENT SHALL BE TYPE A: HOT ROLLED MILD STEEL BARS OF PLAIN ROUND CROSS-SECTION HAVING A MINIMUM YIELD STRESS OF 250 MPa FOR BARS OF DIAMETER UP TO AND INCLUDING 20 mm AND HAVING A MINIMUM YIELD STRESS OF 230 MPa FOR BARS WITH DIAMETER GREATER THAN OR EQUAL TO 25 mm.

   Z REINFORCEMENT SHALL BE TYPE B: GRADE 1: HOT ROLLED DEFORMED MILD STEEL BARS HAVING A MINIMUM YIELD STRESS AS FOR TYPE A.

   Y REINFORCEMENT SHALL BE TYPE C: CLASS 2: GRADE 1: HOT ROLLED DEFORMED HIGH YIELD STRESS STEEL BARS HAVING A MINIMUM YIELD STRESS OR A MINIMUM 0,25% PROOF STRESS OF 450 MPa.

   WELDED MESH REFERENCE
   ALL STEEL FABRIC SHALL BE IN ACCORDANCE WITH SANS 1024-2005 WITH THE LATEST AMENDMENTS HAVING A MINIMUM 0,2% PROOF STRESS OF 480 MPa.

   FOR EXAMPLE: R20 DENOTES A 20 mm DIAMETER PLAIN ROUND BAR OF MILD STEEL.
   Z12 DENOTES A 12 mm DIAMETER DEFORMED BAR OF MILD STEEL.
   Y25 DENOTES A 25 mm DIAMETER DEFORMED BAR OF HIGH TENSILE STEEL.
   REF. 655 DENOTES FABRIC REFERENCE 655 (MESH).

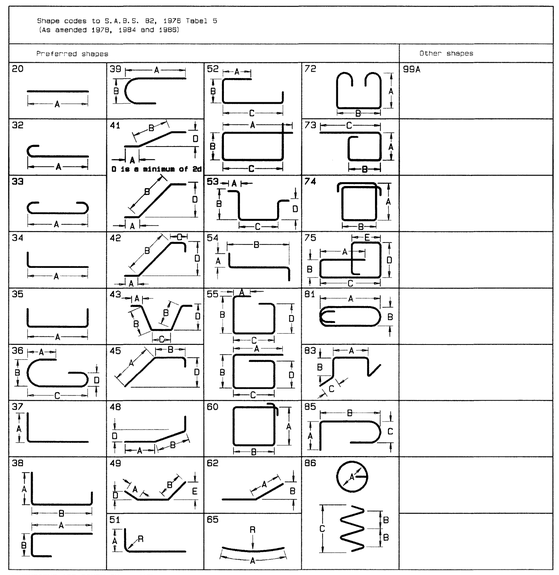
3. COVER TO REINFORCEMENT IN STRIP FOUNDATIONS ARE 30 mm UNLESS OTHERWISE INDICATED.
4. LAP LENGTH FOR MAIN STEEL = 40 x Ø BUT MINIMUM OF 500 mm.
5. SEE LISTED DRAWINGS FOR NOTES AND FLOOR LAYOUT.

EXCAVATION NOTES:

1. THE DEPTH OF STRIP FOUNDATION TRENCHES SHALL BE THE SUM OF TWO BRICK COURSES PLUS FOUNDATION THICKNESS BUT MINIMUM 450 mm.
2. THE EXCAVATION SHALL BE TRIMMED WITH EXACT VERTICALLY SIDES. THE HORIZONTAL FLOOR OF THE TRENCH SHALL BE SQUARE WITH THE SIDES OF THE TRENCH, OF EVEN SURFACE AND FREE FROM ANY LOOSE MATERIAL AND PROTRUDING ROCKS.
3. ON SLOPING BUILDING SITES THE TRENCHES SHALL BE STEPPED WITH 250 mm MINIMUM HIGH STEPS AND KEPT HORIZONTAL. THE HIGHER PART OF THE FOUNDATION SHALL OVERLAP THE LOWER PART FOR AT LEAST 500 mm.
4. ALL WATER SEEPAGE SHALL BE REMOVED BEFORE THE CASTING OF CONCRETE.
5. REMOVAL OF TOP SOIL BEFORE EXCAVATION SHALL BE ACCORDING TO THE PROJECT SPECIFICATIONS.

Shape codes to S.A.B.S. 82, 1978 Tabel 5
(As amended 1979, 1984 and 1985)

Preferred shapes



DIMENSIONS ARE GIVEN IN mm AND m.
DIMENSIONS OF BARS ARE OVERALL OUTSIDE DIMENSIONS.

UNDER CERTAIN CIRCUMSTANCES WHERE HIGH YIELD STRESSES MIGHT BE INDUCED, THE STANDARD RADIUS (i.e. 2d FOR MILD STEEL AND 3d FOR HIGH YIELD STEEL) MAY BE INCREASED TO 7,5d BUT THIS SHALL NOT APPLY TO END ANCHORAGES DENOTED BY h OR n. THIS CHANGE SHOULD BE INDICATED BY ADDING THE LETTER S AFTER THE SHAPE CODE NUMBER.

FOR WELDED MESH FABRIC, DIMENSIONS A & B DEFINE THE NET OVERALL AREA OF MESH. NO ALLOWANCE HAS BEEN MADE FOR LAPS.

DEPARTMENT OF WATER AFFAIRS AND FORESTRY
BAR BENDING SCHEDULE

SCHEME REGION, DAM OR GWS — SHEET –
STRUCTURE HOUSING — DRAWN –
PLAN REG NO. – — CHECKED –

Member Location	No. of	Type, Ø & mark	No. in each	TOTAL LENGTH OF S.F.	Cut length mm	Shape code	Bending Dimensions (mm) A	B	C	D	E/R	Mass kg
DEPENDING ON SOIL CONDITION APPLICATION THE STEEL SUPPLIER WILL CALCULATE THE STEEL QUANTITIES PER UNIT MAINLY IN SHAPE CODE 20 AND SHAPE CODE 60 FOR Y12 AND R8 STEEL REINFORCING BARS. REFER TO THE DETAILS ON THIS DRAWING											—	–
											—	–
											—	–

Member Location	No. of	Type, Ø & mark	No. in each	TOTAL NO.	Cut length mm	Shape code	Bending Dimensions (mm) A	B	C	D	E/R	Mass kg
–	–	–	–	–	–	–	–	–	—	—	—	–
–	–	–	–	–	–	–	–	–	—	—	—	–
–		–	–	–	–	–	–	–	—	—	—	–
							SUMMARY	TOTAL Y				–
								TOTAL R				–

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

APPLICATION C

NOTE ON POOR SOIL CONDITIONS:

IN POOR SOIL CONDITIONS WHERE EXCAVATION IS DONE IN E.G. FILLING MATERIAL OR CLAY CONDITIONS A FORMAL GEO-TECHNICAL INVESTIGATION SHALL BE DONE AFTER WHICH THE DESIGN OF A RAFT FOUNDATION WILL PROBABLY BE APPLICABLE

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

CHECKED: DATE: — DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
ENGINEER: N.J. VAN DEVENTER DATE:
EXTERNAL APPROVAL: DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / DES: DATE: 11/8/2016
DIRECTOR (Pr. Eng): 14/08/2016 DATE:

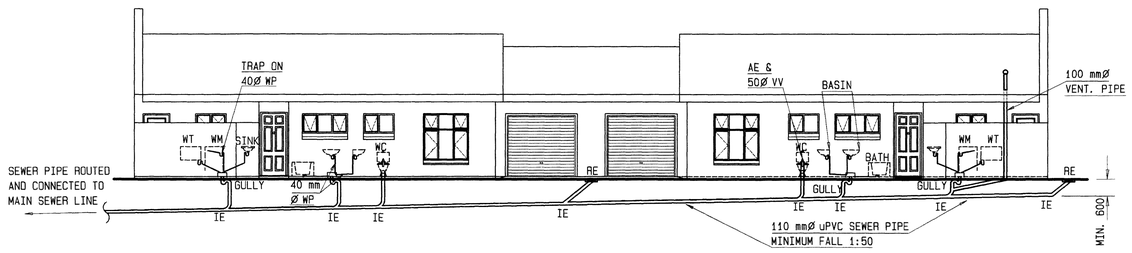
11/8/2016

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

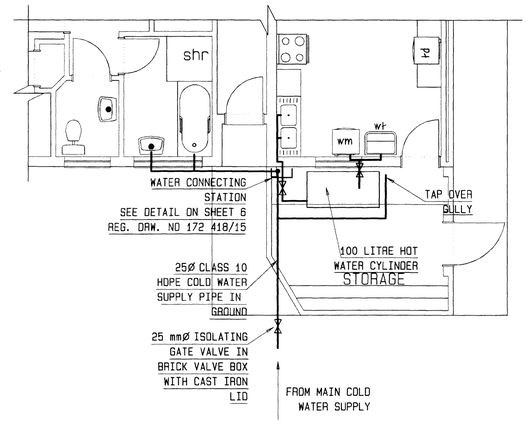
FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
PROPOSED PLAN AND ELEVATIONS
FOUNDATION PLAN AND DETAILS

PROVINCE: ALL	DISTRICT: ALL	KEYCODES: HOU PNG FLP ELE DAH	OTHER NUMBER S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET 4 OF 9	REG. No. 172 416/15 REV. 00
CALCULATION FILE: X			



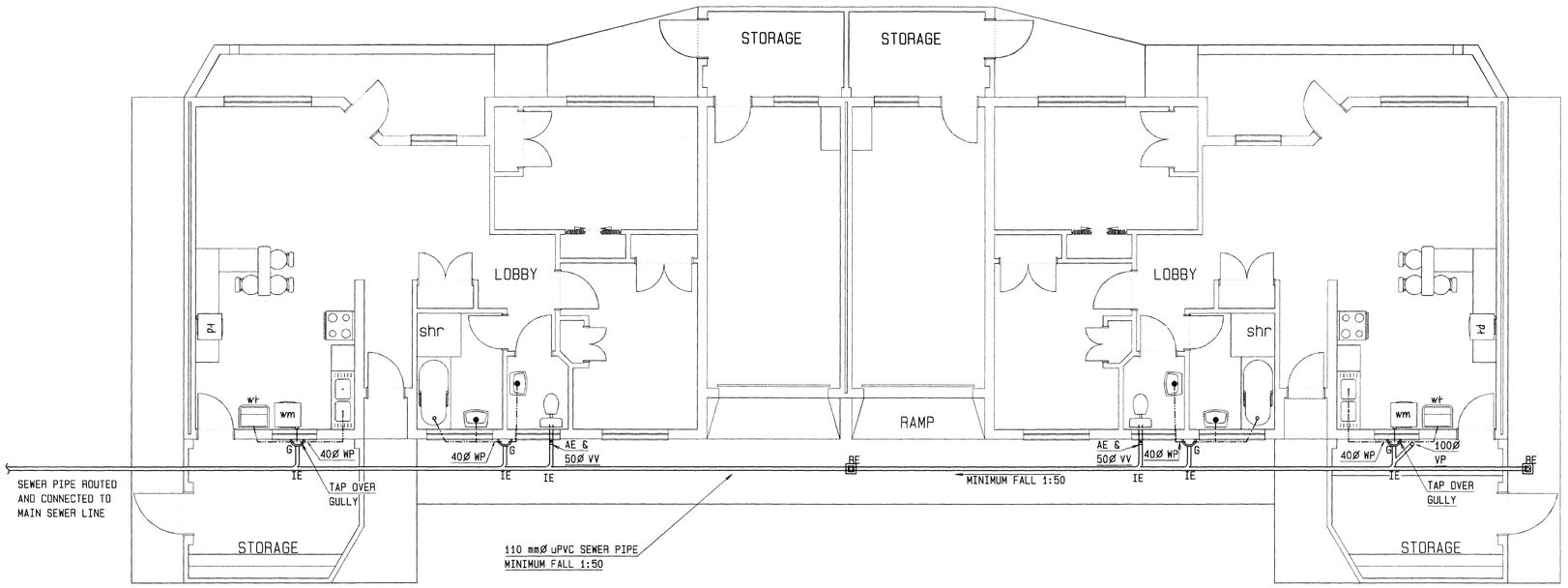
SEWER ELEVATION

SCALE 1:100



WATER RETICULATION LAYOUT

SCALE 1:100



SEWER PLAN LAYOUT

SCALE 1:50

SCALE 1:50 0 0,5 1 2 3 4 5 10 m

SCALE 1:100 0 1 2 3 4 5 10 20 m

NOTE:

DIRECTION FOR MAIN SEWER DEPENDS ON POSITION OF MAIN SEWER CONNECTION POINT.

NOTE:

WC	WATER CLOSET
B	BATH
WHB	WASH HAND BASIN
WM	WASHING MACHINE
WT	WASH TROUGH
SHR	SHOWER
SINK	STAINLESS STEEL SINK
WP	WASTE WATER PIPE
VV	VENT VALVE
VP	VENTILATION PIPE
CE	CLEANING EYE
AE	ACCESS EYE
IE	INSPECTION EYE
RE	RODDING EYE
G	GULLY

NOTE:

FOR GENERAL NOTES ON WATER RETICULATION INSIDE THE BUILDING SEE DRAWING ON WATER RETICULATION DETAILS

LEGEND:

CU	CLASS 0 COPPER PIPE WITH CAPILLARY SOLDERED JOINTS
CW	COLD WATER PIPE ———
HW	HOT WATER PIPE ———
	BALLOSTOP ISOLATING VALVE

GENERAL RULE:

1. THE COLD AND HOT WATER MAIN SUPPLY PIPES SHALL BE 22Ø CU AND THE LAST LENGTH TO EACH SANITARY FITTING SHALL BE 15Ø CU EXCEPT TO THE SHOWER AND BATH WHICH STAYS 22Ø
2. FIT A BALLOSTOP ISOLATING VALVE TO COLD WATER SUPPLY PIPES TO WC AND WM —⋈—

NOTES ON WATER RETICULATION:

1. POSITION OF PIPE ROUTES SHALL BE THE SHORTEST AND MOST PRACTICAL ROUTES EITHER MOUNTED IN THE ROOF CONSTRUCTION, SURFACE MOUNTED ON EXTERIOR WALLS OR CHASED IN INTERIOR WALLS.
2. ALL OTHER SPECIFICATIONS REGARDING ISOLATION VALVES, BALLOSTOPS, MINIMUM PIPE DIAMETERS, ETC. SHALL BE APPLICABLE.
3. THE GEYSER SHALL BE HORIZONTALLY MOUNTED DIRECTLY UNDER THE ROOF OVERHANG OF THE BUILDING.
4. SEE NOTE 3 UNDER 'IMPORTANT NOTES' ON THIS DRAWING.

SEWERAGE RETICULATION NOTES

1. ALL SANITARY FITTINGS SHALL BE PROVIDED WITH A WATER TRAP SEAL - TYPE ASSPECIFIED.
2. ALL WASTE PIPES SHALL BE FULLY ACCESSIBLE FOR CLEANING AND MAINTENANCE PURPOSES.
3. ALL SOIL PIPES ABOVE GROUND LEVEL SHALL BE PROVIDED WITH ACCESS EYES AND UNDERGROUND PIPES WITH RODDING EYES FOR CLEANING PURPOSES.
4. WASTE PIPES SHALL DISCHARGE BELOW GULLY GRID.
5. SOIL AND WASTE PIPE MATERIALS SHALL BE SPECIFIED AND DESCRIBED AS SHOWN ON THE DRAWINGS.
6. SOIL AND WASTE WATER PIPE LAYOUT SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. ANY DEVIATION SHALL BE APPROVED BEFOREHAND BY THE ENGINEER.
7. THE CONTRACTOR SHALL REQUEST THE ENGINEER TO CARRY OUT INSPECTIONS ON ALL COMPLETED WORK OR PARTIAL COMPLETED WORK BEFORE THE WORK IS CLOSED OFF BY BUILDING IN, PLASTERED IN, PANELLING IN OR BACK FILLED.
8. THE ENGINEER MAY ORDER THE OPENING-UP OF ANY CONCEALED WORK WHICH WAS NOT INSPECTED BY HIM, AT THE COST OF THE CONTRACTOR.
9. WASTE PIPES FOR WASH HAND BASINS AND SINKS SHALL BE 40 mm DIA. PVC.
10. WASTE PIPES FOR URINALS AND SHOWERS SHALL BE 50 mm DIA. PVC AND SHALL DISCHARGE INDEPENDANTLY IN THE SYSTEM AS SHOWN.

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 SCHOEMAN STREET
PRETORIA
(012) 336-7500

M. DIEDRICKS
DIRECTOR GENERAL

CHECKED: DATE:

ENGINEER: N.J. VAN DEVENTER DATE:

N.J. VAN DEVENTER
CHIEF ENGINEER / OCS DATE:

DESIGN: C.M. MOKONE

DRAWN: C.M. MOKONE

EXTERNAL APPROVAL: DATE:

DIRECTOR (Pr. Engr): 19/08/2016 DATE:

11/8/2016

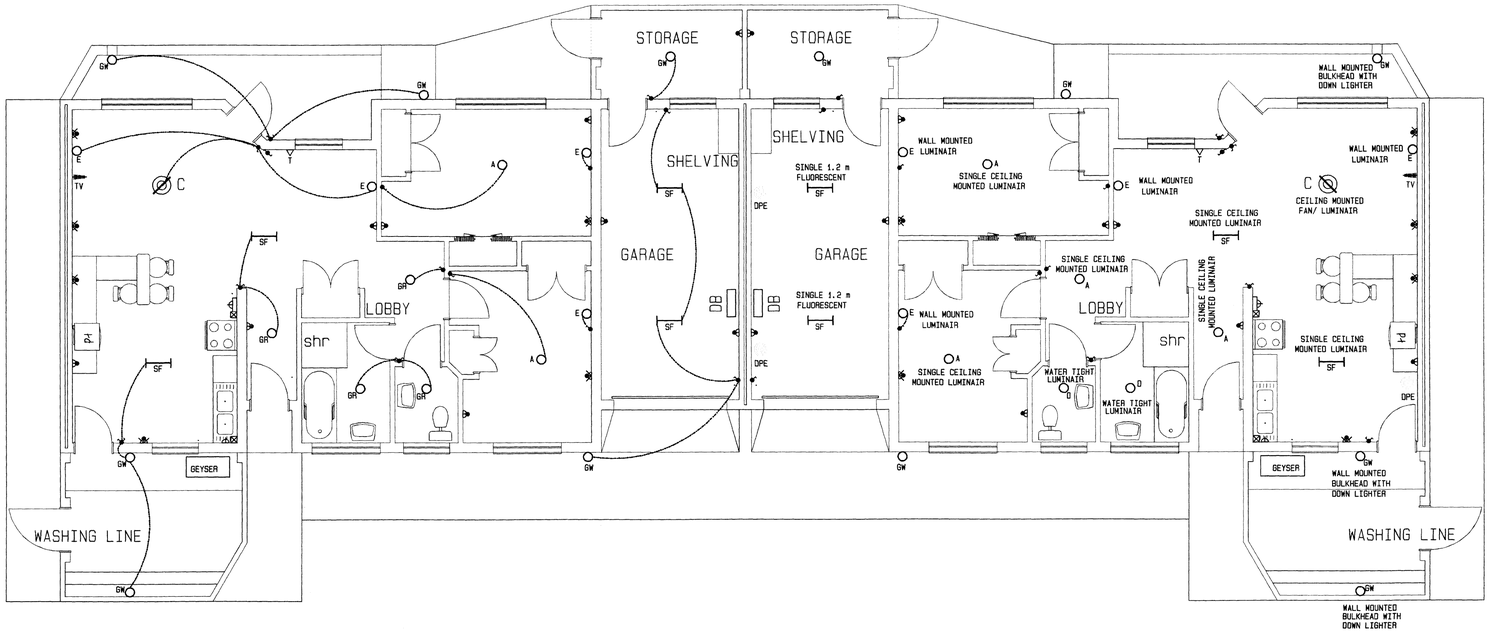
DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)

PROPOSED SEWER AND WATER RETICULATION

PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HOU	PNG	FLP	ELE	DAH	OTHER NUMBER	S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET	REG. No.						REV.
CALCULATION FILE: X		5 OF 9	172 417/15						00



FLOOR PLAN: ELECTRICAL LIGHT SWITCHES

SCALE 1: 100

FLOOR PLAN: POSITION OF SWITCHES, LIGHT FITTINGS AND DRY POWDER FIRE EXTINGUISHERS.

SCALE 1: 100

ELECTRICAL REFERENCE AND NOTES:

- — 16A SINGLE SOCKET OUTLETS ON WALLS. 1 060 mm ABOVE FFL IN KITCHENS AND GARAGE AND 460 mm ABOVE FFL ELSEWHERE.
- — 16A DOUBLE SOCKET OUTLETS ON WALLS. 1 060 mm ABOVE FFL IN KITCHENS AND GARAGE AND 460 mm ABOVE FFL ELSEWHERE.
- — STOVE AND GEYSER ISOLATOR
- — STOVE OUTLET - 1 500 mm HIGH
- — GEYSER CONNECTION IN ROOF
- A — SEE CLAUSE 12.20.1 OPEN BOTTOM CEILING FITTING WITH CONICAL SHAPED LAMP HOLDER
- B — SEE CLAUSE 12.20.2 OPEN TYPE ROD SUSPENSION FITTING
- C — SEE CLAUSE 12.20.2 OPEN TYPE ROD SUSPENSION FITTING
- C — SEE CLAUSE 12.20.3 OPEN TYPE ROD SUSPENSION FITTING
- D — SEE CLAUSE 12.20.3 BATHROOM WATER TIGHT FITTING
- S.F. — SPECIAL 1,2 m FLUORESCENT WITH 2x36w TUBES, CLIP ON POLYCARBONATE DIFFUSER, GLASS REINFORCED POLYESTER BODY AND SHALL BE DUST AND MOISTURE PROOF.
- F2 — 1,2 m FLUSH MOUNTED FLUORESCENT LOUVERED LUMINAIRE 2x36w TUBES WITH LOW BRIGHTNESS REFLECTOR.
- GR — 220 mm Ø x 120 mm ROUND BULKHEAD WITH DIECAST ALLUMINIUM BODY, TWO x 9w PL LAMPS AND POLYCARBONATE DIFFUSER. COMPLETE WEATHER AND INSECT PROOF.
- GW — 336 x 290 x 200 mm WALL MOUNTED LUMINAIRE (1 x 125 MV LAMP) WITH EYELID FOR DOWNWARD AND SIDE WAYS ILLUMINATION, ALLUMINIUM DIECAST BODY AND POLYCARBONATE DIFFUSER. COMPLETE WEATHER AND INSECT PROOF.
- — METER BOARD
- DB — DISTRIBUTION BOARD
- — LUMINAIRE SWITCH
- T — DENOTES CONNECTION FOR TELEPHONE. PROVIDE VERTICAL CONDUIT IN WALL ROUTED TO ABOVE CEILING LEVEL AND THEN TO ROOF OVERHANG AND END WITH A CONNECTING BOX.
- TV — OUTLET FOR TV ARIAL. CONDUIT CHASED INTO WALL ROUTED VERTICAL TO ABOVE CEILING LEVEL AND THEN SHORTEST ROUTE TO CONNECTING BOX.

DISTRIBUTION BOARD

THE DISTRIBUTION BOARD SHALL BE POSITIONED IN THE MAIN ENTRANCE FOYER IN AN ENCLOSED CUPBOARD AS SHOWN ON THE DRAWINGS.
CIRCUIT ISOLATORS, AMPERES, EARTH LEAKAGE, ETC. SHALL BE ACCORDING TO THE SPECIFICATIONS OF THE ERLECTRICAL ENGINEER'S DESIGN.

EXTERIOR CABLE ENTRANCE CHAMBER TO DISTRIBUTION BOARD:

THE MAIN ELECTRICAL SUPPLY CABLE SHALL ENTER THE BUILDING FROM OUTSIDE THE ENTRANCE DOOR TO THE DISTRIBUTION BOARD THROUGH A 50 mm Ø GALVANIZED MILD STEEL SLEEVE BELOW GROUND LEVEL ROUTED UNDER THE CONCRETE FLOOR BEDDING AND WITH A SLOW BEND CHASED VERTICAL UP THE WALL TO THE DISTRIBUTION BOARD. CABLE SIZE AND TYPE ETC. SHALL BE ACCORDING TO THE ELECTRICAL ENGINEER'S SPECIFICATION.

NOTES:

1. NUMBER OF WIRING CIRCUITS, SPECIFICATIONS, POSITION OF CONDUITS AND COMPLETE RETICULATION LAYOUT SHALL BE ACCORDING TO THE ELECTRICAL ENGINEER'S DESIGN.
2. ALL WORK SHALL COMPLY WITH THE "ELECTRICAL BOARD OF CONTROL" AND A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED WITHIN SEVEN DAYS AFTER THE FINAL SUCCESSFUL COMMISSIONING OF THE ELECTRICAL INSTALLATION.
3. THE INSTALLATION OF MORE THAN ONE LUMINAIRE'S ON-OFF-SWITCH IN THE SAME POSITION SHALL BE INSTALLED AS A COMBINATION MULTI-SWITCH UNIT.

FIRE FIGHTING NOTES:

DRY POWDER FIRE EXTINGGUISHERS:

DPE - DRY POWDER EXTINGUISHER STP 1,5 kg FOR TYPE A, B & C FIRES WITH MONO AMMONIUM PHOSPHATE BASE GRADE 2A/2B HANGED WITH AN APPROPRIATE STEEL BRACKET ON A 100 mm x 20 mm x 600 mm TIMBER BACKING FIXED TO THE WALL WITH TOP 1 500 mm ABOVE FFL.

FIRE HOSE REELS WHERE APPLICABLE:

FHR - 600 mm Ø NOMINAL DISC RED ZINC PAINTED AND EPOXY STOVED INTERIOR AND STAINLESS STEEL EXTERIOR FIRE HOSE REEL COMPLETE WITH 30 m SANS 1086 PVC PRESSURE HOSE AND NOZZLE.

1. WATER SUPPLY FOR FIRE HOSE REELS ACCORDING TO THE RELEVANT DRAWINGS.
2. EXTERIOR FIRE HOSE REELS SHALL BE FIXED UNDERNEATH THE BUILDING'S ROOF OVERHANG WITH TOP OF REEL 1 800 mm ABOVE PAVING LEVEL.

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

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M. DIEDRICKS
DIRECTOR GENERAL

CHECKED: DATE:
ENGINEER: N.J. VAN DEVENTER DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / DES DATE: 11/5/2016

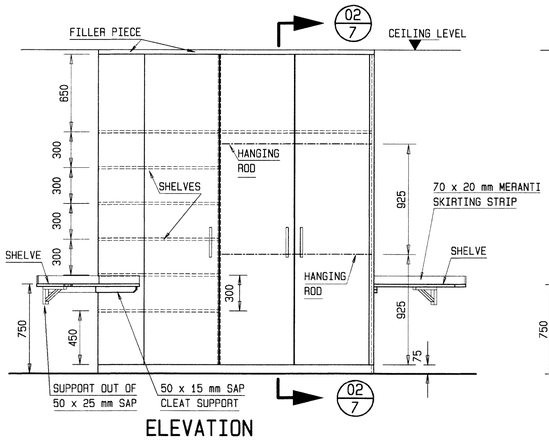
DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
EXTERNAL APPROVAL: DATE:
DIRECTOR (Pr. Eng): 19/08/2016 DATE:

DEPARTMENTAL HOUSING POLICY

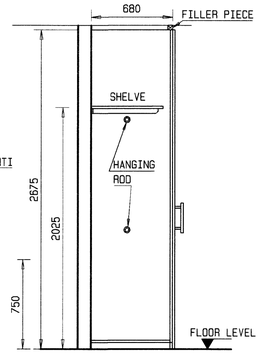
DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
ELECTRICAL LAYOUT

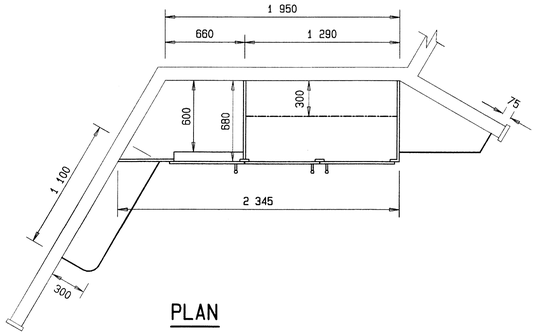
PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HDU	PNG	FLP	ELE	DAH	OTHER NUMBER S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET 6 OF 10	REG. No. 172 418/15					REV. 00
CALCULATION FILE: X								



ELEVATION



SECTION 02-02



PLAN

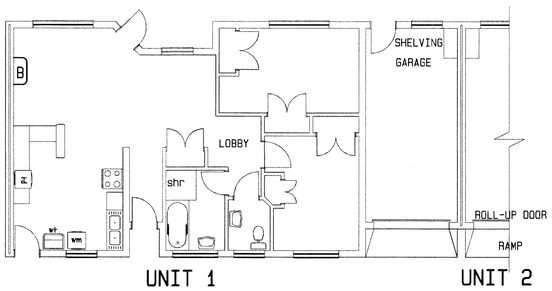
NOTES ON BUILT-IN CUPBOARDS:

1. CARCASSES SHALL BE WHITE MELAMINE, DOWELLED AND GLUED FIXED COMPONENTS.
2. DOORS SHALL BE SOLID SALIGNA OR OKOUME WITH SHEEN VARNISH FINISH.
3. EXPOSED SIDES SHALL BE SOLID TIMBER SHEEN VARNISH FINISHED.
4. BACKS SHALL BE WHITE MASONITE GROOVED IN.
5. HINGES - CONCEALED METAL HINGES.
6. HANDLES - 128 mm BARREL HANDLES.
7. WORKTOPS - RUSTENBURG GRANITE 30 mm.
8. LOCKS WHERE APPLICABLE - CHROME CAMLOCKS.
9. PLYNTHS - TIMBER 6 PLY.
9. RUNNERS - METAL ROLLER RUNNERS.

DETAIL D, C & E: BEDROOM CUPBOARDS & SHELVES

SCALE 1:25

FOR COMPLETE BUILDING LAYOUT SEE SHEET 2

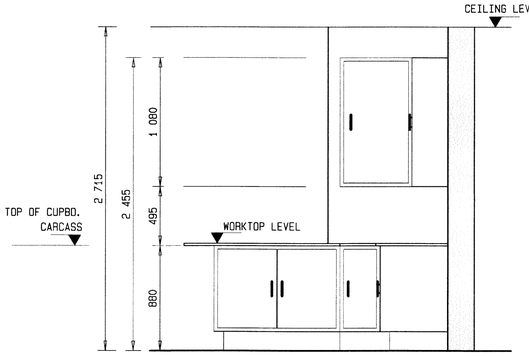


PLAN LAYOUT

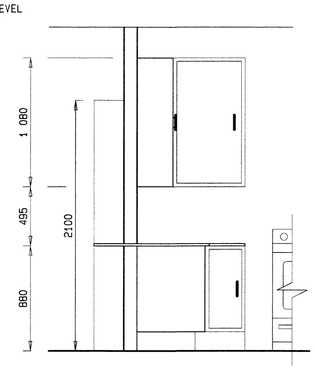
SCALE 1:100

SCALE 1:50 0 0,5 1 2 3 4 5 10 m

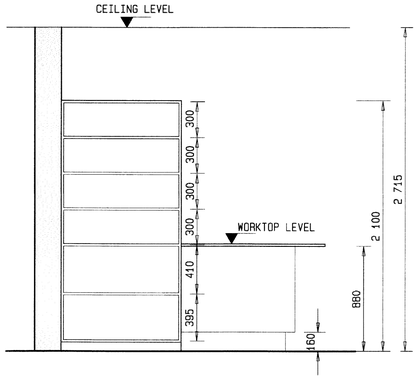
SCALE 1:100 0 1 2 3 4 5 10 20 m



ELEVATION



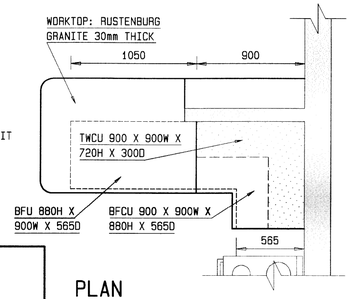
ELEVATION



ELEVATION

LEGEND:

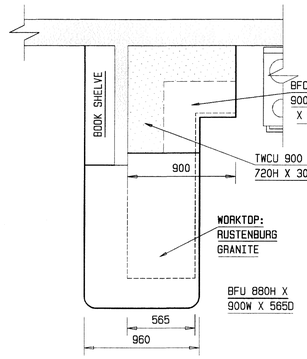
BFU - BOTTOM FLOOR UNIT
BFCU - BOTTOM FLOOR CORNER UNIT
TWCU - TOP WALL CORNER UNIT



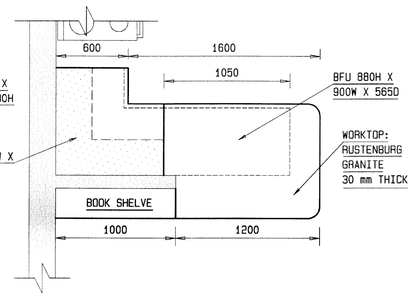
PLAN

NOTE:

DIMENSION 880H DENOTES HEIGHT FROM FLOOR LEVEL TO TOP OF CUPBOARD CARCASS HEIGHT. WORKTOP THICKNESS MUST BE ADDED.



PLAN



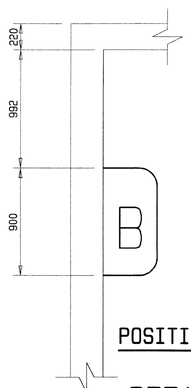
PLAN

DETAIL A: KITCHEN CUPBOARDS

SCALE 1:25

NOTES ON FIXED AGAINST WALL SHELVING:

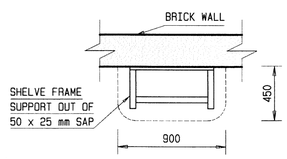
1. SHELVING WORKTOP SHALL BE EITHER LAMINATED SA PINE, SOLID SALIGNA OR OKOUME TIMBER.
2. SUPPORTING FRAME SHALL BE MANUFACTURED OUT OF 25 x 50 mm SA PINE TIMBER GLUED AND SCREWED.
3. SUPPORTING CLEATS AGAINST WALLS OR CUPBOARD SIDES SHALL BE 50 x 15 mm SA PINE.
4. ALL TIMBER SHALL BE MATT FINISHED WITH SCRATCH AND WATER RESISTANT POLY-URETHANE.



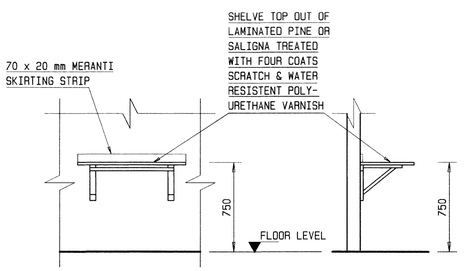
POSITION

NOTE:

DETAIL B IS TYPICAL FOR SHELVING F AND G BUT SIZING AND SUPPORT TO SUIT.



PLAN



FRONT ELEVATION

SIDE ELEVATION

DETAIL B: TV SHELVE LOUNGE

SCALE 1:25

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

SECTION
SECTION NUMBER
SHEET NUMBER

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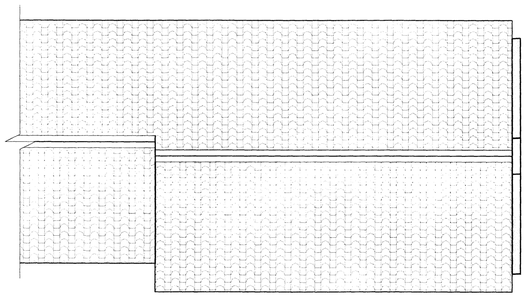
DIRECTOR (Pr. Eng): 19/08/2016 DATE:

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
PROPOSED PLAN AND ELEVATIONS
BUILDING DETAILS

PROVINCE: ALL	DISTRICT: ALL	KEYCODES: HOU PNG FLP ELE DAH	OTHER NUMBER: S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET: 7 OF 10	REG. No.: 172 419/15
CALCULATION FILE: X			REV.: 00



ROOF COVERING PLAN

SCALE 1:100

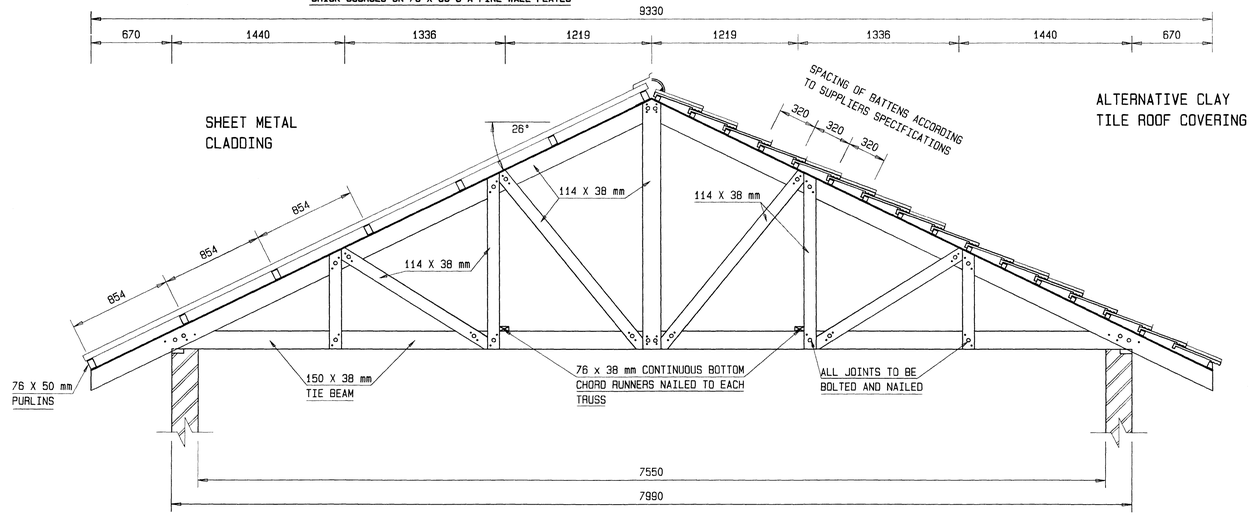
SHEET METAL COVERED ROOFING:

FACTORY PAINTED KINGKLIP 700 OR SIMILAR 0,5 mm THICKNESS METAL ROOF SHEETS FASTENED ACCORDING TO THE SUPPLIER'S INSTRUCTIONS ON 75 x 50 mm SAP PURLINS AT 1 150 mm MAX. CENTRES ON SISALATION 405 RSA SUPPORTED BY 2 mm Ø GALV. STRAINING WIRES @ 300 mm CENTRES ON TRUSSES. TRUSSES MANUFACTURED FROM GRADE 6 S A PINE AT 1 050 mm CENTRES FASTENED WITH 4 mm Ø GALV. WIRE TIES BUILT INTO TOP THREE BRICK COURSES ON 75 X 38 S A PINE WALL PLATES

OR

CONCRETE TILE COVERED ROOFING:

FACTORY COLOURED CEMENT TILES ON 38 x 38 mm BATTENS AT CENTRES ACCORDING TO SUPPLIER'S SPECIFICATIONS ON SISALATION 405 RSA SUPPORTED BY 2 mm Ø GALV. STRAINI WIRES @ 300 mm CENTRES NAILED ON SAP ROOF TRUSSES. TRUSSES MANUFACTURED FROM GRADE 6 S A PINE AT 760 mm CENTRES FASTENED WITH 4 mm Ø GALV. WIRE TIES BUILT IN TOP THREE BRICK COURSES ON 75 X 38 S A PINE WALL PLATES



ROOF TRUSS ELEVATION

SCALE 1:25

NOTE:

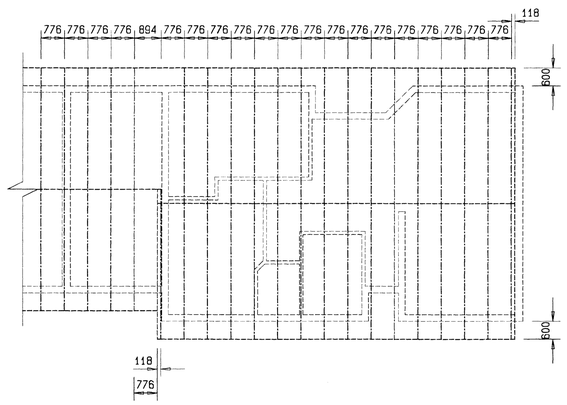
TIMBER ROOF STRUCTURE SHALL BE BRACED AND STIFFENED TO THE ENGINEER'S SATISFACTION AND APPROVAL.
WHEN USING PRE-FABRICATED TRUSSES, SHOP DRAWINGS SHALL BE SUBMITTED BY THE SUPPLIER AND THE ROOF STRUCTURE SHALL BE CERTIFIED BY A REGISTERED ENGINEER AS A SAFE STRUCTURE.

NOTE:

FOR ALL OTHER ROOFING DETAILS, GUTTERS, FASCIAS, SPECIFIC TYPE OF ROOF COVERING, COLOUR, ETC. SEE BUILDING SECTION AND CONTRACT SPECIFICATIONS.

NOTE:

ALL JOINTS SHALL BE BOLTED AND NAILED.
BOLTS SHALL BE HOT DIPPED GALVANIZED M10 OF APPROPRIATE LENGTH LEAVING 20 MINIMUM mm FOR A FLAT WASHER AND NUT.
NAILS SHALL BE WIRE CUT OF APPROPRIATE LENGTH LEAVING MINIMUM 25 mm FOR BENDING ON EXIT SIDE.

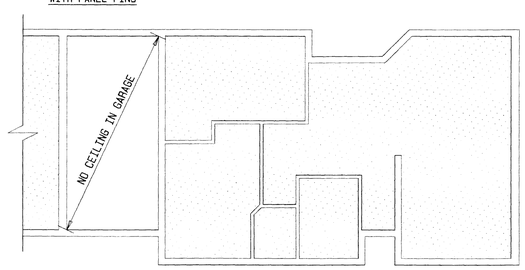


ROOF PLAN TRUSS POSITIONS

SCALE 1:100

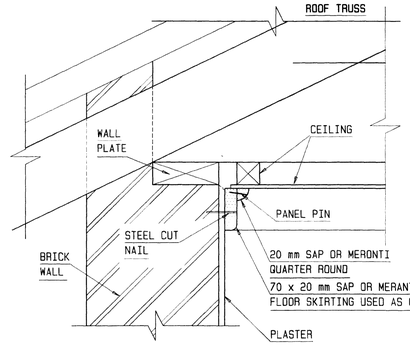
CEILING:

GYPSUM OR FIBRE CEMENT BOARD CEILING WITH METAL CONNECTING STRIPS ON 38 x 38 mm SAP BRANDERING. 70 x 19 mm SAP SKIRTING AND 20 mm QUADRANT TO BE USED AS CORNICES. SKIRTING TO BE NAILED TO PLASTERED WALL WITH STEEL CUT NAILS AND QUADRANT TO SKIRTING WITH PANEL PINS



CEILING PLAN LAYOUT

SCALE 1:100



DETAIL I: CEILING CORNICE

SCALE 1:5

NOTE:

CEILING CORNICE PAINT SPECIFICATION:
SA PINE & MERANTI - PREPARE & SAND AND APPLY 3 COATS MATT POLY-URETHANE VARNISH.

ALTERNATIVELY FOR SA PINE - PRIME WITH PINK WOOD PRIMER AND APPLY 2 TOP COATS EGGSHELL OR GLOSS ENAMEL PAINT COLOUR TO MATCH CEILING.

SCALE 1:5 — 0 0,05 0,1 0,2 0,3 0,4 0,5 1 m

SCALE 1:25 — 0 0,5 1 1,5 2 2,5 5 m

SCALE 1:100 — 0 1 2 3 4 5 10 20 m

SECTION: SECTION NUMBER / SHEET NUMBER

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

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HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001
SEDIBENG BUILDING
185 FRANCIS BAARD STREET
PRETORIA
(012) 336-7500
M. DIEDRICKS
DIRECTOR GENERAL

CHECKED:	DATE:	DESIGN: C.M. MOKONE
ENGINEER: N.J. VAN DEVENTER	DATE:	DRAWN: C.M. MOKONE
N.J. VAN DEVENTER CHIEF ENGINEER / DE	DATE: 11/8/2016	EXT. APPROVAL / DESIGN CHECKED: DIRECTOR (Pr. Engr.)

DEPARTMENTAL HOUSING POLICY

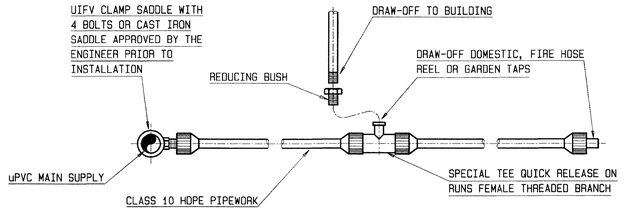
DWS REGION, DAM OR GWS

TYPE DRAWING

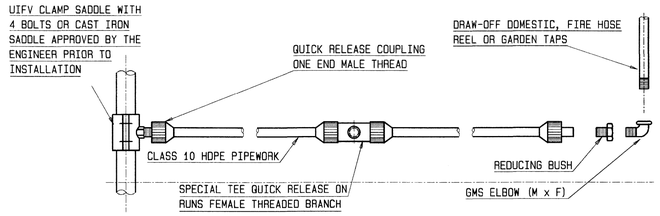
FLAT: TWO BED WITH GARAGE (TYPE F-2P+G)

ROOF & CEILING PLAN

PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HOU	PNG	FLP	ELE	OAH	OTHER NUMBER S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET 8 OF 10	REG. No. 172 420/15					REV. 00
CALCULATION FILE: X								



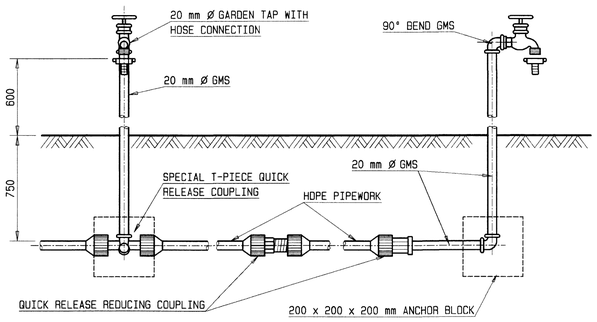
ELEVATION



PLAN

TYPICAL CONNECTION ON MAIN SUPPLY TO BUILDINGS, FHR AND GARDEN TAPS

NTS



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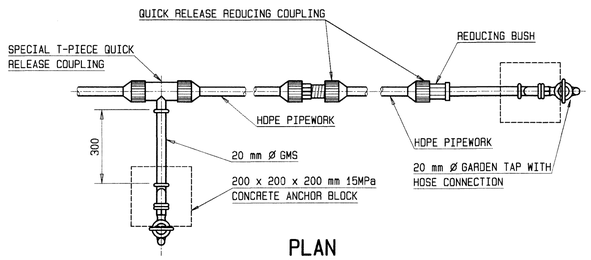
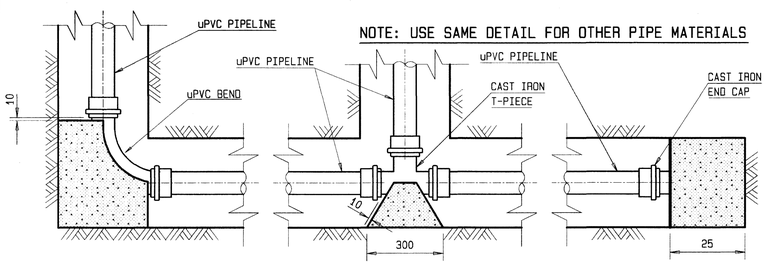


PLAN

GARDEN TAP INSTALLATION

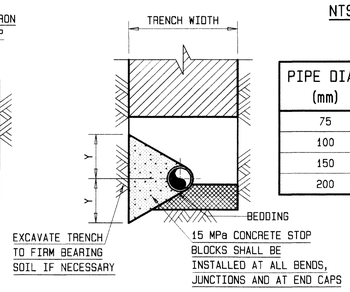
NTS



BEND T-JUNCTION STOP END

PLAN: DETAIL OF STOP BLOCKS

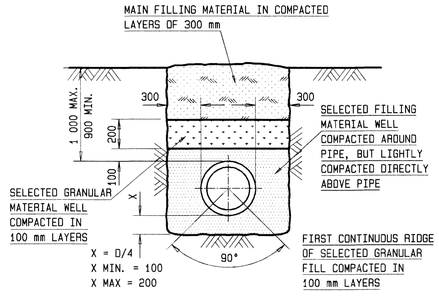
NTS



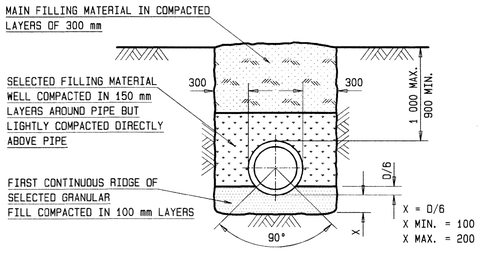
PIPE DIA. (mm)	Y MIN. (mm)
75	150
100	175
150	200
200	225

STOP BLOCK TYPICAL SECTION

NTS



CLASS B BEDDING FLEXIBLE PIPES



CLASS C BEDDING NON-FLEXIBLE PIPES

DETAIL OF BEDDINGS

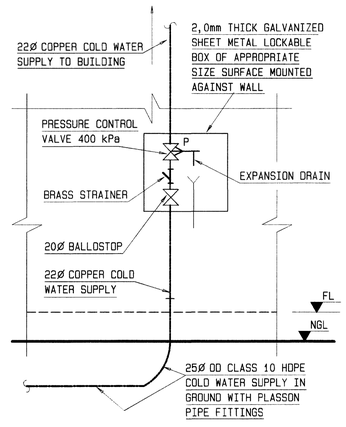
NTS

NOTE:

1. WHERE THE IN-SITU MATERIAL AT THE BOTTOM OF THE TRENCH IS LOOSE, COMPACT TO 90% AASHTO MINIMUM.
2. TRENCH WIDTH IS AS FOLLOWS:
   600 mm MINIMUM
   700 mm MAXIMUM
   OR
   D + 500 NOT EXCEEDING ABOVE
   (D = OUTSIDE DIA. OF PIPE).

HDPE COMPRESSION FITTINGS

1. ALL HDPE FITTINGS SHALL BE COMPRESSION FITTINGS. NO GLUED OR ELECTROFUSION WELDED JOINTS SHALL BE USED.
2. COMPRESSION FITTINGS SPECIALS TO GALVANISED MILD STEEL PIPES SHALL BE THREADED FOR STANDARD M.S. PIPEWORK.



DETAIL OF COLD WATER SUPPLY POINT CONNECTION AT BUILDING

NTS

BUILDING SERVICES: WATER RETICULATION NOTES

1. GENERAL:
   1.1 ALL WORK SHALL COMPLY TO SABS 1 200 L FOR MEDIUM PRESSURE PIPELINES.
   1.2 THE CONTRACTOR SHALL GUARANTEE THAT ALL INSTALLED PIPES ARE INTERNALLY CLEAN.
   1.3 PIPE JOINTS SHALL NOT BE BUILT IN. WHERE IMPOSSIBLE AND APPROVED BY THE ENGINEER, THE PIPES SHALL BE TESTED PRIOR TO BUILDING IN OF JOINTS.
   1.4 SUPPLY AND FIT BALLOSTOPS AT EACH FLUSH VALVE, CISTERN AND AT EACH TAP, HOT OR COLD WATER AT ALL SANITORY APPLIANCES.
   1.5 FINAL SIZES OF PIPE CONNECTION AT SANITARYWARE SHALL NOT BE LESS THAN:

FLUSHMASTER STANDARD	32 mm DIA.
FLUSHMASTER JUNIOR	20 mm DIA.
LAVATORY BASIN, SINK, WASH TROUGH ETC.	15 mm DIA.
BATHS ANB SHOWERS.	20 mm DIA.

   1.6 PIPES SHALL BE FIXED WITH APPROVED HOLDERBATS OR CLAMPS AS PRESCRIBED BY THE MANUFACTURER.

2. GALVANISED PIPES:
   2.1 MATERIAL SHALL BE HEAVY GRADE HOT DIPPED GALVANISED TO SABS 763-1977 (HEAVY GRADE) MILD STEEL PIPES TO SABS 62.
   2.2 PIPES SHALL BE WITH SCREWED JOINTS SEALED WITH HEMP FIBRE AND STAG (RED LEAD) SEALANT.
   2.3 ALL PIPE FITTINGS SHALL BE MANUFACTURED FROM HOT DIPPED GALVANISED TO SABS 763-1977 (HEAVY GRADE) MALLEABLE IRON TO SABS 509-1975.
   2.4 ONLY GALVANISED MILD STEEL PIPES SHALL BE USED FOR FIRE WATER RETICULATION TO FIRE HYDRANTS, FIRE HOSE REELS AND FOR CONNECTIONS TO BOOSTER PUMPS AND STORAGE TANK UNLESS OTHERWISE SPECIFIED. WHERE COPPER PIPING IS THUS SPECIFIED, CONEX PIPE FITTINGS SHALL BE USED SUPPLYING WATER TO FIRE FIGHTING FITTINGS AND EQUIPMENT.
   2.5 MAXIMUM ALLOWABLE DISTANCE BETWEEN PIPE SUPPORTS (CLAMPS HOLDER BATS OR HANGERS) FOR GMS PIPES, SHALL BE:

NOM. DIA. (mm)	MIN. DIA. OF HANGER BOLT (mm)	DISTANCE BETWEEN SUPPORTS (mm)
UP TO 32	10	2 000
40 TO 65	10	2 500
80 TO 100	12	3 000
125 TO 150	16	2 500

   PIPE SUPPORTS AND HANGERS SHALL PROVIDE FOR EXPANSION AND CONTRACTION OF PIPES AND SHALL BE MANUFACTURED OF BRASS OR NYLON. METAL ANCHORS SHALL BE PROVIDED WITH A RUBBER SEAL BETWEEN THE COPPER PIPE AND METAL. PIPES CROSSING ROOF TRUSSES SHALL BE ANCHORED ON EACH TRUSS.

3. COPPER PIPES:
   3.1 MATERIAL FOR DOMESTIC & FIRE FIGHTING WATER RETICULATION SHALL COMPLY TO SABS 460 HARD SOLID DRAWN TUBES CLASS 0 FOR DIAMETRES 15 & 22 AND CLASS 1 FOR LARGER THAN 22Ø WITH CONEX (DEZINCIFICATION RESISTENT COMPRESSION FITTINGS) CAPILLARY SOLDERED JOINTS AND FITTINGS MAY BE USED ON THE LAST 3,0 m LENGTH TO A SANITARY FITTING.
   3.3 MAXIMUM ALLOWABLE DISTANCE BETWEEN PIPE SUPPORTS (CLAMPS, HOLDER BATS OR HANGERS) FOR COPPER PIPES, SHALL BE:

NOM. DIA. (mm)	MIN. DIA. OF HANGER BOLT (mm)	DISTANCE BETWEEN SUPPORTS (mm)
15	10	1 200
22 TO 28	10	1 800
35 TO 54	10	2 000
67 TO 108	12	2 500

NOTES (GEYSER)

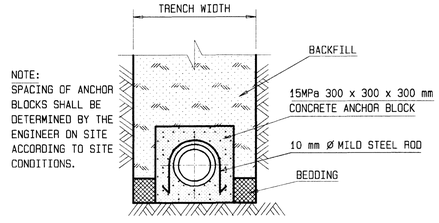
INSTALL GEYSER WITH:
a). VACUUM BREAKER ON COLD AND HOT WATER PIPES.
b). SAFETY VALVE WITH DRAIN PIPE TO EXTERIOR WALL.
c). UNIONS AND ISOLATING GLOBE VALVES ON COLD AND HOT WATER PIPES FOR FUTURE REMOVAL OF GEYSER.
GEYSER TYPE: HIGH PRESSURE HORIZONTALLY MOUNTED AS SHOWN ON DRAWING.

NOTE WATER CONNECTION:

MAIN COLD WATER SUPPLY CONNECTING:
CONNECT TO THE COLD WATER SUPPLY POINT WITH THE NECESSARY PIPE FITTINGS WITH CLASS 10 HDPE 25 mmØ (OD) PIPE AND 20 mmØ BRASS GATE VALVE IN A BRICKED UP VALVE BOX WITH CAST IRON FRAME AND LID AS SPECIFIED.

IMPORTANT NOTES

1. COLD AND HOT WATER SUPPLY TO INDIVIDUAL SANITARY FITTINGS SHALL BE 15 mm DIA. COPPER CLASS 1.
2. COLD AND HOT WATER SUPPLY TO MORE THAN TWO SANITARY FITTINGS IN SERIES SHALL BE 22 mm DIA. COPPER CLASS 1.
3. ALL EXPOSED HOT AND COLD WATER PIPES SHALL BE PROTECTED WITH PIPE ISOLATION TO PREVENT HEAT LOSS EXCLUDING WATER PIPES CHASED IN BRICK WALLS.
4. COLD WATER SUPPLY TO FLUSHMASTERS AND HOT WATER CYLINDERS SHALL BE 22 mm DIA COPPER CLASS 1.
5. MAIN COLD AND HOT WATER SUPPLY PIPES SHALL BE COPPER CLASS 1 WITH CONEX COMPRESSION FITTINGS AS SPECIFIED ALLOWING CAPILLARY SOLDERED JOINTS TO BE USED ON THE LAST 2,0 m LENGTH OF PIPE TO SANITARY FITTINGS.



CONCRETE ANCHOR BLOCK

NTS

LIST OF DRAWINGS

SHEET	DESCRIPTION	OTHER No.	REG. No.
1/10	LIST OF DRAWINGS & GENERAL NOTES		X
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X

SECTION
07
3
SECTION NUMBER
SHEET NUMBER

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA
HEAD OFFICE
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PRETORIA 0001
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M. DIEDRICKS
DIRECTOR GENERAL

CHECKED:	DATE:	DESIGN: C.M. MOKONE	
ENGINEER: N.J. VAN DEVENTER	DATE:	DRAWN: C.M. MOKONE	
N.J. VAN DEVENTER CHIEF ENGINEER / CE:	DATE:	EXT. APPROVAL / DESIGN CHECKED: DIRECTOR (Pr. Eng.):	DATE: 19/08/2016

11/8/2016

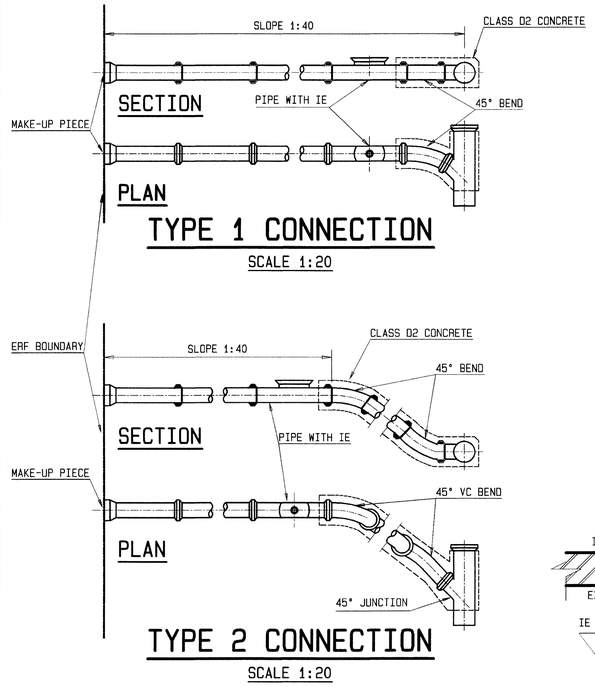
DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

TYPE DRAWING

WATER RETICULATION DETAILS & NOTES

PROVINCE: ALL	DISTRICT: ALL	KEYCODES:	HOU	PNG	FLP	ELE	DAH	OTHER NUMBER: S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET	REG. No.					REV.
CALCULATION FILE: X		9 OF 10	172 421/15					00

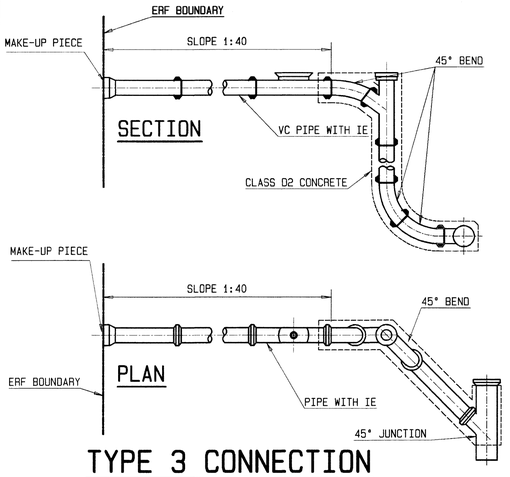


TYPE 1 CONNECTION

SCALE 1:20

TYPE 2 CONNECTION

SCALE 1:20



TYPE 3 CONNECTION

SCALE 1:20

DETAIL OF CONNECTIONS

NOTES:

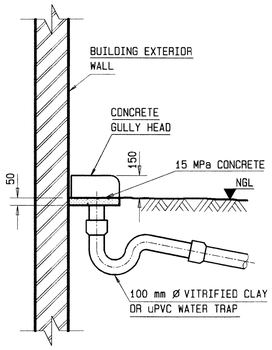
INSTALLATION AND CONNECTION:

TYPE 1 WHEN MAIN SEWER IS OF SAME HEIGTH AT CONNECTION POINT.
TYPE 2 WHEN DIFFERENCE OF HEIGTH BETWEEN MAIN SEWER AND CONNECTION POINT IS ONE METRE OR LESS.
TYPE 3 WHEN DIFFERENCE OF HEIGTH BETWEEN MAIN SEWER AND CONNECTION POINT IS MORE THAN ONE METRE.

SCALE 1:5 0 0,05 0,1 0,2 0,3 0,4 0,5 1 m

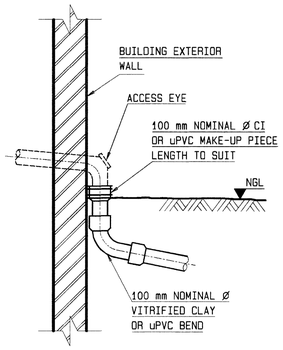
SCALE 1:50 0 0,5 1 2 3 4 5 10 m

SCALE 1:100 0 1 2 3 4 5 10 20 m



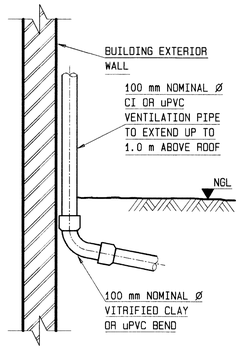
GULLY

SCALE 1:20



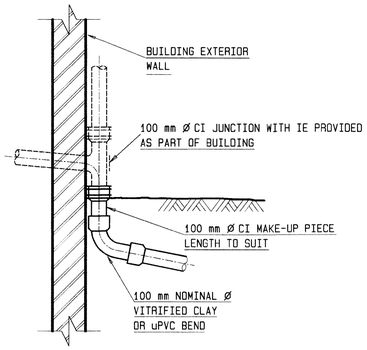
WC PAN

SCALE 1:20



VENT PIPE (TYPE 1)

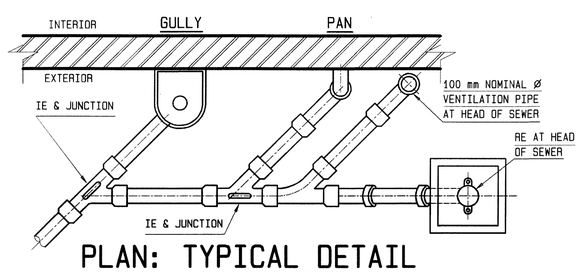
SCALE 1:20



VENT PIPE (TYPE 2)

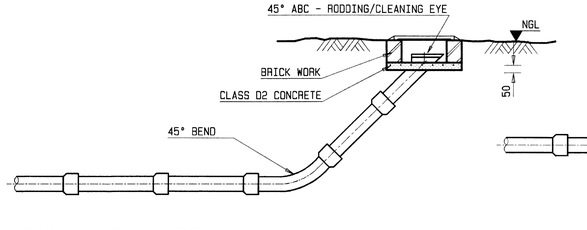
SCALE 1:20

SECTIONAL ELEVATIONS AT EXTERIOR WALL OF BUILDING



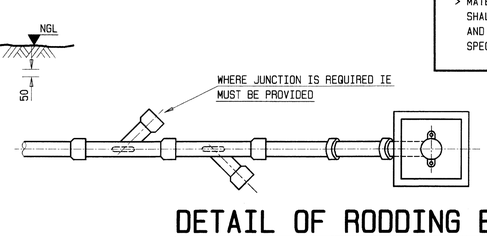
PLAN: TYPICAL DETAIL AT BUILDING

SCALE 1:20



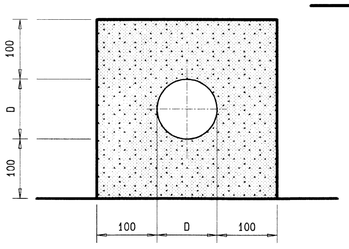
SECTION: RE DETAIL AT HEAD OF SEWER

SCALE 1:20



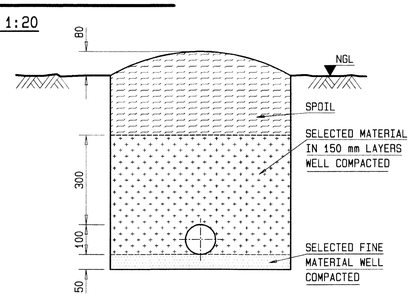
DETAIL OF RODDING EYE

SCALE 1:20



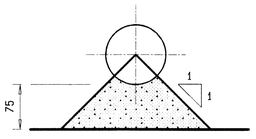
CONCRETE ENCASING OF PIPE

SCALE 1:5



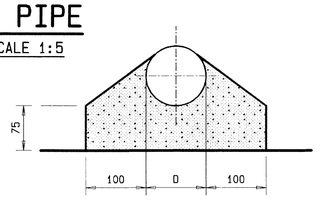
SECTION THROUGH TRENCH SHOWING BACKFILL

SCALE 1:10



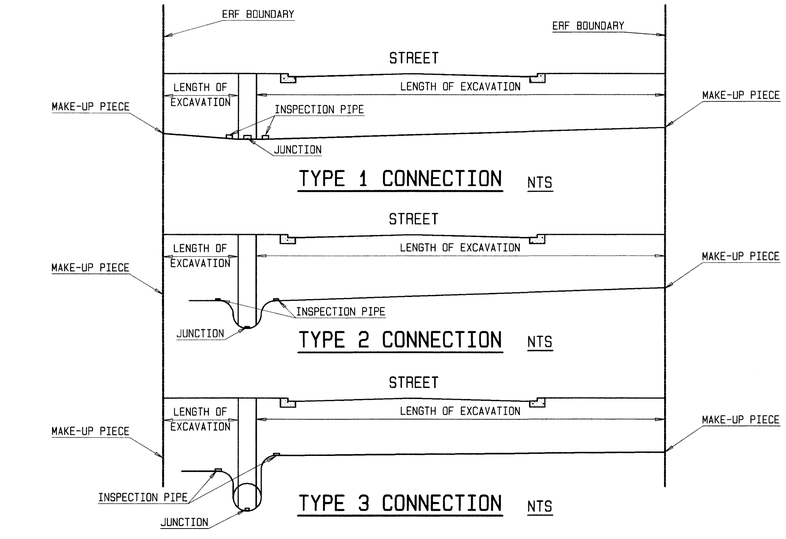
CONCRETE BEDDING UNDER PIPE TYPE 1

SCALE 1:5



CONCRETE BEDDING UNDER PIPE TYPE 2

SCALE 1:5



LINE DIAGRAMS OF CONNECTIONS

NOTES:

1. ALL CONCRETE FOR BEDDING AND ENCASING SHALL BE CLASS 02 CONCRETE.
2. ALL HOUSE CONNECTIONS FOR RESIDENTIAL ERVEN SHALL BE 100 mm Ø.
3. ALL CONNECTIONS FOR FLATS AND INDUSTRIAL ERVEN SHALL BE 150 mm Ø.
4. MINUMUM SEWER GRADIENTS INSIDE ERF BOUNDARY 1:50 WITH MINUMUM EARTH COVER 300 mm.
5. ALL COVERS AND FRAMES ACCORDING TO SABS 558.
6. CONCRETE CLASSES ACCORDING TO STANDARD, DEPARTMENTAL SPECIFICATION.
7. VITRIFIED CLAY PIPES AND SPECIALS ACCORDING TO SABS 559.
8. LAYING OF SEWER PIPE LINE ACCORDING TO SABS 058.
9. A VENT PIPE IS TO BE SUPPLIED ON EACH BRANCH LINE LONGER THAN 6,0 m FROM MAIN PIPE ON ERF.

PIPE MATERIALS:

a) VITRIFIED CLAY (EARTERN WARE)
b) CAST IRON
c) UNPASTICISED POLYVINYLCHLORIDE (uPVC)

> ABOVE MATERIALS ARE USED WITH VARYING JOINTING METHODS.
> uPVC MATERIAL IS MORE WIDELY USED.
> MATERIAL FOR PIPES AND PIPE JOINTING METHODS SHALL BE ACCORDING TO THE DESIGN SPECIFICATIONS AND SHALL BE DESCRIBED IN DETAIL IN THESE SPECIFICATIONS.

SHEET	DESCRIPTION	OTHER No.	REG. No.
2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

LIST OF DRAWINGS

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
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PRETORIA 0001

SEDIBENG BUILDING
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(012) 336-7500

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DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
ENGINEER: N.J. VAN DEVENTER DATE:
EXT. APPROVAL / DESIGN CHECKED: DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / QCS DATE:
DIRECTOR (Pr. Eng.) amokapa 19/08/2016 DATE:
11/8/2016

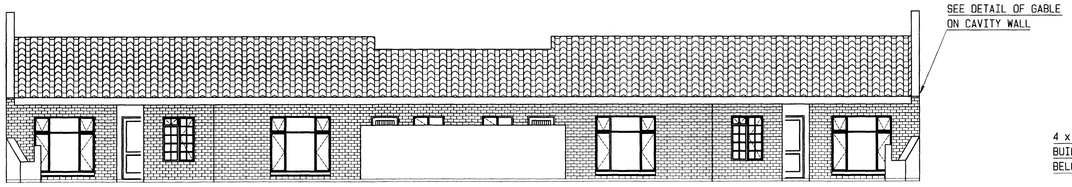
DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

TYPE DRAWING

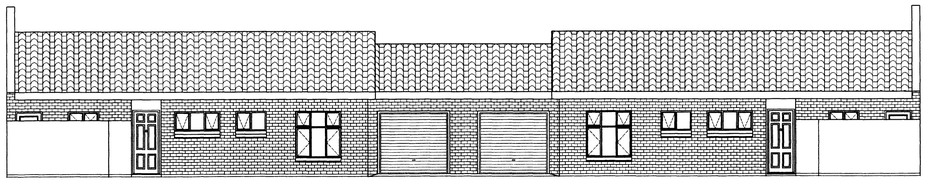
SEWER DETAILS

PROVINCE: ALL | DISTRICT: ALL | KEYCODES: HOU PNG FLP ELE DAH | OTHER NUMBER: S7-JH
LOCALITY No.: X | TENDER/CONTRACT No.: | SHEET: 10 OF 10 | REG. No.: 172 422/15 | REV.: 00
CALCULATION FILE: X



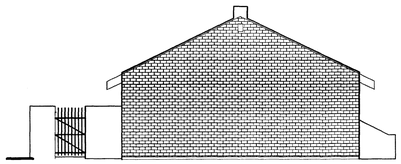
REAR ELEVATION

SCALE 1:100



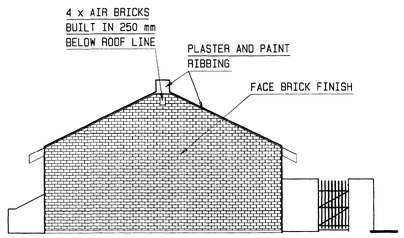
FRONT ELEVATION

SCALE 1:100



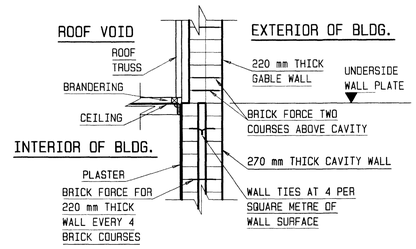
SIDE ELEVATION

SCALE 1:100



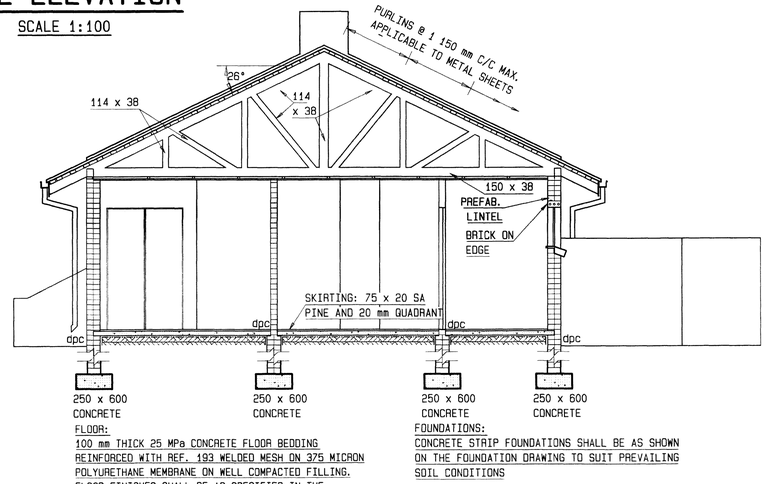
SIDE ELEVATION

SCALE 1:100



DETAIL J: GABLE WALL CONNECTION TO CAVITY WALL

SCALE 1:20

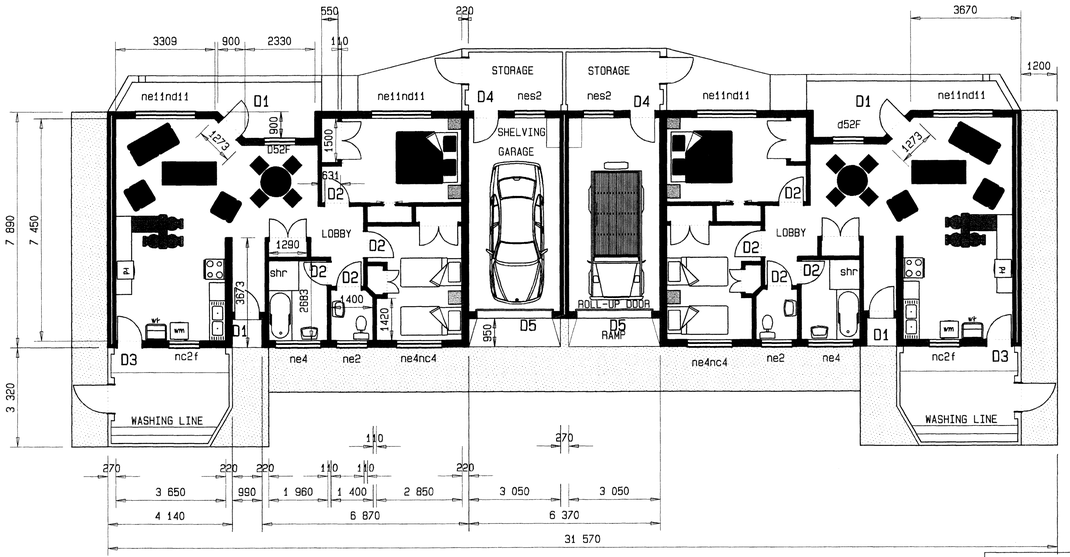


FLOOR:
100 mm THICK 25 MPa CONCRETE FLOOR BEDDING REINFORCED WITH REF. 193 WELDED MESH ON 375 MICRON POLYURETHANE MEMBRANE ON WELL COMPACTED FILLING. FLOOR FINISHES SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

FOUNDATIONS:
CONCRETE STRIP FOUNDATIONS SHALL BE AS SHOWN ON THE FOUNDATION DRAWING TO SUIT PREVAILING SOIL CONDITIONS

SECTION 01-01

SCALE 1:50



FLOOR PLAN

SCALE 1:100

SECTION
07/3
SECTION NUMBER
SHEET NUMBER

SCALE 1:20 0 0,5 1 1,5 2 4 m

SCALE 1:100 0 1 2 3 4 5 10 20 m

N

TWO BEDROOM FLAT SOUTH OR NORTH ENTRY WITH GARAGE ATTACHED

NOTES:

(FLOOR AREA INCLUDING WALL FOOTPRINTS)

FLAT 94.70 m²

GARAGE 22.10 m²

TOTAL 110 m²

2/10	FLOOR PLAN, SECTION AND ELEVATIONS		X
3/10	WINDOW AND DOOR SCHEDULE		X
4/10	FOUNDATION PLAN & DETAILS		X
5/10	SEWER AND WATER RETICULATION		X
6/10	ELECTRICAL LAYOUT		X
7/10	BUILDING DETAILS		X
8/10	ROOF AND CEILING		X
9/10	TYPE DRWG: WATER DETAILS & NOTES		X
10/10	TYPE DRWG: SEWER DETAILS & NOTES		X
1/10	LIST OF DRAWINGS & GENERAL NOTES		X

SHEET	DESCRIPTION	OTHER No.	REG. No.

LIST OF DRAWINGS

REVISION				
MOD No.	DATE	DESCRIPTION	FOR	DWA

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG X313
PRETORIA 0001

SEDIBENG BUILDING
185 FRANCIS BAARD STREET
PRETORIA
(012) 336-7500

M. DIEDERICKS
DIRECTOR GENERAL

CHECKED: DATE:
ENGINEER: N.J. VAN DEVENTER DATE:
N.J. VAN DEVENTER
CHIEF ENGINEER / [illegible] DATE: 11/8/2016

DESIGN: C.M. MOKONE
DRAWN: C.M. MOKONE
EXTERNAL APPROVAL: DATE:
DIRECTOR (Pr. Eng): 19/08/2016 DATE:

DEPARTMENTAL HOUSING POLICY

DWS REGION, DAM OR GWS

FLAT: TWO BEDROOM WITH GARAGE (TYPE F-2BR+G)
PROPOSED PLAN, ELEVATIONS AND SECTION

PROVINCE: NORTH WEST	DISTRICT: TLOKWE	KEYCODES:	HOU	PNG	FLP	ELE	DAH	OTHER NUMBER	S7-JH
LOCALITY No.: X	TENDER/ CONTRACT No.	SHEET	REG. No.						REV.
CALCULATION FILE: X		2 OF 9	172 414/15						00