Request for Sealed Quotations for Goods

Supply and Delivery of Steel Pipework, Valves and Pipe Fittings for the Tsumkwe Upgrade Project

Procurement Reference No: G/RFQ/NW-044/2027

Name of Bidder		
Contact Person		
E-mail Address		
Postal Address		
Total Amount N$ (Excl. VAT)		
Contact Phone number	**Work:**	**Mobile:**

Documents must be posted / delivered to:

The Quotation/Bid Box

Att: Procurement Management Unit (+264 61 71 2081, bids@namwater.com.na)

Namibia Water Corporation Ltd.
Private Bag 13389
176 Iscor Street, Aigams Building
Windhoek

Closing Date: Thursday, 03 December 2026 at 11h00
NO LATE BIDS WILL BE ACCEPTED!

NOTICE TO BIDDERS

- **Please take note of initializing all pages of the standard bidding document and initial all the supporting documents including company profiles, brochures, etc.**
- **Take note to sign all relevant pages as stipulated in the biddingstandard document.**
- **Copies of documents not certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963) will not be accepted.**

Namibia Water Corporation Ltd.
Private Bag 13389, Windhoek, Namibia
Tel: +264 61 71 2066
Fax: +264 61 21 0741

Letter of Invitation

Name and Address of Bidder_____

Procurement Reference Number: G/RFQ/NW-044/2027

13 November 2026

Dear Bidder,

Supply and Delivery of Steel Pipework, Valves and Pipe Fittings for the Tsumkwe Upgrade Project

NamWater invites you to submit your best quote for the items described in detail hereunder.

Any resulting contract shall be subject to the terms and conditions referred to in the document.

Queries, if any, should be addressed to Procurement Management Unit (Tel: +264 61 71 2081, E-mail: bids@namwater.com.na) Private Bag 13389 Windhoek, Namibia.

Please prepare and submit your quotation in accordance with the instructions given or inform the undersigned if you will not be submitting a quotation.

Yours faithfully

Procurement Management Unit

SECTION I: INSTRUCTIONS TO BIDDERS

1. Rights of Public Entity

NamWater reserves the right:

(a) to split the contract as per the lowest evaluated cost per item, or

(b) to accept or reject any quotation; and

(c) to cancel the quotation process and reject all quotations at any time prior to contract award.

2. Preparation of Quotations

You are requested to quote for the items mentioned in Section III by completing, signing and returning:

(a) the Quotation Letter in Section II with its annex for Bid Securing Declaration*;*

(b) the List of Goods and Price Schedule Section III;

(c) the Specifications and Compliance Sheet in Section V; and

(d) any other attachment deemed appropriate.

You are advised to carefully read the complete Request for Sealed Quotations document, including the Special Conditions of Contract in Section VII, before preparing your quotation. The standard forms in this document may be retyped for completion but the Bidder is responsible for their accurate reproduction.

3. Validity of Quotations

The Quotation validity period shall be **120 days** from the date of submission deadline.

4. Eligibility Criteria

To be eligible to participate in this Quotation exercise, you should:

(a) Have a certified copy (certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)), of a full valid company Registration Document;

(b) Have an original or a certified copy (certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)), of a valid Good Standing Tax Certificate, as certified by the Commissioner of Oath;

(c) A valid good Standing Social Security Certificate;

(d) Have a valid certified copy (certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)), of Affirmative Action Compliance Certificate, proof from Employment Equity Commissioner that bidder is not a relevant employer, or exemption issued in terms of Section 42 of the Affirmative Action Act, 1998 or a valid certified copy of the original document, as certified by the Commissioner of Oath;

(e) Submit signed Bid-securing Declaration.

(f) An undertaking on the part of the Bidder that the salaries and wages payable to its personnel in respect of this proposal are compliant to the relevant laws, Remuneration Order, and Award, where applicable and that it will abide to sub-clause 4.6 of the General conditions of Contract if it is awarded the contract or part thereof; and;

(g) Submit a minimum of one (1) reference letter from reputable entities whom the Bidder has supplied similar construction material in the last three (3) years, and handled successfully.

(h) Supporting information / literature for all the items offered to substantiate compliance, where applicable. These documents must be from the manufacturer or an authorised manufacturer's representative. Representatives must provide an authorised letter from the manufacturer confirming their status.

(i) Bids from service providers appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group shall be rejected.

Links for checking the ineligibility lists are available at:

- Republic of Namibia, Procurement Policy Unit

  https://egp2.gov.na/forms/SearchSuspendedBidders.jsf

- African Development Bank

  https://www.afdb.org/en/projects-operations/debarment-and-sanctions-procedures

- Asian Development Bank

  http://lnadbg4.adb.org/oga0009p.nsf/sancALLPublic?OpenView&count=999

- European Bank for Reconstruction and Development

  http://www.ebrd.com/pages/about/integrity/list.shtml

- Inter-American Development Bank Group

  http://www.iadb.org/en/topics/transparency/integrity-at-the-idb-group/sanctioned-firms-and-individuals,1293.html

- World Bank Group
  http://www.worldbank.org/en/projects-operations/procurement/debarred-firms

5. Bid Security/Bid Securing Declaration

Bidders are required to subscribe to a Bid Securing Declaration for this procurement process.

6. Delivery

Delivery shall be **6weeks** after acceptance/issue of Purchase Order. Deviation in delivery period shall be considered if such deviation is reasonable.

7. Sealing and Marking of Quotations

Quotations should be sealed in a single envelope, clearly marked with the Procurement Reference Number, addressed to the Public Entity with the Bidder's name and contact information at the back of the envelope.

8. Submission of Quotations

Quotations should be deposited in the Quotation/Bid Box located at Namibia Water Corporation Ltd Head office, Private Bag 13389, 176 Iscor Street, Aigams Building, Windhoek, not later than **03 December 2026 at 11h00**. Offers by post or hand delivered should reach Private Bag 13389 by the same date and time at latest. Late Offers will be rejected.
Quotations received by e-mail will not be considered.

9. Opening of Quotations

Quotations will be opened internally by the Public Entity immediately after the closing time referred to in instruction 8 above. A record of the Quotation Opening stating the name of the bidders, the amount quoted, the presence or absence of a Bid Security/Bid Securing Declaration, will be posted on the website of the Public Entity and available to any bidder on request within three working days of the Opening.

10. Evaluation of Quotations

NamWater shall have the right to request for clarifications in writing during evaluation. Substantially responsive offers shall be compared according to lifecycle cost to establish the lowest evaluated offer.

11. Technical Compliance

Bidders shall submit along with their quotations documents, catalogues and any other literature to substantiate compliance with the required specifications and to qualify deviations if any with respect to Public Entity's requirements.

The Specifications, Performance Requirements and Compliance Sheet details the minimum specifications of the goods/items to be supplied. The specifications have to be met but no credit will be given for exceeding the specifications.

12. Prices and Currency of Payment

Prices shall be fixed in Namibian Dollars.

13. Margin of Preference

Not Applicable

14. Award of Contract

The Bidder having submitted the lowest evaluated responsive quotation and qualified to supply the goods/items and related services shall be selected for award of contract. Award of contract shall be by issue of a Purchase Order/Letter of Acceptance in accordance with terms and conditions contained in Section VI: Contract Agreement and General Conditions of Contract.

NamWater may consider partially awarding of offers as per Items or Lots.

15. Notification of Award and Debriefing

The Public Entity shall after award of contract promptly inform all unsuccessful bidders in writing of the name and address of the successful bidder and the contract amount and post a notice of award on its website within seven days. Furthermore, the Public Entity shall attend to all requests for debriefing made in writing within 7 days of the unsuccessful bidders being informed of the award.

SECTION II: QUOTATION LETTER

(To be completed by Bidders)

[Complete this form with all the requested details and submit it as the first page of your quotation with the Price list and documents requested above. A signature and authorisation on this form will confirm that the terms and conditions of the RFQ prevail over any attachments. **If your quotation is not authorised, it will be rejected**.]

Quotation addressed to*:*	**NamWater**
Procurement Reference Number:	**G/RFQ/NW-044/2027**
Subject matter of Procurement:	**Supply and Delivery of Steel Pipework, Valves and Pipe Fittings for the Tsumkwe Upgrade Project**

We offer to supply the items listed in the attached List of Goods and Price Schedule as per the defined specifications, except for the qualified deviations [Bidder may delete this phrase in case of no deviation] and, in accordance with the terms and conditions stated in your Request for Quotations referenced above.

We confirm that we are eligible to participate in this Quotation exercise and meet the eligibility criteria specified in Section 1: Instruction to Bidders.

We undertake to abide ethical conduct during the procurement process and the execution of any resulting contract.

We have read and understood the content of the Bid Securing Declaration (BSD) attached hereto and subscribe fully to the terms and conditions contained therein. We further understand that this subscription could lead to disqualification on the grounds mentioned in the BSD.

The validity period of the Quotation is **……. days** from the date of the bid submission deadline.

We confirm that the prices quoted in the List of Goods and Price Schedule are fixed and firm and will not be subject to revision or variation, if we are awarded the contract **prior to the expiry** date of the quotation validity.

The delivery period offered from the date of issue of Purchaser Order/ Letter of Acceptance is as shown in the List of Goods items and Price Schedule.

Quotation Authorised by:

Name of Bidder		Company's Address and seal	
Contact Person			
Name of Person Authorising the Quotation:		Position:	Signature:
Date		Phone No./Fax	

Appendix to Quotation Letter

BID SECURING DECLARATION
(Section 45 of Act)
(Regulation 37(5) and 56(2))

Date: .....

Procurement Ref No.:.....

To: .....

I/We* understand that in terms of section 45 of the Act a public entity must include in the bidding document the requirement for a declaration as an alternative form of bid security.

I/We* accept that under section 45 of the Act, I/we* may be suspended or disqualified in the event of

(a) a modification or withdrawal of a bid after the deadline for submission of bids during the period of validity;

(b) refusal by a bidder to accept a correction of an error appearing on the face of a bid;

(c) failure to sign a procurement contract in accordance with the terms and conditions set forth in the bidding document, should I/We* be successful bidder; or

(d) failure to provide security for the performance of the procurement contract if required to do so by the bidding document.

I/We* understand this bid securing declaration ceases to be valid if I am/We are* not the successful Bidder

Signed: .....
[*insert signature of person whose name and capacity are shown*]

Capacity of:
[indicate legal capacity of person(s) signing the Bid Securing Declaration]

Name: .....
[insert complete name of person signing the Bid Securing Declaration]

Duly authorized to sign the bid for and on behalf of: [insert complete name of Bidder]

Dated on _____ day of _____, _____
[*insert date of signing]*

Corporate Seal (where appropriate)

[Note*: In case of a joint venture, the bid securing declaration must be in the name of all partners to the joint venture that submits the bid.]
delete if not applicable / appropriate

Republic Of Namibia

Ministry of Labour, Industrial Relations and Employment Creation

Written undertaking in terms of section 138 of the Labour Act, 2015 and section 50(2) (D) of the Public Procurement Act, 2015

1. EMPLOYERS DETAILS

Company Trade Name:……

Registration Number:...……...

Vat Number: ……

Industry/Sector: ……

Place of Business:……..

Physical Address:……..

Tel No.:……

Fax No.:…….

Email Address:……..

Postal Address:……..

Full name of Owner/Accounting Officer:……..……...

…….....

Email Address:……..

2. PROCUREMENT DETAILS

Procurement Reference No.:……

Procurement Description: ……..

……

……

Anticipated Contract Duration: …….

Location where work will be done, good/services will be delivered: ……..

……

3. UNDERTAKING

I …… *[insert full name]*, owner/representative

of ……*[insert full name of company]*

hereby undertake in writing that my company will at all relevant times comply fully with the relevant provisions of the Labour Act and the Terms and Conditions of Collective Agreements as applicable.

I am fully aware that failure to abide to such shall lead to the action as stipulated in section 138 of the labour Act, 2007, which include but not limited to the cancellation of the contract/licence/grant/permit or concession.

Signature: ……..

Date: ……..

Seal:…….

Please take note:

1. *A labour inspector may conduct unannounced inspections to assess the level of compliance*
2. *This undertaking must be displayed at the workplace where it will be readily accessible and visible by the employees rendering service(s) in relations to the goods and services being procured under this contract.*

SECTION IV: PRICED ACTIVITY SCHEDULE

Supply and Delivery of Steel Pipework, Valves and Pipe Fittings for the Tsumkwe Upgrade Project

Procurement Reference Number: **G/RFQ/NW-044/2027**

INSTRUCTIONS TO THE PUBLIC BODY				INSTRUCTIONS TO BIDDERS		
At time of preparation of the RFQ, Columns A to I shall be filled in by the Public Entity. [*To be filled by the Public Entity*]				Bidders shall fill-in columns F, G & H and fill the total E= mark with a *if an equivalent is quoted. F= Rate per unit G=Total price for one item (C x F). If an equivalent is quoted, please attach to your quote appropriate technical information & specification. Bidders shall fill in and sign the bottom section of this page		
A	B	C	D	F	G	H

Item no.	Description of Goods	Quantity	Unit of measure	Price per unit NAD[1]	Total price without VAT NAD	VAT: NAD
	Steel Pipes & Distance Pieces					
1.	HDG 50NB Steel Distance Piece, 2230mm Long – Item No. 137 DWG #31R0	2	No.			
2.	HDG 50NB Steel Distance Piece, 2830mm Long Item No. 139 DWG #31R0	2	No.			
3.	HDG 50NB Steel Distance Piece, 616mm Long Item No. 140 DWG #31R0	2	No.			
4.	HDG 50NB Steel Distance Piece, 2216mm Long Item No. 141 DWG #31R0	2	No.			
5.	HDG 50NB Steel Pipe, 700mm Item No. 8 DWG #14R0	14	No.			
6.	HDG 50NB Steel Pipe, 270mm Item No. 36 DWG #17R0	8	No.			
7.	HDG 50NB Steel Distance Piece, **1130 (905+225)** Long with 100NB Stub. Item No. 41 DWG #17R0	8	No.			
8.	HDG 50NB Steel Puddle Pipe, 685 with Puddle Flange as per dwg. Item No. 38 DWG #17R0	8	No.			

Item no.	Description of Goods	Quantity	Unit of measure	Price per unit NAD[1]	Total price without VAT NAD	VAT: NAD
9.	HDG 80NB Steel Distance Piece with Puddle Flange, 932mm Long. Item No. 123 DWG #31R0	4	No.			
10.	HDG 80NB Steel Puddle Pipe, 875mm Long Item No. 127 DWG #31R0	1	No.			
11.	HDG 80NB Steel Distance Piece, 4015mm Long Item No. 129 DWG #31R0	1	No.			
12.	HDG 80NB Steel Distance Piece, 530mm Long Item No. 131 DWG #31R0	1	No.			
13.	HDG 125NB Steel Distance Piece, 3200mm Long Item No. 132 DWG #31R0	1	No.			
14.	HDG 125NB Standard Steel Distance Piece, 6000mm Long. Item No. 134 DWG #31R0	4	No.			
	Valves					
15.	25NB PN10 Air Valve, Male Thread Item No. 1 DWG #14R0	24	No.			
16.	25NB Full Bore Steel Ball Valve Item No. 1 DWG #14R0	24	No.			
17.	50NB PN16 SABS 664 Resilient Seal Gate Valve	5	No.			
18.	65NB PN16 SABS 664 Resilient Seal Gate Valve	1	No.			
19.	80NB PN16 SABS 664 Resilient Seal Gate Valve Item No. 120 DWG #29R0	6	No.			
20.	100NB PN16 SABS 664 Resilient Seal Gate Valve	1	No.			
21.	50NB PN16 SABS 664 Non-Return Valve	5	No.			
22.	65NB PN16 SABS 664 Non-Return Valve	1	No.			
23.	80NB PN16 SABS 664 Non-Return Valve Item No. 121 DWG #29R0	6	No.			
24.	80NB PN16 Stop Check / Non-Return Valve	4	No.			

Item no.	Description of Goods	Quantity	Unit of measure	Price per unit NAD[1]	Total price without VAT NAD	VAT: NAD
	Steel Fabricated Fittings					
25.	25NB Malleable Cast Iron Tee Item No. 2 DWG #14R0	24	No.			
26.	25NB Galvanized Hex Nipple Item No. 3 DWG #14R0	48	No.			
27.	25NB Malleable Cast Iron Plug Item No. 5 DWG #14R0	24	No.			
28.	50 x 25NB HDG Reducing Socket Item No. 6 DWG #14R0	24	No.			
29.	HDG 50NB Steel Equal Tee, Flanged Item No. 8 DWG #14R0	13	No.			
30.	HDG 63NB Steel Equal Tee, Flanged	2	No.			
31.	HDG 80NB Steel Equal Tee, Flanged	1	No.			
32.	HDG 50NB Standard 90° Steel Elbow, Flanged	1	No.			
33.	HDG 50NB Standard 90° Steel Long Radius Elbow, Flanged. Item No. 138 DWG #31R0	2	No.			
34.	HDG 125NB Standard 90° Steel Long Radius Elbow Item No. 134 DWG #31R0	1	No.			
35.	HDG 125 x 50NB Reducing Steel T-Piece Item No. 135 DWG #31R0	1	No.			
36.	HDG 350NB Steel Manifold Fitting Complete with Two Blank Flanges (80x350x125) Item No. 126 DWG #29R0	1	No.			
37.	HDG 80NB PN10 Steel Blank Flange Item No. 125 DWG #29R0	1	No.			
	HDPE Compression Fittings					
38.	PN10 Compression Flange Adaptor to fit 32mm HDPE × 50NB Steel Pipe. Item No. 9 DWG #14R0	16	No.			
39.	PN10 Compression Flange Adaptor to fit 50mm HDPE × 50NB Steel Pipe. Item No. 10 DWG #14R0	30	No.			

Item no.	Description of Goods	Quantity	Unit of measure	Price per unit NAD[1]	Total price without VAT NAD	VAT: NAD
40.	PN10 Compression Flange Adaptor to fit 63mm HDPE × 50NB Steel Pipe.	6	No.			
41.	PN10 Compression Flange Adaptor to fit 75mm HDPE × 50NB Steel Pipe	8	No.			
42.	PN10 Compression Flange Adaptor to fit 110mm HDPE × 80NB Steel Pipe. Item No. 124 DWG #29R0	4	No.			
43.	PN10 Compression Flange Adaptor to fit 110mm HDPE × 100NB Steel Pipe	1	No.			
44.	50-32NB HDPE Compression Reducing Tee	2	No.			
	Dedicated Flange Adaptors					
45.	HDG 50NB PN10 Dedicated Flange Adaptor complete with threaded rods, nuts and washers	15	No.			
46.	HDG 65NB PN10 Dedicated Flange Adaptor complete with threaded rods, nuts and washers	1	No.			
47.	HDG 80NB PN10 Dedicated Flange Adaptor complete with threaded rods, nuts and washers	10	No.			
48.	HDG 100NB PN10 Dedicated Flange Adaptor complete with threaded rods, nuts and washers	2	No.			
49.	HDG 125NB PN10 Dedicated Flange Adaptor complete with threaded rods, nuts and washers	2	No.			
	Manhole Components					
50.	Supply 600 x 900 Type 3 Medium Duty Polymer Manhole Cover, with Locking Device	9	No.			
51.	Calcamite Step Irons manhole step iron cast into concrete or brickwork wall.	32	No.			
52.	HDG 80NB Galvanized Steel Air Vent Pipe with Vermin Mesh Mentis 130 or Similar approved. Firmly anchored in R.C slab complete as per Drawing 15/8/2/16 – 29R0	9	No.			

Item no.	Description of Goods	Quantity	Unit of measure	Price per unit NAD[1]	Total price without VAT NAD	VAT: NAD
	HDPE 110mm Pipe					
53.	110mm OD PN10 PE100, SDR 17 HDPE pipeline	50	m			
	All prices for LOT 1 include delivery at NamWater Stores in Windhoek					
	Delivery period [Weeks]			**TOTAL**		

NAME:	POSITION:	SIGNATURE	DATE
NAME OF BIDDER:	ADDRESS:		

LOT 1 Priced Activity Schedule Authorised By:

Name:		Signature:	
Position:		Date:	
Authorised for and on behalf of:		Company	

SPECIFICATIONS AND PERFORMANCE REQUIREMENTS

SECTION V: SPECIFICATIONS COMPLIANCE SHEET

Procurement Ref No. G/RFQ/NW-044/2027

SECTION IV: SPECIFICATIONS AND PERFORMANCE REQUIREMENTS

3.1 General

The supplier shall refer to the following attached detail drawings for the items as tabulated in Section III:

- pipework layout
- Pipework detail

All flanges of fabricated pipe specials shall conform to SANS 1123 unless otherwise denoted.

All flanges of pipe specials shall be fitted in the two-hole-top off the centreline configuration.

3.2 Pipework

Steel pipes shall comply with SANS 62 or SANS 719 Grade B/C.

The wall thickness of fittings (Tees and bends) shall be according to the ANSI (ASA) B16.9 fittings standard wall thickness schedule or thicker.

Unless otherwise stated, all manufactured pipe specials shall comply with the following specifications:

Nominal Diameter	Outside Diameter	Minimum Wall Thickness
100NB	114.3 mm (as per SANS 62)	4.5 mm
200NB	219.1 mm (as per SANS 719)	4.5 mm
250NB	273.0 mm (as per SANS 719)	4.5 mm
300NB	323.9 mm (as per SANS 719)	4.5 mm

All pipework welding shall be done as per SANS 10044 for steel fusion welding. Mating surfaces shall be welded all around their mating periphery.

3.3 Pipework Couplings

Flexible flange adaptor couplings will be supplied and delivered to join plain-ended pipes to flanged valves, fittings and pipes.

Only Klamflex dedicated flexible pipe couplings or similar shall be acceptable:

All flanges of flexible pipe couplings shall conform **to SANS 1123** the pressure rating of the pipe couplings shall be indicated in the list of goods and price schedule.

The couplings shall allow for angular misalignment (± 6°) and axial adjustment.

All coupling welding shall be done **per SANS 10044** for steel fusion welding.

All flange adaptors shall be complete and ready for installation with the necessary sleeves, rubber wedge rings and clamping bolts and nuts.

All dedicated flange adaptors shall be suitable for installation with restraining rods. Should dedicated flange adapters have a raised edge that contacts the gasket with installation, not less than 90% of the appropriate gasket area shall be in contact with the flange adapter. Flush faced flange adapters will be preferred.

3.4 Wafer Diaphragm Check Valve Design

3.4.1 General Requirements and Standards

The valves shall be required to prevent backflow in potable water applications. with zero/low silt concentrations. **The Non-return valve shall be a RIENZI Type 316/325 DIAPHRAGM or similar.**

The valves will be installed in a vertical direction.

Dual plate (double door), tilting / swing disk type non-return valves will not be accepted.

Valves with lower critical velocities will receive preference provided that pressure loss across the valve is not significantly compromised.

The non –return valve should fit between flange drilling to SANS 1123 and the pressure rating shall be as indicated in the price schedule.

The face to face length according to BS EN 558-2008 and ranged from 40mm to 54mm.

3.4.2 Materials of Construction for Check Valves

Component	Material Type	Material Specifications
Body/Casing	SG Iron / Ductile Cast Iron	BS 2789 Gr 420/12, SABS 936 SG 42 / EN-JS 1030 (GGG-40)
Center Plate	350WA SANS 1431 Steel	
Diaphragm	EPDM	
Fasteners	Stainless Steel	Grade 316/431
Gasket	EPDM / Nitrile / Viton	EPDM / Nitrile / Viton
Internal & External Coating	Epoxy according to GSK guidelines	The total DFT shall be not less than 250µm

3.4.3 Operating Requirements and Sizing

The valve shall be capable of withstanding a maximum operating pressure of as indicated on the price schedule at 40°C under all operating conditions.

The diaphragm shall operate satisfactorily under the specified conditions.

The valve shall be capable of drop-tight sealing in both directions at a pressure difference equal to the rated working pressure in the closed position.

Torque requirements for the valves shall be included.

The bolts to be of grade 8.8 unless stated otherwise. All fasteners where applicable shall be SABS 136-1972. All bolts, nuts, threaded rods and washers, excluding stainless steel fasteners, shall be hot dip

galvanized as per SANS 121/ISO 1461: 1999. **Electroplated bolts, nuts and washers shall not be accepted.**

The valves shall be able to open at respective the critical velocity and respective cracking pressure as indicted below.

3.5 Flanged Check Valve Design

3.5.1 General Requirements and Standards

The valves shall be required to prevent backflow in potable water applications.

The valves will be installed in a horizontal direction. ==➔

All valves shall be of the axially opening, radially guided, silent closing type.

Dual plate (double door), tilting / swing disk type non-return valves will not be accepted.

Valves with lower critical velocities will receive preference if pressure loss across the valve is not significantly compromised.

The flange drilling shall be to SANS 1123 and the pressure rating shall be as indicated in the price schedule.

WRAS or equivalent standard certified for drinking water.

Flange design face to face according to BS EN 558-2008.

3.5.2 Materials of Construction for Check Valves

Component	Material Type	Material Specifications
Body/Casing	SG Iron / Ductile Cast Iron	BS 2789 Gr 420/12, SABS 936 SG 42 / EN-JS 1030 (GGG-40)
Ring	Stainless steel/ Bronze	SS Grade 431/420 CuSn12-C
Guide	SG Iron / Ductile Cast Iron / Stainless steel/ Bronze Epoxy Coating / Rubber lined	BS 2789 Gr 420/12, SABS 936 SG 42 / EN-JS 1030 (GGG-40)
Spring	Stainless Steel	SS Grade 431/420
Bushing / Bearings	Zinc-Free Bronze	BS 1400 LG2
External Fasteners	Stainless Steel	Grade 316/431
Internal Fasteners	Stainless Steel	Grade 316/431
Seals	EPDM / Nitrile / Viton	EPDM / Nitrile / Viton
Internal & External Coating	Epoxy according to GSK guidelines	The total DFT shall be not less than 250µm

3.5.3 Operating Requirements and Sizing

The valve shall be capable of withstanding a maximum operating pressure of as indicated on the price schedule at 40°C under all operating conditions.

The disk shall operate satisfactorily under the specified conditions.

The valve shall be capable of drop-tight sealing in both directions at a pressure difference equal to the rated working pressure in the closed position.

Torque requirements for the valves shall be included.

The bolts to be of grade 8.8 unless stated otherwise. All fasteners where applicable, shall be SABS 136-1972. All bolts, nuts, threaded rods and washers, excluding stainless steel fasteners, shall be hot dip galvanized as per SANS 121/ISO 1461: 1999. **Electroplated bolts, nuts and washers shall not be accepted.**

The valves shall be able to open at respective the critical velocity and respective cracking pressure as indicted below.

3.6 Flanged Gate Valve Design

3.6.1Operating Requirements and Standards

The required gate valve is of double flanged resilient seated gate valve type. The gate valve will be installed as isolation valves for potable water applications.

The flange drilling shall be to SANS 1123 and the pressure rating shall be as indicated in the price schedule.

3.6.2 Materials of Construction

EPDM sealing rings (on the bonnet) shall be replaceable without dismantling the valve.

The leading edges of the sealing rings shall be slightly chamfered.

Valves with adjustable seats/seals will not be accepted. The valves shall be tight in both directions.

Measures to prevent over travel of the disk when closed shall be in place.

Flanges shall be used in the two-hole-top configuration

The valves shall be supplied with hand wheels.

Materials of Construction for all Gate Valves

Component	Material Type	Material Specifications
Body	SG Iron / Ductile Cast Iron	BS 2789 Gr 420/12, SABS 936 SG 42 / EN-JS 1030 (GGG-40)
Bonnet	SG Iron / Ductile Cast Iron	BS 2789 Gr 420/12, SABS 936 SG 42 / EN-JS 1030 (GGG-40)
Disk (Wedge)	SG Iron/ Ductile Cast Iron/ Stainless steel Epoxy Coating / Rubber lined	BS 2789 Gr 420/12, SABS 936 SG 42 / EN-JS 1030 (GGG-40)
Shaft (Stem)	Stainless Steel / Zinc free Bronze	SS Grade 431/420
Bushing / Bearings	Zinc-Free Bronze	BS 1400 LG2
External Fasteners and Internal Fasteners	Stainless Steel	Grade 316/431
Seals	EPDM / Nitrile / Viton	EPDM / Nitrile / Viton
Packing	Graphite Fiber	**Note**: No Asbestos
Internal & External Coating	Epoxy according to GSK guidelines	The total DFT shall be not less than 250µm

3.6.3 Operating Requirements

The valve shall be capable of withstanding a maximum operating pressure of as indicated in the price schedule at 40°C under all operating conditions.

The wedge shall operate satisfactorily under the specified conditions.

The valves shall be able to open and close satisfactorily under a flow velocity of 3 m/s.

The bolts to be of grade 8.8 unless stated otherwise. All fasteners where applicable shall be SABS 136-1972. All bolts, nuts, threaded rods and washers, excluding stainless steel fasteners, shall be hot dip galvanized as per SABS ISO 1461: 1999. **Electroplated bolts, nuts and washers shall not be accepted.**

3.7 Flanged Butterfly Valves (AVK 756, VAG EKN® Or Similar)

3.7.1 Operating Requirements and Standards

The valves shall be installed as isolation valves for potable water applications and raw water applications with low to moderate silt concentrations. The valves shall be supplied with worm gearboxes and levers as specified in the BOQ.

The valves shall be NFS or DVGW (W270) or WRAS or ACS or KIWA or WaterMarkTM Schedule - Level 1 or SVGW certified / approved for drinking water.

Valves shall be internally and externally coated according to EN 14901 or GSK or AS/ZNS 4158 regulations / guidelines.

The valves shall be pressure tested in accordance with EN 12266 or ISO 5208.

PN10 valves shall fit between flanges drilled to SANS1123/1000/3. The flanges shall be fitted in the two-hole-top orientation. (EN 1092-2)

PN10 shall operate satisfactorily and reliably under a flow velocity of 3m/s.

The valve flanges shall have raised faces.

The valve disks shall be double eccentric.

The valves shall be resilient seated in accordance with EN 593.

The valves shall have face-to-face dimensions according to EN 558, basic series 13 / ISO 5752 series 13.

All valves shall have gearbox mounting flanges in accordance with EN ISO 5210/5211.

All valves shall be self-locking, fully enclosed, maintenance free worm gear including mechanical position indicator. NamWater reserves the right to disqualify offers for valves where gearbox operated valves are required and the gearboxes offered are determined to be substandard, yet the valves are fully technically compliant.

Dimensional drawings of all valves shall be submitted.

Gearbox enclosure ingress protection rated to at least IP 67 as defined by EN 60529

Dimensional drawings submitted, including gearbox.

Gearbox input mounting flange according to EN ISO 5210/5211

The disk shall operate satisfactorily under the specified conditions.

The valves shall be able to open and close satisfactorily under a flow velocity of 3 m/s.

The bolts to be of grade 8.8 unless stated otherwise. All fasteners where applicable shall be SABS 136-1972. All bolts, nuts, threaded rods and washers, excluding stainless steel fasteners, shall be hot dip galvanized as per SABS ISO 1461: 1999. Electroplated bolts, nuts and washers shall not be accepted.

3.7.2 Materials of Construction for all Flanged Butterfly Valves – Not applicable to this project

Component	Material Type	Material Specifications
Body	SG Iron / Ductile Cast Iron	BS 2789 Gr 420/12, SABS 936 SG 42 / EN-JS 1030 (GGG-40)
Disk (Wedge)	SG Iron / Ductile Cast Iron / Stainless steel Epoxy Coating	BS 2789 Gr 420/12, SABS 936 SG 42 / EN-JS 1030 (GGG-40) / 316 (CF8M) or Superior Grade
Shaft (Stem)	Stainless Steel	SS Grade 316, 420, 430F, 431 or duplex.
Polymer seals and O-rings	NBR / EPDM	NBR / EPDM
Bushing / Bearings	Zinc-Free Bronze	BS 1400 LG2
External Fasteners and Internal Fasteners	Stainless Steel	Grade 316/431
Internal & External Coating	Epoxy according to GSK guidelines	The total DFT shall be not less than 250µm

3.7.3 Operating Requirements

The valve shall be capable of withstanding a maximum operating pressure of as indicated in the price schedule at 40°C under all operating conditions.

The wedge shall operate satisfactorily under the specified conditions.

The valves shall be able to open and close satisfactorily under a flow velocity of 3 m/s.

The bolts to be of grade 8.8 unless stated otherwise. All fasteners where applicable, shall be SABS 136-1972. All bolts, nuts, threaded rods and washers, excluding stainless steel fasteners, shall be hot dip galvanized as per SABS ISO 1461: 1999. Electroplated bolts, nuts and washers shall not be accepted.

3.8 Air Valve Design

3.8.1 Operating Requirements

The air valve shall be installed as air release and vacuum relief valves in potable water applications. The valves shall be required to evacuate / vent air in a controlled manner during pipe filling, to purge air from pressurised pipelines, and to allow for the unrestricted intake of large amounts of air for vacuum relief. During high flow air release the valves shall restrict air release to alleviate pipeline surges.

The air valves shall be a Nuvent RPS1611 type or similar and shall have a threaded male inlet of 25mm (1").

All polyethylene with Nylon & EPDM Nozzle & Nozzle Seat, EPDM O-rings. Water Operating Pressure: 16 bar, Medium: Borehole Drinking Water with chlorine content < 0.5ppm; 1-inch male thread Bsp Connection. For the following functions:

- Air Release
- Air Intake
- Slow reaction
- Outside installation

3.8.2 Materials of Construction

Body:	Reinforced polypropylene
Cartridge assembly:	Polypropylene and other
O-ring:	Nitrile rubber
Control Float:	Polyethylene
Base:	Reinforced polypropylene

3.9 Pressure Gauges and Gauge Cocks

All pressure gauges shall have a solid baffle wall design which complies with **EN 837 – 1** safety regulations.
The **scale displays** of all pressure gauges must be **100mm in diameter.**
The accuracy class of all pressure gauges must be **1.0 (NS 100).**
The pressure gauges must withstand an **ambient temperature of -20 to + 60 ºC** and must be able to withstand **medium temperatures of up to 50 ºC.**
All pressure gauges must have an **Ingress Protection (IP)** of **65** as per **EN 60529.**
The pressure gauge window shall be **laminated safety glass.**
The process connection shall be a **Lower Mount (LM), ½" (15 mm) male type.**

All gauge cocks shall have process connection of **1/2" (15mm), one male and one female type.**
The gauge cocks must withstand an **ambient temperature of -18 to + 93 ºC** and must be able to withstand **medium temperatures of the same temperature range**.
The gauge cocks shall open or close satisfactorily under pressures of **20 bar.**
All gauge cocks shall have a **"Lever" handle**. "T" handles will not be accepted

3.10 Fasteners

The bolts to be of **grade 4.8** unless stated otherwise. All fasteners where applicable, shall be ISO metric according to SANS 1700. All bolts (full thread), nuts, threaded rods and washers shall be hot

dip galvanized as per SANS ISO 1461: 1999. **Electroplated bolts, nuts and washers shall not be accepted.**

3.11 Gaskets

The gasket OD should be dictated by the flange specifications. The gaskets shall be of non-asbestos compressed fibre or graphite type. The gaskets shall be suitable for potable and raw water at temperatures from 0°C to 60°C. The gaskets shall have a thickness of 3mm.

Full faced gaskets will not be accepted.

3.12 Corrosion Protection

All steel surfaces shall be blast clean to SANS 10064 and the final finishing shall comply with S.I.S. 05 5900 grade Sa 2.5. before galvanizing or primer.

Unless otherwise stated, all pipe specials, flanges and flexible pipe coupling items shall be hot-dip galvanized to SANS ISO 1461:1999.

Note: The average galvanizing layer thickness shall not be less than 150 microns and the minimum thickness at any spot, not less than 100 microns.

3.13 Inspections

NamWater will inspect all items upon delivery to ascertain if dimensions, pressure flange rating and coating are correct. So NamWater will not send a technical person to go inspect the items at the factory, the onus thus rest with the supplier to ensure that all items are to specifications before delivery is made to NamWater.

Payment will only be made if all the delivered items are to specifications.

3.14 Labeling

The supplier may use the item numbers already allocated or an appropriate method consistent with the order of the item's numbers in this document.

3.15 After Sales Services

An authorised sales agent capable of replacing the offered items during the guarantee period must be located in Namibia. The sales agent must be able to replace failed offered items to NamWater Head office within 30 working days of receipt of request for such items.

3.16 Supporting Data

A bidder will be disqualified if the following information is not included with the offer:

- Technical Supporting information for Pipe Couplings
- Technical Supporting information for Check Valves
- Technical Supporting information for Gate Valve
- Technical Supporting information for Air Valve

SECTION V: SPECIFICATIONS AND COMPLIANCE SHEET

Bidders should complete column C with the specification offered. Attach detailed technical literature. Authorise the specification offered in the signature block below.

Item No	Technical Specification Required	Compliance of Specification Offered	Details of Non-Compliance/ Deviation (if applicable)
*A**	*B**	*C*	*D*
1	**General Information**		
	All flanges, where applicable, conform to SANS 1123/1000/3	Yes/No	
	Steel pipes 300NB and smaller shall comply with the SANS 62 Medium specification	Yes/No	
	Suitable for drinking water?	Yes/No	
	Pipe wall thickness as specified	Yes/No	
	Klamflex dedicated flange adapters or similar, suitable for mild steel pipe according to SANS 719 outside diameters	Yes/No	
	Welding in accordance with SANS 10044 for steel fusion welding	Yes/No	
	Corrosion protection as specified	Yes/No	
	All steel surfaces shall be blasted clean to SABS 064 and the final finish shall comply with ISO 8501-1 grade Sa 2.5 before Coating	Yes/No	
	Hot-dip galvanized as per SANS 121: 2000	Yes/No	
	All steel welding shall be done in accordance SANS 10044 for Steel fusion welding	Yes/No	
	Welding done along all contact seams.	Yes/No	
	Suitable for potable and raw water at temperatures from 0°C to 60°C	Yes/No	
	3mm thickness Gaskets	Yes/No	
	Ring gasket (not full-face)	Yes/No	
	All fasteners where applicable, shall be ISO metric according to SANS 1700	Yes/No	
	All fasteners hot dip galvanized as per SANS 121: 2000	Yes/No	

Item No	Technical Specification Required	Compliance of Specification Offered	Details of Non-Compliance/ Deviation (if applicable)
*A**	*B**	*C*	*D*
2	**Pipework**		
	Average galvanizing layer thickness of 150 microns and the minimum thickness at any spot not less than 100microns.	(Yes/No)	
	All SANS 1123/1000/3 flanged pipes conform to SABS 62 or SABS 719	(Yes/No)	
3	**Hot Dipped Galvanised Pipe Couplings**		
	Suitable for installation with restraining threaded bars?	Yes/No	
	Body and end rings are made of ductile iron or steel	Yes/No	
	Coating is hot dip galvanized to SABS ISO 1461:1999	Yes/No	
4	**Wafer and Flanged Check Valve (Non Return Valves)**		
	The valves shall be NFS or DVGW or WRAS or ACS or KIWA or WaterMark™ Schedule - Level 1 or SVGW certified / approved for drinking water.	Yes/No	
	The valves shall be certified to be in accordance with the European Pressure Equipment Directive 97/23/CE.	Yes/No	
	Non-return valves shall be of the axially opening radially guided type.	Yes/No	
	PN10 valves shall fit between flanges drilled to SANS1123/4000/3 respectively. The flanges shall be fitted in the two-hole-top orientation.	Yes/No	
	The valve shall be a SOCLA #882 model with a f-f of 106mm.	Yes/No	
	The valves shall be of wafer-type.	Yes/No	
	Valve casing shall be ductile cast iron.	Yes/No	
	Valve ring shall be bronze.	Yes/No	
	Valve guide shall be ductile cast iron.	Yes/No	

	Valve stems shall be bronze.	Yes/No	
	Valve springs shall be stainless steel 316.	Yes/No	
	Seals and O-rings shall be of EPDM.	Yes/No	
	Valve closing system shall be bronze.	Yes/No	
	All components other than stainless steel, brass or bronze components shall internally and externally epoxy or polyamide or polyurethane coated.	Yes/No	
	The valves shall have a critical / opening velocity of 1.5m/s or less.	Yes/No	
	The pressure drop across the valve at 1.5m/s shall be less than 1.5mWh.	Yes/No	
	Dimensional drawings of non-return valves shall be submitted.	Yes/No	
5	**Flanged Gate Valve**		
	The valves shall be NFS or DVGW or WRAS or ACS or KIWA or WaterMark™ Schedule - Level 1 or SVGW certified / approved for drinking water.	Yes/No	
	Valves shall be internally and externally coated according to EN 14901 or GSK or AS/ZNS 4158 regulations / guidelines.	Yes/No	
	The valves shall be pressure tested in accordance with EN 12266 or ISO 5208	Yes/No	
	PN10 valves shall fit between flanges drilled to SANS1123/4000/3 respectively. The flanges shall be fitted in the two-hole-top orientation.	Yes/No	
	The valves shall be resilient seated in accordance with EN 1074.	Yes/No	
	The valves shall have face-to-face dimensions according to EN 558-1, basic series 15.	Yes/No	
	Valve bodies and bonnets shall be ductile cast iron.	Yes/No	
	Valve gates shall be EPDM vulcanised ductile cast iron.	Yes/No	

	Valve stems shall be stainless steel 420.	Yes/No	
	Stem nuts shall be of bronze or dezincification resistant brass	Yes/No	
	Seals and O-rings shall be of EPDM.	Yes/No	
	Internal and external fasteners shall be of stainless steel 304.	Yes/No	
	Dimensional drawings of all valves shall be submitted.	Yes/No	
6	**Air Valve**		
	Air release - vacuum relief type	Yes/No	
	Material Body is **Reinforced polypropylene**	Yes/No	

SECTION VI: GENERAL CONDITIONS OF CONTRACT AND CONTRACT AGREEMENT

Any resulting contract shall be placed by means of a Purchase Order/Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC) for the Procurement of Goods (Ref. **G/RFQ-GCC**) *(available at public entities physical address/website: https://eprocurement.gov.na/documents/-/document_library/ycvk/view/53613* except where modified by the Special Conditions below.

SECTION VI: CONTRACT AGREEMENT

Any resulting contract shall be placed by means of a Purchase Order/Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC) for the Procurement of Goods except where modified by the Special Conditions below.

SECTION VIII: SPECIAL CONDITIONS OF CONTRACT

Procurement Ref No. G/RFQ/NW-044/2027

The clause numbers given in the first column correspond to the relevant clause number of the GCC.

Subject and GCC clause reference	Special Conditions
Purchaser GCC 1.1(h)	The purchaser is: Namibia Water Corporation Ltd
Site GCC 1.1(m)	The Site/final destination for delivery of the Goods is **Windhoek, Namwater HQ Store**
Incoterms Edition GCC 4.2(b)	Incoterms shall be governed by the rules prescribed in Incoterms 2010.
Notices GCC 8.1	Any notice shall be sent to the following addresses: For NamWater Ltd the address and the contact name shall be: Procurement Management Unit (Tel: +264 61 71 2081), E-mail: bids@namwater.com.na Private Bag 13389 Windhoek, Namibia For the Supplier, the address and contact name shall be: _____

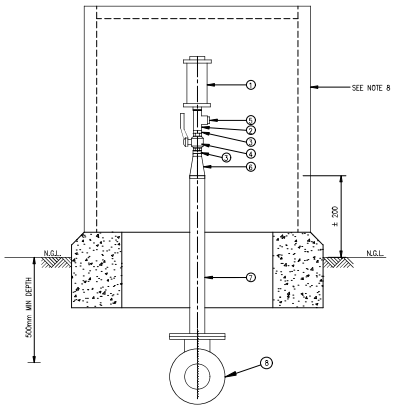
Subject and GCC clause reference	Special Conditions
Disputes GCC 10.2	The rules of procedures for arbitration proceedings pursuant to GCC 10.2 shall be as follows: In the case of a dispute between the Purchaser and a Supplier, the dispute shall be arbitrated in accordance with Arbitration Act, 1965 (Act No. 42 of 1965).
Delivery and Documents GCC 13.1	The Goods are to be delivered within **6 weeks** from the date of Purchase Order or Letter of Acceptance. The documents to be furnished by the Supplier are: (a) signed delivery note and Invoice
Terms of Payment GCC 16.1	The structure of payments shall be: full payment following complete delivery of the Supplies and submission of an invoice and the documents listed in clause 13.1
Terms of Payment GCC 16.3	Payments shall be made not later than thirty days after month of invoicing and submission of an invoice and its certification by the Purchaser.
Terms of Payment GCC 16.4	The currency of payment shall be the currency of order specified in the List of Goods, Price Schedule and Product details in the Statement of Requirements.
Performance Security GCC 18	Not Applicable
Packing GCC 23.2	The packing, marking and documentation within and outside the packages shall be: **G/RFQ/NW-044/2027: Supply and Delivery of Steel Pipework, Valves and Pipe Fittings for the Tsumkwe Upgrade Project** **Aigams Building** **Northern Industrial Area** **Windhoek**
Insurance GCC 24	The insurance should be covered as described in **Delivery Duty Paid (DDP)**
Transportation GCC 25	The Goods shall be delivered: **Delivery Duty Paid (DDP)**
Inspection and Tests GCC 26.	NamWater will inspect all items upon delivery to ascertain Technical compliance and specification compliance verification.
Liquidated Damages GCC 27	Liquidated damages for the whole contract are 1/14% per day. The maximum amount of liquidated damages for the whole contract is 14% of the final contract price.
Warranty GCC 28.3	The period of validity of the warranty shall be: 12 Months

3.1. Schedule 3: Quotation Checklist Schedule

Procurement Ref No. G/RFQ/NW-044/2027

Description	Attached	Not Attached
Quotation Letter		
List of Goods and Price Schedule		
Specifications Compliance Sheet		
Evidences for conformity of Goods		
valid copy of company registration / founding statement. **(certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)**		
Original or certified copy of valid good Standing TAX Certificate; **(certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)**		
Valid good Standing Social Security Certificate;		
A certified copy of a valid Affirmative Action Compliance Certificate, or proof from Employment Equity Commissioner that bidder is not a relevant employer, or exemption issued in terms of Section 42 of the Affirmative Action Act, 1998; **(certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)**		
Submit signed Bid-securing Declaration.		
An undertaking on the part of the Bidder that the salaries and wages payable to its personnel in respect of this proposal are compliant to the relevant laws, Remuneration Order, and Award, where applicable and that it will abide to sub-clause 4.6 of the General conditions of Contract if it is awarded the contract or part thereof; and		
Supporting information / literature for all the items offered to substantiate compliance, where applicable. These documents must be from the manufacturer or an authorised manufacturer's representative. Representatives must provide an authorised letter from the manufacturer confirming their status.		

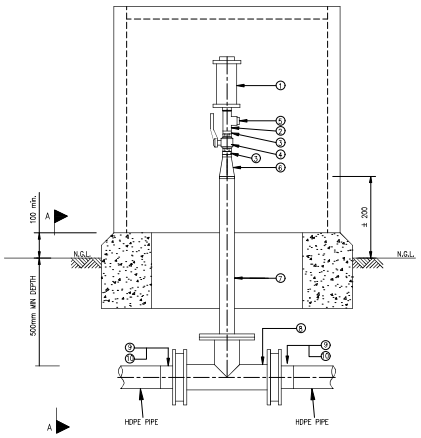
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SECTION A–A: MAINLINE AIR VALVES PIPEWORK DETAIL (10 NO. OFF)

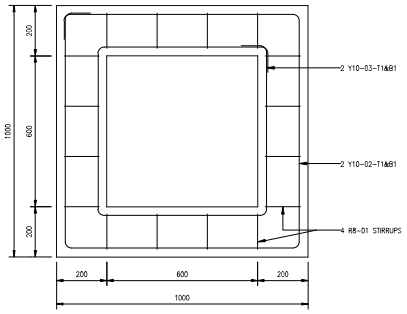
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NOTE:
- 4x AIR VALVE MANHOLES ARE CONNECTED TO 32mm OD PN12.5 HDPE PIPE
- 6x AIR VALVE MANHOLES ARE CONNECTED TO 50mm OD PN12.5 HDPE PIPE



MAINLINE AIR VALVE PIPEWORK DETAILS

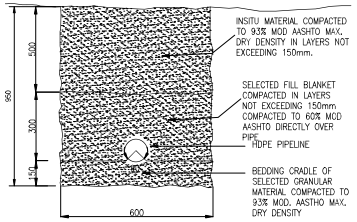
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CONCRETE BASE REINFORCEMENT DETAILS (PLAN VIEW)

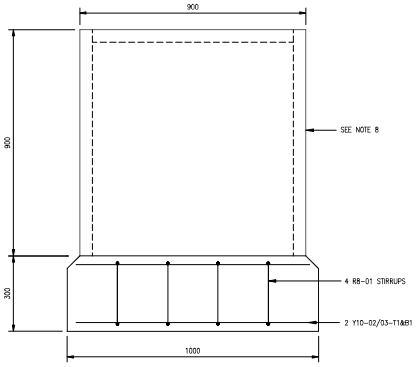
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NOTE: THIS DRAWING TO BE READ TOGETHER WITH DRAWING NO. 15/8/2/16-28R0



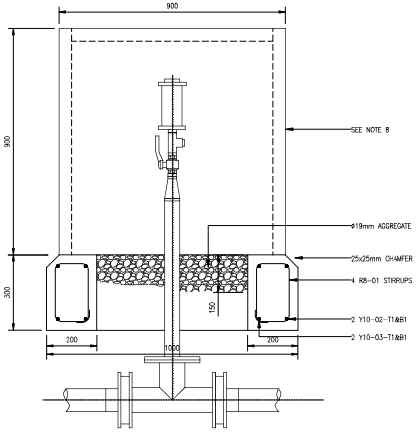
PIPE LAYING DETAILS (CLASS "B" BEDDING)

SCALE 1:10



CONCRETE BASE REINFORCEMENT DETAILS (SIDE VIEW)

SCALE 1:10



CONCRETE BASE REINFORCEMENT DETAILS (SECTION VIEW)

SCALE 1:10

REINFORCEMENT SCHEDULE

UNIT AND No. OFF	BAR MARK	TYPE AND SIZE	SHAPE CODE	No. PER UNIT	TOTAL No.	BAR LENGTH	BENDING DIMENSIONS ACCORDING TO SABS 82				
							A mm	B mm	C mm	D mm	E/r mm
CONCRETE BASES (10 AIR VALVE INSTALLATIONS)	01	R8	60	16	160	785	240	140			
	02	Y10	60	02	20	3790	940	940			
	03	Y10	60	02	20	2675	660	660			

PIPE SCHEDULE

ITEM	DESCRIPTION	DIA.	NO./COMP	TOTAL REQUIRED	SKETCH
	AIR VALVE INSTALLATION (10 NO. OFF)				
1	25NB, PN10 AIR VALVE, MALE THREAD	25 NB	1	10	
2	25 NB MALLEABLE CAST IRON T-PIECE.	25 NB	1	10	
3	25NB GALVANIZED HEX NIPPLE	25 NB	2	20	
4	25 NYLON LINED FULL BORE STEEL BALL VALVE	25 NB	1	10	
5	25 NB MALLEABLE CAST IRON PLUG	25 NB	1	10	
6	50*25 NB, HDG REDUCING SOCKET, FEMALE THREAD BOTH ENDS	25-50 NB	1	10	
7	50 NB, HDG STEEL PIPE, 700 mm, ONE END MALE THREAD, THE OTHER END WITH 50NB FLANGE DRILLED TO SABS 1123 TABLE 1000/3. **CORROSION PROTECTION: HOT DIPPED GALVANISED**	50 NB	1	10	
8	50NB STEEL EQUAL TEE, ALL ENDS FLANGED AND DRILLED TO SABS 1123 TABLE 1000/3 **CORROSION PROTECTION: HOT DIPPED GALVANISED**	50 NB	1	10	
9	PN10 COMPRESSION FLANGE ADAPTOR TO FIT 32mm HDPE AND A FLANGED 50NB STEEL PIPE. ALL FLANGES TO BE DRILLED TO SABS 1123 TABLE 1000/3 AND HOT-DIPPED GALVANIZED.	32 NB	2	8	
10	PN10 COMPRESSION FLANGE ADAPTOR TO FIT 50mm HDPE AND A FLANGED 50NB STEEL PIPE. ALL FLANGES TO BE DRILLED TO SABS 1123 TABLE 1000/3 AND HOT-DIPPED GALVANIZED.	50 NB	2	12	

NOTES :

1. ALL STRUCTURAL CONCRETE TO BE 25MPa/19mm
2. ALL EXPOSED EDGES TO BE CHAMFERED TO 25 X25 mm
3. ALL REINFORCEMENT TO BE HIGH YIELD AND MUST COMPLY TO SABS 920.
4. REINFORCEMENT IS CONTINUOUS THROUGH THE JOINTS.
5. COVER TO STEEL IS 30 mm UNLESS SPECIFIED OTHERWISE
6. BACKFILL AROUND THE MANHOLES TO BE COMPACTED TO 97% MOD AASHTO MAX DRY DENSITY.
7. ALL STEEL ITEMS TO BE MANUFACTURED FROM MED. GAUGE STEEL AND TO SABS 062 OR SABS 719
8. REFER TO DRAWING 15/8/2/16-28R0 FOR STEEL CAGE DETAILS
9. ALL BURIED STEEL ITEMS TO BE DENSO WRAPPED

NO.	AMENDMENTS	DATE	BY
0	ISSUED FOR BID PURPOSE ONLY	09/2023	S.I

NAMWATER
Namibia Water Corporation Ltd

SCHEME

TSUMKWE WSS

DRAWING

TSUMKWE EXTENSION & UPGRADE: AIR VALVE PIPEWORK & REINFORCEMENT DETAIL

SURVEYED	DRAWN	TRACED
	S. IYAMBO	AUTOCAD
DESIGNED CIVIL	DESIGNED ELEC.	DESIGNED MECH.
S. IYAMBO		
CHECKED CIVIL	CHECKED ELEC.	CHECKED MECH.
W. ANDERSON		
APPROVED CIVIL	APPROVED ELEC.	APPROVED MECH.
W. ANDERSON		

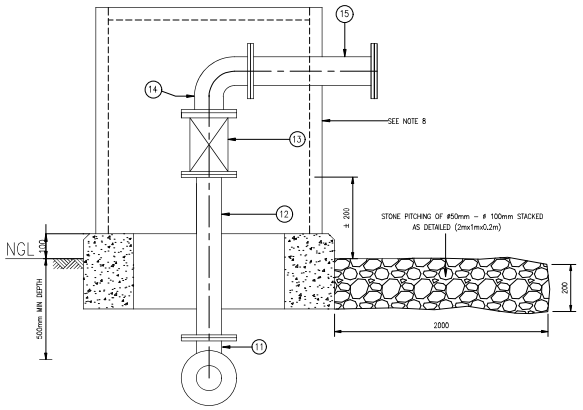
MANAGER: CIVIL DESIGN

DATE	SCALE	SHEET NO.
09/2023	AS SHOWN	1 OF 1

REGISTRATION NO.

15/8/2/16-14R0

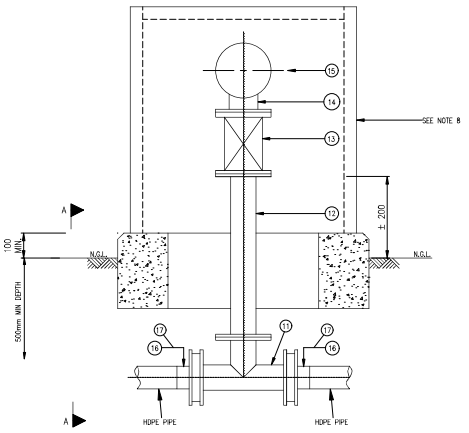
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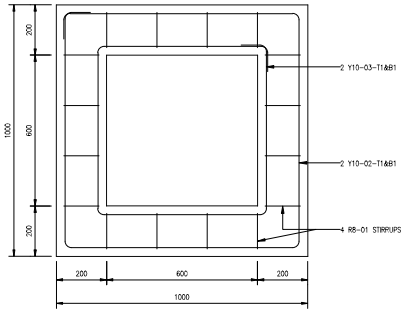
SECTION A-A: SCOUR VALVE INSTALLATION
PIPEWORK DETAIL (6 NO. OFF)
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NOTE: THIS DRAWING TO BE READ TOGETHER WITH DRAWING NO. 15/8/2/16-28R0

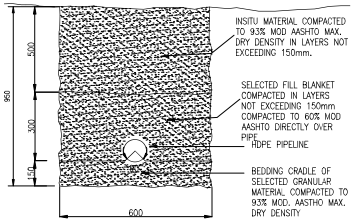
NOTE:
- 2x SCOUR VALVE MANHOLES ARE CONNECTED TO 32mm OD PN12.5 HDPE PIPE
- 4x SCOUR VALVE MANHOLES ARE CONNECTED TO 50mm OD PN12.5 HDPE PIPE



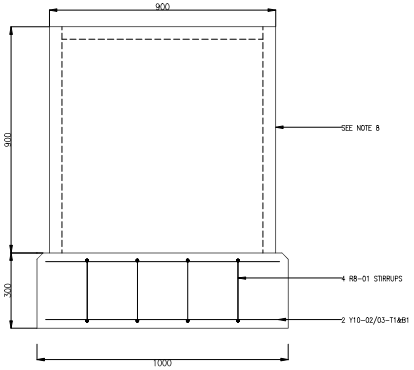
SCOUR VALVE INSTALLATION
PIPEWORK DETAIL
SCALE 1:15



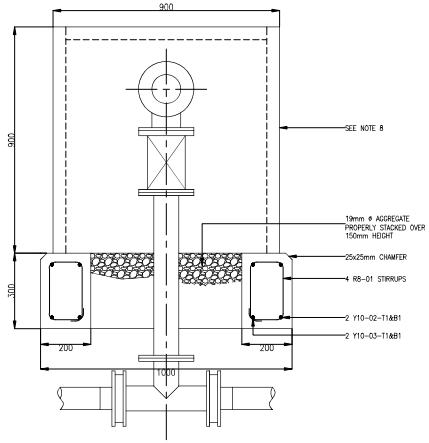
CONCRETE BASE
REINFORCEMENT DETAILS (PLAN VIEW)
SCALE 1:10



PIPELAYING DETAILS
(CLASS "B" BEDDING)
SCALE 1:10



CONCRETE BASE
REINFORCEMENT DETAILS (SIDE VIEW)
SCALE 1:10



CONCRETE BASE
REINFORCEMENT DETAILS (SECTION VIEW)
SCALE 1:10

REINFORCEMENT SCHEDULE

UNIT AND No. OFF	BAR MARK	TYPE AND SIZE	SHAPE CODE	No. PER UNIT	TOTAL No.	BAR LENGTH	BENDING DIMENSIONS ACCORDING TO SABS 82				
							A mm	B mm	C mm	D mm	E/r mm
CONCRETE BASES (6 SCOUR VALVE INSTALLATIONS)	01	R8	60	16	96	785	240	140			
	02	Y10	60	02	12	3790	940	940			
	03	Y10	60	02	12	2675	660	660			

PIPE SCHEDULE

ITEM	DESCRIPTION	DIA.	NO./COMP	TOTAL REQUIRED	SKETCH
	SCOUR VALVE INSTALLATION (6 NO. OFF)				
11	50NB STEEL EQUAL T-PIECE. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT DIPPED GALAVANIZED	50 NB	1	6	170 240 240
12	50NB STEEL DISTANCE PIECE, 650mm LONG. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3.	50 NB	1	6	650
13	50NB, PN16, SABS 664 RESILIENT SEAL GATE VALVE, NON-RISING SPINDLE WITH HAND WHEEL. FLANGED AND DRILLED TO SABS 1123, TABLE 1600/3	50 NB	1	6	FACE TO FACE LENGTH =150mm
14	50NB STANDARD 90° STEEL ELBOW. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT DIPPED GALAVANIZED	50 NB	1	6	
15	50NB STEEL DISTANCE PIECE, 490mm LONG. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. COMPLETE WITH 50NB PN10 STANDARD STEEL BLANK FLANGE AS DETAILED. CORROSION PROTECTION: HOT DIPPED GALAVANIZED	50 NB	1	6	490
16	PN12.5 COMPRESSION FLANGE ADAPTOR TO FIT 32mm HDPE AND A FLANGED 50NB STEEL PIPE. ALL FLANGES TO BE DRILLED TO SABS 1123 TABLE 1000/3 AND HOT-DIPPED GALVANIZED.	32 NB	2	4	
17	PN12.5 COMPRESSION FLANGE ADAPTOR TO FIT 50mm HDPE AND A FLANGED 50NB STEEL PIPE. ALL FLANGES TO BE DRILLED TO SABS 1123 TABLE 1000/3 AND HOT-DIPPED GALVANIZED.	50 NB	2	8	

NOTES :

1. ALL STRUCTURAL CONCRETE TO BE 25MPa/19mm
2. ALL EXPOSED EDGES TO BE CHAMFERED TO 25 X25 mm
3. ALL REINFORCEMENT TO BE HIGH YIELD AND MUST COMPLY TO SABS 920.
4. REINFORCEMENT IS CONTINUOUS THROUGH THE JOINTS.
5. COVER TO STEEL IS 30 mm UNLESS SPECIFIED OTHERWISE
6. BACKFILL AROUND THE MANHOLES TO BE COMPACTED TO 97% MOD AASHTO MAX DRY DENSITY.
7. ALL STEEL ITEMS TO BE MANUFACTURED FROM MED. GAUGE STEEL AND TO SABS 062 OR SABS 719
8. REFER TO DRAWING 15/8/2/16-28R0 FOR STEEL CAGE DETAILS
9. ALL BURIED STEEL ITEMS TO BE DENSO WRAPPED

NO.	AMENDMENTS	DATE	BY
0	ISSUED FOR BID PURPOSE ONLY	09/2023	S.I

NAMWATER
Namibia Water Corporation Ltd

SCHEME
TSUMKWE WSS

DRAWING
TSUMKWE EXTENSION & UPGRADE: SCOUR VALVE PIPEWORK & REINFORCEMENT DETAIL

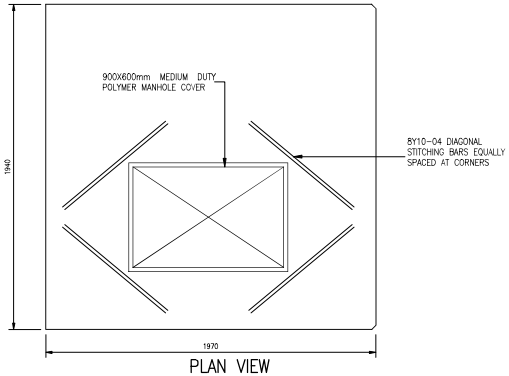
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S. IYAMBO		
CHECKED CIVIL	CHECKED ELEC.	CHECKED MECH.
W. ANDERSON		
APPROVED CIVIL	APPROVED ELEC.	APPROVED MECH.
W. ANDERSON		

MANAGER: CIVIL DESIGN

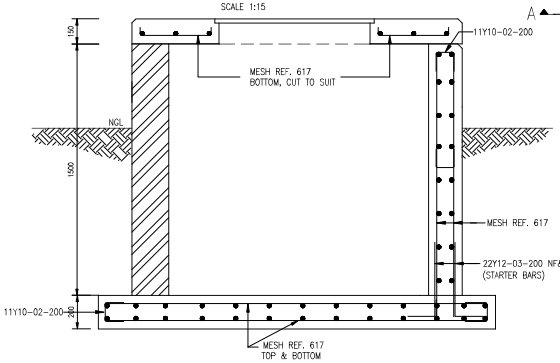
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09/2023	AS SHOWN	1 OF 1

REGISTRATION NO.
15/8/2/16-15R0

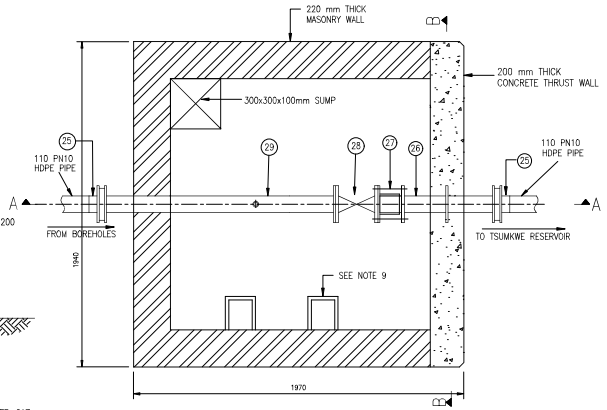
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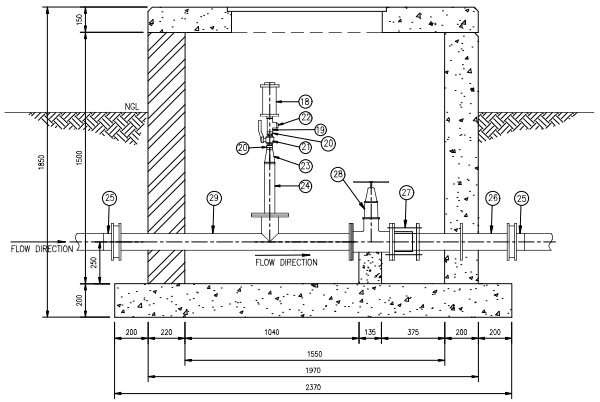
PLAN VIEW
ISOLATING VALVE MANHOLE ROOF SLAB
SCALE 1:15



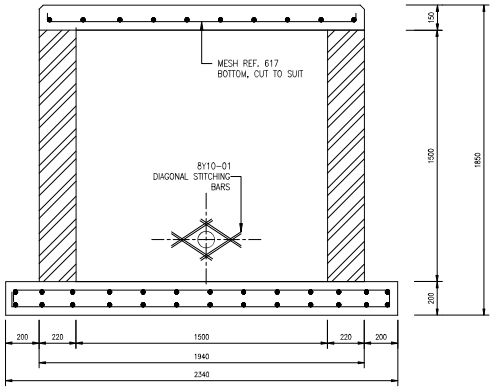
MANHOLE REINFORCEMENT SECTION DETAILS
SCALE 1:15



PLAN VIEW
ISOLATING VALVE MANHOLE PIPEWORK (1 NO. OFF)
SCALE 1:15



SECTION A – A
ISOLATING VALVE MANHOLE PIPEWORK DETAILS (100mm STEEL PIPEWORK)
SCALE 1:15



SECTION B–B
ISOLATING VALVE MANHOLE REINFORCEMENT
SCALE 1:15

PIPE SCHEDULE

ITEM	DESCRIPTION	DIA.	NO./COMP	TOTAL REQUIRED	SKETCH
	ISOLATION & AIR VALVE MANHOLES (1 NO. OFF)				
18	25NB, PN10 AIR VALVE, MALE THREAD	25 NB	1	1	
19	25 NB MALLEABLE CAST IRON T-PIECE.	25 NB	1	1	
20	25NB GALVANIZED HEX NIPPLE	25 NB	2	2	
21	25 NYLON LINED FULL BORE STEEL BALL VALVE	25 NB	1	1	
22	25 NB MALLEABLE CAST IRON PLUG	25 NB	1	1	
23	50*25 NB, HDG REDUCING SOCKET, FEMALE THREAD BOTH ENDS	25-50 NB	1	1	
24	50 NB, HDG STEEL PIPE, 315 mm, ONE END MALE THREAD, AND OTHER END WITH 100NB FLANGE DRILLED TO SABS 1123 TABLE 1000/3. CORROSION PROTECTION: HOT DIPPED GALVANIZED	50 NB	1	1	315
25	PN10 COMPRESSION FLANGE ADAPTOR TO FIT 110mm HDPE AND A FLANGED 100NB STEEL PIPE. ALL FLANGES TO BE DRILLED TO SABS 1123, TABLE 1000/3 AND HOT-DIPPED GALVANIZED.	100 NB	1	1	
26	100NB STEEL PUDDLE PIPE, 685mm LONG, ONE END PLAIN AND OTHER ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT DIPPED GALVANIZED	100 NB	1	1	130, 275, 280, 685
27	100NB PN10 DEDICATED FLANGE ADAPATOR, COMPLETE WITH THREADED RODS, NUTS AND WASHERS. FLANGE DRILLED TO SABS 1123, TABLE 1000/3.	100 NB	2	2	
28	100NB, PN16, SABS 664 RESILIENT SEAL GATE VALVE, NON-RISING SPINDLE WITH HAND WHEEL. FLANGED AND DRILLED TO SABS 1123, TABLE 1600/3	100 NB	1	1	FACE TO FACE LENGTH =190mm
29	100NB STEEL DISTANCE PIECE, 1380mm LONG WITH 100NB STUB. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT DIPPED GALVANIZED	100 NB	1	1	150, 905, 1380

REINFORCEMENT SCHEDULE

	BAR MARK	TYPE AND SIZE	NO. PER UNIT	TOTAL NO.	BAR LENGTH mm	BENDING DIMENSIONS ACCORDING TO SABS 82					
						SHAPE CODE	A mm	B mm	C mm	D mm	E/r mm
THRUST WALL	01	Y10	8	8	300	20	300				
	02	Y10	16	16	250	38	100	100	100		
	03	Y12	22	22	580	37	160	450			36
	MESH REF 617 AREA : 6 m² (NF&FF) EACH MANHOLE										

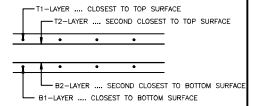
	BAR MARK	TYPE AND SIZE	NO. PER UNIT	TOTAL NO.	BAR LENGTH mm	BENDING DIMENSIONS ACCORDING TO SABS 82					
						SHAPE CODE	A mm	B mm	C mm	D mm	E/r mm
ROOF SLAB	04	Y10	08	08	1000	20	1000				
	MESH REF 617 AREA : 4 m² EACH MANHOLE										

	BAR MARK	TYPE AND SIZE	NO. PER UNIT	TOTAL NO.	BAR LENGTH mm	BENDING DIMENSIONS ACCORDING TO SABS 82					
						SHAPE CODE	A mm	B mm	C mm	D mm	E/r mm
FLOOR SLAB	02	Y10	44	44	250	38	100	100	100		
	MESH REF 617 AREA : 8.5 m² (TOP & BOTTOM) EACH MANHOLE										

NOTES :

1. ALL STRUCTURAL CONCRETE TO BE 25MPa/19mm
2. ALL EXPOSED EDGES TO BE CHAMFERED TO 25 X25 mm
3. ALL REINFORCEMENT TO BE HIGH YIELD AND MUST COMPLY TO SABS 920.
4. REINFORCEMENT IS CONTINUOUS THROUGH THE JOINTS.
5. COVER TO STEEL IS 30 mm UNLESS SPECIFIED OTHERWISE
6. BACKFILL AROUND THE MANHOLES TO BE COMPACTED TO 97% MOD AASHTO MAX DRY DENSITY.
7. ALL STEEL ITEMS TO BE MANUFACTURED FROM MED. GAUGE STEEL AND TO SABS 062 OR SABS 719
8. ALL BURIED STEEL ITEMS TO BE DENSO WRAPPED
9. CALCAMITE STEP IRONS INSTALLED 300mm CENTER TO CENTER.

ABBREVIATIONS:



ALT ... BARS ALTERNATING
ABR ... ALTERNATING BARS REVERSED
STG ... BARS STAGGERED
EF ... EACH FACE
EW ... EACH WAY
NF ... NEAR FACE, REFERS TO EXTERNAL FACE OF WALL
FF ... FAR FACE, REFERS TO INTERNAL FACE OF WALL

NO.	AMENDMENTS	DATE	BY
0	ISSUED FOR BID PURPOSE ONLY	06/2023	SJ

NAMWATER
Namibia Water Corporation Ltd

SCHEME
TSUMKWE WSS

DRAWING
TSUMKWE EXTENSION & UPGRADE: ISOLATING VALVE MANHOLE: 100NB STEEL PIPEWORK & REINFORCEMENT DETAILS

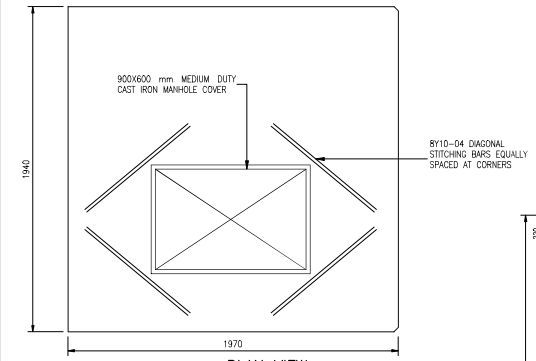
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CHECKED CIVIL W. ANDERSON	CHECKED ELEC.	CHECKED MECH.
APPROVED CIVIL W. ANDERSON	APPROVED ELEC.	APPROVED MECH.

MANAGER: CIVIL DESIGN

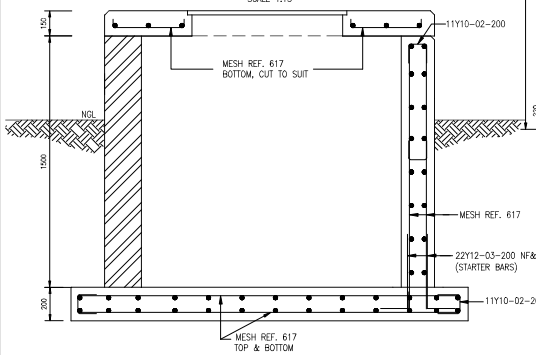
DATE	SCALE	SHEET NO.
06/2023	AS SHOWN	1 OF 1

REGISTRATION NO.
15/8/2/16-16R0

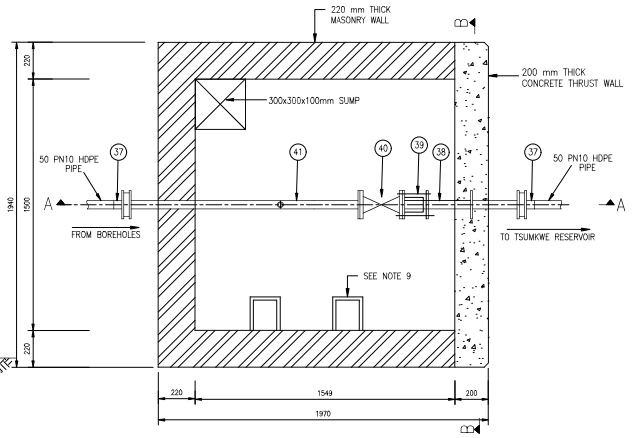
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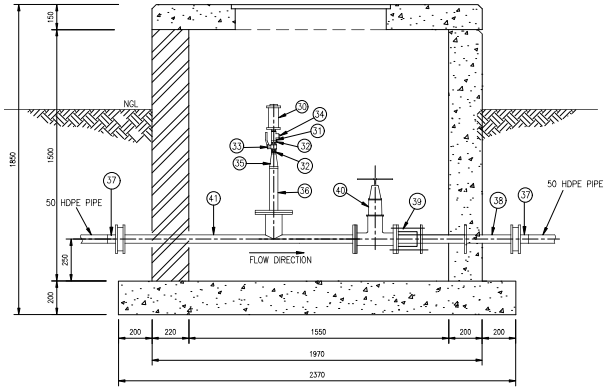
PLAN VIEW
ISOLATING VALVE MANHOLE ROOF SLAB
SCALE 1:15



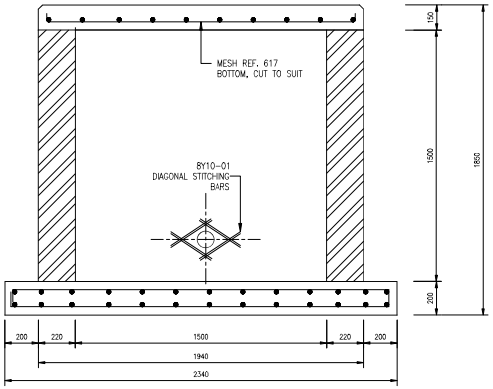
MANHOLE REINFORCEMENT SECTION DETAILS
SCALE 1:15



PLAN VIEW
ISOLATING VALVE MANHOLE PIPEWORK (3 NO. OFF)
SCALE 1:15



SECTION A – A
ISOLATING VALVE MANHOLE PIPEWORK DETAILS (50mm STEEL PIPEWORK)
SCALE 1:15



SECTION B–B
ISOLATING VALVE MANHOLE REINFORCEMENT
SCALE 1:15

PIPE SCHEDULE

ITEM	DESCRIPTION	DIA.	NO./COMP	TOTAL REQUIRED	SKETCH
	ISOLATION & AIR VALVE MANHOLES (3 NO. OFF)				
30	25NB, PN10 AIR VALVE, MALE THREAD	25 NB	1	3	
31	25 NB MALLEABLE CAST IRON T-PIECE.	25 NB	1	3	
32	25NB GALVANIZED HEX NIPPLE	25 NB	2	6	
33	25 NYLON LINED FULL BORE STEEL BALL VALVE	25 NB	1	3	
34	25 NB MALLEABLE CAST IRON PLUG	25 NB	1	3	
35	50*25 NB, HDG REDUCING SOCKET, FEMALE THREAD BOTH ENDS	25-50 NB	1	3	
36	50 NB, HDG STEEL PIPE, 270 mm, ONE END MALE THREAD, AND OTHER END WITH 100NB FLANGE DRILLED TO SABS 1123 TABLE 1000/3. CORROSION PROTECTION: HOT DIPPED GALVANIZED	50 NB	1	3	
37	PN10 COMPRESSION FLANGE ADAPTOR TO FIT 50mm HDPE AND A FLANGED 50NB STEEL PIPE. ALL FLANGES TO BE DRILLED TO SABS 1123, TABLE 1000/3 AND HOT-DIPPED GALVANIZED.	50 NB	2	6	
38	50NB STEEL PUDDLE PIPE, 685mm LONG. ONE END PLAIN AND OTHER ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT DIPPED GALVANIZED	50 NB	1	3	
39	50NB PN10 DEDICATED FLANGE ADAPATOR, COMPLETE WITH THREADED RODS, NUTS AND WASHERS. FLANGE DRILLED TO SABS 1123, TABLE 1000/3.	50 NB	1	3	
40	50NB, PN16, SABS 664 RESILIENT SEAL GATE VALVE, NON-RISING SPINDLE WITH HAND WHEEL. FLANGED AND DRILLED TO SABS 1123, TABLE 1600/3	50 NB	1	3	FACE TO FACE LENGTH =150mm
41	50NB STEEL DISTANCE PIECE, 1380mm LONG WITH 100NB STUB. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT DIPPED GALVANIZED	50 NB	1	3	

REINFORCEMENT SCHEDULE

	BAR MARK	TYPE AND SIZE	NO. PER UNIT	TOTAL NO.	BAR LENGTH mm	BENDING DIMENSIONS ACCORDING TO SABS 82					
						SHAPE CODE	A mm	B mm	C mm	D mm	E/r mm
THRUST WALL	01	Y10	8	24	300	20	300				
	02	Y10	16	43	250	38	100	100	100		
	03	Y12	22	66	580	37	160	450			36
	MESH REF 617 AREA : 6 m^2 (NF&FF) EACH MANHOLE										

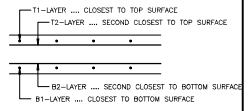
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						SHAPE CODE	A mm	B mm	C mm	D mm	E/r mm
ROOF SLAB	04	Y10	08	24	1000	20	1000				
	MESH REF 617 AREA : 4 m^2										

	BAR MARK	TYPE AND SIZE	NO. PER UNIT	TOTAL NO.	BAR LENGTH mm	BENDING DIMENSIONS ACCORDING TO SABS 82					
						SHAPE CODE	A mm	B mm	C mm	D mm	E/r mm
FLOOR SLAB	02	Y10	44	132	250	38	100	100	100		
	MESH REF 617 AREA : 8.5 m^2 (TOP & BOTTOM) EACH MANHOLE										

NOTES :

1. ALL STRUCTURAL CONCRETE TO BE 25MPa/19mm
2. ALL EXPOSED EDGES TO BE CHAMFERED TO 25 X25 mm
3. ALL REINFORCEMENT TO BE HIGH YIELD AND MUST COMPLY TO SABS 920.
4. REINFORCEMENT IS CONTINUOUS THROUGH THE JOINTS.
5. COVER TO STEEL IS 30 mm UNLESS SPECIFIED OTHERWISE
6. BACKFILL AROUND THE MANHOLES TO BE COMPACTED TO 97% MOD AASHTO MAX DRY DENSITY.
7. ALL STEEL ITEMS TO BE MANUFACTURED FROM MED. GAUGE STEEL AND TO SABS 062 OR SABS 719
8. ALL BURIED STEEL ITEMS TO BE DENSO WRAPPED
9. CALCAMITE STEP IRONS INSTALLED 300mm CENTER TO CENTER.

ABBREVIATIONS:



ALT ... BARS ALTERNATING
ABR ... ALTERNATING BARS REVERSED
STG ... BARS STAGGERED
EF ... EACH FACE
EW ... EACH WAY
NF ... NEAR FACE, REFERS TO EXTERNAL FACE OF WALL
FF ... FAR FACE, REFERS TO INTERNAL FACE OF WALL

NO.	AMENDMENTS	DATE	BY
0	ISSUED FOR BID PURPOSE ONLY	06/2023	SJ

NAMWATER
Namibia Water Corporation Ltd

SCHEME
TSUMKWE WSS

DRAWING
TSUMKWE EXTENSION & UPGRADE:
ISOLATING VALVE MANHOLE: 50NB STEEL PIPEWORK & REINFORCEMENT DETAILS

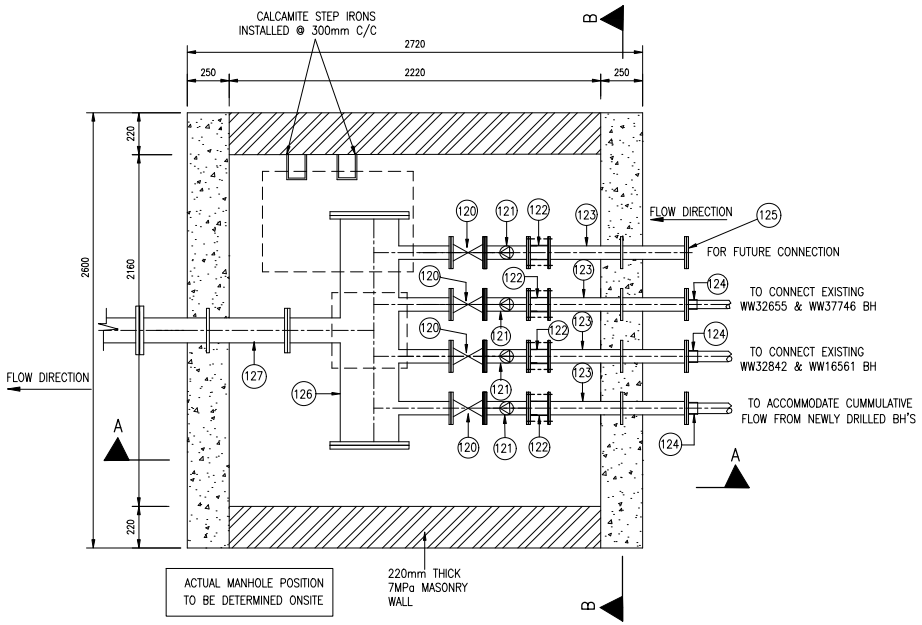
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CHECKED CIVIL W. ANDERSON	CHECKED ELEC.	CHECKED MECH.
APPROVED CIVIL W. ANDERSON	APPROVED ELEC.	APPROVED MECH.

MANAGER CIVIL DESIGN

DATE	SCALE	SHEET NO.
05/2023	AS SHOWN	1 OF 1

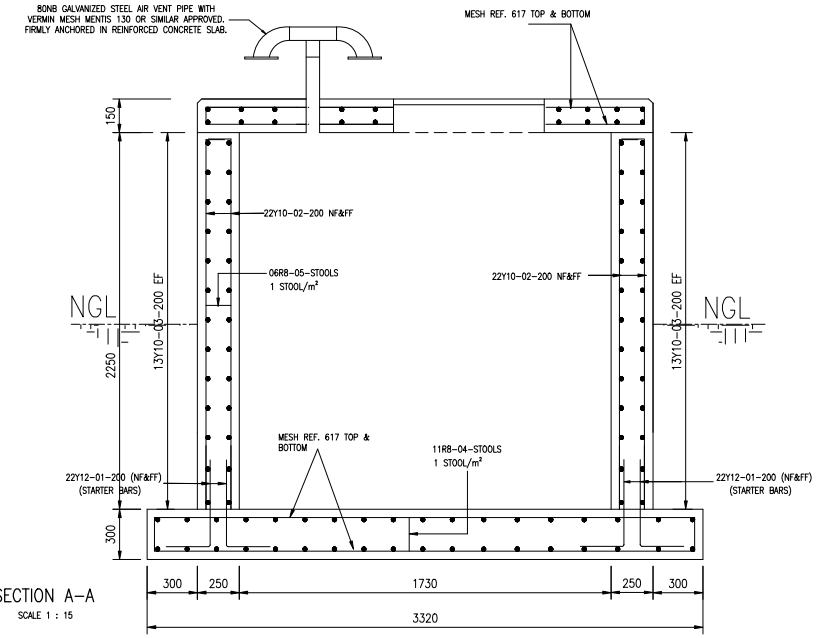
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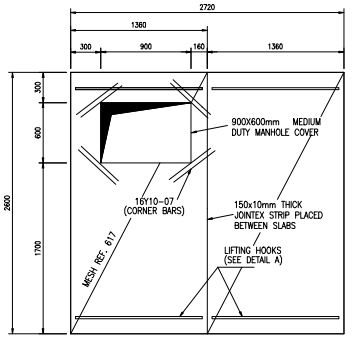
CONNECTION MANHOLE PLAN VIEW

SCALE 1 : 15



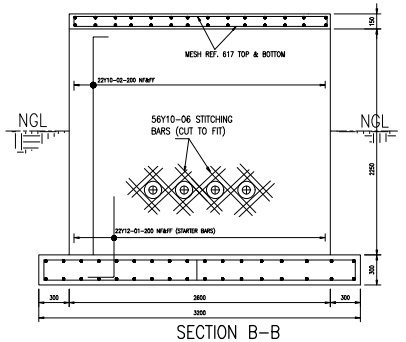
SECTION A-A

SCALE 1 : 15



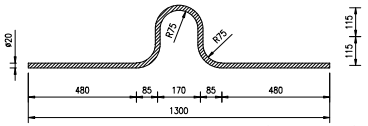
CONNECTION MH COVER SLAB DETAILS

SCALE 1 : 25



SECTION B-B

SCALE 1 : 25



DETAIL A: SHAPE CODE 99 (4 NO. OFF)

SCALE 1 : 10

TSUMKWE CONNECTION MANHOLE IN NAMWATER YARD

UNIT & No. OFF	BAR MARK	TYPE & SIZE	No. PER UNIT	TOTAL No.	BAR LENGTH mm	BENDING DIMENSIONS ACCORDING TO SABS 82					
						SHAPE CODE	A mm	B mm	C mm	D mm	F/r mm
STARTER BARS	1	Y12	44	44	770	37	250	550			36
	2	Y10	44	44	2322	37	150	2200			36
	3	Y10	52	52	2500	20	2500				
FLOOR STOOL	4	R8	11	11	1188	83	300	180	300	300	20
WALL STOOL	5	R8	6	12	303	38	100	135	100		16
STICHING BARS	6	Y10	16	16	1500	20	1500				
CORNER BARS	7	Y10	16	16	1000	20	1000				
LIFTING HOOKS	DETAIL A	Y20	4	28	1550	99	1550				
COVER SLABS			1	1	Mesh Ref. 617 Area = 2.72m x 2.6 m = 7.1 m^2 x2 = 14.2 m^2						
FOUNDATION			1	1	Mesh Ref. 617 Area = 3.2m x 3.32 m = 10.6 m^2 x2 = 21.5 m^2						

PIPE SCHEDULE

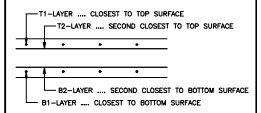
ITEM	SIZE DN	QTY	DESCRIPTION	SKECTH
120	80	4	80NB, PN16, SABS 664 RESILIENT SEAL GATE VALVE, NON-RISING SPINDLE WITH HAND WHEEL. FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3	FACE TO FACE LENGTH=180mm
121	80	4	80NB, PN16, SABS 664 NON-RETURN VALVE (VAG RETO-STOP CHECK VALVE OR SIMILAR APPROVED. FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3	
122	80	4	80NB, PN10, DEDICATED FLANGE ADAPTOR COMPLETE WITH THREADED RODS, NUTS AND WASHERS. FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3	
123	80	4	80NB STEEL DISTANCE PIECE WITH PUDDLE FLANGE, 932mm LONG. ONE END PLAIN. ALL FLANGES DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT - DIPPED GALVANIZED	932, 400, 426, 106
124	80	3	80NB, PN10, COMPRESSION FLANGE ADAPTOR TO FIT 110mm HDPE PIPE AND 80NB STEEL PIPE. FLANGED DRILLED TO SABS 1123, TABLE 1000 AND HOT DIPPED GALAVANIZED	
125	80	1	80NB, PN10 STEEL BLANK FLANGE, DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT - DIPPED GALVANIZED	
126	80 x 350 x 125	1	350NB, STEEL MANIFOLD FIGTTING. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. TWO (2) 350NB ENDS COMPLETE WITH STEEL BLANK FLANGE DRILLED TO SABS 1123, TABLE 1000/3. REFER TO SKETCH FOR MORE DETAILS. CORROSION PROTECTION: HOT - DIPPED GALVANIZED	222, 310, 310, 222, 462, 516, 687, 1374
127	125	1	80NB STEEL PUDDLE PIPE, 875mm LONG. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT - DIPPED GALVANIZED	875, 480

NOTES :

1. MANHOLES POSITIONS TO BE DETERMINED ONSITE.
2. AGGREGATE SOURCE NEED TO BE PRE-APPROVED. ALL AGGREGATES MUST CONFORM TO SABS 1083.
3. ALL MANHOLES COVERS TO BE 900X600mm TYPE-E MEDIUM DUTY POLYMER.
4. ALL CAST IN ITEMS TO BE FREE OF GREASE, DIRT OR ANY OTHER MATERIAL WHICH MAY IMPAIR WITH THE BOND TO THE CONCRETE.
5. ALL CONCRETE WORK TO BE IN ACCORDANCE WITH SANS 1200 G AND READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS WHERE APPLICABLE.
6. PIPELINE TO FOLLOW GROUND PROFILE EXCEPT WERE INDICATED OTHERWISE.
7. REINFORCEMENT TO BE IN ACCORDANCE WITH SANS 920 AND BENT IN ACCORDANCE WITH SANS 082. WELDED MESH FABRIC TO COMPLY WITH SANS 1024.
8. ALL FOUNDATION EXCAVATIONS TO BE APPROVED BY THE ENGINEER PRIOR TO CASTING.
9. ALL STEELWORK AND FIXING DETAILS TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING.
10. CONCRETE COVER AND STRENGTH TO BE:

ELEMENT	CONCRETE STRENGTH/ AGGREGATE SIZE MPa/mm	COVER
FOUNDATIONS	25/19	30
WALLS	25/19	30
COVER SLABS	25/19	30

ABBREVIATIONS:



ALT ... BARS ALTERNATING
ABR ... ALTERNATING BARS REVERSED
STG ... BARS STAGGERED
EF ... EACH FACE
EW ... EACH WAY
NF ... NEAR FACE. REFERS TO EXTERNAL FACE OF WALL
FF ... FAR FACE. REFERS TO INTERNAL FACE OF WALL

NO.	AMENDMENTS	DATE	BY
0	ISSUED FOR BID PURPOSE ONLY	09/2023	SJ

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SCHEME
TSUMKWE WSS

DRAWING
TSUMKWE EXTENSION & UPGRADE
CONNECTION MANHOLE SCHEDULE & DETAILS

SURVEYED	DRAWN S. IYAMBO	TRACED AUTOCAD
DESIGNED CIVIL S. IYAMBO	DESIGNED ELEC.	DESIGNED MECH.
CHECKED CIVIL O. KAVETUNA	CHECKED ELEC.	CHECKED MECH.
APPROVED CIVIL W. ANDERSON	APPROVED ELEC.	APPROVED MECH.

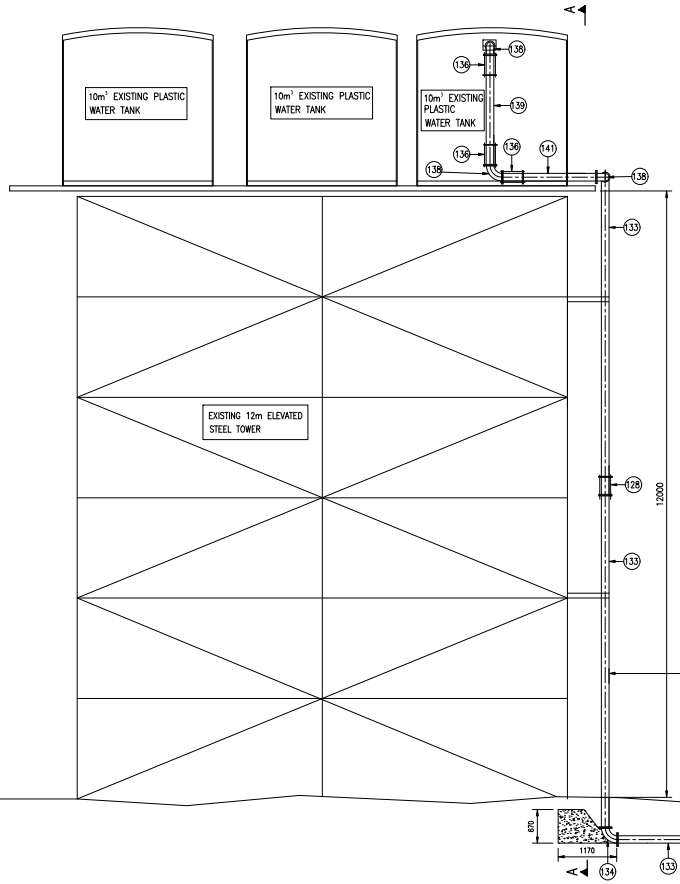
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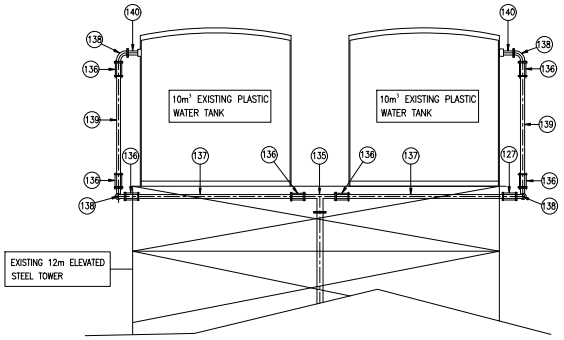
DATE	SCALE	SHEET NO.
09/2023	AS SHOWN	1 OF 1

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15/8/2/16-29R0

15/8/2/16-30R0

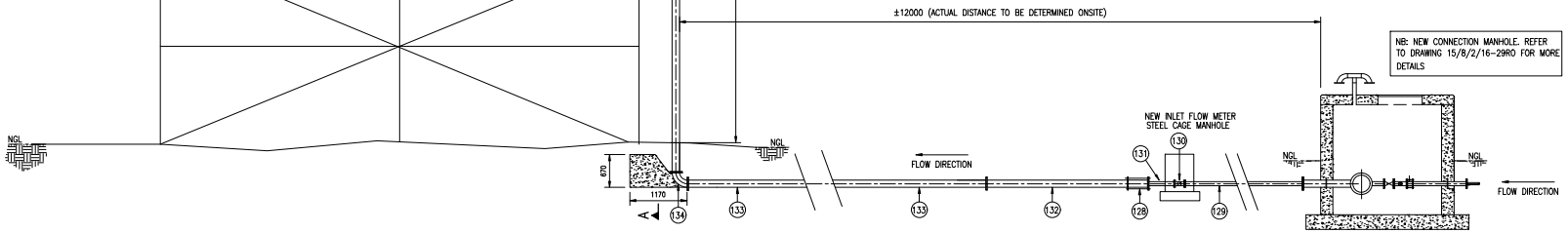
NOTE: THIS DRAWING TO BE READ TOGETHER WITH DRAWING NO. 15/8/2/16-31R0





SECTION A-A

SCALE 1 : 10



TANK CONNECTION SECTION DETAILS

SCALE 1 : 10

NOTES :

1. CAGES SHALL BE PAINTED WITH ONE COAT OF SELF-ETCHING PRIMER AND ONE COAT OF PROVONITE.
2. STEEL PROFILES TO BE ACCORDING TO SABS 1431, GRADE 300 W
3. WELDING ACCORDING TO SABS 044
4. BOLTS, NUTS AND WASHERS TO SABS 135 – 1985 GRADE 4.6
5. ON SUPPLY AND DELIVERY CONTRACTS, THE CHEMICAL ANCHORS MUST BE INCLUDED WITH THE CAGE.
6. ALL WELDS ARE TO BE 5mm CONTINUOUS FILLET UNLESS OTHERWISE STATED
7. ALL PIPEWORK TO BE DESIGNED FOR A TEST PRESSURE OF ATLEAST 10 BAR (PN10)
8. ALL STEEL PIPEWORK SHOULD BE MANUFACTURED FROM MED GAUGE STEEL TO SABS 062 OR TO SABS 719.
9. ALL STEEL PIPEWORK SHOULD BE HOT DIPPED GALVANIZED
10. ALL FLANGES TO BE DRILLED TO SABS 1123, TABLE 1000/3, UNLESS OTHERWISE STATED.
11. ALL STEEL PIPES AND FITTINGS BELOW GROUND TO BE DENSO PROTECTED TO SPECIFICATION PRIMER.
12. DAMAGED HDG COATING TO BE REPAIRED ON SITE USING COLD GALVANIZING REPAIR KIT AS APPROVED.
13. ALL BOLTS, NUTS & WASHERS TO BE GRADE 4.8 HDG TO SABS 763.
14. ALL CAST IN ITEMS TO BE FREE OF GREASE, DIRT OR ANY OTHER MATERIAL WHICH MAY IMPAIR WITH THE BOND TO THE CONCRETE.

NO.	AMENDMENTS	DATE	BY
0	ISSUED FOR BID PURPOSE ONLY	06/2023	SJ

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SCHEME

TSUMKWE WSS

DRAWING

TSUMKWE EXTENSION & UPGRADE WATER TANK CONNECTION DETAILS

SURVEYED	DRAWN S. IYAMBO	TRACED AUTOCAD
DESIGNED CIVIL S. IYAMBO	DESIGNED ELEC.	DESIGNED MECH.
CHECKED CIVIL O. KAVETUNA	CHECKED ELEC.	CHECKED MECH.
APPROVED CIVIL W. ANDERSON	APPROVED ELEC.	APPROVED MECH.

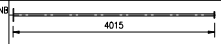
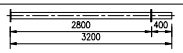
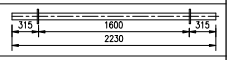
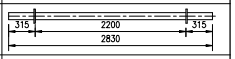
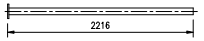
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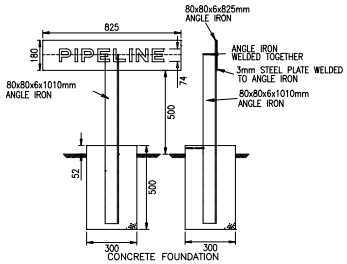
DATE	SCALE	SHEET NO.
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REGISTRATION NO. 15/8/2/16-30R0

15/8/2/16-31R0

PIPE SCHEDULE

ITEM	SIZE DN	QTY	DESCRIPTION	SKECTH
128	125	2	125NB, PN10, DEDICATED FLANGE ADAPTOR COMPLETE WITH THREADED RODS, NUTS AND WASHERS. FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3	
129	80	1	80NB STEEL DISTANCE PIECE, 4015mm LONG. ONE END FLANGED TO FIT 80NB AND OTHER END FLANGED TO FIT 125NB STEEL PIPE. ALL FLANGES DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
130	80	1	MAGNETIC FLOWMETER NB: TO BE SUPPLIED AND INSTALLED BY NAMWATER.	DON'T QUOTE THIS ITEM
131	80	1	80NB STEEL DISTANCE PIECE, 530mm LONG. ONE END FLANGED TO FIT 80NB AND OTHER FLANGE TO FIT 125NB STEEL PIPE. ALL FLANGES DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
132	125	1	125NB STEEL DISTANCE PIECE, 3200mm LONG. ONE END PLAIN AND OTHER END FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
133	125	4	125NB STANDARD STEEL DISTANCE PIECE, 6000mm LONG. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
134	125	1	125NB STANDARD 90° STEEL LONG RADIUS ELBOW FITTING. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
135	125 x 50	1	125x50NB REDUCING STEEL T-PIECE. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. REFER TO SKETCH FOR MORE DETAILS CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
136	50	9	50NB, PN10, DEDICATED FLANGE ADAPTOR COMPLETE WITH THREADED RODS, NUTS AND WASHERS. FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3	
137	50	2	50NB STEEL DISTANCE PIECE, 2230mm LONG. ALL ENDS PLAIN AS DETAILED. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
138	50	2	50NB STANDARD 90° STEEL LONG RADIUS ELBOW FITTING. ALL ENDS FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
139	50	2	50NB STEEL DISTANCE PIECE, 2830mm LONG. ALL ENDS PLAIN AS DETAILED. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
140	50	2	50NB STEEL DISTANCE PIECE, 616mm LONG. ONE END PLAIN AND OTHER END FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	
141	50	2	50NB STEEL DISTANCE PIECE, 2216mm LONG. ONE END PLAIN AND OTHER END FLANGED AND DRILLED TO SABS 1123, TABLE 1000/3. CORROSION PROTECTION: HOT – DIPPED GALVANIZED	



PIPELINE MARKER DETAILS
SCALE 1:15

NOTES :

1. MANHOLES POSITION WILL BE DETERMINED ONSITE.
2. ALL PIPEWORK TO BE DESIGNED FOR A TEST PRESSURE OF ATLEAST 10 BAR (PN10)
3. ALL STEEL PIPEWORK SHOULD BE MANUFACTURED FROM MED GAUGE STEEL TO SABS 062 OR TO SABS 719.
4. ALL STEEL PIPEWORK SHOULD BE HOT DIPPED GALAVANIZED
5. ALL FLANGES TO BE DRILLED TO SABS 1123, TABLE 1000/3, UNLESS OTHERWISE STATED.
6. ALL STEEL PIPES AND FITTINGS BELOW GROUND TO BE DENSO PROTECTED TO SPECIFICATION PRIMER.
7. DAMAGED HDG COATING TO BE REPAIRED ON SITE USING COLD GALVANIZING REPAIR KIT AS APPROVED.
8. ALL BOLTS, NUTS & WASHERS TO BE GRADE 4.8 HDG TO SABS 763.
9. ALL CAST IN ITEMS TO BE FREE OF GREASE, DIRT OR ANY OTHER MATERIAL WHICH MAY IMPAIR WITH THE BOND TO THE CONCRETE.

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0	ISSUED FOR BID PURPOSE ONLY	06/2023	SJ

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Namibia Water Corporation Ltd

SCHEME
TSUMKWE WSS

DRAWING
TANK CONNECTION PIPE SCHEDULE & PIPELINE MARKER DETAILS

SURVEYED	DRAWN S. IYAMBO	TRACED AUTOCAD
DESIGNED CIVIL S. IYAMBO	DESIGNED ELEC.	DESIGNED MECH.
CHECKED CIVIL O. KAVETUNA	CHECKED ELEC.	CHECKED MECH.
APPROVED CIVIL W. ANDERSON	APPROVED ELEC.	APPROVED MECH.

MANAGER: CIVIL DESIGN

DATE	SCALE	SHEET NO.
06/2023	AS SHOWN	1 OF 1

REGISTRATION NO. 15/8/2/16-31R0