



KEY PLAN  
Scale 1: 500

**RISING MAIN CO-ORDINATES SYSTEM (WGS 84)**

Name	Y-Coord	X-Coord	Cover Level	Invert Level	Depth
Northdale Pump	-12713.47	3269317.78	23.04	21.00	2.04
BND1	-12719.09	3269325.36	22.99	21.79	1.20
BND2	-12754.15	3269316.22	23.02	21.82	1.20
BND3	-12775.24	3269349.87	24.36	23.16	1.20
BND4	-12791.21	3269345.09	24.76	23.56	1.20
BND5	-12804.75	3269365.41	25.85	24.27	1.58
BND6	-12822.04	3269397.10	28.14	26.94	1.20
BND7	-12839.34	3269424.33	30.72	29.52	1.20
BND8	-12789.90	3269460.92	31.31	30.11	1.20
EXMH4	-12771.11	3269350.82	24.60	23.37	1.23
EXMH5	-12781.04	3269334.67	24.40	22.63	1.77
EXMH6	-12752.24	3269320.29	23.27	22.12	1.15
EXMH7	-12748.41	3269312.28	23.41	21.68	1.73
EXMH8	-12745.52	3269311.16	23.24	21.58	1.66
MH1	-12725.97	3269319.91	22.87	20.95	1.92
PSINLET	-12719.62	3269314.20	22.92	20.50	2.42
BND9	-12751.14	3269490.00	31.94	30.74	1.20
BND10	-12708.31	3269522.98	31.58	30.38	1.20
BND11	-12711.25	3269526.63	32.07	30.87	1.20
BND12	-12717.85	3269535.12	37.38	36.18	1.20
BND13	-12731.09	3269552.13	38.84	37.64	1.20
BND14	-12749.92	3269575.67	43.27	42.07	1.20
BND15	-12755.47	3269571.57	43.12	41.92	1.20
BND16	-12776.31	3269596.59	46.99	45.79	1.20
BND17	-12792.95	3269620.89	47.87	46.31	1.56
EX TERMINAL MAN HOLE	-12784.78	3269629.30	47.50	46.26	1.24
MH2	-12783.09	3269525.98	0.00	37.44	-37.44

**FENCE CO - ORDINATES**

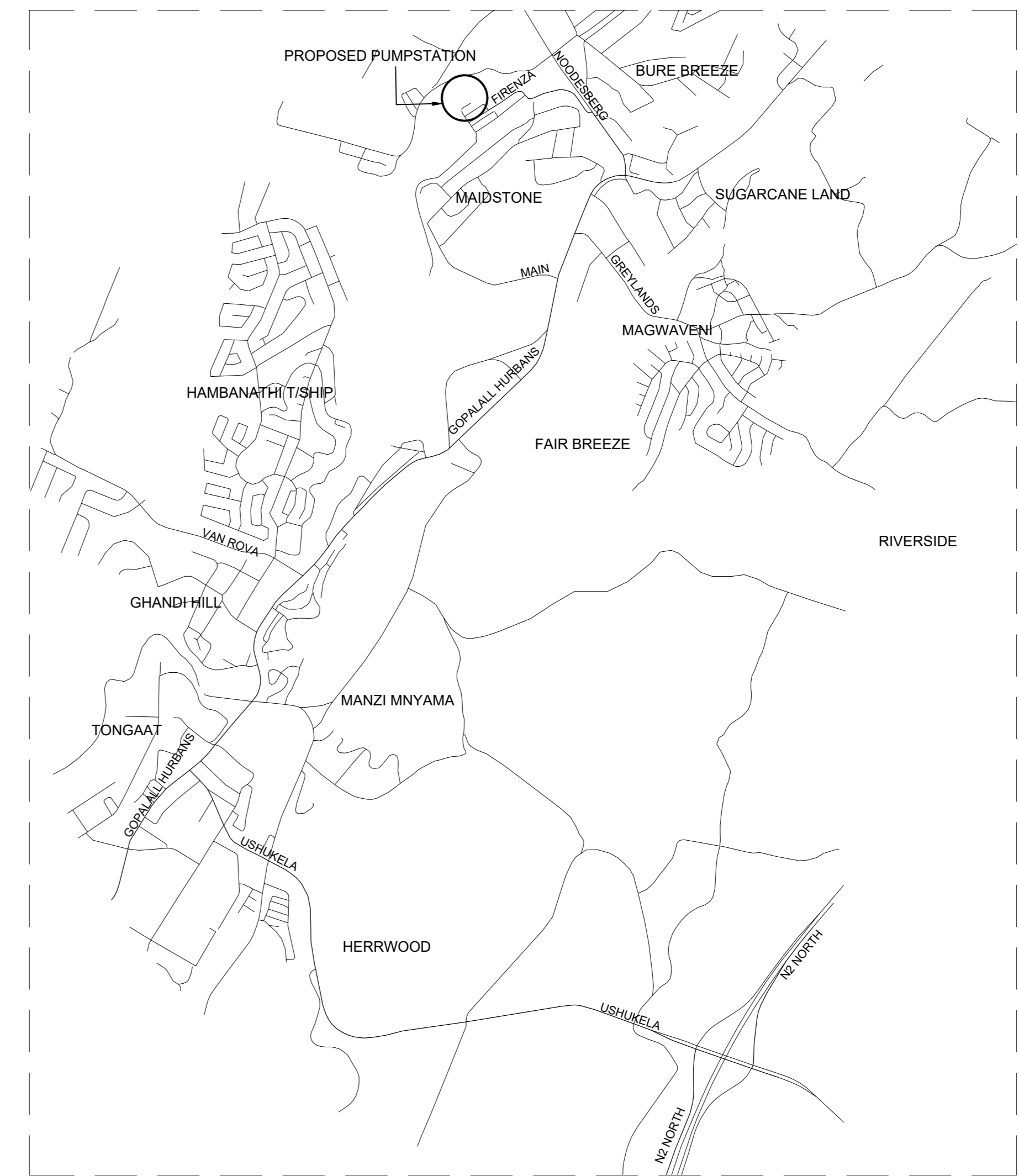
PEG No.	Y	X
F1	12729.00	-3269308.11
F2	12719.38	-3269306.76
F3	12706.40	-3269315.02
F4	12712.30	-3269324.31
F5	12727.45	-3269314.67

**PUMP STATION CO - ORDINATES**

PEG No.	Y	X
P1	12714.92	-3269314.22
P2	12712.36	-3269318.81
P3	12709.68	-3269314.59
P4	12717.48	-3269309.63
P5	12720.17	-3269313.85

**SW CO - ORDINATES**

PEG No.	Y	X
SW 1	12718.55	-3269319.79
SW 2	12726.35	-3269314.83
SW 3	12720.98	-3269314.83
SW MH1	12710.51	-3269318.24
HW 1	12707.36	-3269319.98

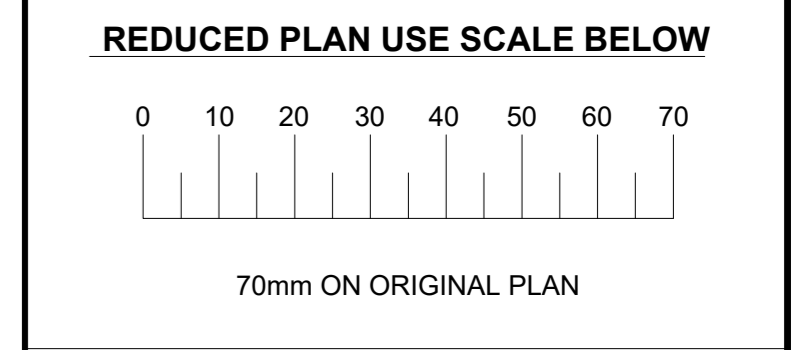


LOCALITY SKETCH  
SCALE N.T.S.

- NOTES:**
1. Manholes to be in accordance with DWG No. 38570 and 38574.
  2. Pipe bedding to be in accordance with departmental specification DB 5.5.
  3. All dimensions are to be checked on site prior to any fabrication and commencement to work.
  4. Positions and levels of all services in the vicinity of the new sewer to be checked and proved prior to commencement of construction.
  5. Sewer pipe shall be heavy duty uPVC 150mmØ on flexible bedding unless otherwise stated.
  6. All invert levels to be confirmed by contractor on site.
  7. All manholes within road carriageway to have H.D. cast iron cover and frame unless otherwise indicated.
  8. All existing services to be proven by contractor on site prior to works proceeding.
  9. For engineering services layout refer to DRG. No. 102665000.
  10. The minimum cover to all pipes shall be :  
A) Manblock - 600mm  
B) Sidewalk - 1000mm  
C) Roadway - 1200mm
  11. Sewer manholes shall be 1000mmØ precast ring manholes with light duty cover and frame unless otherwise indicated.
- N.G.L. - Natural Ground Level  
F.G.L. - Finish Ground Level
- Any discrepancies are to be confirmed with the engineer on site prior to work proceeding.

**REVISIONS**

Revision	Date	Description
A	MAR 2022	FOR TENDER PURPOSES



- LEGEND OF EXISTING UNDERGROUND SERVICES**
- PROPOSED SEWERS AND M.H.'S
  - EXISTING SEWERS AND M.H.'S
  - ABANDONED SEWERS AND M.H.'S
  - STORM WATER DRAIN AND M.H.'S
  - WATER MAINS AND VALVES
  - ELECTRICITY CABLES
  - TELEPHONE CABLES
  - SPOONNET LINE
  - OIL PIPELINE

**UNDERGROUND SERVICES CHECKED**

SERVICE	DATE	SIGNATURE
S.V. DRAINS		
SEWERS		
WATER MAINS		
TELKOM CABLES		
ELECTRIC CABLES		
SPOONNET CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

**NOTE:** Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Wherever possible these must be located before work proceeds.

**ENGINEERING WASTEWATER DESIGN**

ETHEKWINI MUNICIPALITY

**ETHEKWINI WATER & SANITATION**

**WS 7201**

Contract No.

Project Title

**NORTHDALE PUMP STATION AND RISING MAIN REPLACEMENT**

Project No. (Y 8612)

Drawing Title

**PROJECT OVERALL LAYOUT**

Reference Digs

Scales : AS SHOWN

Surveyed : S. MANDELE Date : AUG 2019

Drawn : P. ZONDI Date : MAR 2022

Designed : R. NEL Date : MAR 2022

Checked : P. MBHELE Date : MAR 2022

Area Manager  
Manager: P. MBHELE (Design)  
Deputy Head: B. SONI (Engineering)

Head: (Water & Sanitation) **E. MSWELI**

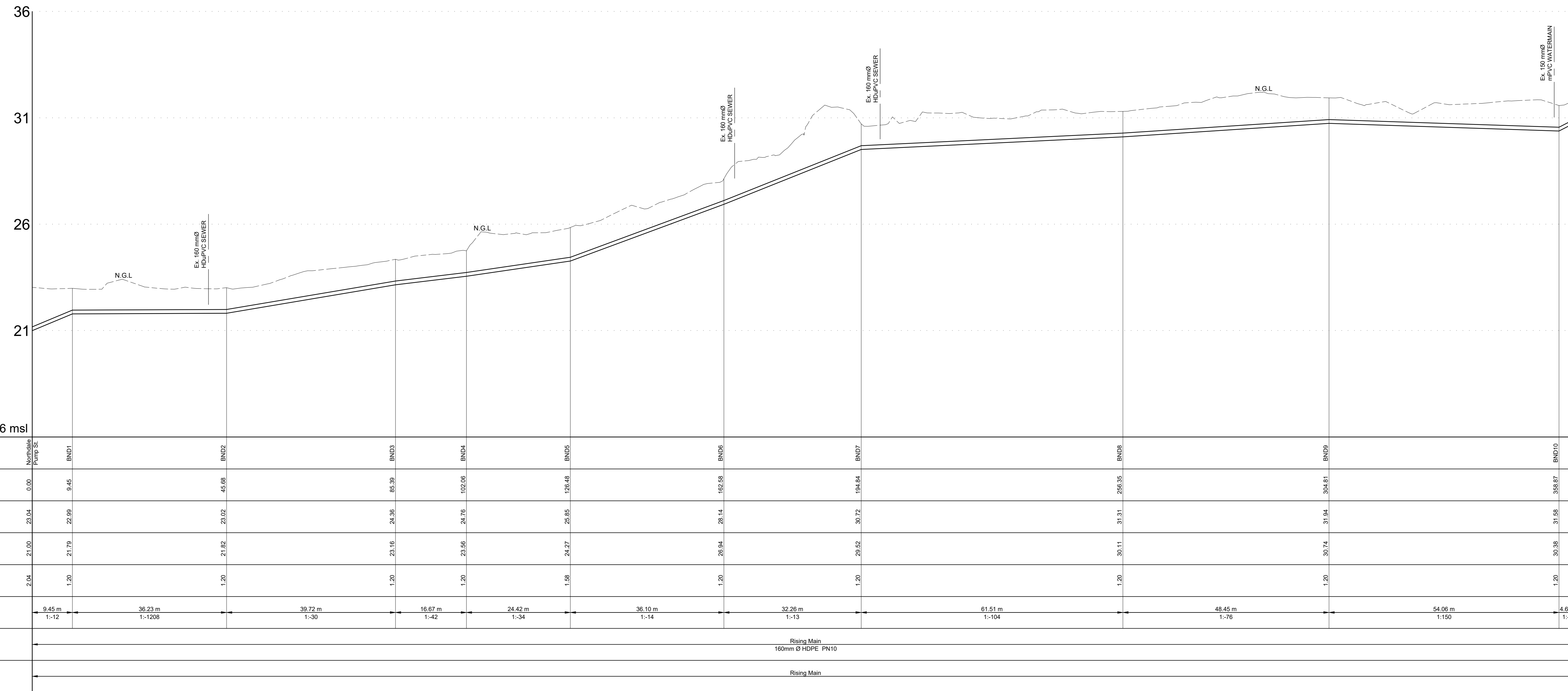
Drawing No. **59106** Sheet **1** Rev.

**FOR TENDER PURPOSES ONLY**

Name	Y-Coord	X-Coord	Cover Level	Invert Level	Depth
BND1	-12715.31	3269307.58	22.66	21.00	1.66
BND2	-12722.30	3269303.42	22.46	21.10	1.36
BND3	-12728.46	3269302.28	22.80	21.44	1.36
BND4	-12736.87	3269313.62	22.91	21.55	1.36
BND5	-12768.37	3269357.17	24.70	23.34	1.36
BND6	-12774.90	3269368.13	25.37	24.01	1.36
BND7	-12782.30	3269355.19	25.47	24.11	1.36
BND8	-12796.30	3269337.24	25.62	24.26	1.36
BND9	-12800.15	3269363.09	25.81	24.45	1.36
BND10	-12807.63	3269374.93	26.62	25.26	1.36
BND11	-12822.04	3269397.10	28.14	26.78	1.36
BND12	-12839.34	3269434.33	30.72	29.36	1.36
BND13	-12789.90	3269460.92	31.31	30.35	0.96
BND14	-12745.58	3269495.23	31.67	30.71	0.96
BND15	-12709.14	3269523.87	31.62	30.26	1.36
BND16	-12711.52	3269526.90	32.14	30.48	1.66



Layout Plan  
Scale 1: 500



Manhole Name	Chainage (m)	Ground Level (m)	Invert Level (m)	Depth (m)	Length / Slope	Pipe Details	Pipe Bedding
Manhole Northdale Pump	0.00	23.04	21.00	2.04	9.45 m / 1:12		
BND1	9.45	22.89	21.10	1.79	35.23 m / 1:1206		
BND2	45.68	23.02	21.02	2.00	39.72 m / 1:30		
BND3	85.36	24.36	23.16	1.20	16.67 m / 1:42		
BND4	102.06	24.76	23.96	0.80	24.42 m / 1:34		
BND5	126.48	25.05	24.27	0.78	36.10 m / 1:14	Rising Main 100mm Ø HDPE, PN10	
BND6	162.58	26.14	25.94	0.20	32.26 m / 1:13		
BND7	194.84	30.72	29.92	0.80	61.51 m / 1:104		
BND8	256.35	31.31	30.11	1.20	48.45 m / 1:70		
BND9	304.81	31.84	30.74	1.10	54.06 m / 1:150		
BND10	358.87	31.58	30.38	1.20	4.89 m / 1:10		
BND11	363.76	32.07	30.57	1.50			

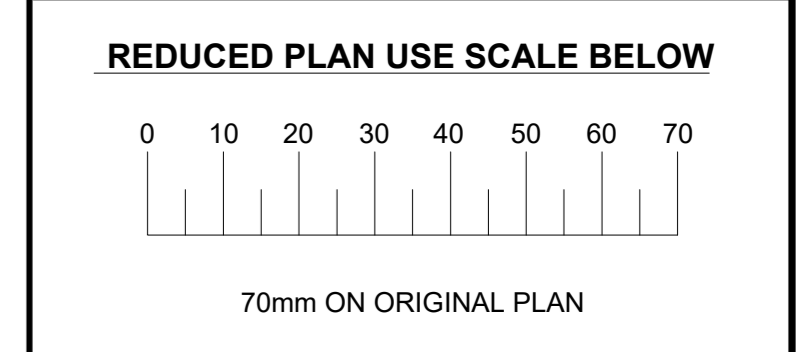
Manhole Northdale Pump to BND20  
Longitudinal Section  
SCALES HOR:1:500 VER 1:100

- NOTES:
- Manholes to be in accordance with DWG No. 38570 and 38574
  - Pipe bedding to be in accordance with departmental specification DB 5.5.
  - All dimensions are to be checked on site prior to any fabrication and commencement to work.
  - Positions and levels of all services in the vicinity of the new sewer to be checked and proved prior to commencement of construction.
  - Sewer pipe shall be heavy duty uPVC 150mmØ on flexible bedding unless otherwise stated.
  - All invert levels to be confirmed by contractor on site.
  - All manholes within road carriageway to have H.D. cast iron cover and frame unless otherwise indicated.
  - All existing services to be proven by contractor on site prior to works proceeding.
  - For engineering services layout refer to DRG. No. 10266/5000
  - The minimum cover to all pipes shall be:
    - A) Midblock - 500mm
    - B) Sidewalk - 1000mm
    - C) Roadway - 1200mm
  - Sewer manholes shall be 1000mmØ precast ring manholes with light duty cover and frame unless otherwise indicated.
- N.G.L. - Natural Ground Level  
F.G.L. - Finish Ground Level
- Any discrepancies are to be confirmed with the engineer on site prior to work proceeding

REVISIONS

Revision	Date	Description
A	MAR 2022	FOR TENDER PURPOSES

DATE : ..... SIGN : .....



- LEGEND OF EXISTING UNDERGROUND SERVICES
- PROPOSED SEWERS AND M.H.'S
  - EXISTING SEWERS AND M.H.'S
  - ABANDONED SEWERS AND M.H.'S
  - STORM WATER DRAIN AND M.H.'S
  - WATER MAINS AND VALVES
  - ELECTRICITY CABLES
  - TELEPHONE CABLES
  - SPOORNET LINE
  - OIL PIPELINE

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W. DRAINS		
SEWERS		
WATER MAINS		
TELKOM CABLES		
ELECTRIC CABLES		
SPOORNET CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Whenever possible these must be located before work proceeds.

NOTE: No construction work to commence until land and services/easements have been confirmed.

Date: \_\_\_\_\_ Engineer: \_\_\_\_\_

NORTH POINT

ENGINEERING WASTEWATER DESIGN

ETHEKWINI MUNICIPALITY

ETHEKWINI WATER & SANITATION

Contract No. **WS 7201**

Project Title  
**NORTHDALE PUMP STATION AND RISING MAIN REPLACEMENT**

Project No. (Y 8612)

Drawing Title  
**PLAN AND LONGITUDINAL SECTION**

Reference Drgs.  
Scales : AS SHOWN

Surveyed : S.MANOELE Date : AUG 2019

Drawn : P.ZONDI Date : MAR 2022

Designed : R.NEL Date : MAR 2022

Checked : P.MBHELE Date : MAR 2022

Area Manager  
Manager : P.MBHELE (Design)

Deputy Head: B.SONI (Engineering)

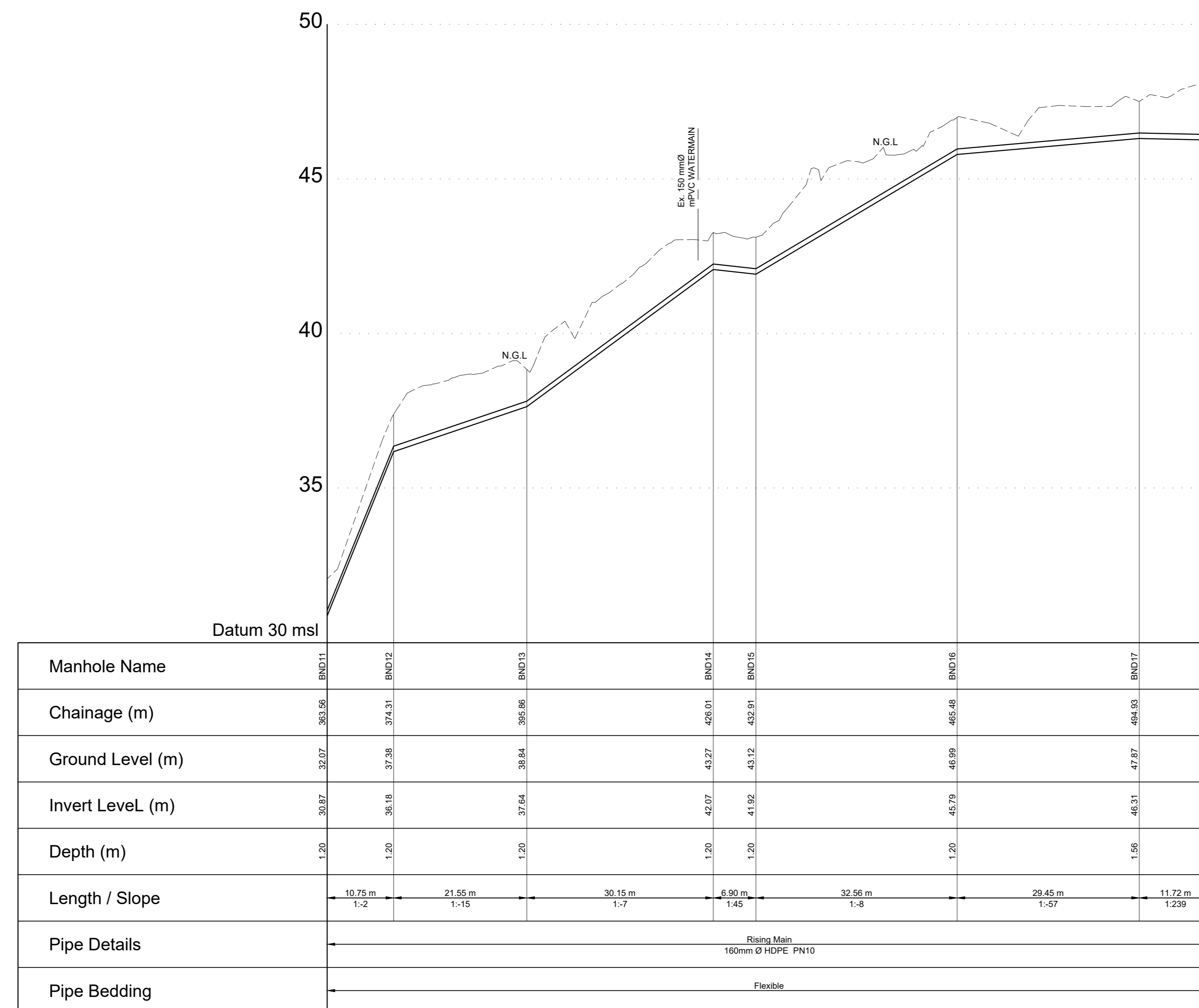
Head: (Water & Sanitation) **E. MSWELI**

Drawing No. **59106** Sheet **2/3** Rev. **A**

FOR TENDER PURPOSES ONLY



Layout Plan  
Scale 1:500



Manhole Northdale Pump to BND20  
Longitudinal Section  
SCALES HOR:1:500 VER:1:100

CO-ORDINATES SYSTEM (WGS 84)

Name	Y-Coord	X-Coord	Cover Level	Invert Level	Depth
BND16	-12711.52	3289526.90	32.14	30.48	1.66
BND17	-12718.48	3289535.77	37.86	36.09	1.86
BND18	-12730.98	3289552.08	38.87	37.51	1.36
BND19	-12735.80	3289558.31	39.93	38.97	0.96
BND20	-12749.61	3289575.38	43.16	41.80	1.36
BND21	-12755.20	3289571.15	43.09	41.73	1.36
BND22	-12774.64	3289594.20	46.63	45.27	1.36
BND23	-12792.60	3289621.14	47.57	46.35	1.22
BND24	-12784.42	3289627.63	47.79	46.27	1.52
BND25	-12784.78	3289629.30	47.79	46.25	1.54

NOTES:

- Manholes to be in accordance with DWG No. 38570 and 38574.
- Pipe bedding to be in accordance with departmental specification DB 5.5.
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- All manholes within road carriage way to have H.D. cast iron cover and frame unless otherwise indicated.
- All existing services to be proven by contractor on site prior to works proceeding.
- For engineering services layout refer to DRG. No. 10266/5000.
- The minimum cover to all pipes shall be :  
A) Middleblock - 800mm  
B) Sidewalk - 1000mm  
C) Roadway - 1200mm
- Sewer manholes shall be 1000mmØ precast ring manholes with light duty cover and frame unless otherwise indicated.

N.G.L. - Natural Ground Level  
F.G.L. - Finish Ground Level

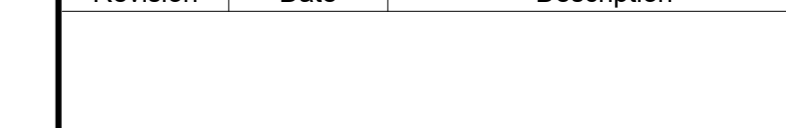
Any discrepancies are to be confirmed with the engineer on site prior to work proceeding

12. Concrete thrust blocks to be constructed of Horizontal & Vertical Bends as instructed by the Engineer

REVISIONS

Revision	Date	Description
A	MAR 2022	FOR TENDER PURPOSES

DATE : ..... SIGN : .....



LEGEND OF EXISTING UNDERGROUND SERVICES

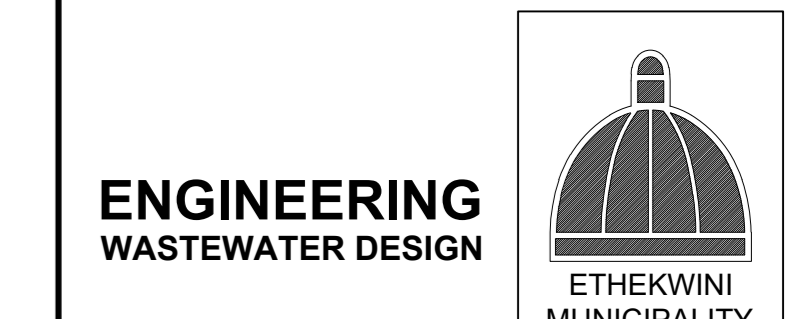
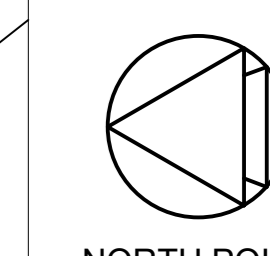
- PROPOSED SEWERS AND M.H.'S
- EXISTING SEWERS AND M.H.'S
- ABANDONED SEWERS AND M.H.'S
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- WATER MAINS AND VALVES
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UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W. DRAINS		
SEWERS		
WATER MAINS		
TELKOM CABLES		
ELECTRIC CABLES		
SPOORNET CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Whenever possible these must be located before work proceeds.

NOTE: No construction work to commence until land and servitude applications have been approved.  
Date: \_\_\_\_\_ Engineer: \_\_\_\_\_



ETHEKWINI WATER & SANITATION

Contract No. **WS 7201**

Project Title  
**NORTHDALE PUMP STATION AND RISING MAIN REPLACEMENT**

Project No. (Y 8612)

Drawing Title  
**PLAN AND LONGITUDINAL SECTION**

Reference Drgs.

Scales	: AS SHOWN	Date	: AUG 2019
Surveyed	: S. MANZEL	Date	: MAR 2022
Drawn	: P. ZONDI	Date	: MAR 2022
Designed	: R. NEL	Date	: MAR 2022
Checked	: P. MBHELE	Date	: MAR 2022

Area Manager  
Manager: P. MBHELE (Design)  
Deputy Head: B. SONI (Engineering)

Head: (Water & Sanitation) **E. MSWELI**

Drawing No. **59106** Sheet **3/3** Rev **A**

FOR TENDER PURPOSES ONLY