water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

July 2020

NATIONAL WATER ACT, ACT 36 OF 1998, WATER USE LICENSE APPLICATION AND AMMENDMENT REGULATIONS 2017 - APPENDIX D: TECHNICAL REPORT ON CIVIL ENGINEERING

CHECKLIST TO ASSIST REGIONAL HEADS AND CASE OFFICERS ON ASSESSING APPLICANTS COMPLIANCE AND READINESS FOR PRESENTATION (AS PER REGULATION 12)

The WULAA Regulations 2017 define the procedure to be followed in water use license applications and consideration, for which guidance on technical report stage of design and technical report content to address performance standards for designs which trigger water uses, has been made available to Regional Managers and Case Officers by the Director: Water Use Licensing in Technical Advisory Notes. The three Technical Advisory Notes are available on the DWS website.

The following checklist is provided to improve efficiency in the processing of integrated Water Use License application technical report compilation, evaluation of completeness by Case Officers and Regional Managers, and assessment of content by Engineering Services.

1. The applicant and representative

(a) Name of project Water Use License Application: Cato Ridge Development Company Limited - Cato Ridge Land Release Project (WU26945)

(b) Name and contact details of the developers' representative e.g. CEO or municipal manager

Name of Company	Cato Ridge Development Company Limited
Address	24 Impala Roads Chislehurston Johannesburg 2196
Telephone Number	011 779 1000
Fax Number	011 779 1031
Project Manager and Person responsible for IWWMP Implementation	
Name	Mr. Werner Botha
Position	Property Manager)
Mobile Number	082 411 1656
Fax Number	011 779 1031
Email Address	wernerb@feralloys.co.za

(c) Name, contact details and ECSA registration number of the registered engineer (civil) certifying the design report –

Name : Kevin Edwin Hohls

Email Address : kevinh@pmb.kanteys.co.za

Contact No : Work 0330 3475453
Cell 084 555 9467

Registration No : Pr. Eng. 20060264

(d) Title, date and reference number of the Technical Report:

1) Pre- feasibility Report for the Provision of Civil Engineering Water Services for the Proposed Development of Properties in Cato Ridge for the Cato Ridge Development Company, 23 May 2023, compiled by Kantey & Templer (PTY) LTD. Reference No 20207/ S1 Revision 3.

2) Pre- feasibility Report for the Provision of Civil Engineering Sewer Services for the Proposed Development of Properties in Cato Ridge for the Cato Ridge Development Company, 29 May 2023, compiled by Kantey & Templer (PTY) LTD. Reference No 20207/ SEWER 1 Revision 4.

3) Pre- feasibility Report for the Provision of Civil Engineering Stormwater Management Services for the Proposed Development of Properties in Cato Ridge for the Cato Ridge Development Company, 29 May 2023, compiled by Kantey & Templer (PTY) LTD. Reference No 20207/ SWM 0 Revision 1.

(e) Water Uses and Brief Description:

Please refer to Table 1 below for details:-

Purpose	Activity Description	Type of Watercourse	Extent	Volume (m^3/a) / Dimensions	Coordinates		Property Description (As per title Deed)	Property Owner
					Latitude	Longitude		
Section 21 (c & i): Impeding or diverting the flow of water in a watercourse Altering the bed, banks, course or characteristics of a watercourse								
Construction and operation of a Modular Sewer Treatment Plant and associated infrastructure, internal roads, underground power lines, access and internal roads and water pipelines within 500m of a wetland regulated area associated with Cato Ridge development.	All Stormwater pipeline within development footprint, situated within 500m of a regulatory area	Wetland	Total stormwater pipeline length: 18 58.798m	Pipe size: 450mm diameter Pipe size: 600mm diameter Pipe size: 750mm diameter	29°43'50.2"S	30°36'23.4"E	Portion 26 of the Farm Uitkomst and Doornrug 852 (26/852) Remainder 29 of the Farm Uitkomst and Doornrug 852 (RE/29/852) Portion 41 of the Farm Uitkomst and Doornrug 852 (41/852) Portion 25 of the Farm Riet Vallei 851 FT (25/852) Remaining Extent of Farm Riet Vallei 851 FT (RE/851)	Assmang Limited No.1935/007343/06
	All Water pipeline within development footprint, situated within 500m of a regulated area	Wetland	Total length: 3 606m	200mm dimeter and throughput of 50l/s	29°43'46.8"S	30°36'20.0"E	Remainder of ERF 50 Cato Ridge FT Portion 41 of the Farm Uitkomst and Doornrug 852 FT (41/852) Remainder of ERF 50 Cato Ridge FT T7409/1960 Portion 40 of the Farm Uitkomst and Doornrug 852 FT (41/852) and Portion 25 of the Farm Riet Vallei 852 FT (25/851)	
	All internal streets within development footprint, situated within 500m of a regulated area	Wetland	Total length: 3 277m	20m width (including reserve), 3.5m width single lane	29°41'2.65"S	30°37'40.42"E	Portion 27 of the Farm Riet Vallei 851 FT (27/851)	
	Overhead powerline within development footprint, situated within 500m of a regulated area	Wetland	Total length: 315m		29°43'17.67"S	30°36'52.33"E	Remainder of ERF 50 Cato Ridge FT T7409/1960	
	Sewer pipeline within development footprint, situated within 500m of a regulated area	Wetland	60m	300mm diameter and throughput of 3l/s	29°43'50.2"S	30°36'23.4"E	Portion 26 of the Farm Uitkomst and Doornrug 852 (26/852)	
	Stormwater attenuation ponds within 500m of a regulated area (refer to drawing No 20207 CSW09 Rev A)	Wetland	Total area - 5 ponds: 1 238m^2				Remainder of ERF 50 Cato Ridge FT Remainder 29 of the Farm Uitkomst and Doornrug 852 (RE/29/852) Remainder of ERF 50 Cato Ridge FT Portion 41 of the Farm Uitkomst and Doornrug 852 (41/852) Portion 25 of the Farm Riet Vallei 851 FT (25/852)	
	Mini Water Treatment Works within 500m of a regulatory area	Wetland	10 650m^2		29°43'19.70"S	30°37'5.70"E	Remainder of ERF 50 Cato Ridge FT T7409/1960	
	Treated sewage water (effluent) discharge points and erosion protection structures within wetland	Wetland			29°43'26.28"S	30°37'11.86"E	Remaining Extent of the Farm Uitkomst and Doornrug 852 FT (RE/852)	

Purpose	Activity Description	Type of Watercourse	Extent	Volume (m^3/a) / Dimensions	Coordinates		Property Description (As per title Deed)	Property Owner
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Section 21 (c & i): Impeding or diverting the flow of water in a watercourse Altering the bed, banks, course or characteristics of a watercourse								
Infrastructure crossing over a wetland or stream	Sewer pipelines and associated manholes	Mountain Stream (R19) Upstream Catchment largely degraded.			29°41'41.65"S	30°37'58.83"E	Remaining Extent of Farm Riet Vallei 851 FT (RE/851)	Assmang Limited No.1935/007343/06
	Water pipelines	Mountain Stream (R19) Upstream Catchment largely degraded			29°41'41.17"S	30°37'54.98"E	Portion 26 of the Farm Riet Vallei 851 FT (26/851) **T1726/1921**	
	Internal streets	Seep (W14)	18m		29°43'50.67"S	30°36'44.91"E	Remainder 29 of the Farm Uitkomst and Doornrug 852 (RE/29/852) **T7405/1960**	
Section 21 (f): Discharging waste or water containing waste into a water resource								
Discharging of treated sewage water through a pipe into a watercourse	Treated sewage water discharge point	Unchanneled Valley Bottom (W12) EIS: High	Discharge pipeline length:	731 277.5m^3 /annum	29°43'26.28"S	30°37'11.86"E	Remaining Extent of the Farm Uitkomst and Doornrug 852 FT (RE/852)	Assmang Limited No.1935/007343/06
Section 21 (g): Disposing of waste in a manner which may detrimentally impact on a water resource.								
Disposing of water containing waste within a watercourse	Mini Wastewater Treatment Works	Unchanneled Valley Bottom (W12) EIS: High	Discharge pipeline length:	731 277.5m^3 /annum	29°43'19.70"S	30°37'5.70"E	Remainder of ERF 50 Cato Ridge FT **T7409/1960**	Assmang Limited No.1935/007343/06
	Pump and Collection Sump station 1 Area 20m x 15m=300 m^2 Peak flow including infiltration - 56.7 l/s Average flow including infiltration is 19 l/s Pump sump sized for 6 starts per hour is 5.46 min x 60 x 57 = 19 m^3 Storage for 4 hours = 274 m^3		3 700m^2		29°41'4.78"S	30°37'45.74"E	Portion 27 of the Farm Riet Vallei 851 FT **(27/851)** **T7408/1960**	

Purpose	Activity Description	Type of Watercourse	Extent	Volume (m^3/a) / Dimensions	Coordinates		Property Description (As per title Deed)	Property Owner
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	Pump and Collection Sump station 2 15m x 10m=100m^2 Peak flow including infiltration 18.77 l/s Average flow including infiltration is 6.3 l/s Pump sump sized for 6 starts an hour is 5.46 x 60 x 19 = 6.2 m^3 storage for 4 hours = 91 m^3	Seep (W23)	1 250m^2		29°43'42.41"S	30°36'28.56"E	Remainder of ERF 50 Cato Ridge FT **T7409/1960**	
	Pump and Collection Sump station 3 7.5m x 5m=37.5m^2 Peak flow including infiltration is 5.9 l/s Average flow including infiltration is 2 l/s Pump sump sized for 6 starts an hour is 5.46 x 60 x 5.9 l = 2 m^3 4 storage for 4hours l= 29 m^3				29°43'48.84"S	30°36'45.49"E	Remainder 29 of the Farm Uitkomst and Doornrug 852 (RE/29/852) **T7405/1960**	
	Pump and Collection Sump station 4 10m x 6m=60m^2 Peak flow including infiltration – 9.22 l/s Average flow including infiltration is 3.07 l/s Pump sump sized for 6 starts an hour is 5.46 x 60 x 9.22l = 3 m^3 Storage for 4 hours = 43 m^3				29°43'04.02"S	30°37'20.22"E	Portion 41 of the Farm Uitkomst and Doornrug 852 (41/852)	

(f) Quaternary Catchment U20J, U20L and U60C

(g) Status of License application: This is a new application

(h) DWS Case Officer name, email address, and phone numbers (office and mobile).

Ms Nosisa Ngwenya

Environmental Officer

Department Of Water and Sanitation

88 Joe Slovo Street, 12th Floor

Southern Life Building, Durban.

Telephone :031) 336 2966

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(i) Does the report contain a disclaimer:

The Feasibility study for a Mini Private Wastewater Treatment Plant in Phase 1 exists. The design has been developed to varying degrees of detail. The treatment portion of the project is at pre-feasibility level.

The eThekwini Municipality have produced a Guideline (Guideline 12) which is generally applied in cases where private wastewater plants are required. The treatment capacity of the works is also limited to a maximum of 2 Ml/day. The waste water treatment works would be constructed in 250 Kilolitre modules which would be upgraded on line as the demand increases.

The construction and operation of the Private Wastewater Treatment Works will only be used to treat domestic wastewater and be operated on a temporary basis until the planned bulk infrastructure is provided to the area by the eThekweni Municiaplity which is planned for 2031/2032 which is subject to change.

2. The content of the technical report reflecting compliance with Norms and Standards

Over and above a description of locality and background information (usually referencing an environmental impact assessment report or authorisation) with a brief

description of the site geohydrology, geology and geotechnics, the presence of influencing features such as faults, dykes, dolomites, mining, the proximity of watercourses (including the 1:100 year floodline) and wetlands, the following information is usually required as a minimum requirement.

Water Use 21 (a) taking water from a water resource

Not Applicable

Water Use 21 (b) storing water

Not Applicable

Water Use 21 (c & i) impeding or diverting the flow of water in a watercourse *, (i)* altering the bed, banks, course or characteristics of a watercourse;

Have bridges (for vehicles and/or pipeline crossings) been designed in accordance with the principles and standards set in the SANRAL Drainage Manual 2015? :

Not Applicable

Type of crossing:

As per the water use table in Section e the following activities trigger water uses.

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Purpose	Activity Description	Type of Watercourse	Extent	Volume (m^3/a) / Dimensions	Coordinates	
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	Water pipelines	Mountain Stream (R19) Upstream Catchment largely degraded			29°41'41.17"S	30°37'54.98"E
	Internal streets	Seep (W14)	18m		29°43'50.67"S	30°36'44.91"E

There are 6 specific areas in the table below which describe the storm water runoff and sewer crossing that discharge within the watercourse that require a Method Statement which are listed in table 2 below:-

Table 2 Stormwater and Sewer Crossings

Point Number	Description	Watercourse
1	Stormwater discharge point , plus stormwater pipeline	S6
2	Stormwater discharge point , plus stormwater pipeline	S11
3	Effluent Discharge Point	Within R3 drainage line
4	Stormwater discharge point , plus stormwater pipeline	R3 and R4 drainage line and within the 33m drainage buffer
5	Stormwater discharge point , plus stormwater pipeline	R2 and drainage buffer
6	Stormwater discharge point , plus stormwater pipeline	R2 Drainage line

Type of foundations:

Not Applicable

Flood capacity:

1:50 return period

Type and number of barrels:

Not Applicable

Water Use 21 (d) engaging in a stream flow reduction activity contemplated in section 36

Not Applicable

Water Use 21 (e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);

Not Applicable

Water Use 21 (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit

Describe the nature and volume of liquid disposed per annum, including mass flux of potential pollutants:

Discharge into the drainage line and drainage buffer (treated discharge to discharge standards):

At maximum capacity the Mini Wastewater Treatment works outlet flow of the second class water is 2 Ml/day x 365 days = 730 Ml/annum treated water

The eThekweni Municipality are planning to install a sewer bulk line in 2031/2032 which is subject to change. The Mini Wastewater Treatment Works will be discontinued when the sewer line is connected to this bulk sewer line.

Water Use 21 (g): disposing of waste in a manner which may detrimentally impact on a water resource

The disposal of waste and measures for controlling pollution (referring to section 19 of the Act) are consistent with the performance standards defined in the National Environmental Management Waste Act, Act 59 of 2008 and its regulations of 2013. (Dispose – is defined as get rid of, by throwing away or giving or selling to someone else). It is thus worth reflecting on the Norms and Standards, in particular the risk assessment of waste and mining residues as well as the commensurate containment standards, in particular in the NEMWA Regulations 2013 R636 regulation 3(2). Extracts of frequently referenced legislation are attached for convenience, with emphasis added, in Appendix A.

Confirmation of waste risk assessment (in accordance with R634 and R635):

Type C waste, due to the waste water concentrations of nitrate and salts exceeding the LCT0 values. See Technical Report Appendix G(a)

Not Applicable

Description of Waste stream:

Not Applicable

R636 reg 3(2) (a) Are the design report and drawings signed-off and dated by a registered professional civil engineer:

Yes, see page number 39

R636 reg 3(2) (b) Service Life for the design and construction quality assurance (CQA) for each infrastructure component, (cell or PCD etc.) -

Polluting period of waste (years):

Not Applicable

Operating period of waste disposal facility (years):

Not Applicable

Anticipated leachate temperature range (°C):

Not Applicable

Total tensile strain in geomembrane (percentage):

Not Applicable

Service life of drainage system materials (years):

Not Applicable

Service life of liner system (years):

Not Applicable

R636 reg 3(2) (c) Total solute transport/seepage through the barrier system (calculations)

Footprint area (ha)

Not Applicable

Maximum wrinkle height in geomembrane (cm)

Not Applicable

Maximum wrinkle width (cm):

Not Applicable

Maximum interconnected wrinkle length (m)

Not Applicable

Maximum percentage area of wrinkles

Not Applicable

Leakage rate assessed during operational period (l/ha/d)

Not Applicable

Leakage rate post closure (i.e. end of operational phase) (l/ha/d)

Not Applicable

Total leakage for component (l/d) for the RoM pad

Not Applicable

Quaternary catchment:

Not Applicable

Has the site specific surface topography, geotechnics, geology and geohydrology been reported:

Not Applicable

R636 reg 3(2) (d) Alternative elements of proven equivalent performance

What alternative elements have been used e.g. geotextile cushion in lieu of soil protection layer above geomembrane; geosynthetic drains in lieu of granular drains; waste material in lieu of natural material for protection and/or drains:

Not Applicable

Has equivalent performance been demonstrated:

Not Applicable

R636 reg 3(2) (e) Atmospheric pressure in drains

List the drawings showing plan of drainage layout and long section elevations:

Has the drainage rate over the operational period taken precipitate and organic clogging into consideration –

Not Applicable

R636 reg 3(2) (f) Barrier systems on slopes steeper than 1v:4h (>14°)

Does the facility have an alternative barrier on side slopes?:

Not Applicable

Has equivalent performance to the base liner been demonstrated?:

Not Applicable

R636 reg 3(2) (g) Construction quality assurance

Does the design report include a CQA plan which addresses all materials used i.e. clay, granular filters, aggregate drainage, geotextiles, geomembranes, method of placement, method of construction and time constraints,

Not Applicable

Does the CQA include a requirement of a trial pad prior to construction

Not Applicable

Does the CQA plan include confirmation of interface shear parameters as per SANS 1526 (2015)

Not Applicable

Does the CQA include independent electric leak location survey?:

Not Applicable

R636 reg 3(2) (h) Relevant South African National Standards or prescribed management practices

Does the design report and CQA include a list of standard specifications?

Not Applicable

Are there any deviations from standard specifications:

Not Applicable

To what materials do the deviations apply:

Not Applicable

R636 reg 3(2) (i) Compatibility of liner materials with the waste stream

Does the design report include confirmatory tests demonstrating chemical compatibility with liner materials:

Not Applicable

R636 reg 3(2) (j) What is the Factor of Safety for stability for total stress during the operational period and post operational period:

Not Applicable

R636 reg 3(2) (k) Has gas management been addressed:

Not Applicable

Water Use 21 (h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;

Describe the process, providing the quantity (m3/s) of water affected including the initial temperature and change therein (in degrees C) :

Not Applicable

Water Use 21 (j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people;

Describe the process and record the quantity and quality of water being removed, and the destination of the water:

Not Applicable

Water Use 21 k using water for recreational purposes.

Describe the process and record the quantity and quality of water being removed, and the destination of the water:

Not Applicable

3. Confirmation of Readiness

I the undersigned certify that the above information is to the best of my knowledge true and accurate.

For the Applicant

Signature name date

For the Engineer

Signature name date **Kevin Edwin Hohls** **23/05/2023**

For the DWS Regional Head

Signature name date