

1 **S1 Table. Summary of the sampling area, anthropogenic activities performed in the lower WFS and associated contaminants.**

Site	Location	Coordinates	Activity	Type of pollution	Contaminants
1	Carletonville	-26.31583333, 27.38247222	<ul style="list-style-type: none"> <li>- Gold mining</li> <li>- Urban</li> <li>- Informal settlements</li> </ul>	<ul style="list-style-type: none"> <li>- Point discharge of mine effluents (fissure &amp; process water) via pipelines &amp; canals</li> <li>- Point discharge of wastewater from municipal sewage works upstream of Carletonville</li> <li>- Diffuse sources of pollution (e.g. storm runoff) from informal settlements</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy metals (uranium, chromium, cobalt, nickel, copper, arsenic, cadmium, zinc)</li> <li>- Microbial pathogens</li> <li>- Salts</li> <li>- Nutrients</li> <li>- Phosphorus</li> <li>- Nitrogen, Nitrate, Ammonium</li> </ul>
2	Wolverdiend	-26.3671944, 27.2705833	<ul style="list-style-type: none"> <li>- Gold mining</li> <li>- Urban</li> <li>- Informal settlements</li> </ul>	<ul style="list-style-type: none"> <li>- Point discharge of mine effluents (fissure &amp; process water) via pipelines &amp; canals</li> <li>- Point discharge of wastewater from Wolverdiend municipal sewage works</li> <li>- Diffuse sources of pollution (e.g. storm runoff) from informal settlements</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy metals (uranium, chromium, cobalt, nickel, copper, arsenic, cadmium, zinc)</li> <li>- Microbial pathogens</li> <li>- Salts</li> <li>- Nutrients</li> <li>- Phosphorus</li> <li>- Nitrogen, Nitrate, Ammonium</li> </ul>
3	C2H069	-26.3700278, 27.2493889	Gold mining	<ul style="list-style-type: none"> <li>- Point discharge of mine effluents (fissure &amp; process water) via pipelines &amp; canals</li> <li>- Point discharge of wastewater from Wolverdiend municipal</li> </ul>	<ul style="list-style-type: none"> <li>- Heavy metals (uranium, chromium, cobalt, nickel, copper, arsenic, cadmium, zinc)</li> <li>- Microbial pathogens</li> </ul>

				sewage works	<ul style="list-style-type: none"> <li>– Nutrients</li> <li>– Phosphorus</li> <li>– Nitrogen, Nitrate, Ammonium</li> </ul>
4	Turffontein dolomitic eye	-26.4095, 27.177417	Agriculture	<ul style="list-style-type: none"> <li>– Diffuse pollution via seepage of fertilizers from irrigated crop areas</li> <li>– Point &amp; diffuse uranium pollution of groundwater sources by re-occurring short-term events (e.g. rain storms, floods, discharge events, accidental mine effluent spills)</li> </ul>	<ul style="list-style-type: none"> <li>– Heavy metals (uranium, chromium, cobalt, nickel, copper, arsenic, cadmium, zinc)</li> <li>– Microbial pathogens</li> <li>– Salts</li> <li>– Nutrients</li> <li>– Phosphorus</li> <li>– Nitrate, Ammonium, Nitrogen oxides</li> <li>– Pesticides</li> </ul>
5	Muiskraal	-26.4364722, 27.1514167	Agriculture	<ul style="list-style-type: none"> <li>– Diffuse pollution via seepage of fertilizers from irrigated crop areas</li> <li>– Point &amp; diffuse uranium pollution of groundwater sources by re-occurring short-term events (e.g. rain storms, floods, discharge events, accidental mine effluent spills)</li> </ul>	<ul style="list-style-type: none"> <li>– Heavy metals (uranium, chromium, cobalt, nickel, copper, arsenic, cadmium, zinc)</li> <li>– Microbial pathogens</li> <li>– Salts</li> <li>– Nutrients</li> <li>– Phosphorus</li> <li>– Nitrate, Ammonium, Nitrogen oxides</li> <li>– Pesticides</li> </ul>
6	Gerhard Minnebron	-26.4798056,	Agriculture	<ul style="list-style-type: none"> <li>– Diffuse pollution via seepage of</li> </ul>	<ul style="list-style-type: none"> <li>– Heavy metals (uranium,</li> </ul>

	dolomitic eye	27.1516111		fertilizers from irrigated crop areas	chromium, cobalt, nickel, copper, arsenic, cadmium, zinc)
				– Point & diffuse uranium pollution of groundwater sources by re-occurring short-term events (e.g. rain storms, floods, discharge events, accidental mine effluent spills)	– Microbial pathogens – Salts – Nutrients – Phosphorus – Nitrate, Ammonium, Nitrogen oxides – Pesticides
7	Mooi River confluence	-26.514555, 27.1245278	Agriculture	– Diffuse pollution via seepage of fertilizers from irrigated crop areas	– Microbial pathogens – Salts – Nutrients – Phosphorus – Nitrate, Ammonium, Nitrogen oxides – Pesticides