TABLE 1: R300 AQUATIC ECOSYSTEMS ASSESSMENT

Site	Route Sector	Highway Section	Location	Route Interaction	Site Description and Condition	Ecological Importance of Site	Likely nature of impact(s) - See Notes
1	1	1	Westlake	Route crosses Westlake Stream via existing culvert *in situ* for many years	Shallow, unlined wetland transitional stream situated between residential area and Westlake wetland.	Moderate. Faunal corridor linkage to Pollsmoor area and Steenberg. Downstream Category B (High ecological importance) Westlake Wetland has High ecological and conservation importance.	No change anticipated unless additional construction/modifications required
2	1	1	Steenberg	Road Reserve north of Westlake Wetland adjacent to Lake Road	Reserve currently forms part of upland transitional zone between the Westlake Wetland and the houses north of Lake Road. The RR area abutts a remnant of seasonal salt marsh. Vegetation generally in moderate condition.	Moderate (wetland buffer zone). Adjacent Category B (High ecological importance) Westlake Wetland assessed as having High ecological and conservation importance.	(1) Reduced buffer width between wetland and residential area; (2) Increased light, movement and noise disturbance on wetland; (3) Construction related impacts.
3	1	1	Steenberg	Route crosses Keysers River	Shallow, unlined river with steep earth embankments. Light industrial area encroaches to right hand bank.	Moderate. Faunal corridor linkage between Westlake Wetland and Zandvlei and (a) reed beds west of railway line; (b) Keysers River catchment area, as well as the area between the railway line and the Keysers River north of Military Road.	(1) Narrowing of river corridor and riparian buffer; (2) Construction-related (bridge).
4	1	1	Steenberg	Road Reserve north of Zandvlei Bird Sanctuary.	Fenced 6 ha area currently forming an extension of the Zandvlei Bird Sanctuary. Vegetation in good condition. Provides habitat for mammals such as Grysbok and porcupine.	Moderate to High. Area provides habitat for Leopard Toad ( ), and contains patches of *Imperata cylindrica* providing habitat for 3 species of butterflies. Area abutts Category B (High ecological importance) vlei wetland (Zandvlei). Area contains 20 plant species that do not occur within the adjacent reserve area.	(1) Loss of habitat for the identified species; (2) Reduced width of buffer between Zandvlei system and urban area; (3) Increased light, movement and noise disturbance on wetland.
5	1	1	Lavender Hill	Route crosses Sand River	Lined box canal discharging into Zandvlei.	Low. River in highly degraded condition, providing negligible to nil corridor function.	Construction related (bridge).
6	1	2	Coastal Park	Crossing of Zeekoe Canal	Route crosses unlined canal (present crossing consists of single lane bridge butressed by gabions.	Low. River in highly degraded condition, providing negligible to nil corridor function. Extant bridge construction poses a barrier to fish movement in the canal apart from downstream during high flow conditions.	Construction related (bridge).
7	1	2	Cape Flats WWTW	Route follows existing east-west earth road alignment north of WWTW carousel ponds.	Eastern end of this section abutts some minor wetland areas to the north of the alignment; north-western carousel pond south of the eastern portion of this section.	Low (wetlands). Wetland areas fed by highly-enriched sub-surface drainage from WWTW ponding system. Low to Moderate (bird habitat) compensated by total area of WWTW ponding system.	Construction related (roadway).
8	1	2	Cape Flats WWTW	Route crosses WWTW effluent ponds P8 & P9.	The water quality of these ponds is extremely poor (hypertrophic), and has a direct causal link to the nutrient loading of Zeekoevlei. The ponds frequently contain noxious cyanobacterial blooms. Some habitat is provided for waterfowl, and the fish population is comprised of coarse species (common and grass carp).	Low.	Nil to natural or semi-natural aquatic ecosystems. Possible disturbance to avifaunal flyway.
9	1	2	Cape Flats WWTW (north-east)	Route traverse undeveloped dune area east of the treatment works.	Immediately east of the works the route passes through some disused ponding areas, some which have adopted wetland characteristics. The general condition of the area is highly degraded. Thereafter the route passes into previously Strandveld vegetation, now dominated by woody aliens.	Low to Moderate. Area may provide minor habitat for waterfowl during the wet season (check comments on Amphibs).	Construction related (roadway).
10	5	10	Varkensvlei Forest Reserve	Route passes through the VFR, an area which >>	Small area of eucalypts surrounded by agriculture. Some seasonally wet areas dune slack areas with wetland character occur within the VFR.	More info needed concerning local and wider importance of this node. Conservation of area will require restoration and management.	Loss of area
11	5	10	Varkensvlei	Route passes through wet depression.	Locality a remnant of the former Varkensvlei area, now degraded through farming practices to a seasonally-wet rain-fed depression.	Low. The area has limited restoration potential as a wetland provided that management thereof is possible.	Loss of highly degraded remnant wetland.
12	5	10	Vanguard Drive wetlands	Route passes through an area previously described as containing wetlands (Snaddon, 1997)	An analysis of aerial photography does not confirm previous wetland character in this area. Area is degraded (farming and sand mining) and contains excavated areas that fill with water during the winter.	Botanical importance (presence of Red Data species).	Loss of rare and endangered botanical habitat
13	2	3	N2 Interchange	Existing interchange south-west of Driftsands Nature Reserve	Remnant wetland areas within cloverleaf pattern of the interchange.	Undetermined but, as has been shown elsewhere these areas provide valuable flora localities.	Nil. Road already constructed.
14	2	4	Kaymor	Route crosses Kuils River at Bottelary Road.	Existing crossing that has been *in situ* for many year.	Low. Degraded section of unlined river channel polluted by effluent flows from the Scottsdene WWTW.	Nil. Road already constructed.
15	3	6	N1 Interchange	Route crosses the N1	Construction in this zone will require civil works in close proximity to the river, with the possibility of associated local, up- and downstream impacts.	Moderate. The upstream reach of the Kuils River between De Bron and Bottelary Roads is unlined and, with the exception of the effluent flows from the Scottsdene WWTW, is the least impacted portion of the entire river.	Construction related (roadway).
16	3	6	North of N1 Interchange	Route extended from existing R300 northwards of the N1 (above left bank of the Kuils River).	Kuils River exists in this area as a narrow unlined sinuous channel with wide floodplain. The area is moderately degraded.	Moderate. The upstream reach of the Kuils River between De Bron and Bottelary Roads is unlined and, with the exception of the effluent flows from the Scottsdene WWTW, is the least impacted portion of the entire river.	Construction related (roadway), especially in the vicinity of existing stormdrains linking westwards towards the river.
17	3	6	Area north and south of Wellington Road	Route crosses seasonal stream line north of Wellington Road	The headwaters of the southern arm of a seasonal tributary of the Mosselbank River rise in the area north/south of Wellington Road. The local area has been modified by the excavation of drainage lines to accommodate new housing developments. The tributary drains north and east from this location.	The area has distinct potential for restoration (= "green lung" value) of the tributary course as a landscape feature.	Construction related (roadway).
18	3	7	Diemersdal	Route crosses stream line on the farm Phesantekraal.	Route crosses northern arm of the seasonal tributary described in 17. The area is situated downstream of an existing large farm dam.	Moderate. Reasonable stream character is restored downstream of the dam, although heavily impacted by farming activity.	Construction related (roadway).
19	3	7	Phesantekraal (18) to Kuiperskraal Road	Route crosses various small streams draining northwards from Humeklip.	Intensively-worked agricultural lands (grains) with streams existing often as eroded dongas in the valley depressions.	Moderate. Stream lines provide the last vestiges of stream character and habitat in otherwise habitat poor environment.	Construction related (roadway). Impact mitigation should be handled on a stream by stream basis.
20	3	7	Diep River at farm Welvergenoeg	Route crosses the Diep River in an east-west direction.	Seasonal braided and eroding lowland river channel lined with eucalypts. In-stream vegetation dominated by *Cyperus textiles* . Steep upland gradients on either side of the river. Proposed crossing appears to coincide with an existing 'drift' crossing.	Low to Moderate provision of habitat and ecosystem services.	Construction related (bridge). Risk of construction impacts being transferred to downstream wetland upstream of the N7 at Vissershok.
21	3	8	Blaauwberg Vlei	The proposed realigned route (05/08/2002) passes 220 m south of the Blaauwberg Vlei	Unique and rare vlei (spring) system rising in proximity of ferricrete outcrop. Sole source of water in area for some considerable distance. Spring has functioned as the water supply for the farm for 2 centuries, and now provides water for small number of local woodcutters and some livestock.	High. The site has not been subject to detailed geomorphological or ecological description, and the precise extent of the wetland and its recharge/discharge zone have not been delineated.	Construction related (roadway). It is unclear as to how sensitive the perching of this spring and its drainage system is, or how easily this might be disrupted by construction activity in the area.

Impact synthesis and mitigation of impact [where applicable - otherwise unchanged, indicated in square parentheses, or see Comments]													Specialist input required for EIA integration	Comments
Extent	Duration	Intensity			Probability	Status	Consequence	Significance	Confidence	Applicable Legislation	Recommendations (see Notes)			
		Qualitative	Quantitative	Community response							Construct	Operation		
Not applicable - route already in place														
M	H	M-	M-	H	M	-	M	M	H	NEMA	Narrow or seek alternate alignment		Amphibians	Impact entails non-compensated loss of area; mitigation options not relevant.
L	L	L- (L+)	L+	L- (L+)	M	-	L	L	H	Water Act	Narrow or seek alternate alignment			This reach of the Keysers River currently being assessed for widening (flood relief).
M	H	M-	M-	H-	M	-	H	H	H	NEMA/Water Act	Narrow or seek alternate alignment		Botany, amphibians, mammals	Impact possibly reduced by narrower (2-lane) route here, but alternate route would be preferred (refer to mitigation comment for Site 2).
L	L	L+	L+	L+	H	+	M	L	H	Water Act				Minor benefit of upgraded canal and local area. Mitigation implicit in action.
L	L	L+	L+	L+	H	+	M	L	H	Water Act				Benefit of upgrading of canal and local area. Mitigation implicit in action.
L	L	L-	L-	L-	H	+	M	M	H	?				Benefit of upgrading of canal and local area. Mitigation implicit in action.
L	L	L- (L+)	L- (L+)	H- (M-)	H	-	M	M	H				Avifauna (collisions with vehicles and general disturbance to flyway)	Possible economic and pollution attenuation benefits.
L	L	L- (L+)	L- (L+)	L- (L+)	H	-	L	M	H				Botany,amphibians, mammals	
L	H	M- (L-)	M- (L-)	L- (L+)	H	-	M	M	M		Depending on importance consider bypassing		Botany	? Historical significance of this area (former Department of Forestry).
L	L	L- (L+)	L- (L+)	L- (L+)	M	()	L	L	H					
See Botanical assessment													Botany	
Not applicable - route already in place														
Not applicable - route already in place														
L	L	L- (L+)	L- (L+)	L- (L+)	L	+	L	L	H	Water Act				
L	L	L- (L+)	L- (L+)	L- (L+)	L	+	L	L	H					
L	L	L- (L+)	L- (L+)	L- (L+)	M	+	L	L	H	NEMA, Water Act				
L	L	L- (L+)	L- (L+)	L- (L+)	L	()	L	L	H	NEMA, Water Act				
L	L	L- (L+)	L- (L+)	L- (L+)	L	()	L	L	H				Botanical	Overriding botanical importance?
L	L	M- (L-)	L- (L+)	L- (L+)	M	-	L	L	H	NEMA, Water Act				
M	H	H- (M-)	H- (M-)	H- (M-)	H	-	H	H	H	NEMA, Water Act, SAHRA				This site has historical importance in that it formed the focus of the 1806 Battle of Blaauwberg, and is a National Monument.