An outline of the sensitivities given in **Figure 1** follows.

RIETVLEI 12-14:

Polygon outlined in yellow at the left hand side:
Habitat of *Melolobium subspicatu*m (Vulnerable), *Cloeme conrathii* (Near Threatened) and *Habenaria kraenzlineana* (Near Threatened).

Polygon outlined in yellow at the right hand side:
Chert ridge with fern *Cheilanthes deltoidea* subsp. *silicicola* (Vulnerable).

Polygons outlined in pink and light pink:
The light pink outline at indicates a confirmed habitat of the Endangered beetle *Ichnestoma stobbiai* but which does not appear to be as strong as the population east of Irene Market Parking Area (oultined in darker pink). The entire connected habitat is outlined in purple. This entire linked habitat is increasingly compromised by exotic trees and disturbances.

Polygons outlined in green:
Indication of approximate 200 m buffer zone. More exact 200 m buffer zone should be drawn by a mapper.

All the above areas are of high sensitivity.

Green line:
Indication of approximate buffer zone 50 m from the edge of the riparian zone. This should be refined, in this report only an indication. Riparian zone, though considerably and obviously disturbed and infested by alien invasive trees, is of medium-high sensitivity.

Polygon outlined in white:
Medium-low sensitivity.

RIETVLEI 6-9:

Polygon outlined in white:
Medium-low sensitivity.

RIETVLEI 10, 11, 15:

Polygon outlined in yellow at bottom of the site on the map:
Habitat of *Lithops leslei* subsp. *leslei* (Near Threatened).

Green line:
Indication of approximate buffer zone 50 m from the edge of the riparian zone. The exact measures should be refined, in this report only an indication.These riparian zones, though conspicuously disturbed are of medium-high sensitivity.

Polygon outlined in white:
Medium-low sensitivity.

6 TOWARDS ENVIRONMENTAL MANAGEMENT AND PLANNING OF RIETVLEI 6-15

The following section builds on all the surveys and reports on the area south of Irene where the consultant was involved, especially of concern that this area may just continue to degradation in the absence of management decisions.

Habitats of threatened plants are in danger most often due to urban developments such as is the case for the Gauteng Province (Pfab & Victor, 2002). Habitat conservation is the key to the conservation of invertebrates such as threatened butterflies (Deutschländer and Bredenkamp 1999; Edge 2002, 2005; Terblanche, Morgenthal & Cilliers 2003; Lubke, Hoare, Victor & Ketelaar 2003; Edge, Cilliers & Terblanche, 2008). Furthermore corridors and linkages may play a significant role in insect conservation (Pryke & Samways, 2003, Samways, 2005).

Urbanisation is a major additional influence on the loss of natural areas (Rutherford & Westfall 1994). In the Gauteng the pressure to develop areas are high since its infrastructure allows for improvement of human well-being in some way. Urban nature conservation issues in South Africa are overshadowed by the goal to improve human well-being, which focuses on aspects such as poverty, equity, redistribution of wealth and wealth creation (Cilliers, Müller & Drewes 2004). Nevertheless the conservation of habitats is the key to invertebrate conservation, especially for those red listed species that are very habitat specific. This is also true for any detailed planning of corridors and buffer zones for invertebrates. Though proper management plans for habitats are not in place, setting aside special ecosystems is in line with the resent Biodiversity Act (2004) of the Republic of South Africa.

Corridors are important to link ecosystems of high conservation priority. Such corridors or linkages are there to improve the chances of survival of otherwise isolated populations (Samways, 2005). How wide should corridors be? The answer to this question depends on the conservation goal and the focal species (Samways, 2005). For an African butterfly assemblage this is about 250m when the corridor is for movement as well as being a habitat source (Pryke and Samways 2003). Hill (1995) found a figure of 200m for dung beetles in tropical Australian forest. In the agricultural context, and at least for some common insects, even small corridors can play a valuable role

(Samways, 2005). Much more research remains to be done to find refined answers to the width of grassland corridors in South Africa. The width of corridors will also depend on the type of development, for instance the effects of the shade of multiple story buildings will be quite different from that of small houses.

To summarise: In practice, as far as residential developments are concerned, the key would be to prioritise and plan according to sensitive species and special ecosystems.

In the case of this study study area the vegetation ranges from pristine patches that are mostly present in the northern pars to extensively transformed at most of the southern parts of the study area. With careful planning unique ecosystems and sensitive species could be conserved if the development is approved. If some areas such as the core sensitive habitats are developed there would be a significant loss of unique local ecosystems and in particular loss of species of conservation concern of which some are in reality threatened species. In other areas there appear to be no loss of any particular sensitive species or particular unique ecosystems. A challenge in the area is that a trend of increasing degradation has been observed in recent years and decisions have to be made on the future of the study area south of Irene.

Riparian zone at the site is a very important conservation corridor and a 50 m buffer zone from the edge of the river is thought to be sufficient to conserve the riparian zone.

7 CONCLUSION

A holistic approach was deliberately followed during this study to address present limitations in the consolidation and confirmation of key biodiversity information and consequently biodiversity priorities of the study area.

Extinction risk assessments ("conservation status of species") are part of a continuous process and changes take place, however the conservation status of the plant species are well refined over recent years and are applied here. There is still some uncertainty regarding the conservation status of the beetle species *Ichnestoma stobbiai.* Nested clade analysis inferred allopatric fragmentation for all significant clades in *Ichnestoma stobbiai* which reconfirms the original hypothesis that the extant populations represent relicts of a single, formerly widely distributed species (Kryger & Scholtz, 2008). All habitat patches should be protected and a detailed plan for genetic augmentation should be worked out (Kryger & Scholtz, 2008). Therefore the habitat of *Ichnestoma stobbiai* at Irene is not a "last known locality scenario" but all the highly patchy and localised habitats are of high conservation priority. GDARD (2014) lists the species as Endangered, which is upheld here.

The study area is a mosaic of which the vegetation and habitat ranges from extensively degraded at Rietvlei 6-9 and Rietvlei 10,11,15 in southern and southmost of the southern parts to pristine patches of grassland in the northern parts. Some of the remaining patches of grassland and rocky outcrops in the study area contain not only Near Threatened species but also Threatened plant and animal species. In other parts of the study area large areas are unfortunately covered by alien invasive Australian *Acacia* species and exotic *Eucalyptu*s species (gum trees). Though some of these exotic trees harbour some raptor bird species, these are not threatened and can in the case of this study, not weigh up against loss of indigenous grassland patches which serve as habitat for a number of localised plant and animal species.

A key issue at the study area is the apparent continuous ecological degradation of indigenous grassland and unique indigenous bushclumps in the area, witnessed for one, by the author of this document, in the past decade. If this trend of habitat degradation continues, habitat loss and loss of plant and animal species of particular conservation are most likely scenarios.

Another critical issue is that the entire study area is increasingly isolated and that corridors and buffer zones should be viewed in that context. Grassland and bushclump patches as well as sensitive species to be conserved in the area are unlikely to be linked to the Rietvlei Reserve as a continuous corridor, i.e. any conserved areas are more likely to be viewed in terms of stepping stone corridor models. Buffer zones such as required for species of particular conservation concern is impractical in this case and have already been compromised by extant developments, if not entirely. It may, however, and is then vital to have as great as possible connectivity of conserved areas in the study area itself, south of Irene. Such planning of the entire area falls beyond the scope of this study but should be conducted as soon as possible.

A summary of important considerations at each site follows:

RIETVLEI 12-14

- Northern parts of the site contain an extant habitat of the Endangered beetle species *Ichnestoma stobbiai*. Population of the beetle *Ichnestoma stobbiai* in this area does not appear to be as strong as the population east of Irene Market Parking Area but could with careful planning and eradication of exotic tree species be connected to the core population lower down. This area and its buffer zone are of particular high conservation priority.
- Vegetation at the site is represented by Carletonville Dolomite Grassland (Gh 15). Carletonville Dolomite Grassland is not listed as a threatened ecosystem according to the National List of Threatened Ecosystems (2011).
- Habitats of *Melolobium subspicatu*m (Vulnerable), *Cloeme conrathii* (Near Threatened) and *Habenaria kraenzlineana* (Near Threatened) are present at the Rietvlei 12-14 and this area is of high sensitivity.
- A chert ridge with Chert ridge with fern *Cheilanthes deltoidea* subsp. *silicicola* (Vulnerable) is present at the eastern part of Rietvlei 12-14. Exotic trees from adjacent areas east of the site are encroaching upon this chert ridge and are a threat.
- *Boophone disticha, Hypoxis hemerocallidea* and *Callilepis leptophylla* are three plant species that are listed as Declining that occur at the site. There plant species are not Threatened or Near Threatened. A rescue and translocation programme for these plant species are to be implemented, if developments where they occur are approved.

- A perrenial stream with riparian zone is present at part of the western boundary of Rietvlei 12-14 but vegetation associated with the water courses is in an obvious degraded state and visibly infested by exotic trees and weeds. These riparian zones are nevertheless important for bird species, which could include the Half-collared Kingfisher and African Finfoot and kept as no-go zones for developments. If exotic trees are removed it should be done in phases to introduce indigenous tree species back again without comprimising the woodland riverine habitat these bird species may need.
- Some stands of exotic *Eucalyptus* trees are found at Rietvlei 12-14.

RIETVLEI 6-9

- There appears to be no suitable habitat for *Ichnestoma stobbiai*, no *Ichnestoma stobbiai* was found during the surveys and the presence of *Ichnestoma stobbiai* at Rietvlei 6-9 is highly unlikely.
- There appears to be no threat to any Threatened or Near Threatened plant or animal species in particular if Rietvlei 6-9 is developed.
- *Boophone disticha* and *Hypoxis hemerocallidea*, two plant species that are listed as Declining occur at the site. There plant species are not Threatened or Near Threatened. A rescue and translocation programme for these plant species are to be implemented, if developments where they occur are approved.
- Vegetation is for most of the Rietvlei 6-9 represented by degraded, modified or transformed Carletonville Dolomite Grassland (Gh 15) in for a smaller part east of the R21, Rand Highveld Grassland (Gm 11). Carletonville Dolomite Grassland is not listed as a threatened ecosystem according to the National List of Threatened Ecosystems (2011). Rand Highveld Grassland is listed as Vulnerable (2011). Scope for restoration and conservation of isolated degraded patch of Rand Highveld Grassland between R21 and other developed areas is small.
- Rietvlei 6-9 appears to be increasingly degraded judged from informal dumping, exotic trees and other alien invasive species and numerous tracks.
- In some of the terrestrial parts of the site some large areas are unfortunately covered by alien invasive Australian *Acacia* species and exotic *Eucalyptu*s species (gum trees).

RIETVLEI 10,11,15

- Over a number of years recently, with improving knowledge and also various field surveys, it has now been established that occurrence of the beetle *Ichnestoma stobbiai* as a resident at Rietvlei 10,11 & 15 is unlikely.
- Vegetation at the site is represented by degraded, modified or transformed Carletonville Dolomite Grassland (Gh 15). Carletonville Dolomite Grassland is not listed as a threatened ecosystem according to the National List of Threatened Ecosystems (2011).
- Rietvlei 10,11,15 appears to be increasingly degraded judged from informal dumping, exotic trees and other alien invasive species and numerous tracks.
- There is a cement factory adjacent and near the northern boundary of Rietvlie 10,11,15.
- An area outlined in yellow at the southern part of the site contains the Near Threatened succulent species *Lithops leslei* and a Near Threatened herbaceous species *Cloeme conrathii.* Owing to an apparent increase of tracks, trampling and informal dumping the future of the *Lithops lesliei* population is precarious given the status quo, translocation should be considered given the present conditions.
- *Boophone disticha* and *Hypoxis hemerocallidea*, two plant species that are listed as Declining occur at the site. There plant species are not Threatened or Near Threatened. A rescue and translocation programme for these plant species are to be implemented, if developments where they occur are approved.
- A perrenial stream with riparian zone is present at Rietvlei 10, 11, 15 but vegetation associated with the water courses is in an obvious degraded state and visibly infested by exotic trees and weeds. These riparian zones are nevertheless important for bird species, which could include the Half-collared Kingfisher and African Finfoot and kept as no-go zones for developments. If exotic trees are removed it should be done in phases to introduce indigenous tree species back again without comprimising the woodland riverine habitat these bird species may need.
- Informal settlements in the larger area have expanded so that edge effects and human induced ecological degradation in the area is likely to increase given the present developments in the larger area.

An opportunity presents itself to secure some diverse and highly sensitive grassland south of Irene through carefull planning and eradication of large patches of exotic trees. This report removes some uncertainties and gives an indication of areas of particular high sensitivity and suggests some indicators of the conservation of these. The planning and management of the study area falls beyond the scope of this report, however, decisions cannot be postponed any longer, because the area is in a constant state of degradation.

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ANNEXURE 1: Plants

List of plant species that have been recorded or are likely to occur in the study area

Plant species are listed alphabetically under life forms that are generally recognizable.
Plant species marked with an asterisk (*) are exotic.

Sources: Germishuizen (2003), Manning (2003), Manning (2009), Van Oudtshoorn (1999), Van Wyk (2000), Van Wyk & Malan (1998), Van Wyk & Van Wyk (2013), Crouch, Klopper, Burrows & Burrows (2011), Goldblatt (1986), Goldblatt & Manning (1998), Jacobsen (1983), McMurtry, Grobler, Grobler & Burns (2008), Smit (2008), Van Ginkel *et al*. (2011), Van Jaarsveld (2006), Van Wyk & Smith (2003).

TAXON	COMMON NAMES	FAMILY
PTERIDOPHYTA (MONILOPHYTA)	PTERIDOPHYTES/ TRUE FERNS	
Cheilanthes deltoidea subsp. ***silicicola***		SINOPTERIDACEAE
Cheilanthes hirta		SINOPTERIDACEAE
Cheilanthes viridis (cf. subsp. glauca)		SINOPTERIDACEAE
Pellaea calomelanos		SINOPTERIDACEAE
Pleopeltis macrocarpa		POLYPODIACEAE
GYMNOSPERMAE	GYMNOSPERMS	
**** Pinus*** species	Pine species	PINACEAE
ANGIOSPERMAE: MONOCOTYLEDONS		
Albuca setosa	Fibrous Slime Lily	HYACINTHACEAE
Aloe davyana	Kgopane	ASPHODELACEAE
Aloe zebrina		ASPHODELACEAE
Alloteropsis semialata	Black-seed Grass	POACEAE
Andropogon schirensis	Hairy Blue Grass	POACEAE
Andropogon schirensis	Stab Grass	POACEAE
Aristida adscensionis	Annual Three-awn	POACEAE
Aristida canescens	Pale Three-awn	POACEAE
Aristida congesta subsp. ***congesta***	Tassel Three-awn	POACEAE
Aristida diffusa	Iron Grass	POACEAE
Aristida scabrivalvis/ transvaalensis	Purple Three-awn	POACEAE
Asparagus flavicaulis **subsp. *flavicaulis***		ASPARAGACEAE
Asparagus laricinus	Common Wild Asparagus	ASPARAGACEAE

Asparagus suaveolens	Wild Asparagus	ASPARAGACEAE
**** Arundo donax***	Spanish Reed	POACEAE
Bewsia biflora	False Love Grass	POACEAE
Boophone disticha	Poison Bulb	AMARYLLIDACEAE
Brachiaria serrata	Velvet Signal Grass	POACEAE
**** Bromus catharticus***	Rescue Grass	POACEAE
Bulbine capitata		ASPHODELACEAE
Bulbine narcissifolia		ASPHODELACEAE
Bulbostylis burchellii		CYPERACEAE
Chloris virgata	Feather-top Chloris	POACEAE
Chlorophytum fasciculatum		ANTHERICAECEAE
Commelina africana		COMMELINACEAE
Commelina benghalensis	Wanderinh Jew	COMMELINACEAE
Crinum graminicola	Grass Lily	AMARYLLIDACEAE
Cyanotis speciosa	Doll's Powderpuff	COMMELINACEAE
Cymbopogon caesius	Broad-leaved Turpentine Grass	POACEAE
Cymbopogon pospischilii	Narrow-leaved Turpentine Grass	POACEAE
Cynodon dactylon	Couch Grass	POACEAE
**** Cyperus esculentus***	Yellow nutsedge	CYPERACEAE
***Cyperus* species**		CYPERACEAE
Cyperus obtusiflorus		CYPERACEAE
Digitaria eriantha	Common Finger Grass	POACEAE
Digitaria monodactyla	Common Finger Grass	POACEAE
Digitaria tricholaenoides	Purple Finger Grass	POACEAE
Diheteropogon amplectens	Broad-leaved Bluestem	POACEAE
Dipcadi viride		LILIACEAE
Drimia calcarata		HYACINTHACEAE
Drimia depressa		HYACINTHACEAE
Drimia sanguinea		HYACINTHACEAE
Eleusine coracana	Goose Grass	POACEAE
Elionurus muticus	Wire Grass	POACEAE
Eragrostis capensis	Heart-seed Love Grass	POACEAE
Eragrostis chloromelas	Narrow Curly Leaf	POACEAE
Eragrostis curvula	Weeping Love Grass	POACEAE
Eragrostis gummiflua	Gum Grass	POACEAE
Eragrostis nindensis	Wether Love Grass	POACEAE
Eragrostis micrantha		POACEAE
Eragrostis racemosa	Narrow Heart Love Grass	POACEAE
Eragrostis superba	Saw-toothed Love Grass	POACEAE
Eriospermum flagelliforme		ASPARAGACEAE
Eucomis autumnalis subsp. ***clavata***	Common Pineapple Lily	HYACINTHACEAE
Eulophia hians		ORCHIDACEAE

Eulophia welwitschii		ORCHIDACEAE
Eustachys paspaloides	Brown Rhodes Grass	POACEAE
Gladiolus crassifolius	Thick-leaved Gladiolus	IRIDACEAE
Gladiolus permeabilis		IRIDACEAE
Habenaria epipactidea		ORCHIDACEAE
Habenaria kraenzliniana		ORCHIDACEAE
Habenaria nyikana		ORCHIDACEAE
Heteropogon contortus	Spear Grass	POACEAE
Hyparrhenia hirta	Common Thatching Grass	POACEAE
Hypoxis argentea		HYPOXIDACEAE
Hypoxis hemerocallidea	Star Flower	HYPOXIDACEAE
Hypoxis obtusa		HYPOXIDACEAE
Hypoxis rigidula		HYPOXIDACEAE
Imperata cylindrica	Cotton Wool Grass	POACEAE
Kyllinga alba		CYPERACEAE
Ledebouria ovatifolia		HYACINTHACEAE
Ledebouria revoluta		HYACINTHACEAE
Loudetia simplex	Common Russet Grass	POACEAE
Melinis nerviglumis	Bristle-leaved Red Top	POACEAE
Melinis repens	Natal Red Top	POACEAE
Michrochloa caffra	Pincushion Grass	POACEAE
Monocymbium ceresiiforme	Boat Grass	POACEAE
Ornithogalum tenuifolium		HYACINTHACEAE
Panicum maximum	Guinea Grass	POACEAE
**** Paspalum dilatatum***	Dallis Grass	POACEAE
**** Pennisetum clandestinum***	Kikuyu Grass	POACEAE
Phragmites australis	Common Reed	POACEAE
Pogonarthria squarrosa	Herringbone Grass	POACEAE
Scadoxus puniceus	Red Blood Lily	AMARYLLIDACEAE
Schizachyrium sanguineum	Red Autumn Grass	POACEAE
Schizocarpus nervosus	Wild Squill	HYACINTHACEAE
Scheonoplectus brachyceras		CYPERACEAE
Setaria incrassata	Vlei Bristle Grass	POACEAE
Setaria megaphylla	Broad-leaved Bristle Grass	POACEAE
Setaria nigrirostris		POACEAE
Setaria sphacelata *var.* ***sphacelata***	Common Bristle Grass	POACEAE
Setaria sphacelata *var.* ***torta***	Creeping Bristle Grass	POACEAE
**** Sorghum halepense***	Johnson Grass	POACEAE
Sporobolus africanus	Ratstail Dropseed	POACEAE
Sporobolus festivus	Red Dropseed	POACEAE
Sporobolus fimbriatus	Dropseed Grass	POACEAE
Sporobolus stapfianus	Fibrous Dropseed	POACEAE

Themeda triandra	Red Grass	POACEAE
Trachyandra saltii		ASPHODELACEAE
Trachypogon spicatus	Giant Spear Grass	POACEAE
Tricholaena monachne	Blue-seed Grass	POACEAE
Trichoneura grandiglumis	Small Rolling Grass	POACEAE
Triraphis andropogonoides	Broom Needle Grass	POACEAE
Tristachya biseriata		POACEAE
Tristachya leucothrix	Hairy Trident Grass	POACEAE
Tristachya rehmannii		POACEAE
Tulbaghia leucantha		ALLIACEAE
Typha capensis	Bulrush	TYPHACEAE
Urelytrum agropyroides	Quinine Grass	POACEAE
Urochloa mosambicensis	Bushveld Signal Grass	POACEAE
Xerophyta retinervis	Black-stick Lily/ Monkey's Tail	VELLOZIACEAE
ANGIOSPERMS: DICOTYLEDONS		
**** Acacia baileyana***	Bailey's Wattle	MIMOSACEAE
Acacia caffra	Common Hook-thorn	MIMOSACEAE
**** Acacia dealbata***	Silver Wattle	MIMOSACEAE
**** Acacia decurrens***	Green Wattle	MIMOSACEAE
Acacia karroo	Sweet Thorn	MIMOSACEAE
**** Acacia mearnsii***	Black Wattle	MIMOSACEAE
Acalypha angustata	Copper leaf	EUPHORBIACEAE
Acalypha caperonioides		EUPHORBIACEAE
Acalypha villicaulis	Heart-leaved Brooms and Brushes	EUPHORBIACEAE
**** Acanthospermum australe***	Prostrate Starbur	ASTERACEAE
**** Achyranthes aspera***	Chaff Flower	AMARANTHACEAE
**** Alternanthera pungens***	Duwweltjie	AMARANTHACEAE
Alysicarpus rugosus subsp. **perrennirufus**		FABACEAE
**** Amaranthus hybridus***	Pigweed	AMARANTHACEAE
Ancylobotrys capensis	Rock Wild Apricot	APOCYNACEAE
**** Araujia sericifera***	Moth catcher	ASCLEPIADACEAE
Anthospermum rigidum subsp. ***rigidum***		RUBIACEAE
**** Argemone ochroleuca***	White-flowered Mexican poppy	PAPAVERACEAE
Asclepias adscendens		APOCYNACEAE
Aster harveyanus		ASTERACEAE
Barleria macrostegia		ACANTHACEAE
Berkheya radula		ASTERACEAE
**** Bidens bipinnata***	Spanish blackjack	ASTERACEAE
**** Bidens pilosa***	Common blackjack	ASTERACEAE

**** Campuloclinium macrocephalum***	Pom Pom Weed	ASTERACEAE
Canthium gilfillanii	Velvet Rock Alder	RUBIACEAE
Celtis africana	White Stinkwood	CELTIDACEAE
**** Celtis australis/ Celtis occidentalis/ Celtis sinensis***	Exotic Stinkwoods	CELTIDACEAE
Chaetacanthus costatus		ACANTHACEAE
Chamaecrista capensis/ comosa		CAESALPINIACEAE
Chamaesyce inaequilatera	Smooth Creeping Milkweed	EUPHORBIACEAE
**** Chenopodium album***	White Goosefoot	CHENOPODIACEAE
**** Cirsium vulgare***	Scotch Thistle	ASTERACEAE
Clematis brachiata	Traveller's Joy	RANUNCULACEAE
Cleome conrathii		CAPPARACEAE
Cleome monophylla	Single-leaved Spindle Pod	BRASSICACEAE (or Capparaceae)
Combretum erythrophyllum	River Bushwillow	COMBRETACEAE
Combretum molle	Velvet Bushwillow	COMBRETACEAE
Convolvulus sagittatus		CONVOLVULACEAE
**** Conyza albida/ bonariensis/ canadensis***	Tall Fleabane	ASTERACEAE
Conyza podocephala		ASTERACEAE
Corchorus asplenifolius		MALVACEAE
Crabbea angustifolia		ACANTHACEAE
Crabbea hirsuta		ACANTHACEAE
Crassula capitella		CRASSULACEAE
Crassula setulosa		CRASSULACEAE
Cryptolepis oblongifolia		PERIPLOCACEAE
Cucumus hirsutus		CUCURBITACEAE
Cucumus zeyheri		CUCURBITACEAE
Cussiona paniculata	Highveld Cabbage Tree	ARALIACEAE
Cynoglossum lanceolatum		BORAGINACEAE
**** Datura ferox***	Large Thorn-apple	SOLANACEAE
**** Datura stramonium***	Common Thorn-apple	SOLANACEAE
Dianthus mooiensis	Wild Pink	CARYOPHYLLACEAE
Dicoma anomala		ASTERACEAE
Dichrostachys cinerea	Sickle Bush	MIMOSACEAE (or Fabaceae)
Dimorphotheca spectabilis	Blou Bietou	ASTERACEAE
Diospyros lycioides var. ***guerkei***	Bluebush	EBENACEAE
Dombeya rotundifolia	Common Wild Pear	STERCULIACEAE
Elephantorrhiza elephantina		MIMOSACEAE

Englerophytum magalismontanum	Transvaal Milkplum	SAPOTACEAE
Eriosema burkei		FABACEAE
Eriosema cordatum		FABACEAE
**** Eucalyptus camaldulensis***	Red Gum	MYRTACEAE
Euclea crispa	Blue Guarri	EBENACEAE
Euphorbia trichadenia	Melkbol	EUPHORBIACEAE
Felicia muricata		ASTERACEAE
**** Ficus carica***	Fig	MORACEAE
Ficus ingens	Red-leaved Fig	MORACEAE
**** Flaveria bidentis***	Smelter's bush	ASTERACEAE
Gazania krebsiana subsp. ***serrulata***		ASTERACEAE
Geigeria burkei		ASTERACEAE
Gerbera piloselloides	Swarteebossie	ASTERACEAE
Gerbera viridifolia subsp. ***viridifolia***		ASTERACEAE
**** Gleditsia triacanthos***	Honey Locust	CAESALPINIACEAE
Gnidia capitata		THYMELAEACEAE
Gnidia kraussiana var. ***kraussiana***		THYMELAEACEAE
Gnidia microcephala		THYMELAEACEAE
Gnidia sericocephala		THYMELAEACEAE
Gomphocarpus fruticosus	Milkweed	APOCYNACEAE
**** Gomphrena celosioides***	Bachelor's Button	AMARANTHACEAE
Graderia subintegra	Wild Penstemon	OROBANCHACEAE
Gymnosporia buxifolia	Common Spike-thorn	CELASTRACEAE
Haplocarpha lyrata		ASTERACEAE
Helichrysum acutatum		ASTERACEAE
Helichrysum cerastioides		ASTERACEAE
Helichrysum nudifolium	Hottentot's tea	ASTERACEAE
Helichrysum rugulosum		ASTERACEAE
Helichrysum setosum	Yellow Everlasting	ASTERACEAE
Hemizygia pretoriae		LAMIACEAE
Hermannia cordata		MALVACEAE
Hermannia depressa	Creeping Red Hermannia	MALVACEAE
Hermannia transvaalensis		MALVACEAE
Hibiscus microcarpus		MALVACEAE

Hibiscus pusillus		MALVACEAE
**** Hibiscus trionum***	Bladder hibiscus	MALVACEAE
Hilliardiella aristata (= *Vernonia natalensis*)		ASTERACEAE
Hilliardiella oligocephala (= *Vernonia oligocephala*)		ASTERACEAE
Indigastrum burkeanum		
Indigofera hedyantha	Black-bud Indigo	FABACEAE
Indigofera heterotricha		FABACEAE
Indigofera hilaris	Red Indigo Bush	FABACEAE
Indigofera melanadenia		FABACEAE
**** Indigofera suffruticosis***		
Ipomoea bolusiana		CONVOLVULACEAE
Ipomoea crassipes		CONVOLVULACEAE
Ipomoea oblongata		CONVOLVULACEAE
Ipomoea ommaneyi	Beespatat	CONVOLVULACEAE
**** Ipomoea purpurea***	Common Morning Glory	CONVOLVULACEAE
Justicia anagalloides		ACANTHACEAE
Kalanchoe thyrsiflora		CRASSULACEAE
Kiggelaria africana	Wild Peach	KIGGELARIACEAE (or Flacourtiaceae)
Kohautia amatymbica		RUBIACEAE
Kyphocarpa angustifolia		AMARANTHACEAE
Lactuca inermis		ASTERACEAE
Lannea edulis		ANACARDIACEAE
Lantana rugosa		VERBENACEAE
**** Lepidium bonariense***	Pepperweed	BRASSICACEAE
**** Ligustrum*** species	Privets	OLEACEAE
Lippia javanica	Fever Tea	VERBENACEAE
Lithops lesliei subsp. ***lesliei***		MESEMBRYANTHEMACEAE
Lotononis calycina		FABACEAE
Lotononis foliosa		FABACEAE
Lotononis laxa		FABACEAE
Macledium zeyheri		ASTERACEAE
**** Malva parviflora***	Small Mallow	MALVACEAE
**** Malvastrum coromandelianum***	Malvastrum	MALVACEAE
**** Medicago sativa***	Lucerne	FABACEAE
**** Melia azedarach***	Seringa	MELIACEAE
**** Melilotus alba***	Bokhara Clover	FABACEAE

**** Mirabilis jalapa***	Four O'clock	NYCTAGINACEAE
Monsonia angustifolia	Crane's Bill	GERANIACEAE
Morea stricta	Bloutulp	IRIDACEAE
**** Morus alba***	Common Mulberry	MORACEAE
Nemesia fruticans		SROPHULARIACEAE
Neorautanenia fivifolius		FABACEAE
**** Nicotiana glauca***	Wild Tobacco	SOLANACEAE
Nidorella anomala		ASTERACEAE
Nidorella hottentotica		ASTERACEAE
Ocimum obovatum	Cat's whiskers	LAMIACEAE
**** Oenothera rosea***	Rose Evening Primrose	ONAGRACEAE
**** Oenothera stricta***	Yellow Evening Primrose	ONAGRACEAE
Oldenlandia herbacea		RUBIACEAE
**** Opuntia ficus-indica***	Sweet Prickly Pear	CACTACEAE
Osteospermum muricatum		ASTERACEAE
**** Oxalis corniculata***	Creeping Sorrel	OXALIDACEAE
Oxalis obliquifolia	Oblique-leaved Sorrel	OXALIDACEAE
Ozoroa paniculosa	Bushveld Ozoroa	ANACARDIACEAE
Pachycarpus schinzianus	Dark-eyed Bell	APOCYNACEAE
Parapodium costatum		APOCYNACEAE
Parinari capensis subsp. ***capensis***	Dwarf Mobolo Plum	CHRYSOBALANACEAE
Pearsonia cajanifolia		FABACEAE
Pearsonia sessillifolia		FABACEAE
Pelargonium luridum		GERANIACEAE
Pentanisia angustifolia		RUBIACEAE
Pentarrhinum insipidum	African Heartvine	APOCYNACEAE
Persicaria lapathifolia		POLYGONACEAE
Peucedanum magalismontanum	Wild Parsley	APIACEAE
Phyllanthus incurvus		EUPHORBIACEAE
**** Plantago lanceolata***	Narrow-leaved plantain	PLANTAGINACEAE
Pollichia campestris	Waxberry	ILLECEBRACEAE
Polygala amatymbica		POLYGALACEAE
Polygala hottentotta		POLYGALACEAE
Polygala rehmnannii		POLYGALACEAE
**** Populus x canescens***	Grey Poplar	SALICACEAE
**** Populus deltoides***	Match Poplar	SALICACEAE

Protea welwitschii	Cluster-head Sugarbush	PROTEACEAE
**** Prunus persica***	Peach	ROSACEAE
Psammotropha myriantha		AIZOACEAE
Pygmaeothamnus zeyheri	Sand Apple	RUBIACEAE
**** Pyracantha angustifolia***	Yellow Firethorn	ROSACEAE
**** Raphanus raphanistrum***	Wild Radish	BRASSICACEAE
Raphionacme galpinii		APOCYNACEAE
Raphionacme hirsuta	Khadi Root	APOCYNACEAE
Rhamnus prinioides		RHAMNACEAE
Rhyncosia monophylla		FABACEAE
Rhynchosia totta		FABACEAE
**** Robinia pseudoacacia***	Black Locust	FABACEAE
Rorippa nudiuscula		BRASSICACEAE
Rotheca hirsuta	Bush Violet	LAMIACEAE
Rubia horrida	Kleefgras	RUBIACEAE
Ruellia cordata	Veld Violet	ACANTHACEAE
**** Rumex crispus***	Curly Dock	POLYGONACEAE
**** Salix babylonica***	Weeping Willow	SALICACEAE
Salvia runcinata		LAMIACEAE
Scabiosa columbaria	Wild Scabious	DIPSACACEAE
**** Schkuhria pinnata***	Dwarf Marigold	ASTERACEAE
Searsia discolor		ANACARDIACEAE
Searsia lancea	Karree	ANACARDIACEAE
Searsia leptodictya	Mountain Karree	ANACARDIACEAE
Searsia pyroides	Common Wild Currant	ANACARDIACEAE
Searsia rigida		ANACARDIACEAE
Searsia zeyheri		ANACARDIACEAE
Senecio affinis		ASTERACEAE
Senecio coronatus	Sybossie	ASTERACEAE
Senecio inaequidens	Canary Weed	ASTERACEAE
Senecio inornatus		ASTERACEAE
Senecio oxyriifolius	False Nasturtium	ASTERACEAE
Senecio venosus		ASTERACEAE
Seriphium plumosum	Bankrupt Bush	ASTERACEAE
Sida dregei		MALVACEAE
Silene burchellii	Gunpowder Plant	CARYOPHYLLACEAE
**** Solanum mauritianum***	Bugweed	SOLANACEAE
Solanum panduriforme	Poison Apple	SOLANACEAE

**** Solanum sisymbrifolium***	Dense-thorned Bitter Apple	SOLANACEAE
**** Sonchus oleraceus***	Sowthistle	ASTERACEAE
Sphenostylis angustifolia	Wild Sweetpea	FABACEAE
Striga asiatica	Witchweed	OROBANCHACEAE
Striga elegans	Large Witchweed	OROBANCHACEAE
**** Tagetes minuta***	Khakiweed	ASTERACEAE
Tephrosia capensis var. ***capensis***		FABACEAE
Tephrosia longipes		FABACEAE
Tephrosia semiglabra		FABACEAE
Teucrium trifidum		LAMIACEAE
Thesium sp.		SANTALACEAE
Thesium utile		SANTALACEAE
**** Tipuana tipu***	Tipu Tree	FABACEAE
**** Tragopogon dubius***	Yellow Goat's Beard	ASTERACEAE
Triaspis hypericoides		MALPIGHIACEAE
Ursinia nana		ASTERACEAE
Vangueria infausta	Wild Medlar	RUBIACEAE
**** Verbena aristigera***	Fine-leaved Verbena	VERBENACEAE
**** Verbena bonariensis***	Purple top	VERBENACEAE
**** Verbena brasiliensis***		VERBENACEAE
Vernonia galpinii		ASTERACEAE
Vernonia staehelinoides		ASTERACEAE
Vigna vexillata	Narrow-leaved Sweetpea	FABACEAE
Wahlenbergia denticulata	Bellflower	CAMPANULACEAE
Xysmalobium undulatum		APOCYNACEAE
Zanthoxylum capense	Small Knobwood	RUTACEAE
Ziziphus zeyheriana	Dwarf Buffalo-thorn	RHAMNACEAE

ANNEXURE 2: Mammals

List of mammals species that have been or could possibly be recorded at the study area.

Compiled by R.F. Terblanche

Sources: Apps (2012); Skinner & Chimimba (2005); Rautenbach (1982); Stuart & Stuart (2000)

Note that the species are listed alphabetically under the distinctive orders for easy reference.

ORDERS AND SPECIES	COMMON NAMES ENGLISH/ AFRIKAANS
ORDER CHIROPTERA	BAT ORDER
Neoromicia capensis (A. Smith, 1829)	Cape Serotine Bat
Nycteris thebaica E. Geoffroy Saint-Hilaire, 1813	Egyptian Slit-faced Bat
Scotophilus dinganii (A. Smith, 1833)	African Yellow Bat
Tadarida aegyptiaca (E. Geoffroy Saint-Hilaire, 1818)	Egyptian Free-tailed Bat
ORDER EULIPOTYPHLA	SHREW AND HEDGEHOG FAMILY
Crocidura cyanea (Duvernoy, 1838)	Reddish-grey Musk Shrew
Crocidura hirta (Peters, 1852)	Lesser Red Musk Shrew
ORDER RODENTIA	RODENT ORDER
Aethomys ineptus (Thomas & Wroughton, 1908)	Tete Veld Rat
Cryptomys hottentotus (Lesson, 1826)	African Mole-rat
Hystrix africaeaustralis Peters, 1852	Cape Porcupine
Lemniscomys rosalia (Thomas, 1904)	Single-striped Grass Mouse
Mastomys coucha/ natalensis*	Multimammate Mouse Species Complex

Rhabdomys pumilio (Spearman, 1784)	Four-striped Grass Mouse
Tatera brantsii (A. Smith, 1836)	Highveld Gerbil
Tatera leucogaster (Peters, 1852)	Bushveld Gerbil
ORDER LAGOMORPHA	HARES AND RABBITS ORDER
Lepus saxatilis F. Cuvier, 1823	Scrub Hare
ORDER RUMINANTIA	RUMINANTS
Sylvicapra grimmia (Linnaeus, 1758)	Common Duiker
ORDER CARNIVORA	CARNIVORE ORDER
Cynictis penicillata (G. Cuvier, 1829)	Yellow Mongoose
Galerella sanguinea (Rüppell, 1836)	Slender Mongoose

* Species complexes are under revision or else species could not reliably be identifiied by using external characters.

ANNEXURE 3: Birds

List of bird species that have been recorded at the study area

Compiled by R.F. Terblanche

Sources: Chittenden (2007), Hockey, Dean & Ryan (2005), Peacock (2006).

Note that the species are listed according to their Roberts Bird numbers for easy reference.

Roberts Bird No.	SPECIES	COMMON NAMES ENGLISH
8	***Tachybaptus ruficollis***	**Little Grebe**
63	***Ardea melanocephala***	**Black-headed Heron**
71	***Bubulcus ibis***	**Cattle Egret**
91	***Threskiornis aethiopicus***	**African Sacred Ibis**
94	***Bostrychia hagedash***	**Hadeda Ibis**
102	***Alopochen aegyptiaca***	**Egyptian Goose**
104	***Anas undulata***	**Yellow-billed Duck**
105	***Anas sparsa***	**African Black Duck**
127	***Elanus caeruleus***	**Black-shouldered Kite**
199	***Pternistis swainsonii***	**Swainson's Spurfowl**
203	***Numida meleagris***	**Helmeted Guineafowl**
228	***Fulica cristata***	**Red-knobbed Coot**
255	***Vanellus coronatus***	**Crowned Lapwing**
258	***Vanellus armatus***	**Blacksmith Lapwing**
260	***Vanellus senegallus***	**African Wattled Lapwing**
297	***Burhinus capensis***	**Spotted Thick-knee**
304	***Afrotis afraoides***	**Northern Black Korhaan**
348	***Columba livia***	**Rock Dove**
352	***Streptopelia semitorquata***	**Red-eyed Dove**
354	***Streptopelia capicola***	**Cape Turtle-dove**
355	***Streptopelia senegalensis***	**Laughing Dove**
417	***Apus affinis***	**Little Swift**
424	***Colius striatus***	**Speckled Mousebird**
426	***Urocolius indicus***	**Red-faced Mousebird**
443	***Merops bullockoides***	**White-fronted Bee-eater**
473	***Trachyphonus vaillantii***	**Crested Barbet**

494	***Mirafra africana***	**Rufous-naped Lark**
518	***Hirundo rustica***	**Barn Swallow**
520	***Hirundo albigularis***	**White-throated Swallow**
526	***Hirundo cucullata***	**Greater Striped Swallow**
527	***Hirundo abyssinica***	**Lesser Striped Swallow**
568	***Pycnonotus tricolor***	**Dark-capped Bulbul**
-	***Turdus smithi***	**Karoo Thrush**
601	***Cossypha caffra***	**Cape Robin-Chat**
664	***Cisticola juncidis***	**Zitting Cisticola**
713	***Motacilla capensis***	**Cape Wagtail**
732	***Lanius collaris***	**Common Fiscal**
758	***Acridotheres tristis***	**Common Myna**
787	***Cinnyris talatala***	**White-bellied Sunbird**
796	***Zosterops virens***	**Cape White-eye**
803	***Passer melanurus***	**Cape Sparrow**
804	***Passer diffusus***	**Southern Grey-headed Sparrow**
814	***Ploceus velatus***	**Southern Masked-weaver**
824	***Euplectes orix***	**Southern Red Bishop**
852	***Ortygospiza atricollis***	**African Quailfinch**
854	***Sporaeginthus subflavus***	**Orange-Breasted Waxbill**
870	***Crithagra atrogularis***	**Black-throated Canary**
878	***Crithagra flaviventris***	**Yellow Canary**
881	***Crithagra gularis***	**Streaky-headed Seedeater**

ANNEXURE 4: Reptiles

List of reptile species that have been recorded or are likely to occur at the study area

Compiled by R.F. Terblanche

Sources of names and identifications:

Alexander & Marais (2007), Branch (1998), Branch (2008), Marais (2004).

Reptile species are listed alphabetically.

SPECIES	COMMON NAMES ENGLISH
Agama aculeata subsp. ***distanti***	**Ground Agama**
Aparallactus capensis	**Cape Centipede Eater**
Crotaphopeltis hotamboeia	**Herald Red-lipped Snake**
Dasypeltis scabra	**Common Egg Eater**
Lamprophis capensis	**Brown House Snake**
Pachydactylus capensis	**Cape Thick-toed Gecko**
Trachylepis capensis	**Cape Skink**
Trachylepis striata subsp. ***punctatissima***	**Striped Skink**

ANNEXURE 5: Amphibians

List of frog species that have been recorded at study area

Compiled by R.F. Terblanche

Sources of names, distributions and habitats:

[1]Conradie, Du Preez, Smith & Weldon, [2]Carruthers & Du Preez (2011), [3]Du Preez (1996), [4]Du Preez & Carruthers (2009)

Note that the species are listed alphabetically for easy reference.

SPECIES	COMMON NAMES ENGLISH/ AFRIKAANS	STATUS
Amietia angolensis (Bocage, 1866)	**Common River Frog**	Grassland streams and other permanent water bodies[2,4]
Amietophrynus gutturalis (Power, 1927)	**Guttaral Toad**	Grassland and savanna, Breeds in permanent waterholes, streams and garden ponds[2,4]
Schismaderma carens (Smith, 1848)	**Red Toad**	Breeds in deep pools, farm dams and swimming pools. Forages widely and then retreats into holes in trees[2,4]

ANNEXURE 6: Butterflies

List of butterfly species at the study area
Compiled by R.F. Terblanche

FAMILIES, SUBFAMILIES AND SPECIES	COMMON NAMES ENGLISH/ AFRIKAANS
FAMILY: PAPILIONIDAE	SWALLOWTAIL FAMILY SWAELSTERTFAMILIE
SUBFAMILY PAPILIONINAE	SWALLOWTAILS AND SWORDTAILS SWAELSTERTE EN SWAARDSTERTE
Papilio demodocus (Esper, 1798)	**Citrus Swallowtail** Lemoenswaelstert
FAMILY PIERIDAE	WHITES, YELLOWS AND TIPS WITJIES, GELETJIES EN PUNTJIES
SUBFAMILY COLIADINAE	YELLOWS AND CLOUDED YELLOWS GELETJIES EN WOLK-ORANJES
Catopsilia florella (Fabricius, 1775)	**African Migrant** Afrikaanse Migreerder
Colias electo electo (Linnaeus, 1763)	**African Clouded Yellow** Afrikaanse Wolk-oranje
Eurema brigitta brigitta (Stoll, 1780)	**Broad-bordered Grass Yellow** Grasveldgeletjie
SUBFAMILY PIERINAE	WHITES AND TIPS SUBFAMILY WITJIES EN PUNTJIES SUBFAMILIE
Belenois aurota aurota (Fabricius, 1793)	**Brown-veined White** Grasveldwitjie
Belenois creona severina (Stoll, 1781)	**African Common White** Afrikaanse Gewone Witjie
Colotis evinina evinina (Wallengren, 1857)	**Common Orange Tip** Gewone Oranjepuntjie
Colotis subfasciatus subfasciatus (Swainson, 1833)	**Lemon Traveller Tip** Suurlemoensmous
Mylothris agathina agathina (Cramer, 1779)	**Common Dotted Border** Gewone Spikkelrandjie/ Voëlentwitjie
Pinacopteryx eriphia eriphia (Godart, 1819)	**Zebra White** Kwagga
Pontia helice helice (Linnaeus, 1764)	**African Meadow White** Bontrokkie
FAMILY NYMPHALIDAE	BRUSH-FOOTED BUTTERFLIES BORSELPOOTSKOENLAPPERS
SUBFAMILY DANAINAE	MONARCH SUBFAMILY MONARG-SUBFAMILIE
Danaus chrysippus chrysippus (Linnaeus, 1758)	**African Monarch** Afrikaanse Melkbosskoenlapper
SUBFAMILY CHARAXINAE	CHARAXES SUBFAMILY DUBBELSTERT SUBFAMILIE
Charaxes jasius saturnus Butler, 1866	**Saturn Foxy Charaxes** Saturnus-koppiedubbelstert
SUBFAMILY SATYRINAE	BROWNS SUBFAMILY BRUINTJIES-SUBFAMILIE
Paternympha narycia	**Spotted-eye Brown**

(Wallengren, 1857)	Koloogbruintjie
Stygionympha wichgrafi wichgrafi	**Wichgraf's Hillside Brown**
Van Son, 1955	Wichgraf-rantbruintjie
SUBFAMILY BIBLIDINAE	BYBLIA SUBFAMILY BIBLIA SUBFAMILIE
Byblia ilithyia	**Spotted Joker**
(Drury, 1773)	Leliegrasvegter
SUBFAMILY NYMPHALINAE	PANSY SUBFAMILY GESIGGIE SUBFAMILIE
Catacroptera cloanthe cloanthe	**Pirate**
(Stoll, 1781)	Seerower
Hypolimnas misippus	**Common Diadem**
(Linnaeus, 1764)	Gewone Na-aper/ Blouglans
Junonia hierta cebrene	**Yellow Pansy**
Trimen, 1870	Geelgesiggie
Junonia oenone oenone	**Blue Pansy**
(Linneaus, 1758)	Blougesiggie
Junonia orithya madagascariensis	**Eyed Pansy**
Guenée, 1865	Padwagtertjie
Precis archesia archesia	**Garden Commodore**
(Cramer, 1779)	Rots-blaarvlerk
Vanessa cardui	**Painted Lady**
(Linnaeus, 1758)	Sondagsrokkie
SUBFAMILY HELICONIINAE	ACRAEA SUBFAMILY ACRAEA SUBFAMILIE
Acraea natalica natalica	**Natal Acraea**
De Boisduval, 1847	Natal-se-rooitjie
Acraea neobule neobule	**Wandering Donkey Acraea**
Doubleday, 1847	Dwaalesel-rooitjie
Acraea rahira rahira	**Marsh Acraea**
De Boisduval, 1833	Moerasrooitjie
Acraea serena *(=Acraea eponina)*	**Small Orange Acraea**
Fabricius, 1775	Klein-oranjerooitjie
Phalanta phalantha aethiopica	**African Leopard Butterfly**
(Rothschild & Jordan, 1903)	Afrikaanse Luiperdskoenlapper
FAMILY LYCAENIDAE	BLUES AND COPPERS BLOUTJIES EN KOPERVLERKIES
SUBFAMILY THECLINAE	HAIRSTREAKS AND COPPERS LANGSTERTE EN KOPERVLERKIES
Aloeides aranda	**Aranda Copper**
(Wallengren, 1857)	Aranda-kopervlerkie
Aloeides henningi	**Henning's Copper**
Tite & Dickson, 1973	Henning-se-kopervlerkie
Aloeides molomo molomo	**Grassland Molomo Copper**
(Trimen, 1870)	Grasveld-molomokopervlerkie
Cigaritis mozambica	**Mozambique Bar**
(Bertoloni, 1850)	Mosambiek-se-streepvlerkie
Cigaritis natalensis	**Natal Bar**
(Westwood, 1852)	Natal-se-streepvlerkie
Leptomyrina henningi	**Henning's Black-eye**
Dickson, 1976	Henning-se-swartogie
SUBFAMILY POLYOMMATINAE	BLOUTJIES AND CILIATED BLUES BLOUTJIES EN KORTSTERTJIES

Actizera lucida (Trimen, 1883)	**Rayed Blue** Witstreepbloutjie
Anthene amarah amarah (Guérin-Méneville, 1849)	**Black-striped Hairtail** Swartstreep-kortstertjie
Anthene definita definita (Butler, 1899)	**Common Hairtail** Donkerkortstertjie
Azanus jesous jesous (Guérin-Méneville, 1849)	**Topaz-spotted Blue** Hemels-kolbloutjie
Azanus moriqua (Wallengren, 1857)	**Thorn-tree Blue** Doringboombloutjie
Azanus ubaldus (Stoll, 1782)	**Velvet-spotted Blue** Fluweel-kolbloutjie
Cacyreus marshalli Butler, 1898	**Geranium Bronze** Pelargoniumbrons
Chilades trochylus (Freyer, 1843)	**Grass Jewel Blue** Grasjuweeltjie
Cupidopsis cissus cissus (Godart, 1824)	**Common Meadow Blue** Vleibloutjie
Cupidopsis jobates jobates (Hopffer, 1855)	**Tailed Meadow Blue** Aasbloutjie
Eicochrysops messapus mahallakoaena (Wallengren, 1857)	**Grassland Cupreous Copper** Grasveldkoperbloutjie
Euchrysops osiris (Hopffer, 1885)	**Osiris Smokey Blue** Osiris Dowwebloutjie
Lampides boeticus (Linneaus, 1767)	**Longtailed Pea Blue** Langstert-ertjiebloutjie
Lepidochrysops patricia (Trimen, 1887)	**Patricia Blue** Patricia-bloutjie
Lepidochrysops plebeia plebeia (Butler, 1898)	**Twin-spot Blue** Dubbelkolbloutjie
Leptotes brevidentatus (Tite, 1958)	**Short-toothed Blue** Korttandbloutjie
Leptotes species	**Common Blue** Gewone bloutjie
Tarucus sybaris sybaris (Hopffer, 1855)	**Dotted Blue** Spikkelbloutjie
Tuxentius melaena melaena (Trimen, 1887)	**Black Pie** Swartbontetjie
Zintha hintza hintza (Trimen, 1864)	**Hintza Pie** Hintza-bontetjie
Zizeeria knysna (Trimen, 1862)	**Sooty Blue** Duwweltjiebloutjie
Zizula hylax (Fabricius, 1775)	**Gaika Blue** Gaika-bloutjie
FAMILY HESPERIIDAE	SKIPPERS DARTELAARS
SUBFAMILY COELIADINAE	POLICEMEN KONSTABELS
Coeliades forestan forestan (Stoll, 1782)	**Striped Policeman** Witbroekkonstabel
Coeliades pisistratus (Fabricius, 1793)	**Two-pip Policeman** Dubbelkolkonstabel
SUBFAMILY PYRGINAE	SANDMEN AND ELFINS

	SANDMANNETJIES EN ELWE
Eretis umbra umbra (Trimen, 1862)	**Small Marbled Elf** Umbra-kabouter
Spialia diomus ferax (Wallengren, 1863)	**Common Sandman** Kwagga-sandmannetjie
Spialia mafa mafa (Trimen, 1870)	**Mafa Sandman** Mafa-sandmannetjie
Spialia spio (Linnaeus, 1764)	**Mountain Sandman** Bergsandmannetjie
SUBFAMILY HETEROPTERINAE	SYLPHS WALSERTJIES
Tsitana tsita (Trimen, 1870)	**Grassland Dismal Sylph** Grasveld Donkerwalsertjie
SUBFAMILY HESPERIINAE	RANGERS AND SWIFTS WAGTERTJIES EN RATSVLIEËRS
Gegenes niso niso (Linneaus, 1764)	**Common Gold Skipper** Gewone Goud
Gegenes pumilio gambica (Mabille, 1878)	**Dark Gold Skipper** Donker Goud
Kedestes barberae barberae (Trimen, 1873)	**Barber's Ranger** Barber-se-wagtertjie
Kedestes nerva nerva (Fabricius, 1793)	**Scarce Ranger** Seldsame wagtertjie
Pelopidas mathias (Fabricius, 1798)	**Black-banded Swift** Swartmerk-ratsvlieër
Pelopidas thrax inconspicua (Bertoloni, 1850)	**White-branded Swift** Witmerk-ratsvlieër
Platylesches ayresii (Trimen, 1889)	**Peppered Hopper** Ayres-se-hoppertjie

Annexure H

BIODIVERSITY INFROMATION
RECEIVED BY GDARD

Bianca

From: User1 <user1@bokamoso.net>
Sent: 21 August 2012 10:54 AM
To: mientjie@bokamoso.net
Subject: FW: Request to determine if biodiversity assesment is required

Sincerely,

Anè Agenbacht

Bokamoso
Environmental Consultants &
Landscape Architects
t:+27(12) 346 3810 | f: 27 86 570 5659 | e:lizelleg@mweb.co.za |
36 Lebombo Road Ashlea Gardens, PTA

From: Bokamoso [mailto:ontvangs@bokamoso.net]
Sent: Tuesday, August 21, 2012 10:24 AM
To: user5@bokamoso.net
Cc: user1@bokamoso.net
Subject: FW: Request to determine if biodiversity assesment is required

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From: GDARD Biodiversity Information (GDARD) [mailto:GDACE_BiodiversityInfo@gauteng.gov.za]
Sent: 21 August 2012 09:51 AM
To: Bokamoso
Subject: RE: Request to determine if biodiversity assesment is required

Dear Lizelle

With regard to the above project, specialist biodiversity studies are required to investigate the following aspects:

* Plants, with specific reference to

- *Brachycorythis conica.*
- *Habenaria mossii.*
- *Cheilantheus deltoidea.*

- *Habenaria bicolor.*
- *Habenaria kraenzliniana.*
- *Lithops lesliei.*

* Mammals, with specific reference to *Lutra maculicollis* (Spotted-necked otter).

* Invertebrates, with specific reference to *Ichnestoma stobbiai* (Stobbia's Fruit chafer).

* Vegetation.

* Rivers.

The absence of wetlands on site should be verified. Should a wetland be located, a wetland specialist study will be required.

Please note that this information is relevant solely for the study site specified in your request. Red/Orange Listed plant species information relevant to a wider geographic area can be obtained from Lorraine Mills (Lorraine.Mills@gauteng.gov.za).

All specialist studies must comply with GDARD Requirements for Biodiversity Assessments. The most recent version of this document (currently version 2) can be obtained by e-mailing GDARD BiodiversityInfo@gauteng.gov.za.

Should the environmental assessment practitioner be of the opinion that any of the above specialist studies are unnecessary for the site/activity in question, then an ecologically-based motivation justifying why the studies are deemed unnecessary must be submitted to GDARD as part of the application. This submission will be evaluated and either accepted or returned to the applicant for the completion of the necessary studies.

Please note that the application site is designated irreplaceable in the Gauteng Conservation Plan (Version 3.3), i.e. it is a highly sensitive site, essential for the conservation of biodiversity in Gauteng. Based on the biodiversity sensitivities confirmed on this site, it is highly unlikely that any activity will be supported by Conservation. Please take this into consideration before proceeding with the expense of specialist studies.

Please do not send follow up inquiries to this message as they will not be processed. For further queries please contact Phuti Matlamela (Phuti.matlamela@gauteng.gov.za).

Regards

EIA Unit

From: Bokamoso [mailto:lizelleg@mweb.co.za]
Sent: Mon 2012/08/20 02:48 PM
To: GDARD Biodiversity Information (GDARD)
Cc: mientjie@bokamoso.net
Subject: Request to determine if biodiversity assesment is required

EIA for Rietvlei extension 6 -11 and extension 15.
Reference nr: Gaut: 002/12-13/E0090

To whom it may concern

Could you please determine which biodiversity assessments studies will be required for this project.
Please find attached recent shapefiles for the specific project.

Sincerely

Alfred Thomas

GAUTENG
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Annexure I

Comments from SAHRA

Crosswise Estate
Our Ref: 9/2/258/0044

Enquiries: Andrew Salomon
Tel: 021 462 4502
Email: asalomon@sahra.org.za
CaseID: 332

Date: Wednesday August 22, 2012

Final Decision

In terms of section 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Bokamoso Landscape Architects

Gaigher, S. April 2012. Phase 1 Heritage Impact Assessment Report for the Proposed Crosswise Estate Extension 1–10.

The proposed development entails a residential extension situated on Portions 20, 317 and 318 as well as the remainders of Portion 15 and 113 of the farm Doornkloof 391 JR. This area is located in the present area of Irene, near the city of Pretoria. The total size of the proposed development is 397.5 ha. It will be a mixed use zoning with residential, commercial, industrial & retirement village.

The author contends that although a scattering of informal structures were identified throughout the study area, no sites of heritage significance could be identified. The author notes that the area adjacent to the development site does however have a strong historic association with the late Jan Smuts and the Jan Smuts Museum is located only 500m south of the boundary of the proposed development. The Irene Concentration Camp was also located close to the site. This lends a strong historic character to this landscape. The author recommends that the development take into account the historic character of this area as well as its association with Jan Smuts and the South African War through the Irene Concentration Camp and that this character is reflected and preserved in its design and
layout. The author further recommends that a visual impact assessment be performed to gauge the possible visual impacts that the development might have on the museum and the cultural landscape.

Decision:

If the recommendations made in the specialist report and in this comment are adhered to, the SAHRA Archaeology, Palaeontology and Meteorite Unit has no objection to the development (in terms of the archaeological component of the heritage resources). If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development, construction or mining, SAHRA and a professional archaeologist must be alerted immediately.

Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, the developer must ensure that a professional Palaeontological Desk Top study is undertaken to assess whether or not the development will impact upon palaeontological resources. If this is deemed unnecessary, a letter of recommendation for exemption from a professional Palaeontologist is needed. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 rescue operation might be necessary.

Please note that decisions on Built Environment must be referred to the Gauteng Provincial Heritage

Resources Agency (Ms Maphata Ramphele: Maphata.Ramphele@gauteng.gov.za, Mr Grant Botha: grantb@gpg.gov.za).

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Andrew Salomon
Heritage Officer: Archaeology
South African Heritage Resources Agency

Colette Scheermeyer
SAHRA Head Archaeologist
South African Heritage Resources Agency

ADMIN:

Terms & Conditions:

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to SAHRA immediately.
3. SAHRA reserves the right to request additional information as required.

Annexure J

Comments from Rand Water

Bianca

From: Bokamoso <lizelleg@mweb.co.za>
Sent: 12 June 2013 03:19 PM
To: user3@bokamoso.net
Cc: user1@bokamoso.net
Subject: FW: Registration as IAP: Proposed Rietvlei X6-X9 and Proposed Rietvlei X10, X11 and X15 Projects
Attachments: Standard Conditions of Crossing RW Pipes_Way Leave.pdf; Proposed Rietvlei X6-X9 and X10_X11 and X15 Projects.pdf; Untitled attachment 00390.txt

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From: Natalie Koneight [mailto:nkoneigh@randwater.co.za]
Sent: 12 June 2013 03:11 PM
To: lizelleg@mweb.co.za
Subject: Registration as IAP: Proposed Rietvlei X6-X9 and Proposed Rietvlei X10, X11 and X15 Projects

Dear Sir/Madam

Rand Water is hereby registering as IAP for the above-mentioned project.
Kindly forward confirmation of registration as IAP to Natalie Koneight at nkoneigh@randwater.co.za

Attached is Rand Water's Wayleaves, for your information.
Rand Water would like to be sure that the development as per the BID have planned adequately for their sewerage removal off site.

Please provide Rand Water with:

1. The detail about the facility that will receive the sewerage.
2. An agreement that the identified sewerage facility I aware of the development and that they have the capacity to accept the sewerage from the site without overloading the facility.
3. Will there be any discharges other than the sewerage system that will increase storm water entering the environment. If so, has the development considered retention and stilling ponds to slow down high peak flows.

If the sewerage facility cannot accept the additional load into their facility then this will have a negative impact on the environment and the pollution load into the river system.

Natalie Koneight
Secretary to Leslie Hoy
EMS Department, GSSE

RAND WATER
+27-11-724-9366
+27-11-900-2108
nkoneigh@randwater.co.za
www.randwater.co.za
Water Wise

STANDARD CONDITIONS FOR CROSSING OF RAND WATER'S SERVICES

ANNEXURE "A" (OCT 2002)

1. SERVICE CROSSINGS :

1.1 The number of crossings of Rand Water's pipeline/s and servitude/s or proposed servitude/s shall be kept to a minimum; such crossings shall be as close to 90 degrees (right angles) as possible and the cover over its pipeline/s shall not be materially altered.

1.2 No service shall be less than one metre from a joint in Rand Water's pipeline/s and a space of not less than 300 mm shall be maintained between any service and Rand Water's pipeline/s at the point of crossing, or as separately specified. Where Rand Water's prestressed concrete pipeline is crossed, this space shall be measured from the lightning protection wires installed above and below the pipeline. For service crossings under those of Rand Water, where further larger diameter pipelines are installed in the servitude in the future, Rand Water may require the service owner, at its own cost, to lower its service to comply with the foregoing.

1.3 No service running parallel to Rand Water's pipeline/s, no box, manhole, structure supporting any service, footing of any pylon, pole or stay wire and no stormwater culvert and / or appurtenances shall be within two metres of Rand Water's pipeline/s or on Rand Water's servitude/s or proposed servitude/s or discharge thereon unless the prior written permission of Rand Water has been obtained.

1.4 Half-round concrete pipes or other approved protection shall be placed over any cable that is within two metres of Rand Water's pipeline/s or on Rand Water's servitude/s or proposed servitude/s.

1.5 Where any service crosses Rand Water's servitude/s or proposed servitude/s, it shall be laid at minimum grade (sewers and stormwater) / at an even depth below ground level (all other services) over the entire servitude / proposed servitude width and its position where it intersects Rand Water's pipeline/s, servitude/s or proposed servitude/s shall be clearly indicated by suitable markers. Sewer crossings shall be designed to span over Rand Water's existing and proposed pipeline trenches.

2. ROADS AND RAILWAY LINE CROSSINGS :

2.1 Rand Water shall have unimpeded vehicular access to its pipeline/s at all times for inspection and maintenance purposes. Culverts shall be provided at all railway line crossings to provide such access. Under roadways culverts will be required unless it can be proved to Rand Water that traffic density and the cover over the pipeline/s will not adversely affect Rand Water in the exercise of its rights and that excavation through the road layers to gain access to the pipeline/s is acceptable to the service owner. In general, the cover over Rand Water's pipeline/s may vary between 800 mm and 1 500 mm however, an undisturbed layer of at least 300 mm shall be maintained between the pipeline/s and the roadworks during construction unless relaxed by Rand Water in writing. Reinforced concrete box culverts with compartments having minimum internal dimensions as indicated on Rand Water's standard drawings No. B1933 and B1934 shall be provided for both existing and future pipelines. Culverts shall preferably be drained by a gravity system.

2.2 Long diagonal crossings of Rand Water's pipeline/s and servitude/s or crossings of bends in Rand Water's pipeline/s shall be avoided. If this is not possible, Rand Water's pipeline/s shall be deviated so as to cross the proposed road/railway line at approximately right angles.

3. PIPELINE PROTECTION AND / OR DEVIATION AT DESIGN STAGE :

3.1 Where any development affects the discharge of water from Rand Water's scour valves, arrangements shall be made in collaboration with Rand Water's Manager Bulk Water Services to accommodate, channel or divert such flow.

3.2 Detailed proposals, including longitudinal sections along Rand Water's pipeline/s depicting the level of the road/railway line or other service in relation to the pipeline/s, shall be submitted for Rand Water's approval before the commencement of proposed construction work.

3.3 It may be necessary for Rand Water itself to strengthen the lead-caulked joints of its pipeline/s located under roadways or in culverts, by means of double tapers, the fabrication of which requires at least two months notice. Such strengthening shall extend to a distance of at least two metres beyond the road prism/kerb line, measured at right angles to the road direction. (The estimated cost of which is R 7 000 per joint). The actual cost of joint strengthening shall be borne by the service owner who shall be responsible for all excavation and backfilling.

3.4 Since lengthy delays can occur between the planning and construction stages, the proposed dimensions of the culverts shall be confirmed by Rand Water at least 12 months before construction work commences.

3.5 All planning, survey work, preparation of designs, specifications and drawings shall be undertaken by the service owner or its consulting engineers and submitted to Rand Water for approval. A copy / Copies of the relevant specimen specification/s will be provided, on request, when more details of the work to be performed are known.

3.6 Contractors approved by Rand Water shall be engaged to undertake all construction work, including :

(a) manufacture, supply and delivery of pipes;
(b) excavation and backfill of trenches etc;
(c) laying and jointing of pipes;
(d) recovery of redundant pipes; and
(e) construction of the necessary structures.

3.7 Rand Water shall be given reasonable notice prior to the commencement of the fabrication as well as the installation of pipes to enable it to undertake the necessary inspection work.

3.8 Except for the manufacture of pipes, which will be inspected by Rand Water or its agents, all work shall be supervised by the service owner or its consulting engineers who will also undertake all necessary negotiations with property owners and local authorities affected by any possible relocation of Rand Water's pipeline/s and obtain agreement from them in principle for the accommodation of Rand Water's pipeline/s in the proposed relocated position/s.

Continued overleaf.....

3.9 Where Rand Water is required to relocate its pipeline/s or servitude/s, the service owner shall bear the cost of the cancellation of Rand Water=s servitude/s as well as the costs of acquiring, surveying and registering new servitudes that will provide Rand Water with rights equal to those provided by the servitudes to be cancelled

3.10 Co-ordinates of the alignment of any proposed relocation/s shall be submitted to Rand Water to prepare the statutory notices for relocation/s of its pipeline/s. Relocation shall not take place until Rand Water has issued such statutory notices.

3.11 During the period April to August in any year, at a time suited to its water supply operations, Rand Water will, on receipt of 21 days notice, circumstances permitting, make the end connections from the deviations to the existing pipeline/s. Daywork rates shall be included in the pipelaying contract documents to allow for assistance to Rand Water.

3.12 Ownership of portions of the pipeline/s that become redundant as a result of relocations carried out at the service owner=s cost will be transferred to it. If requested, Rand Water may take into stock pipes and / or valves recovered in good condition and credit the service owner with the value determined by Rand Water. Materials thus taken into stock shall be delivered to Rand Water's pipe yard at its Zwartkopjies pumping station by and at the cost of the service owner.

3.13 The service owner hereby indemnifies Rand Water against any claim arising from the non-removal and disposal of any portion of Rand Water=s pipeline/s made redundant by a relocation

3.14 No pipeline in its relocated position shall be subject to the provisions of the Advertising on Roads and Ribbon Development Act No 21 of 1940 or the National Roads Act No 54 of 1971 as amended.

4. PIPELINE PROTECTION AND / OR DEVIATION AT CONSTRUCTION STAGE :

4.1 Rand Water's Distribution Manager (Telephone (011) 900-1910) shall be notified and his permission obtained before any work is carried out within five metres of Rand Water's pipeline/s, servitude/s or proposed servitude/s and before backfilling any excavation exposing Rand Water's pipeline/s - Please quote inspection order No. as specified separately.

4.2 If detailed information of the positions or levels of the pipeline/s is required the pipeline/s may be exposed by the service owner or its consulting engineers, provided that the foregoing condition is complied with.

4.3 In terms of Regulation 10.17.1 of the Explosives Act No 26 of 1956, written confirmation of the measures proposed to protect Rand Water's pipeline/s shall be obtained from Rand Water for any blasting to be undertaken within 500 metres of its pipeline/s. The service owner shall be responsible for ensuring that the approved protection measures are complied with and that Rand Water's Distribution Manager is notified at least 24 hours in advance of each blast.

4.4 The pipeline/s shall be supported at not greater than five metre centres in culverts and where excavation takes place under the pipeline/s during construction.

4.5 No heavy earthmoving or compaction equipment shall be operated within two metres of the steel or five metres of the prestressed concrete pipeline/s unless specific proposals have been approved by Rand Water.

4.6 The prestressed concrete pipeline/s shall be haunched under the road or supported on pedestals where crossed by services located thereunder in accordance with the details depicted on Rand Water's drawing A3993, a print of which is available on request. Such haunching shall extend for a distance of two metres beyond the edge of the roadway on both sides, or to such greater length as may be required to complete the haunching of the nearest whole pipe length

5. CATHODIC PROTECTION AT STEEL PIPELINE CROSSINGS :

5.1 Two 16 square millimetre leads or one 35 square millimetre lead appropriately marked must be provided at each crossing point and the crossing shall not be backfilled until Rand Water's staff have installed similar test leads on Rand Water's pipeline/s. The

Electrolysis Section ((011)-682-0239 or 0240) must be contacted for the connections to Rand Water's pipeline/s.

5.2 The pipe to ground potential of Rand Water's pipeline/s at the crossing point will be monitored before installation of the service owner=s steel service and that potential must be maintained irrespective of the cathodic protection applied to the service owner=s steel service after installation

6. INDEMNITY :

6.1 The service owner shall indemnify Rand Water against all claims for damage arising out of, and will be held liable for any damage that may be caused to Rand Water's pipeline/s and/or appurtenances as a result of any crossing of during construction or the installation/construction and/or the presence of any service/road/railway line and/or appurtenances on Rand Water's servitude/s or within two metres of Rand Water's pipeline/s. Rand Water shall not be liable for any damage to any service/road/railway line and/or appurtenances that may be caused by it in the exercise of its rights, provided that Rand Water will remain liable for any damage that is proved to have resulted directly from the wrongful action of its employees.

7. COSTS :

7.1 The service owner shall bear the cost of any protective measure that may be necessary in order to prevent the exchange of stray direct currents between the cable/s or pipe/s and Rand Water's pipeline/s, the protection of existing installations and of making provision to accommodate future services, as outlined above as well as the cost of repairs to the lightning protection wires installed approximately 100 mm above and below Rand Water's prestressed concrete pipeline/s or to Rand Water's telemetering cable/s necessitated by the installation of the proposed service, and will be debited with all costs incurred by Rand Water on its behalf on the usual terms of actual cost plus 10% (ten per cent) for administration.

8. ACCEPTANCE OF CONDITIONS :

8.1 The above conditions together with Annexure B (Vaal Barrage Conditions) - if relevant, and any foregoing special requirements shall be accepted in writing by the service owner before any work may commence. If no reply is received within 60 days from date of Rand Water's written notification, the conditions will be deemed to have been accepted by the service owner

REGISTRATION AS IAP

PROPOSED RIETVLEI X6 – X9 AND THE PROPOSED RIETVLEI X10, X11 & X 15 PROJECTS
GDARD REF: GAUT: 002/12-13/E0224

First Name/s:	**MPATI**
Last Name:	**MPSHE**
Title: (Dr./ Miss/ Mr./ Mrs./ Prof. etc)	**MRS**
If representing an entity (i.e. company or organisation), name of entity:	**RAND WATER**
If representing an entity, position within entity (i.e. CEO, Chairperson, Secretary, Councillor, etc):	**ENVIRONMENTAL ASSESSOR**
Postal Address:	**P.O. BOX 1127** **JOHANNESBURG** **2000**
Physical Address	
E-mail Address:	**mmpshe@randwater.coz.za**
Phone Number:	**(011) 724-9357**
Cell Phone Number:	
Fax:	**(011) 900-1208**

Comments:

ALL TRAVERSING ALONG AND OVER RAND WATER PIPELINES. POSSIBLE LEAKS FROM OTHER SERVICES THAT COULD CAUSE GROUND STABILITY TO CHANGE. PLEASE KEEP US INFORMED REGARDING THE ABOVE ASPECTS.

Annexure K

Comments from COT

CITY OF TSHWANE
IGNITING EXCELLENCE

Environmental Management Services Department

4th Floor,Nr 11 Francis Baard Street, Pretoria
PO Box 1454 I Pretoria I 0001
Email: Tel: 012 358 8671 I Fax: 012 358 8934
Email: LivhuwaniS@tshwane.gov.za I www.tshwane.gov.za

My ref:	8/4/R/6	Tel:	012 358 8667
Your ref:	GAUT 002/12-13/E0224	Fax:	012 358 8934
Contact person:	T Mphephu	Email:	TshinyadzoM@tshwane.gov.za
Section:	Environmental Planning & Open Space Management Section	Date:	11 October 2013

Bokamoso Landscape Architects and Environmental Consultants
P.O. Box 11375
Maroelana
0161

Attention: Lizelle Gregory
Tel: (012) 346 3810
Fax: 086 570 5659
E-mail: lizelleg@mweb.co.za

Dear Sir/Madam,

FINAL ENVIRONMENTAL SCOPING REPORT FOR THE PROPOSED DEVELOPMENT ON PORTIONS OF THE REMAINING EXTENTS OF PORTION 15 AND PORTION 113 OF THE FARM DOORNKLOOF 391-JR, TO BE KNOWN AS RIETVLEI EXTENSION 10,11 & 15

Your Report dated September 2013 refers,

1. INTRODUCTION

The Environmental Management Services Department (the Department) has considered the Final Environmental Scoping Report in respect of the above-mentioned application. The Final Environmental Scoping Report is submitted to the Environmental Management and Parks Division of the City of Tshwane, hereafter referred to as "the City", as a commenting authority in terms of the National Environmental Management Act (NEMA) and EIA Regulations of August 2010.

2. PROJECT LOCATION AND DESCRIPTION

Gillyfrost 71 (Pty) Ltd appointed Bokamoso Landscape Architects and Environmental Consultants to compile an Environmental Scoping Report and an Environmental Impact Assessment process for the proposed mixed use development to be known as Rietvlei Extension 10, 11 and 15 on Portions of the Remaining extents of Portions 15 and Portion 113 of the Farm Doornkloof 391-JR, Gauteng Province.

The study area is approximately 102, 72 hectares in extent and is located in the area of jurisdiction of the City of Tshwane in Gauteng Province. Prominent landmarks such as the St George's Hotel, the Irene Mall Shopping Centre, the Cornwall Hill Residential Estate and the Route 21 Business Park are located generally north of the study area. The Rietvlei Dam Nature Reserve is located to the north-east while Clayville and Olifansfontein are located to the south of the study area. Salberg industrial development abuts the study area on the north-western

boundary. The study area is furthermore located to the west of the R21 freeway and road M57 with the eastern boundary bordering on road M57. The proposed alignment of the K105 traverses the study area.

The mixed land use proposed development will consist of the following land uses: Residential 1 25 dwelling units/hectare, commercial warehousing, distribution centers, offices and hotel), Business 1 shops, offices, banks, places of refreshment, business buildings, business 2 office, banks, display centers, light manufacturing/assembly, industrial 3 warehouse , workshops, industrial buildings, business buildings).

3. KEY FACTORS INFORMING THE COMMENTS

In making comments in respect of the proposed Activity the Department has taken, *inter alia*, the following into consideration:

a) The information contained in the Final Environmental Scoping Report dated September 2013 and received by the Department on 09 September 2013.

b) Information obtained from the Section's information base including *inter alia*:
   - Geographic Information System (GIS); and
   - Gauteng Open Space Plan (GOSP).

c) Compliance with applicable Municipal, Provincial, and National Policies and Guidelines including:
   - The National Environmental Management Act 1998 (Act 107 of 1998) (NEMA): its decision-making principles and Environmental Impact Assessment Regulations;
   - The Tshwane Integrated Environmental Policy (TIEP);
   - The Tshwane Open Space Framework (TOSF); and
   - The Bioregional Plan for the Gauteng Metropolitan Municipalities.

4. DISCUSSION

In reviewing the application the Department made the following findings:

a) According to the Tshwane Open Space Framework the proposed site is situated within and adjacent to the following open space typologies:

   - A **Blue Node** namely Hennops River; Sesmylspruit and associated Wetlands (Linear Ecological Open space system associated with water) of Metropolitan significance. Blue nodes have a secondary socio-economic and place making function, therefore they must be conserved.

   - A **Blue Way,** namely Kaalspruit; Sesmylspruit; Hennops River and associated wetlands. Blue ways are the most important elements in the provisioning of environmental goods and services, the protection of biodiversity, endangered species and ecological systems as well as eco-based activity. Blue ways must therefore be conserved.

   - A **Green Node**, namely Proposed: Node at Confluence of Irene Dairy Farm, Centurion Golf Estate; GDARD Important Site: South and South-West of ARC; GDARD Irreplaceable Site: ARC; and GDARD Irreplaceable Site: 5 O'clock Site. Green nodes are the most important elements in the provisioning of environmental goods and services, the protection of biodiversity, endangered species and ecological systems, as well as eco-based activity. Green nodes must be protected for conservation purposes.

- A **Green Way** namely Cornwall Hill. These are protected areas which forms part of the strategically important ecological Structuring Elements within the Tshwane Open Space Network and must be conserved.

- A **Red Node**, Municipal Boundary Entrance: Botha Avenue. The value of red Nodes lies in their place-making function and in creating a high quality urban environment that supports the image of a capital city.

b) According to the Bioregional Plan for the Gauteng Metropolitan Municipalities the proposed site is situated within and adjacent to the following areas:

- **Critical Biodiversity Area 1:** Any terrestrial or aquatic area required to meet biodiversity pattern and/or process thresholds. These include any area that is required for meeting pattern thresholds, namely remaining areas of Critically Endangered vegetation types and areas required to protect threatened species; any area that is required for meeting process thresholds such as areas important for climate change adaptation; and hydrological process areas such as high priority wetlands and catchments, pan clusters and pans within priority catchments. In addition to the above areas where there is little or no choice of area identified, CBAs include all 'best design' sites in terms of meeting pattern and process thresholds, identified by the iterative conservation planning process. 'Best design' refers to an identified network of natural sites that meet pattern and process thresholds in all vegetation types and features in a spatially efficient and ecologically robust way, and aim to avoid conflict with other activities (e.g. economic activity) where it is possible to achieve biodiversity thresholds elsewhere.

- **Ecological Support Areas 1 & 2:** Supporting zone required to prevent degradation of Critical Biodiversity Areas and Protected Areas. These include remaining corridor, catchment, wetland and other process areas that are required to prevent degradation of Critical Biodiversity Areas and formal Protected Areas; and areas which would otherwise have been identified as Critical Biodiversity Areas except that have been transformed or degraded, but which are currently or potentially still important for supporting ecological processes e.g. floodplain areas that have transformed or degraded. These areas are a focus for rehabilitation rather than the intensification of land uses.

c) The report indicated that the developer considered the following two land use alternatives: Alternative 1 mixed use development preferred alternative and development proposal and Alternative 2 a residential development only was also considered as an alternative by the development. Residential land use only was therefore not considered as the preferred land use alternative.

d) The report indicated that the study area is regarded as ideally situated for the proposed development and therefore no locality alternatives were considered.

e) The report indicated that many alternative layouts for the development will be considered during the EIA phase of the development before the layout will be finalized.

f) The report indicated that final layout will also be tested against an environmental sensitivity map that will be compiled for the study area.

g) The report indicated that the study area is largely undeveloped and unused for any active agricultural practice.

h) The report indicated that according to the a Geotechnical and Dolomite Stability Report by J.P. Venter the site is underlain by dolomite and probably mainly dolomite of the Eccles Formation of the Chuniespoort Group of the Transvaal Supergroup.

i) The report indicated that the Olifantspruit, a tributary of the Hennops River, transverses the study area which falls within the Quaternary Catchment A21B. the site slopes to the west towards the Olifantspruit.

j) The report indicated that the presence of wetlands on the study area was verified during the planning phases of the development.

k) The report indicated that no extensive wetland conditions were found with the exception of the areas associated with the active channel of the Olifantspruit and diffuse flow associated within it.

l) The report indicated that the topography of the site is characterised by a gradual gradient towards the west. The study area is not affected by a ridge.

m) The vegetation of the study area can be broadly classified as Rocky Highveld Grassland (Bankenveld) and its variation on dolomite-derived soils.

n) The report indicated that according to the GDARD C-Plan 3 the majority of the study area is located on irreplaceable sites.

o) The report indicated that according to GAPA 3 the agricultural potential of the study area ranges from moderate to high. In addition, the study area does not fall within the Ekurhuleni /Kungwini Agricultural Hub.

p) The report indicated that the subject property was previously held by a mining company and was earmarked for possible mining activities, alter to be abandoned.

q) The report indicated that the Centurion Lake Rehabilitation Plan, current being conducted by Gladafrica needs to be taken into consideration.

r) The report indicated that the following specialist studies will be undertaken and included as part of the EIA report:
   - Detailed Dolomite Stability Investigation Report.
   - Detailed Storm Water Management Plan.
   - Ground Water Management Strategy.
   - Riparian Delineation Report.
   - Fauna and Flora Surveys Report.
   - Cultural and Historical Report
   - Visual Impact Assessment Report.
   - Agricultural Potential Survey Report.

5. RECOMMENDATIONS

The Department recommends that the following issues be taken into consideration:

a) A detailed layout plan, overlaying all sensitivities shall be included within the EIA report and submitted to this Department for perusal. The layout plan shall also be made available for the surrounding Interested and Affected parties to evaluate and comment on.

b) A detailed storm water management plan will need to be compiled that ensures that storm water generated on site is discharged in such a way that the receiving environment is not adversely impacted upon.

c) Confirmation of service capacity (water, electricity, storm water and sewer) from the relevant service providers must be included within the final report. Should no capacity exist for any of these services, an alternative should be discussed within the Report.

d) All identified specialist studies must be conducted and included in the EIA Report. The Assessment must indicate all potential impacts of the proposed development and appropriate mitigation measures.

e) A general Rehabilitation plan shall be included within the EIA Report which will aim to prevent erosion and aid the return of natural, endemic and indigenous vegetation cover to at least 80% of the rehabilitated area. The proposed rehabilitation plan should be included for the road servitudes as well as any sensitive water and wetland crossings.

f) An Environmental Management Plan should be included within the EIA Report. The EMP should address impacts and mitigation measures for the pre-construction, construction and post-construction activities. All issues and recommendations from Specialist studies should be included within the final and approved EMP. An Environmental Control Officer and contact details should also be included within the EMP.

g) All Alien invasive plant species should be eradicated on the study area in accordance to the Conservation of Agricultural Resources Act (Act no. 43 of 1983). An invasive species control plan should be implemented at least every 3 months after construction and should be included within the EIA Report and EMP.

h) The proposed activity will comply with all Municipal By-laws.

6. CONCLUSION

The above recommendations should be considered and included within the EIA report.

The Department will provide final comments upon the review of the Environmental Impact Assessment Report, with the inclusion of the above recommendations and issues.

Yours faithfully,

11/10/2013

Mr Livhuwani Siphuma **Date:**
EXECUTIVE DIRECTOR: ENVIRONMENTAL MANAGEMENT AND PARKS DIVISION
Letter signed by: Rudzani Mukheli
Designation: Deputy Director: Open Space Management Section

Cc	Gauteng Department of Agriculture and Rural Development	Attn:	Mr Teboho Leku	Tel:	(011)355 1914
				Fax:	(011) 355 1000

Annexure L

PUBLIC PARTICIPATION

Annexure L(i)

SITE NOTICE

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given of an application for a **Environmental Assessment Process** that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) governing **Environmental Impact Assessment Procedure (Listing Notice 1, 2 and 3 – Governing Notice R544, R545 & R546)** for the following activity:

Reference No: Gaut: 002/12-13/E0224

Project Name: Proposed Mixed Use Development to be known as Rietvlei Extension 10, 11 and 15

Property Description: Portions of the Remaining Extents of Portions 15 and 113 of the farm Doornkloof 391 JR, Gauteng Province

Proposed Zoning Information: "Business 2", "Business 1", "Special for Parking", "Residential 2 (Dwelling Units)",

Listing Activities Applied for:

GNR 544 (Listing Notice 1), 18 June 2010	Activity 9, 10, 11, 18, 22, 23, 24, 26, 28, 37, 38, 39, 47 & 56
GNR 545 (Listing Notice 2), 18 June 2010	Activity 15
GNR 546 (Listing Notice 3), 18 June 2010	Activity 4, 13, 14, 16, 19 & 26

Proponent Name: Gillyfrost 71 (Pty) Ltd

Location: The study area is located within City of Tshwane adjacent to the R21 Freeway. Proposed Rietvlei X6 is situated to the east and proposed Rietvlei X7-X11 & X15 are situated to the west of the R21 Freeway. The study area is situated to the north of the proposed Strawberry Farm Property and Clayville X65 developments, to the south of Smuts House Museum, to the west of Rietvlei Dam Nature Reserve, to the south of Irene Village, Twin Rivers Residential Estate, Cornwall Hill Estate and the St. Georges Hotel. Salberg Industrial Plant is situated to the west and north of the study area.

Date of Notice: 28 July 2015 – 28 August 2015

Queries regarding this matter should be referred to:

Bokamoso Landscape Architects and Environmental Consultants
Public Participation registration and inquiries: **Juanita De Beer**
Project Inquiries: **Bianca Reyneke**
P.O. Box 11375
Maroelana 0161
www.bokamoso.net

Tel: (012) 346 3810
Fax: (086) 570 5659
E-mail: lizelleg@mweb.co.za

In order to ensure that you are identified as an Interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 30 days of this Notice.**

NOTICE OF SCOPING ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given of an application for a **Scoping Environmental Assessment Process** that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) governing **Environmental Impact Assessment Procedure (Listing Notice 1, 2 and 3 – Governing Notice R544, R545 & R546)** for the following activity:

Reference No: Gaut: 002/12-13/E0224

Project Name: Proposed Mixed Use Development to be known as Rietvlei Extension 10, 11 and 15

Property Description: Portions of the Remaining Extents of Portions 15 and 113 of the farm Doornkloof 391 JR, Gauteng Province

Proposed Zoning Information: "Business 2", "Business 1", "Special for Parking", "Residential 2 (Dwelling Units)".

Listing Activities Applied for:

GNR 544 (Listing Notice 1), 18 June 2010	Activity 9, 10, 11, 18, 22, 23, 24, 26, 28, 37, 38, 39, 47 & 56
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GNR 546 (Listing Notice 3), 18 June 2010	Activity 4, 13, 14, 16, 19 & 26

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Date of Notice: 4 April 2013

Queries regarding this matter should be referred to:

Bokamoso Landscape Architects and Environmental Consultants
Public Participation registration and inquiries: **Juanita De Beer**
Project Inquiries: **Mientjie Coetzee**
P.O. Box 11375
Maroelana 0161
www.bokamoso.net
Tel: (012) 346 3810
Fax: (086) 570 5659
E-mail: lizelleg@mweb.co.za

In order to ensure that you are identified as an Interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 40 days of this Notice.**


NOTICE OF ENV
ASSESS


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IRONMENTAL IMPACT
MENT PROCESS


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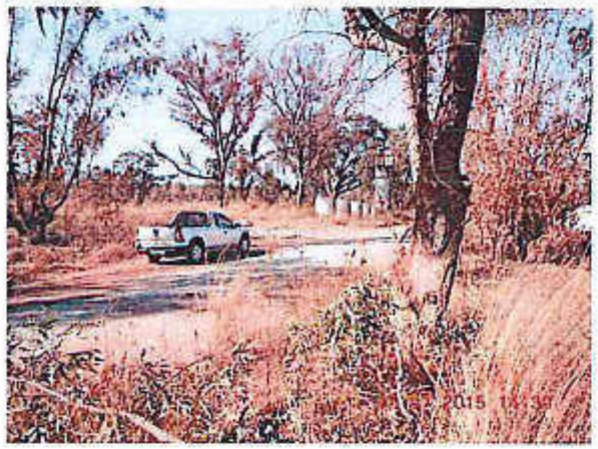


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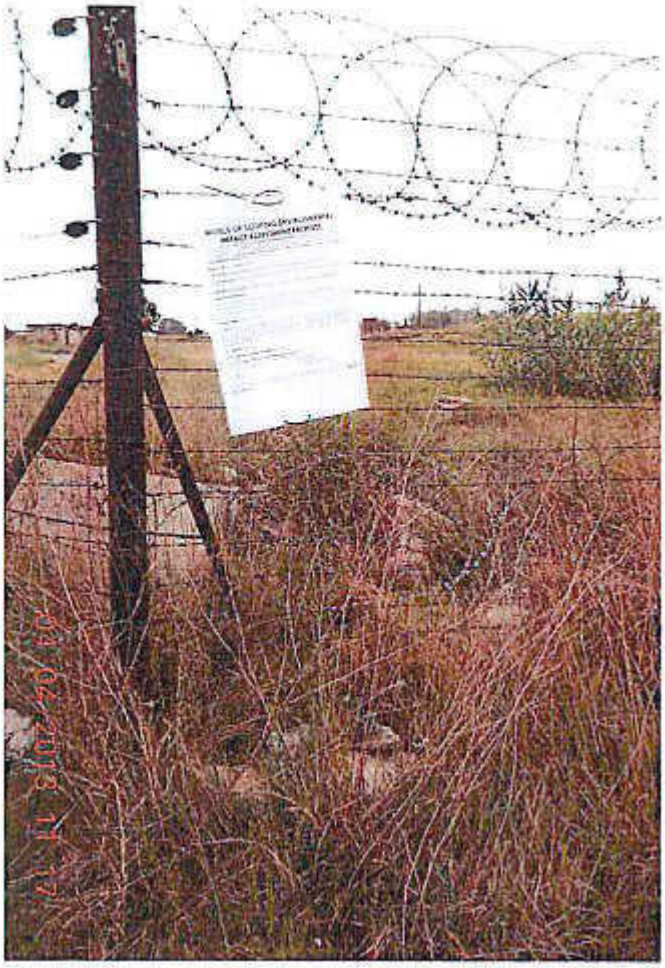
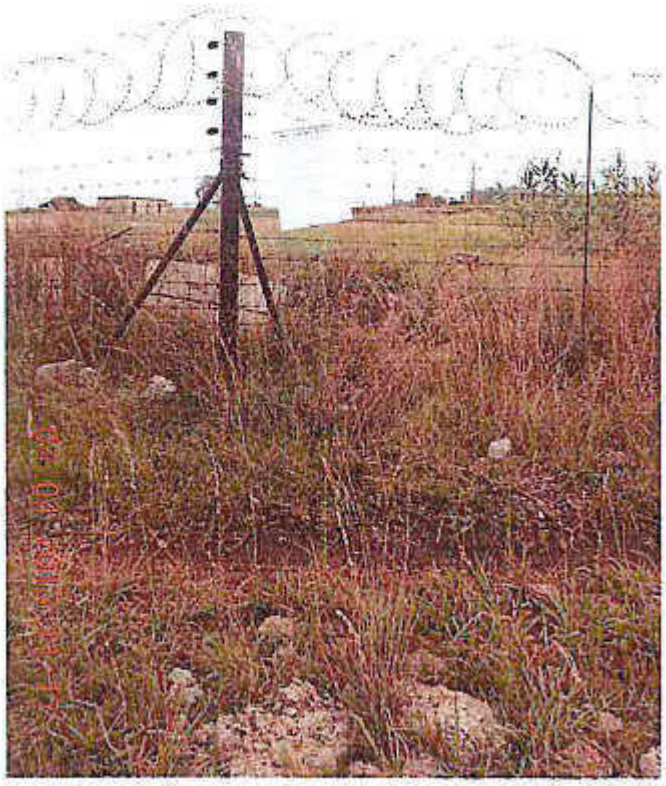
Salberg



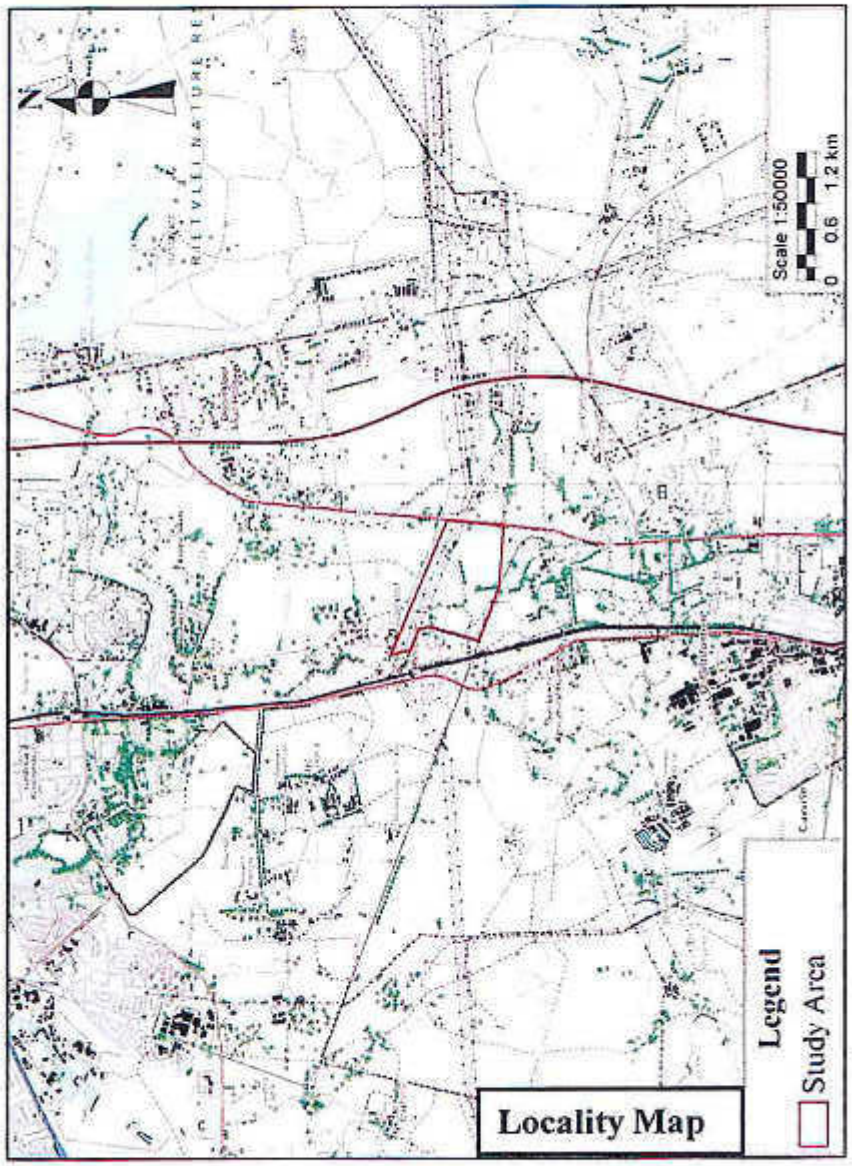

NOTICE OF SCOPING ENVIRONMENTAL
IMPACT ASSESSMENT PROCESS



Annexure L(ii)

NOTICE/FLYERS DISTRIBUTED
TO I&AP'S

Rietvlei X10, 11 & 15



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Reference No: Gaut: 002/12-13/E0224

Project Name: Proposed Mixed Use Development to be known as Rietvlei Extension 10, 11 and 15

Property Description: Portions of the Remaining Extents of Portions 15 and 113 of the farm Doornkloof 391 JR, Gauteng Province

Proposed Zoning Information: "Business 2", "Business 1", "Special for Parking", "Residential 2 (Dwelling Units)"

Proponent Name: Gillyfrost 71 (Pty) Ltd

Listing Activities Applied: GNR 544 (Listing Notice 1), 18 June 2010 – Activity 9, 10, 11, 18, 22, 23, 24, 26, 28, 37, 38, 39, 47 & 56 and GNR 545 (Listing Notice 2), 18 June 2010 – Activity 15 and GNR 546 (Listing Notice 3), 18 June 2010 – Activity 4, 13, 14, 16, 19 & 26.

Location: The study are is located within City of Tshwane adjacent to the R21 Freeway. Proposed Rietvlei X6 is situated to the east and proposed Rietvlei X7-X11 & X15 are situated to the west of the R21 Freeway. The study area is situated to the north of the proposed Strawberry Farm Property and Clayville X65 developments, to the south of Smuts House Museum, to the west of Rietvlei Dam Nature Reserve, to the south of Irene Village, Twin Rivers Residential Estate, Cornwall Hill Estate and the St. Georges Hotel. Salberg Industrial Plant is situated to the west and north of the study area.

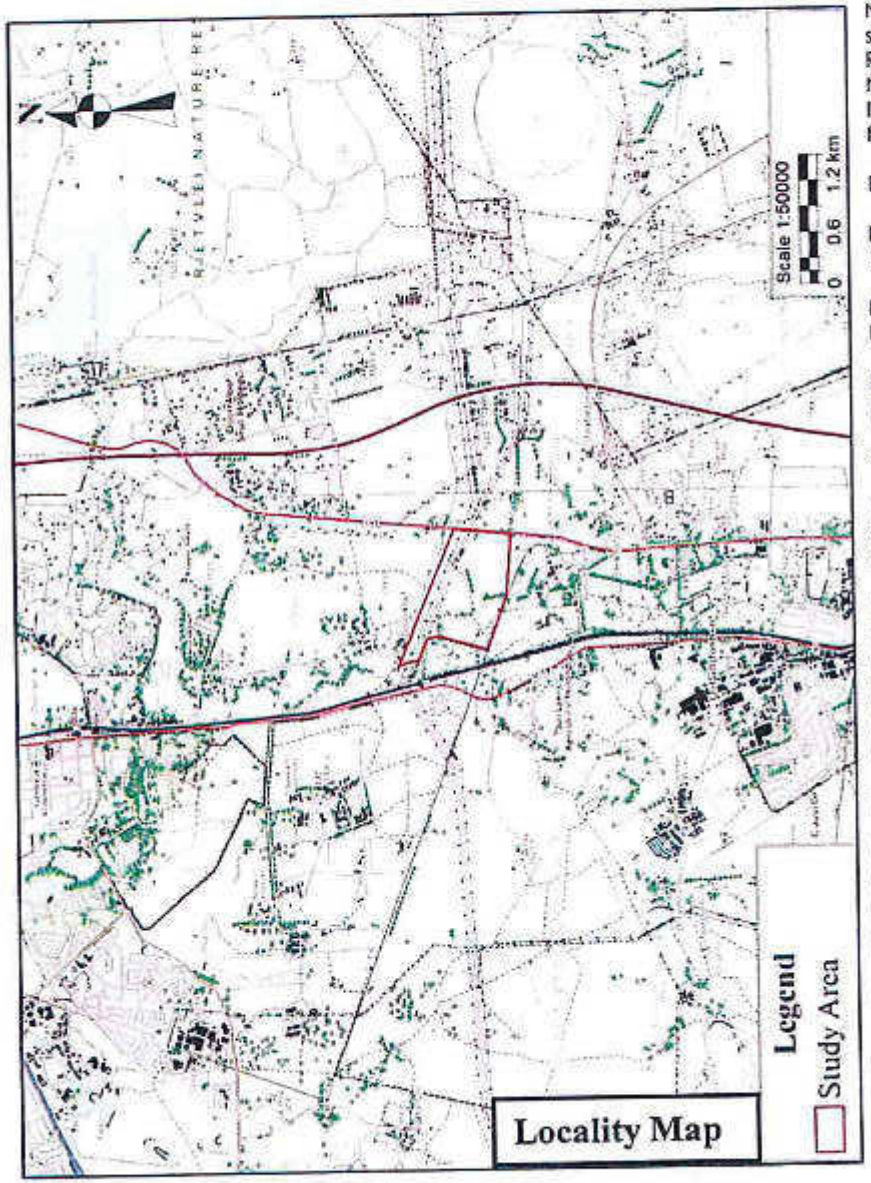
Date of Notice: 28 July 2015 – 28 August 2015

Queries regarding this matter should be referred to:

Bokamoso Landscape Architects and Environmental Consultants
Public Participation registration and inquiries: **Juanita De Beer**
Project inquiries: **Bianca Reyneke**
P.O. Box 11375
Maroelana 0161
www.bokamoso.biz
Tel: (012) 346 3810
Fax: (086) 570 5659
E-mail: lizelleg@mweb.co.za

In order to ensure that you are identified as an Interested and/or Affected Party I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 30 days of this Notice.**

Rietvlei X10, 11 & 15



NOTICE OF SCOPING PROCESS

Notice is given an application for a **scoping Environmental Assessment Process** that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) governing **Environmental Impact Assessment Procedure (Listing Notice 1, 2 and 3 – Governing Notice R544, R545 & R546)** for the following activity:

Reference No: Gaut: 002/12-13/E0224

Project Name: Proposed Mixed Use Development to be known as Rietvlei Extension 10, 11 and 15

Property Description: Portions of the Remaining Extents of Portions 15 and 113 of the farm Doornkloof 391 JR, Gauteng Province

Proposed Zoning Information: "Business 2", "Business 1", "Special for Parking", "Residential 2 (Dwelling Units)"

Proponent Name: Gillyfrost 71 (Pty) Ltd

Listing Activities Applied: GNR 544 (Listing Notice 1), 18 June 2010 – Activity 9, 10, 11, 18, 22, 23, 24, 26, 28, 37, 38, 39, 47 & 56 and GNR 545 (Listing Notice 2), 18 June 2010 – Activity 15 and GNR 546 (Listing Notice 3), 18 June 2010 – Activity 4, 13, 14, 16, 19 & 26.

Location: The study are is located within City of Tshwane adjacent to the R21 Freeway. Proposed Rietvlei X6 is situated to the east and proposed Rietvlei X7-X11 & X15 are situated to the west of the R21 Freeway. The study area is situated to the north of the proposed Strawberry Farm Property and Clayville X65 developments, to the south of Smuts House Museum, to the west of Rietvlei Dam Nature Reserve, to the south of Irene Village, Twin Rivers Residential Estate, Cornwall Hill Estate and the St. Georges Hotel. Salberg Industrial Plant is situated to the west and north of the study area.

Date of Notice: 4 April 2013

Queries regarding this matter should be referred to:
Bokamoso Landscape Architects and Environmental Consultants
Public Participation registration and inquiries: **Juanita De Beer**
Project inquiries: **Mientjie Coetzee**
P.O. Box 11375
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Tel: (012) 346 3810
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E-mail: lizelleg@mweb.co.za

In order to ensure that you are identified as an Interested and/or Affected Party I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 40 days of this Notice.**

LEBOMBO GARDEN BUILDING
36 LEBOMBO ROAD
ASHLEA GARDENS
0081

P.O. BOX 11375
MAROELANA
0161

Tel: (012) 346 3810
Fax: 086 570 5659
E-mail: lizel.bok@mweb.co.za
Website: www.Bokamoso.net

Bokamoso ENVIRONMENTAL

Dear Landowner **4 April 2013**

You are hereby informed that Bokamoso Environmental Consultants were appointed (as EAP) by Gillyfrost 71 (Pty) Ltd to conduct the Scoping Environmental Impact Assessment Process in terms of the amended 2010 NEMA EIA Regulations for the proposed Portions of the Remaining extents of Portions 15 and 113; and Portions 317 and 318 of the farm Doornkloof 391JR, Gauteng Province.

The proposed Land-uses for the study area are as follows:
The proposed activity will entail the construction of a mixed land-use development consisting of the following land-uses: Residential 2 (25 dwelling units/hectare), Commercial (warehousing, distribution centres, offices and hotels), Business 1 (shops, offices, banks, places of refreshment, warehouses, industrial buildings and business buildings excluding public garage or filling station workshops), Business 2 (office, banks, display centres, light manufacturing/assembly), Industrial 3 (Workshops, Warehouses, Industrial Building and Business Buildings and Special for parking.

In terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing Basic Assessment Procedures (Notice 1 and 3 – Governing Notice R544 & R546) of the 2010 amended NEMA Regulations, the EAP must inform all landowners and tenants within 100m from the study area of the proposed development.

Bokamoso already supplied you (a landowner) of the proposed development with Notification Letter and request that you supply the contact details of any tenants or other interested and affected parties that reside or work on your property to Bokamoso. Bokamoso will then also supply these parties with the necessary Notification Letters.

Alternatively, you are also welcome to distribute copies of your Notification to these parties. We will however require proof that you supplied the Notices to your tenants, workers etc. Another option is to act as representative on behalf of these parties.

Please confirm (via email/Fax) that you received the Landowners Notification and this Letter. Also indicate in this Confirmation Letter whether you have tenants on your property and you're preferred method of tenant/worker notification

Regards

JdBeer

.....
Lizelle Gregory/Juanita De Beer

Annexure L(iii)

Newspaper Advertisement

...by die O.R. Tambo-lughawe. Foto: VERSKAF

...is aan Oos-Rand

...e kan daar ...g kom aan... ...see en lug...

...pakhuis 61 ... in Suid... ...die res van...

... nodig ge... ...Suid-Afri... ...le opdrag"

gekry het om diens te lewer aan lande in Sentraal-, Wes- en Oos-Afrika, insluitende Mauritius, Madagaskar en Reunion.

Hy het onlangs 'n kantoor in Kenia gekry en beplan een in Ghana teen einde vanjaar.

John Deere het onlangs sy produkreeks uitgebrei met onder meer 'n reeks implemente vir spesifieke gewasse vir kommersiële sowel as kleinboere.

...teen Senwes

...magtigings... ...dat sekere ...bel om aan... ...y, ongeldig ...rsyde gestel ...rspronklike

waardestroping op te dwing.

Die hof het onder meer bevind dat daar geen bewys is vir die bewerings nie en Treacle is beveel om die regskoste, insluitende dié van Senwes en Senwesbel se regspanne, te betaal.

Algemene Kennisgewings

DAILY DOUBLE TRADING 413 CC

NOTICE

PLEASE TAKE NOTICE that PETRUS JOHANNES SCHOLTEMEIJER intends making application to the Companies and Intellectual Property Commission (CIPC) for the restoration of DAILY DOUBLE TRADING 413 CC ([illegible]). PLEASE TAKE FURTHER NOTICE that any objection to this application, must be lodged with the Companies and Intellectual Property Commission (CIPC), within thirty (30) days of the date of publication hereof.
DAILY DOUBLE APR 4/[illegible]

EAGLE VALLEY PROPERTIES 289 CC

NOTICE

PLEASE TAKE NOTICE that CALVIN CLYDE WILLIAMSON intends making application to the Companies and Intellectual Property Commission (CIPC) for the restoration of EAGLE VALLEY PROPERTIES 289 CC ([illegible]). PLEASE TAKE FURTHER NOTICE that any objection to this application, must be lodged with the Companies and Intellectual Property Commission (CIPC), within thirty (30) days of the date of publication hereof.
EAGLE VALLEY APR 4/[illegible]183

ISELEKELELO PROJECT MANAGEMENT SERVICES (PTY) LTD

NOTICE

PLEASE TAKE NOTICE that JACOB CORNELIUS HERBERS intends making application to the Companies and Intellectual Property Commission (CIPC) for the restoration of ISELEKELELO PROJECT MANAGEMENT SERVICES (PTY) LTD ([illegible]). PLEASE TAKE FURTHER NOTICE that any objection to this application, must be lodged with the Companies and Intellectual Property Commission (CIPC), within thirty (30) days of the date of publication hereof.
ISELEKELELO APR 4/[illegible]

IEZWIN 2018 CC

NOTICE

PLEASE TAKE NOTICE that JAN ABRAHAM VISSERS intends making application to the Companies and Intellectual Property Commission (CIPC) for the restoration of IEZWIN 2018 CC ([illegible]). PLEASE TAKE FURTHER NOTICE that any objection to this application, must be lodged with the Companies and Intellectual Property Commission (CIPC), within thirty (30) days of the date of publication hereof.
IEZWIN 2018 APR 4/[illegible]

SPARK PUBLISHERS CC

NOTICE

PLEASE TAKE NOTICE that [illegible] intends making application to the Companies and Intellectual Property Commission (CIPC) for the restoration of SPARK PUBLISHERS CC ([illegible]). PLEASE TAKE FURTHER NOTICE that any objection to this application, must be lodged with the Companies and Intellectual Property Commission (CIPC), within thirty (30) days of the date of publication hereof.
SPARK PUBLISHERS APR 4/[illegible]

Dorpsbeplannings

BRYANSTON X7, ERF 3261

KENNISGEWING

[illegible] ... Stad van Johannesburg ... Erf 3261 Bryanston ... Tramore straat ... [illegible] ... April 2013 ... [illegible]
ERF 3261 APR 4/[illegible]

Regskennisgewings

OIS / Advertensieborde

RIETVLEI X20, 21, 15

NOTICE OF SCOPING ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given of an application for a Scoping Environmental Assessment Process that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) governing Environmental Impact Assessment Procedures (Listing Notice 1, 2 and 3 - Governing Notice R544, R545 & R546) for the following activity. Reference No. Gaut: 002/12-13/E[illegible]. Project Name: Proposed Mixed Use Development to be known as Rietvlei Extension 20, 21 and 15. Property Description: Portions of the Remaining Extents of Portions 15 and 118 of the Farm [illegible] 391 JR, Gauteng Province. Proposed Zoning Information: [illegible]. Listing Activities Applied for: GNR 544 (Listing Notice 1), 18 June 2010 - Activity [illegible]; GNR 545 (Listing Notice 2), 18 June 2010 - Activity 15 and GNR 546 (Listing Notice 3), 18 June 2010 - Activity [illegible]. Proponent Name: [illegible] (Pty) Ltd. Location: The study area is located within City of Tshwane adjacent to the R21 Freeway. [illegible] The study area is situated to the north of the proposed Strawberry Farm Property and [illegible] Developments, to the south of Smuts House Museum, to the west of [illegible] Dam Nature Reserve, to the south of [illegible] Village, Irene Rivers Residential Estate, Cornwall Hill Estate and the St. Georges Hotel. [illegible] is situated to the west and north of the study area. Date of Notice: 4 April 2013. Queries regarding this matter should be referred to: Bokamoso Landscape Architects and Environmental Consultants. Public Participation registration and enquiries: [illegible] De Beer, [illegible], P.O. Box 11375, Maroelana 0161; Tel: (012) 346 3810, Fax: (086) 570 5659. E-mail: [illegible]; www.bokamoso.net. In order to ensure that you are identified as an Interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above within 40 days of this Notice.
002/12-13/E0024 APR 4/[illegible]

RIETVLEI X6-9

NOTICE OF SCOPING ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given of an application for a Scoping Environmental Assessment Process that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) governing Environmental Impact Assessment Procedures (Listing Notice 1, 2 and 3 - Governing Notice R544, R545 & R546) for the following activity. Reference No. Gaut: 002/12-13/E[illegible]. Project Name: Proposed Mixed Use Development to be known as Rietvlei Extension 6-9. Property Description: Portions of the Remaining Extents of Portions 15 and 118 of the Farm [illegible] 391 JR, Gauteng Province. Proposed Zoning Information: Residential [illegible], Commercial, Business 1, Industrial 3 & Business 2. Listing Activities Applied for: GNR 544 (Listing Notice 1), 18 June 2010 - Activity [illegible] and GNR 545 (Listing Notice 2), 18 June 2010 - Activity 15 and GNR 546 (Listing Notice 3), 18 June 2010 - Activity 4, 13, 14, [illegible] & [illegible]. Proponent Name: [illegible] 71 (Pty) Ltd. Location: The study area is located within City of Tshwane adjacent to the R21 Freeway. Proposed Rietvlei X6 is situated to the east and proposed Rietvlei X7-X10 & X11 are situated to the west of the R21 Freeway. The study area is situated to the north of the proposed Strawberry Farm Property and [illegible] developments, to the south of Smuts House...

3696 Winkeliers
3701 Geregtelik
3706 Medies
3710 Motorindustrie
3715 Buiteland
3720 Deeltyds / tydelik
3725 Personeel / Menslike hulpbronne
3730 Personeelagentskappe
3735 Professioneel / bestuur
3740 Kleinhandel
3745 Sekretarieel / PA
3750 Veiligheid
3755 Skakelbord / ontvangs
3760 Verkope & bemarking
3765 Opleidingskursusse
3770 Tegnies
3775 Vaardighede
3776 Vielsbedryf

REGSKENNISGEWINGS & TENDERS

4001 Egskeidings-/ huweliks-kontrakte-/aansoeke
4005 Hofbevele / sekwestrasies / likwidasies
4010 Algemene kennisgewings
4015 Sekelsensie
4020 AJV/vergaderings
4025 Dorpsbeplanning
4030 Dorpsvestiging-stigting
4035 Dranklisensies
4040 Verlore dokumente
4045 OIS (omgewingsimpak-studies)
4050 Advertensieborde
4055 Pensioen-/voorsorgfondse
4065 Verkoop van sakeonderneming
4070 Aannemings
4075 Sloping
4080 Tenders
4085 Herregistrasies

BOEDELKENNISGEWINGS

4201 Boedels: Krediteure en debiteure
4205 Boedels: Likwidasie en verspreiding
4210 Kurstele
4215 Insolvente boedels
4220 Oorgee van boedel
4225 Rehabilitasies

VEILINGS

4401 Openbare veilings

EKSEKUSIEVERKOPING

4501 Geregtelike verkoping

GROEN

4601 Verkope
4605 Dienste

ALGEMEEN 3680

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20 reps/man needed.
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TEGNIES 3770

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060 871 6768. 24/7. Ma - So. Nuwe Boeremeisies/volwasse dames. Voortrekkerweg Pta. Priv

061 241 0100 KLERKSDORP 24/7 NAUGHTY EC COLOURED.

062 347 6118 - SEXY WIT MEISIE. CENTURION. ALICIA.

062 347 8037: GEZINA. NEW TALL AFRICAN BABE.

071 220 5660. MOLLIGE CINDY.♥

071 297 2852: Gezina. New young pretty African ladies

071 781 5368. NATALIE. Oulike wit jong meisie. CENTURION.

071 979 1607. SASHA. Jong sexy wit meisie. Centurion

072 479 8705. NICE LADY. PRETORIA NORTH.

072 987 5350 Centurion. LANGBEEN BLOND - JUANITA.

073 264 1173 Sexy 24 jr. Carina Gezina Privaat

074 578 0947 Nice Chinese LADY: Mountain View

081 000 8306, Angel. Bruin hare, klein, groenblou oë. Centurion.

084 637 3879. ABBY. Nuwe sexy jong wit meisie. Centurion.

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KLERKSDORP ,079 851 3808, Blonde pragtige, Sizette. Priv.

Klerksdorp: 061 713 7321. Pvt. Pragtige blouoog Melissa. Reis.

M2M 0731853970 ★JJ★Pta East Exclusivemassage galore 9am-9pm.

NELSPRUIT 072 806 0081 Jana

NELSPRUIT: (24/7) Up-market, white lady, 071-374-0749

NELSPRUIT: 3 CHINESE GIRLS MASSAGE, 071-202-4512,

Polokwane 071 1056110. New sexy African babe in town.Casey.

POLOKWANE 076 327 0743, Sexy Chinese young girls. Priv

POLOKWANE: 063 099 7353, Natasha vir baie Pret en plesier.

RUSTENBURG 072 250 8937 Alicia Daisy girl. Pvt & travel

RUSTENBURG 072 808 8596. Mimi. Sexy black beauty, nice body.

RUSTENBURG 073 484 1232 ELSA. PRIVAAT

RUSTENBURG 076 554 3762 Anushka Girl. Pvt & travel

RUSTENBURG 083 337 1118 Ann

RUSTENBURG: 071 254 1612. OULIKE DONKERKOP KIM. 24/7.

WITBANK 0793465471 CINDY NUUT IN DORP. 24/7

WITBANK 061 163 7321. NEW IN TOWN. INDIAN PRINCESS.

Witbank: 072 935 6704. ANNANDA. 24/7. Pvt.

WITBANK: NEW CHINESE LADIES 061 957 4076. PRIVATE

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OLX @ Beeld

REGSKENNISGEWINGS & TENDERS

OIS OMGEWINGSIMPAKSTUDIE 4045

Bokamoso

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
Notice is given of an application for a Environmental Assessment Process that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) governing Environmental Impact Assessment Procedure [illegible]
Reference No: Gaut: 002/12-13/E0224
Project Name: Proposed Mixed Use Development to be known as Riethel Extension 10, 11 and 15
Property Description: Portions of the Remaining Extents of Portions 39 and 113 of the farm Doornkloof 391 JR, Gauteng Province
Proposed Zoning Information: "Business 2", "Business 3", "Special for Parking", "Residential 1" (Dwelling Units)
Listed Activities Applied for: GNR 544 (Listing Notice 1), 18 June 2010 - Activity [illegible] and GNR 546 (Listing Notice 3) 18 June 2010 - Activity [illegible]
Proponent Name: [illegible]
Location: The study area is located within the City of Tshwane adjacent to the R21 Freeway. Proposed Rietvlei 10 is situated to the east and proposed Rietvlei 11 & 15 are situated to the west of the R21 Freeway. The study area is situated to the north of the proposed Strawberry Farm Property and [illegible] developments, to the south of [illegible], to the west of Rietvlei Dam Nature Reserve, to the south of [illegible] Village, Twin Rivers Residential Estate, Cornwall Hill Estate and the St. George Hotel. Sasbury Industrial Plant is situated to the west and north of the study area.
Date of Notice: 28 July 2015 - 28 August 2015
Queries regarding this matter should be referred to:
Bokamoso Landscape Architects and Environmental Consultants
Public Participation Information and Queries: Juanita De Beer
Project Manager: [illegible] P.O. Box 11375, Maroelana 0161. Tel: (012) 346 3810 Fax: (086) 570 5659 E-mail: [illegible] www.bokamoso.net
In order to ensure that you are identified as an Interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above within 30 days of this Notice.
002/12-13/E0224 AR 26814045

Annexure L(iv)

Interested and Affected
Parties List

Nr	Registered Parties	Contact details
		Stakeholders
1	Council Geo-Science	jgrobler@geoscience.org.za
2	SAHRA Gauteng	asalomon@sahra.org.za
		nndobochani@sahra.org.za
3	PHRAG	maphata.ramphele@gauteng.gov.za
4	DWA	justicem@dwaf.gov.za
		keetm@dwaf.gov.za
5	Eskom	central@eskom.co.za
		paia@eskom.co.za
6	SANRAL	schmidk@nra.co.za
7	Gautrans	kumen.govender@gauteng.gov.za
8	Randwater	customerservice@randwater.co.za
9	City of Tshwane	RudzaniM@Tshwane.gov.za
10	Spoornet	daniel.ramokone@transnet.net
11	DA Roads	casperm@tshwane.gov.za
12	**Ward Councillor**	
	Christa Spoelstra	mwcspoel@mweb.co.za
		Interested and Affected Parties
1	**Doornkloof Owners Association**	dkoa@salbu.co.za
	(DKOA)	
	David Larsen	dkoa@salbu.co.za
		Cell: 082 821 2202
		Tel: 011 316 1393
2	Ruan de Lange	Ruan.Delange@diss.co.za
3	Wim De Lange	delangewg@vodamail.co.za
		Cell: 082 855 8482
		Tel: 012 671 1991
4	**Rand Water**	
	Natalie Koneight	nkoneigh@randwater.co.za
	Mpati Mpshe	mmpshe@randwater.co.za
		Tel: 011 724 9357
		Tel: 011 724 9366

5	**WESSA**	info@wessa.co.za
6	**Salberg**	
	Barbara	barbara@sagewoodconsulting.co.za
		elana@salbro.co.za
7	Rudolph Jansen	rudolph@law.co.za
		Cell: 083 264 8029
		Tel: 012 303 7899
8	Izak Van Der Linde	VDLindel@nra.co.za
	SANRAL	Tel: 012 426 6213

Annexure L(v)

Comments to and from
I&AP's

juanita@bokamoso.net

From:	Bokamoso <lizelleg@mweb.co.za>
Sent:	12 June 2013 04:41 PM
To:	user3@bokamoso.net; mientjie@bokamoso.net
Cc:	user1@bokamoso.net
Subject:	FW: DKOA: Bokamoso Notice - Rietvlei X6 - X9 Gaut: 002/12-13/E0223 and Rietvlei X10, X11 & X15 Gaut: 002/12-13/E0224 - Review Invitation

From: DKOA_LIST [mailto:dkoa@salbu.co.za]
Sent: 12 June 2013 04:33 PM
To: DKOA_LIST (LONG)
Cc: Bokamoso
Subject: DKOA: Bokamoso Notice - Rietvlei X6 - X9 Gaut: 002/12-13/E0223 and Rietvlei X10, X11 & X15 Gaut: 002/12-13/E0224 - Review Invitation

Greetings,

Bokamoso Notice: Review Invitation
Rietvlei X6 - X9 Gaut: 002/12-13/E0223 and
Rietvlei X10, X11 & X15 Gaut: 002/12-13/E0224

Please refer to the attached Bokamoso notice
We asked that the Doornkloof Owners Association (DKOA) be registered as an Interested and Affected Party (I&AP)

For more information contact:
Mientjie Coetzee or Juanita De Beer Telephone: 012-346-3810
Bokamoso Landscape Architects and Environmental Consultants

Kind regards,

David Larsen - Salbu

Secretary: Doornkloof Owners Association (DKOA)
For more information see URL: http://www.salbu.co.za/dkoa

PLEASE PASS THIS MESSAGE ON TO THREE NEIGHBOURS AND ASK THEM TO DO THE SAME

On 12 Jun 2013, at 14:17, Bokamoso wrote:

Dear Interested and/or Affected Party Member,

Please refer to the attached Review Notice Invitation for the proposed Rietvlei X6 – X9 and the proposed Rietvlei X10, X11 & X15 Projects.

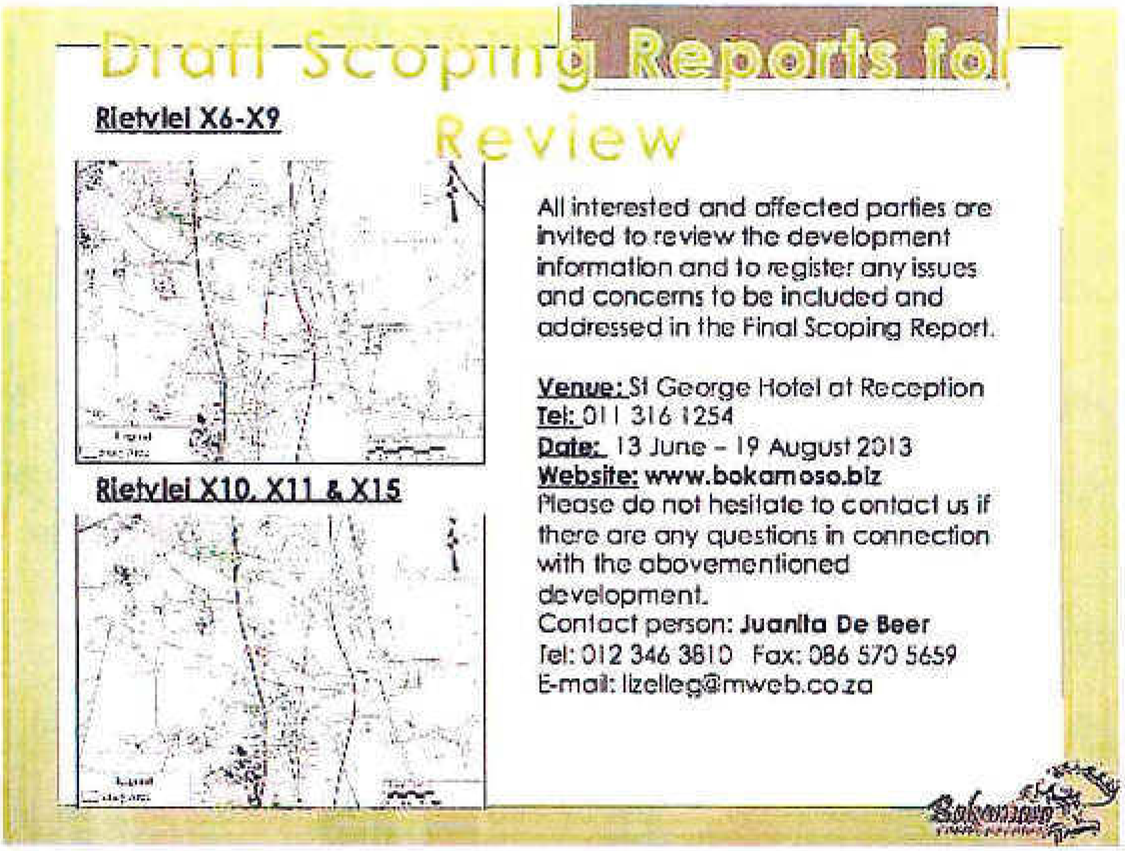
Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer

Landscape Architects &
Environmental Consultants cc.

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelleg@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161



NOTE:
All interested and affected parties are invited to review the development information and to register any issues and concerns to be included and addressed in the Final Scoping Report.
Venue: St George Hotel at Reception
Tel: 011 316 1254
Date: 13 June – 19 August 2013
Website: www.bokamoso.biz

juanita@bokamoso.net

From:	Bokamoso <lizelleg@mweb.co.za>
Sent:	12 June 2013 03:19 PM
To:	user3@bokamoso.net
Cc:	user1@bokamoso.net
Subject:	FW: Registration as IAP: Proposed Rietvlei X6-X9 and Proposed Rietvlei X10, X11 and X15 Projects
Attachments:	Standard Conditions of Crossing RW Pipes_Way Leave.pdf; Proposed Rietvlei X6-X9 and X10_X11 and X15 Projects.pdf; Untitled attachment 00390.txt

From: Natalie Koneight [mailto:nkoneigh@randwater.co.za]
Sent: 12 June 2013 03:11 PM
To: lizelleg@mweb.co.za
Subject: Registration as IAP: Proposed Rietvlei X6-X9 and Proposed Rietvlei X10, X11 and X15 Projects

Dear Sir/Madam

Rand Water is hereby registering as IAP for the above-mentioned project.
Kindly forward confirmation of registration as IAP to Natalie Koneight at nkoneigh@randwater.co.za

Attached is Rand Water's Wayleaves, for your information.
Rand Water would like to be sure that the development as per the BID have planned adequately for their sewerage removal off site.

Please provide Rand Water with:

1. The detail about the facility that will receive the sewerage.
2. An agreement that the identified sewerage facility I aware of the development and that they have the capacity to accept the sewerage from the site without overloading the facility.
3. Will there be any discharges other than the sewerage system that will increase storm water entering the environment. If so, has the development considered retention and stilling ponds to slow down high peak flows.

If the sewerage facility cannot accept the additional load into their facility then this will have a negative impact on the environment and the pollution load into the river system.

Natalie Koneight
Secretary to Leslie Hay
EMS Department, GSSE

RAND WATER
+27-11-724-9366
+27-11-500-2108
nkoneigh@randwater.co.za
www.randwater.co.za
WaterWiSe

STANDARD CONDITIONS FOR CROSSING OF RAND WATER'S SERVICES

ANNEXURE "A" (OCT 2002)

1. **SERVICE CROSSINGS :**

1.1 The number of crossings of Rand Water's pipeline/s and servitude/s or proposed servitude/s shall be kept to a minimum; such crossings shall be as close to 90 degrees (right angles) as possible and the cover over its pipeline/s shall not be materially altered.

1.2 No service shall be less than one metre from a joint in Rand Water's pipeline/s and a space of not less than 300 mm shall be maintained between any service and Rand Water's pipeline/s at the point of crossing, or as separately specified. Where Rand Water's prestressed concrete pipeline is crossed, this space shall be measured from the lightning protection wires installed above and below the pipeline. For service crossings under those of Rand Water, where further larger diameter pipelines are installed in the servitude in the future, Rand Water may require the service owner, at its own cost, to lower its service to comply with the foregoing.

1.3 No service running parallel to Rand Water's pipeline/s, no box, manhole, structure supporting any service, footing of any pylon, pole or stay wire and no stormwater culvert and / or appurtenances shall be within two metres of Rand Water's pipeline/s or on Rand Water's servitude/s or proposed servitude/s or discharge thereon unless the prior written permission of Rand Water has been obtained.

1.4 Half-round concrete pipes or other approved protection shall be placed over any cable that is within two metres of Rand Water's pipeline/s or on Rand Water's servitude/s or proposed servitude/s.

1.5 Where any service crosses Rand Water's servitude/s or proposed servitude/s, it shall be laid at minimum grade (sewers and stormwater) / at an even depth below ground level (all other services) over the entire servitude / proposed servitude width and its position where it intersects Rand Water's pipeline/s, servitude/s or proposed servitude/s shall be clearly indicated by suitable markers. Sewer crossings shall be designed to span over Rand Water's existing and proposed pipeline trenches.

2. **ROADS AND RAILWAY LINE CROSSINGS :**

2.1 Rand Water shall have unimpeded vehicular access to its pipeline/s at all times for inspection and maintenance purposes. Culverts shall be provided at all railway line crossings to provide such access. Under roadways culverts will be required unless it can be proved to Rand Water that traffic density and the cover over the pipeline/s will not adversely affect Rand Water in the exercise of its rights and that excavation through the road layers to gain access to the pipeline/s is acceptable to the service owner. In general, the cover over Rand Water's pipeline/s may vary between 800 mm and 1 500 mm however, an undisturbed layer of at least 300 mm shall be maintained between the pipeline/s and the roadworks during construction unless relaxed by Rand Water in writing. Reinforced concrete box culverts with compartments having minimum internal dimensions as indicated on Rand Water's standard drawings No. B1933 and B1934 shall be provided for both existing and future pipelines. Culverts shall preferably be drained by a gravity system.

2.2 Long diagonal crossings of Rand Water's pipeline/s and servitude/s or crossings of bends in Rand Water's pipeline/s shall be avoided. If this is not possible, Rand Water's pipeline/s shall be deviated so as to cross the proposed road/railway line at approximately right angles.

3. **PIPELINE PROTECTION AND / OR DEVIATION AT DESIGN STAGE :**

3.1 Where any development affects the discharge of water from Rand Water's scour valves, arrangements shall be made in collaboration with Rand Water's Manager Bulk Water Services to accommodate, channel or divert such flow.

3.2 Detailed proposals, including longitudinal sections along Rand Water's pipeline/s depicting the level of the road/railway line or other service in relation to the pipeline/s, shall be submitted for Rand Water's approval before the commencement of proposed construction work.

3.3 It may be necessary for Rand Water itself to strengthen the lead-caulked joints of its pipeline/s located under roadways or in culverts, by means of double tapers, the fabrication of which requires at least two months notice. Such strengthening shall extend to a distance of at least two metres beyond the road prism/kerb line, measured at right angles to the road direction. (The estimated cost of which is R 7 000 per joint). The actual cost of joint strengthening shall be borne by the service owner who shall be responsible for all excavation and backfilling.

3.4 Since lengthy delays can occur between the planning and construction stages, the proposed dimensions of the culverts shall be confirmed by Rand Water at least 12 months before construction work commences.

3.5 All planning, survey work, preparation of designs, specifications and drawings shall be undertaken by the service owner or its consulting engineers and submitted to Rand Water for approval. A copy / Copies of the relevant specimen specification/s will be provided, on request, when more details of the work to be performed are known.

3.6 Contractors approved by Rand Water shall be engaged to undertake all construction work, including :

(a) manufacture, supply and delivery of pipes;
(b) excavation and backfill of trenches etc;
(c) laying and jointing of pipes;
(d) recovery of redundant pipes; and
(e) construction of the necessary structures.

3.7 Rand Water shall be given reasonable notice prior to the commencement of the fabrication as well as the installation of pipes to enable it to undertake the necessary inspection work.

3.8 Except for the manufacture of pipes, which will be inspected by Rand Water or its agents, all work shall be supervised by the service owner or its consulting engineers who will also undertake all necessary negotiations with property owners and local authorities affected by any possible relocation of Rand Water's pipeline/s and obtain agreement from them in principle for the accommodation of Rand Water's pipeline/s in the proposed relocated position/s.

Continued overleaf .....

3.9 Where Rand Water is required to relocate its pipeline/s or servitude/s, the service owner shall bear the cost of the cancellation of Rand Water=s servitude/s as well as the costs of acquiring, surveying and registering new servitudes that will provide Rand Water with rights equal to those provided by the servitudes to be cancelled.

3.10 Co-ordinates of the alignment of any proposed relocation/s shall be submitted to Rand Water to prepare the statutory notices for relocation/s of its pipeline/s. Relocation shall not take place until Rand Water has issued such statutory notices.

3.11 During the period April to August in any year, at a time suited to its water supply operations, Rand Water will, on receipt of 21 days notice, circumstances permitting, make the end connections from the deviations to the existing pipeline/s. Daywork rates shall be included in the pipelaying contract documents to allow for assistance to Rand Water.

3.12 Ownership of portions of the pipeline/s that become redundant as a result of relocations carried out at the service owner=s cost will be transferred to it. If requested, Rand Water may take into stock pipes and / or valves recovered in good condition and credit the service owner with the value determined by Rand Water. Materials thus taken into stock shall be delivered to Rand Water's pipe yard at its Zwartkopjes pumping station by and at the cost of the service owner.

3.13 The service owner hereby indemnifies Rand Water against any claim arising from the non-removal and disposal of any portion of Rand Water=s pipeline/s made redundant by a relocation.

3.14 No pipeline in its relocated position shall be subject to the provisions of the Advertising on Roads and Ribbon Development Act No 21 of 1940 or the National Roads Act No 54 of 1971 as amended.

4. PIPELINE PROTECTION AND / OR DEVIATION AT CONSTRUCTION STAGE :

4.1 Rand Water's Distribution Manager (Telephone (011) 900-1910) shall be notified and his permission obtained before any work is carried out within five metres of Rand Water's pipeline/s, servitude/s or proposed servitude/s and before backfilling any excavation exposing Rand Water's pipeline/s - Please quote inspection order No. as specified separately.

4.2 If detailed information of the positions or levels of the pipeline/s is required the pipeline/s may be exposed by the service owner or its consulting engineers, provided that the foregoing condition is complied with.

4.3 In terms of Regulation 10.17.1 of the Explosives Act No 26 of 1956, written confirmation of the measures proposed to protect Rand Water's pipeline/s shall be obtained from Rand Water for any blasting to be undertaken within 500 metres of its pipeline/s. The service owner shall be responsible for ensuring that the approved protection measures are complied with and that Rand Water's Distribution Manager is notified at least 24 hours in advance of each blast.

4.4 The pipeline/s shall be supported at not greater than five metre centres in culverts and where excavation takes place under the pipeline/s during construction.

4.5 No heavy earthmoving or compaction equipment shall be operated within two metres of the steel or five metres of the prestressed concrete pipeline/s unless specific proposals have been approved by Rand Water.

4.6 The prestressed concrete pipeline/s shall be haunched under the road or supported on pedestals where crossed by services located thereunder in accordance with the details depicted on Rand Water's drawing A3993, a print of which is available on request. Such haunching shall extend for a distance of two metres beyond the edge of the roadway on both sides, or to such greater length as may be required to complete the haunching of the nearest whole pipe length.

5. CATHODIC PROTECTION AT STEEL PIPELINE CROSSINGS :

5.1 Two 16 square millimetre leads or one 35 square millimetre lead appropriately marked must be provided at each crossing point and the crossing shall not be backfilled until Rand Water's staff have installed similar test leads on Rand Water's pipeline/s. The
Electrolysis Section ((011) 682-0239 or 0240) must be contacted for the connections to Rand Water's pipeline/s.

5.2 The pipe to ground potential of Rand Water's pipeline/s at the crossing point will be monitored before installation of the service owner=s steel service and that potential must be maintained irrespective of the cathodic protection applied to the service owner=s steel service after installation.

6. INDEMNITY :

6.1 The service owner shall indemnify Rand Water against all claims for damage arising out of, and will be held liable for any damage that may be caused to Rand Water's pipeline/s and/or appurtenances as a result of any crossing of during construction or the installation/construction and/or the presence of any service/road/railway line and/or appurtenances on Rand Water's servitude/s or within two metres of Rand Water's pipeline/s. Rand Water shall not be liable for any damage to any service/road/railway line and/or appurtenances that may be caused by it in the exercise of its rights, provided that Rand Water will remain liable for any damage that is proved to have resulted directly from the wrongful action of its employees.

7. COSTS :

7.1 The service owner shall bear the cost of any protective measure that may be necessary in order to prevent the exchange of stray direct currents between the cable/s or pipe/s and Rand Water's pipeline/s, the protection of existing installations and of making provision to accommodate future services, as outlined above as well as the cost of repairs to the lightning protection wires installed approximately 100 mm above and below Rand Water's prestressed concrete pipeline/s or to Rand Water's telemetering cable/s necessitated by the installation of the proposed service, and will be debited with all costs incurred by Rand Water on its behalf on the usual terms of actual cost plus 10% (ten per cent) for administration.

8. ACCEPTANCE OF CONDITIONS :

8.1 The above conditions together with Annexure B (Vaal Barrage Conditions) - if relevant, and any foregoing special requirements shall be accepted in writing by the service owner before any work may commence. If no reply is received within 60 days from date of Rand Water's written notification, the conditions will be deemed to have been accepted by the service owner.

REGISTRATION AS IAP

PROPOSED RIETVLEI X6 – X9 AND THE PROPOSED RIETVLEI X10, X11 & X 15 PROJECTS
GDARD REF: GAUT: 002/12-13/E0224

First Name/s:	**MPATI**
Last Name:	**MPSHE**
Title: (Dr./ Miss/ Mr./ Mrs./ Prof. etc)	**MRS**
If representing an entity (i.e. company or organisation), name of entity:	**RAND WATER**
If representing an entity, position within entity (i.e. CEO, Chairperson, Secretary, Councillor, etc):	**ENVIRONMENTAL ASSESSOR**
Postal Address:	**P.O. BOX 1127 JOHANNESBURG 2000**
Physical Address	
E-mail Address:	**mmpshe@randwater.coz.za**
Phone Number:	**(011) 724-9357**
Cell Phone Number:	
Fax:	**(011) 900-1208**

Comments:

ALL TRAVERSING ALONG AND OVER RAND WATER PIPELINES. POSSIBLE LEAKS FROM OTHER SERVICES THAT COULD CAUSE GROUND STABILITY TO CHANGE. PLEASE KEEP US INFORMED REGARDING THE ABOVE ASPECTS.

juanita@bokamoso.net

From:	Bokamoso <ontvangs@bokamoso.net>
Sent:	05 April 2013 11:29 AM
To:	user3@bokamoso.net
Cc:	user1@bokamoso.net
Subject:	FW: Rietvlei X6-X9 & Rietvlei X10, X11 and X15

From: Maluleke Justice [mailto:MalulekeJ@dwa.gov.za]
Sent: 05 April 2013 11:23 AM
To: Bokamoso
Cc: Mathebe Tshepo (GAU); Siwelane Lilian (PTA)
Subject: RE: Rietvlei X6-X9 & Rietvlei X10, X11 and X15

Please send us a copy of the BAR for comments.

Wisani Justice Maluleke
Department of Water Affairs
North West Regional Office
Private Bag X995, Pretoria, 0001
15 th floor, Bothongo Plaza-east, 285 Schoeman Street
Tel: +2712392-1409
Fax: +2712392-1408 / 1486
Cell: +2782804 9817
e-mail: teo@dwa.gov.za

4eva3C

From: Bokamoso [mailto:lizelleg@mweb.co.za]
Sent: 04 April 2013 01:59 PM
To: mwcspoel@mweb.co.za; VDLindel@nra.co.za; Maluleke Justice; dkoa@salbu.co.za; Ruan.DeLange@diss.co.za; delangewg@vodamail.co.za; mmpshe@randwater.co.za; info@wessa.co.za; barbara@sagewoodconsulting.co.za; elana@salbro.co.za
Subject: Rietvlei X6-X9 & Rietvlei X10, X11 and X15

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice & Landowner and Tenants Letter regarding the proposed ***Rietvlei X6 – X9*** & the proposed ***Rietvlei X10, X11 and X15*** Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer

Bokamoso

Landscape Architects &
Environmental Consultants cc.

T [illegible]
[illegible]

Please consider the environment before printing this email

juanita@bokamoso.net

From: Juanita <user3@bokamoso.net>
Sent: 12 June 2013 03:57 PM
To: nkoneigh@randwater.co.za
Subject: RE: Registration as IAP: Proposed Rietvlei X6-X9 and Proposed Rietvlei X10, X11 and X15 Projects

Dear Natalie Koneight,

Thank you for your response, I have registered Rand Water as Interested and/or Affected Party Member for the proposed Rievlei X6-X9 and the proposed Rietvlei X10, X11 & X15 Projects. I will keep you updated regarding the process in the future.

The Project Consultant will respond to your email with all your questions as soon as she has all the information.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer

Bokamoso

Landscape Architects &
Environmental Consultants cc.

T [illegible] www.bokamoso.biz
[illegible]

From: Natalie Koneight [mailto:nkoneigh@randwater.co.za]
Sent: 12 June 2013 03:11 PM
To: lizelleg@mweb.co.za
Subject: Registration as IAP: Proposed Rietvlei X6-X9 and Proposed Rietvlei X10, X11 and X15 Projects

Dear Sir/Madam

Rand Water is hereby registering as IAP for the above-mentioned project.
Kindly forward confirmation of registration as IAP to Natalie Koneight at nkoneigh@randwater.co.za

Attached is Rand Water's Wayleaves, for your information.

Rand Water would like to be sure that the development as per the BID have planned adequately for their sewerage removal off site.

Please provide Rand Water with:

1. The detail about the facility that will receive the sewerage.
2. An agreement that the identified sewerage facility I aware of the development and that they have the capacity to accept the sewerage from the site without overloading the facility.
3. Will there be any discharges other than the sewerage system that will increase storm water entering the environment. If so, has the development considered retention and stilling ponds to slow down high peak flows.

If the sewerage facility cannot accept the additional load into their facility then this will have a negative impact on the environment and the pollution load into the river system.

Natalie Koneight

Secretary to Leslie Hoy
EMS Department, GDSE

RAND WATER
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+27-11-900-2308
nkoneigh@randwater.co.za
www.randwater.co.za
Water Wise

juanita@bokamoso.net

From:	Juanita <user3@bokamoso.net>
Sent:	04 April 2013 02:10 PM
To:	'dehning@mweb.co.za'
Subject:	Rietvlei X6-X9 & Rietvlei X10, X11 and X15
Attachments:	Public Notice.pdf; Public Notice.pdf; Landowner & Tenants Letter.doc

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice & Landowner and Tenants Letter regarding the proposed ***Rietvlei X6 – X9*** & the proposed ***Rietvlei X10, X11 and X15*** Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer

Landscape Architects &
Environmental Consultants cc.

T [illegible]

juanita@bokamoso.net

From:	juanita@bokamoso.net
Sent:	14 June 2016 04:32 PM
To:	'jgrobler@geoscience.org.za'; 'asalomon@sahra.org.za'; 'maphata.ramphele@gauteng.gov.za'; 'justicem@dwaf.gov.za'; 'keetm@dwaf.gov.za'; 'central@eskom.co.za'; 'paia@eskom.co.za'; schmidk; kumen govender; 'nkoneigh@randwater.co.za'; 'mmpshe@randwater.co.za'; RudzaniM; 'loveous.tampane@transnet.net'; 'casperm@tshwane.gov.za'; mwcspoel@mweb.co.za; 'dkoa@salbu.co.za'; ruan delange; delangewg; 'info@wessa.co.za'; 'barbara@sagewoodconsulting.co.za'; barbara@salberg.co.za; 'elana@salbro.co.za'; 'rudolph@law.co.za'; 'VDLindel@nra.co.za'
Subject:	Rietvlei X10, 11 & 15 - Review Invitation Notice
Attachments:	Review Notice.pdf

Dear Interested and/or Affected Party,

Please refer to the attached Review Invitation Notice for the Amended Draft Environmental Impact Assessment Report regarding the proposed ***Rietvlei X10, 11 & 15*** Project.

Kind Regards/Vriendelike Groete

Juanita De Beer

Senior Public Participation Consultant & EAP in training

Landscape Architects &
Environmental Consultants
T: (+27)12 346 3810 I F: (+27) 86 570 5659 I E: juanita@bokamoso.net I www.bokamoso.net
36 Lebombo Street, Ashlea Gardens, Pretoria I P.O. Box 11375 Maroelana 0161

juanita@bokamoso.net

From:	Juanita <user3@bokamoso.net>
Sent:	04 April 2013 01:59 PM
To:	'mwcspoel@mweb.co.za'; 'VDLindel@nra.co.za'; MalulekeJ@dwa.gov.za; 'dkoa@salbu.co.za'; 'Ruan.DeLange@diss.co.za'; 'delangewg@vodamail.co.za'; 'mmpshe@randwater.co.za'; 'info@wessa.co.za'; 'barbara@sagewoodconsulting.co.za'; 'elana@salbro.co.za'
Subject:	Rietvlei X6-X9 & Rietvlei X10, X11 and X15
Attachments:	Public Notice.pdf; Public Notice.pdf; Landowner & Tenants Letter.doc

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice & Landowner and Tenants Letter regarding the proposed ***Rietvlei X6 – X9*** & the proposed ***Rietvlei X10, X11 and X15*** Project.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer

Landscape Architects &
Environmental Consultants cc.

T

Please consider the environment before printing this email

juanita@bokamoso.net

From: Juanita <user3@bokamoso.net>
Sent: 30 July 2015 12:32 PM
To: 'barbara@sagewoodconsulting.co.za'
Subject: RE: Rietvlei X10, 11 & 15 - Environmental Impact Assessment Process

Dear Barbara,

Thank you for your reponse, we have already registered you as Interested and/or Affected Party Member for the proposed Rietvlei X10, 11 & 15 Project.

We will keep you updated regarding the process in the future.

Kind Regards/Vriendelike Groete

Juanita De Beer

Public Participation Consultant

Bokamoso

Landscape Architects &
Environmental Consultants

T: +27(0) 346 [illegible] F: +27(0) [illegible] E: [illegible]
[illegible]

From: Barbara [mailto:barbara@sagewoodconsulting.co.za]
Sent: 28 July 2015 04:19 PM
To: 'Bokamoso'; jgrobler@geoscience.org.za; asalomon@sahra.org.za; maphata.ramphele@gauteng.gov.za; justicem@dwaf.gov.za; keetm@dwaf.gov.za; central@eskom.co.za; paia@eskom.co.za; schmidk@nra.co.za; kumen.govender@gauteng.gov.za; nkoneigh@randwater.co.za; mmpshe@randwater.co.za; RudzaniM@tshwane.gov.za; loveous.tampane@transnet.net; casperm@tshwane.gov.za; mwcspoel@mweb.co.za; dkoa@salbu.co.za; Ruan.DeLange@diss.co.za; delangewg@vodamail.co.za; info@wessanorth.co.za; elana@salbro.co.za; rudolph@law.co.za; VDLindel@nra.co.za
Cc: 'Russel Samuels'
Subject: RE: Rietvlei X10, 11 & 15 - Environmental Impact Assessment Process

Dear Juanita
I hope this email finds you well

Please register us as an interested and effected party.

Thank you once again, and
kind regards
Barbara

B.PARKER

SALBERG CONCRETE PRODUCTS (PTY) LTD

barbara@salberg.co.za
A member of the Salberg Group of Companies

From: Bokamoso [mailto:lizelleg@mweb.co.za]
Sent: Tuesday, July 28, 2015 3:38 PM
To: jgrobler@geoscience.org.za; asalomon@sahra.org.za; maphata.ramphele@gauteng.gov.za; justicem@dwaf.gov.za; keetm@dwaf.gov.za; central@eskom.co.za; paia@eskom.co.za; schmidk@nra.co.za; kumen.govender@gauteng.gov.za; nkoneigh@randwater.co.za; mmpshe@randwater.co.za; RudzaniM@tshwane.gov.za; loveous.tampane@transnet.net; casperm@tshwane.gov.za; mwcspoel@mweb.co.za; dkoa@salbu.co.za; Ruan.DeLange@diss.co.za; delangewg@vodamail.co.za; info@wessanorth.co.za; barbara@sagewoodconsulting.co.za; elana@salbro.co.za; rudolph@law.co.za; VDLindel@nra.co.za
Subject: Rietvlei X10, 11 & 15 - Environmental Impact Assessment Process

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the Environmental Impact Assessment Process for the proposed ***Rietvlei X10, 11 & 15*** Project.

Kind Regards/Vriendelike Groete

Juanita De Beer

Public Participation Consultant

Landscape Architects &
Environmental Consultants

This email has been checked for viruses by Avast antivirus software.
www.avast.com

juanita@bokamoso.net

From:	Juanita <user3@bokamoso.net>
Sent:	28 July 2015 03:38 PM
To:	jgrobler@geoscience.org.za; asalomon@sahra.org.za; maphata.ramphele@gauteng.gov.za; justicem@dwaf.gov.za; keetm@dwaf.gov.za; 'central@eskom.co.za'; 'paia@eskom.co.za'; 'schmidk@nra.co.za'; kumen.govender@gauteng.gov.za; nkoneigh@randwater.co.za; mmpshe@randwater.co.za; 'RudzaniM@tshwane.gov.za'; loveous.tampane@transnet.net; casperm@tshwane.gov.za; mwcspoel@mweb.co.za; dkoa@salbu.co.za; Ruan.DeLange@diss.co.za; 'delangewg@vodamail.co.za'; info@wessanorth.co.za; barbara@sagewoodconsulting.co.za; elana@salbro.co.za; rudolph@law.co.za; VDLindel@nra.co.za
Subject:	Rietvlei X10, 11 & 15 - Environmental Impact Assessment Process
Attachments:	Public Notice.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the Environmental Impact Assessment Process for the proposed ***Rietvlei X10, 11 & 15*** Project.

Kind Regards/Vriendelike Groete

Juanita De Beer

Public Participation Consultant

Landscape Architects &
Environmental Consultants

[illegible]
[illegible]

juanita@bokamoso.net

From:	juanita@bokamoso.net
Sent:	15 December 2015 10:33 AM
To:	'nkoneigh@randwater.co.za'; 'mmpshe@randwater.co.za'; 'loveous.tampane@transnet.net'; 'jgrobler@geoscience.org.za'; 'asalomon@sahra.org.za'; 'nndobochani@sahra.org.za'; 'maphata.ramphele@gauteng.gov.za'; 'justicem@dwaf.gov.za'; 'keetm@dwaf.gov.za'; 'central@eskom.co.za'; 'paia@eskom.co.za'; 'schmidk@nra.co.za'; 'kumen.govender@gauteng.gov.za'; 'RudzaniM@Tshwane.gov.za'; 'casperm@tshwane.gov.za'; 'mwcspoel@mweb.co.za'
Subject:	Rietvlei X10, 11 & 15 - Review Invitation Notice
Attachments:	Review Notice.pdf

Dear Interested and/or Affected Party Members,

Please refer to the attached Review Invitation Notice regarding the proposed ***Rietvlei X10, 11 & 12*** Project.

The Draft Environmental Impact Assessment Report will be available from ***Friday, 18 December 2015 – 5 February 2016*** on our website: www.bokamoso.biz or St George Hotel.

Please note that according to the 2014 EIA Regulations the period of 15 December – 5 January will be excluded from the comment period.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant

Bokamoso

Landscape Architects &
Environmental Consultants

T: (+27)12 346 3810 I F: (+27) 86 570 5659 I E: lizelleg@mweb.co.za I www.bokamoso.biz

36 Lebombo Street, Ashlea Gardens, Pretoria I P.O. Box 11375 Maroelana 0161

juanita@bokamoso.net

From:	juanita@bokamoso.net
Sent:	15 December 2015 10:35 AM
To:	'dkoa@salbu.co.za'; 'Ruan.Delange@diss.co.za'; 'delangewg@vodamail.co.za'; 'info@wessa.co.za'; 'barbara@sagewoodconsulting.co.za'; 'elana@salbro.co.za'; 'rudolph@law.co.za'; 'VDLindel@nra.co.za'
Subject:	Rietvlei X10, 11 & 15 - Review Invitation Notice
Attachments:	Review Notice.pdf

Dear Interested and/or Affected Party Members,

Please refer to the attached Review Invitation Notice regarding the proposed ***Rietvlei X10, 11 & 12*** Project.

The Draft Environmental Impact Assessment Report will be available from ***Friday, 18 December 2015 – 5 February 2016*** on our website: www.bokamoso.biz or St George Hotel.

Please note that according to the 2014 EIA Regulations the period of 15 December – 5 January will be excluded from the comment period.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant

Bokamoso

Landscape Architects &
Environmental Consultants
T: (+27)12 346 3810 I F: (+27) 86 570 5659 I E: lizelleg@mweb.co.za I www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria I P.O. Box 11375 Maroelana 0161

juanita@bokamoso.net

From:	juanita@bokamoso.net
Sent:	17 December 2015 04:33 PM
To:	'nkoneigh@randwater.co.za'; 'mmpshe@randwater.co.za'; 'loveous.tampane@transnet.net'; 'jgrobler@geoscience.org.za'; 'asalomon@sahra.org.za'; 'nndobochani@sahra.org.za'; 'maphata.ramphele@gauteng.gov.za'; 'justicem@dwaf.gov.za'; 'keetm@dwaf.gov.za'; 'central@eskom.co.za'; 'paia@eskom.co.za'; 'schmidk@nra.co.za'; 'kumen.govender@gauteng.gov.za'; 'RudzaniM@Tshwane.gov.za'; 'casperm@tshwane.gov.za'; 'mwcspoel@mweb.co.za'; 'dkoa@salbu.co.za'; 'Ruan.Delange@diss.co.za'; 'delangewg@vodamail.co.za'; 'info@wessa.co.za'; 'barbara@sagewoodconsulting.co.za'; 'elana@salbro.co.za'; 'rudolph@law.co.za'; 'VDLindel@nra.co.za'
Subject:	Rietvlei X10, 11 & 15
Attachments:	Review Notice Retracted.pdf

Dear Interested and/or Affected Party Members,

Please refer to the attached Review Invitation Notice Retraction regarding the proposed Rietvlei X10, 11, 15 Development Project.

Due to the fact that the period between 15 December and 5 January have been excluded for commentary according to the 2014 EIA Regulation, the Review Period will only commence in January 2016.

You will be notified as soon as it is available.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant

Bokamoso

Landscape Architects &
Environmental Consultants

T: (+27)12 346 3810 I F: (+27) 86 570 5659 I E: lizelleg@mweb.co.za I www.bokamoso.biz

36 Lebombo Street, Ashlea Gardens, Pretoria I P.O. Box 11375 Maroelana 0161

juanita@bokamoso.net

From: Juanita <user3@bokamoso.net>
Sent: 09 September 2013 10:48 AM
To: dkoa@salbu.co.za; Ruan.DeLange@diss.co.za; delangewg@vodamail.co.za; nkoneigh@randwater.co.za; mmpshe@randwater.co.za; info@wessa.co.za; barbara@sagewoodconsulting.co.za; elana@salbro.co.za; rudolph@law.co.za; mwcspoel@mweb.co.za
Subject: Rietvlei X6-X9 and Rietvlei X10, X11 & X15 - Review Invitation Notice
Attachments: Final Scoping Review Notice.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Review Invitation Notice regarding the proposed ***Final Scoping Rietvlei X6-X9 and Rietvlei X10, X11 & X15*** Projects.

The review timeframe will be from **11 September 2013 until 2 October 2013**, please send your comments on the Final Scoping Report to GDARD within **21 days** (on or **before 2 October 2013**) to the following address and please cc your comments to Bokamoso.

GDARD
P.O. Box 8769
Johannesburg
2000

Tel: 011 355 1900
Fax: 011 355 1000
Email: Justine.Chan@gauteng.gov.za
Attention: Justine Chan

We thank you kindly for this opportunity and we trust you find the above in order. Please do not hesitate to contact our office should you have any questions in this regard.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer

Bokamoso

Landscape Architects &
Environmental Consultants cc.

T [illegible] www.bokamoso.biz

juanita@bokamoso.net

From:	Juanita <user3@bokamoso.net>
Sent:	12 June 2013 02:17 PM
To:	dkoa@salbu.co.za; Ruan.DeLange@diss.co.za; delangewg@vodamail.co.za; 'nkoneigh@randwater.co.za'; mmpshe@randwater.co.za; info@wessa.co.za; barbara@sagewoodconsulting.co.za; elana@salbro.co.za; 'rudolph@law.co.za'
Subject:	Rietvlei X6 - X9 Gaut: 002/12-13/E0223 and Rietvlei X10, X11 & X15 Gaut: 002/12-13/E0224 - Review Invitation
Attachments:	Review Notice.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Review Notice Invitation for the proposed Rietvlei X6 – X9 and the proposed Rietvlei X10, X11 & X15 Projects.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer

Bokamoso

Landscape Architects &
Environmental Consultants cc.

T [illegible] www.bokamoso.biz

Crosswise Estate
Our Ref: 9/2/258/0044

Enquiries: Andrew Salomon
Tel: 021 462 4502
Email: asalomon@sahra.org.za
CaseID: 332

Date: Wednesday August 22, 2012

Final Decision

In terms of section 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Bokamoso Landscape Architects

Gaigher, S. April 2012. Phase 1 Heritage Impact Assessment Report for the Proposed Crosswise Estate Extension 1–10.

The proposed development entails a residential extension situated on Portions 20, 317 and 318 as well as the remainders of Portion 15 and 113 of the farm Doornkloof 391 JR. This area is located in the present area of Irene, near the city of Pretoria. The total size of the proposed development is 397.5 ha. It will be a mixed use zoning with residential, commercial, industrial & retirement village.

The author contends that although a scattering of informal structures were identified throughout the study area, no sites of heritage significance could be identified. The author notes that the area adjacent to the development site does however have a strong historic association with the late Jan Smuts and the Jan Smuts Museum is located only 500m south of the boundary of the proposed development. The Irene Concentration Camp was also located close to the site. This lends a strong historic character to this landscape. The author recommends that the development take into account the historic character of this area as well as its association with Jan Smuts and the South African War through the Irene Concentration Camp and that this character is reflected and preserved in its design and
layout. The author further recommends that a visual impact assessment be performed to gauge the possible visual impacts that the development might have on the museum and the cultural landscape.

Decision:

If the recommendations made in the specialist report and in this comment are adhered to, the SAHRA Archaeology, Palaeontology and Meteorite Unit has no objection to the development (in terms of the archaeological component of the heritage resources). If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development, construction or mining, SAHRA and a professional archaeologist must be alerted immediately.

Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, the developer must ensure that a professional Palaeontological Desk Top study is undertaken to assess whether or not the development will impact upon palaeontological resources. If this is deemed unnecessary, a letter of recommendation for exemption from a professional Palaeontologist is needed. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 rescue operation might be necessary.

Please note that decisions on Built Environment must be referred to the Gauteng Provincial Heritage

Resources Agency (Ms Maphata Ramphele: Maphata.Ramphele@gauteng.gov.za, Mr Grant Botha: grantb@gpg.gov.za).

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Andrew Salomon
Heritage Officer: Archaeology
South African Heritage Resources Agency

Colette Scheermeyer
SAHRA Head Archaeologist
South African Heritage Resources Agency

ADMIN:

Terms & Conditions:

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to SAHRA immediately.
3. SAHRA reserves the right to request additional information as required.

Rietvlei X10, 11 & 15

Our Ref: 8193

Enquiries: Andrew Salomon
Tel: 021 462 4502
Email: asalomon@sahra.org.za
CaseID: 8193

Date: Wednesday July 29, 2015

an agency of the Department of Arts and Culture

Letter

In terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999)

Attention: Gillyfrost 71 (Pty) Ltd

Portions of the Remaining Extents of Portions 15 and 113 of the Farm Doornkloof 391 JR, Gauteng Province

Thank you for your notification regarding this development.

In terms of the National Heritage Resources Act, no 25 of 1999, heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are protected. They may not be disturbed without a permit from the relevant heritage resources authority. This means that prior to development it is incumbent on the developer to ensure that a **Heritage Impact Assessment** is done. This must include the archaeological component (Phase 1) and any other applicable heritage components. Appropriate (Phase 2) mitigation, which involves recording, sampling and dating sites that are to be destroyed, must be done as required.

The quickest process to follow for the archaeological component is to contract an accredited specialist (see the web site of the Association of Southern African Professional Archaeologists www.asapa.org.za) to provide a Phase 1 Archaeological Impact Assessment Report. This must be done before any large development takes place.

The Phase 1 Impact Assessment Report will identify the archaeological sites and assess their significance. It should also make recommendations (as indicated in section 38) about the process to be followed. For example, there may need to be a mitigation phase (Phase 2) where the specialist will collect or excavate material and date the site. At the end of the process the heritage authority may give permission for destruction of the sites.

Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, a Palaeontological Desk Top study must be undertaken to assess whether or not the development will impact upon palaeontological resources - or at least a letter of exemption from a Palaeontologist is needed to indicate that this is unnecessary. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 rescue operation might be necessary.

If the property is very small or disturbed and there is no significant site the heritage specialist may choose to send a letter to the heritage authority to indicate that there is no necessity for any further assessment.

Any other heritage resources that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Andrew Salomon
Heritage Officer: Archaeology
South African Heritage Resources Agency

ADMIN:
Direct URL to case: http://www.sahra.org.za/node/319200
(GDARD, Ref:)

Terms & Conditions:

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to SAHRA immediately.
3. SAHRA reserves the right to request additional information as required.

Annexure L(vi)

Comments and issues Register

COMMENT AND RESPONSE REPORT-
DRAFT ENVIRONMENTAL SCOPING REPORT FOR THE PROPOSED RESIDENTIAL DEVELOPMENT RIETVLEI X10, 11 & 15 OF THE REMAINING PORTION 15 AND 113 OF THE FARM DOORNKLOOF 391 JR.
Gaut: 002/12-13/E0224

Issue	Commentator	Date	Response
The Department recommends that the following issues be taken into consideration: a) A detailed layout plan, overlaying all sensitivities shall be included within the EIA report and submitted to this Department for perusal. The layout plan shall also be made available for the surrounding interested and affected parties to evaluate and comment on, b) Confirmation of service capacity (water, electricity, storm water and sewer) from the relevant service providers must be included within the final report. Should no capacity exist for any of these services, an alternative should be discussed within the Report. c) All identified specialist studies must be conducted and included in the EIA Report. The Assessment must indicate all potential impacts of the proposed development and appropriate mitigation measures. d) All activities on the site must comply with the Tshwane Municipality's By-Laws. **Conclusion** The Department will deliver final comments upon receipt of the EIA report when sufficient investigation has been conducted and issues addressed in the EIA phase of the project. It is recommended that a	T Mphephu **City of Tshwane**	25 July 2013	a) A detailed layout plan, overlaying all sensitivities shall be included within the Final EIA Report. The layout plan shall also be made available for the surrounding interested and affected parties. b) A detailed services report will be included in die Final EIA Report. ***Refer to Section 6.2.8*** c) All identified specialist studies conducted are included in the EIA Report. ***Refer to Annexure G.*** d) The proposed activity does comply with all Municipality-By-Laws.

copy of the EIA report be submitted to this Department for perusal.			
Rand Water is hereby registering as IAP for the above-mentioned project. Kindly forward confirmation of registration as IAP to Natalie Koneight at nkoneigh@randwater.co.za Attached is Rand Water's Wayleaves, for your information. Rand Water would like to be sure that the development as per the BID have planned adequately for their sewerage removal off site. Please provide Rand Water with: 1. The detail about the facility that will receive the sewerage. 2. An agreement that the identified sewerage facility I aware of the development and that they have the capacity to accept the sewerage from the site without overloading the facility. 3. Will there be any discharges other than the sewerage system that will increase storm water entering the environment. If so, has the development considered retention and stilling ponds to slow down high peak flows. If the sewerage facility cannot accept the additional load into their facility then this will have a negative impact on the environment and the pollution load into the river system.	Natalie Koneight **Rand Water** nkoneigh@randwater.co.za	12 June 2013	Noted. More detail on the sewerage treatment and stormwater systems will become available during the EIA phase of the proposed developments. These details will be forwarded to you as soon as it becomes available.
Final Decision: The proposed development entails a residential extension situated on Portions 20, 317 and 318 as well as the remainders of Portion 15 and 113 of the farm Doornkloof 391 JR. This area is located in the present area of Irene, near the city of Pretoria. The total size of the proposed development is 397.5 ha. It will be a mixed use zoning with residential, commercial, industrial & retirement village.	Andrew Salomon **Sahra** asalomon@sahra.org.za	22 August 2012	A Phase 1 Heritage Impact Assessment was conducted. ***Refer to Annexure G10 of the Draft EIA Report.***

The author contends that although a scattering of informal structures were identified throughout the study area, no sites of heritage significance could be identified. The author notes that the area adjacent to the development site does however have a strong historic association with the late Jan Smuts and the Jan Smuts Museum is located only 500m south of the boundary of the proposed development. The Irene Concentration Camp was also located close to the site. This lends a strong historic character to this landscape. The author recommends that the development take into account this historic character of this area as well as its association with Jan Smuts and the South African War through the Irene Concentration Camp and that this character is reflected and preserved in its design and layout. The author further recommends that a visual impact assessment be performed to gauge the possible visual impacts that the development might have on the museum and the cultural landscape. **Decision:** If the recommendations made in the specialist report and in this comment are adhered to, the SAHRA Archaeology, Palaeontology and Meteorite Unit has no objection to the development (in terms of the archaeological component of the heritage resources). If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development, construction or mining, SAHRA and a professional archaeologist must be alerted immediately. Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, the developer must ensure that a professional Palaeontological Desk Top study is undertaken to assess whether or not the development will impact upon palaeontological resources. If			

this deemed unnecessary, a letter of recommendation for exemption from a professional Palaeontologist is needed. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 rescue operation might be necessary. Please note that decisions on Built Environment must be referred to the Gauteng Provincial Heritage Resources Agency (Ms Maphata Ramphele: Maphata.Ramphele@gauteng.gov.za , Mr Grant Botha: grantb@gpg.gov.za).			
The Department recommends that the following issues be taken into consideration: a) A detailed layout plan, overlaying all sensitivities shall be included within the EIA report and submitted to this Department for perusal. The layout plan shall also be made available for the surrounding interested and affected parties to evaluate and comment on. b) A detailed storm water management plan will need to be compiled that ensures that storm water generated on site is discharged in such a way that the receiving environment is not adversely impacted upon. c) Confirmation of service capacity (water, electricity, storm water and sewer) from the relevant service providers must be included within the final report. Should no capacity exist for any of these services, an alternative should be discussed within the Report. d) All identified specialist studies must be conducted and included in the EIA Report. The Assessment must indicate all potential impacts if the proposed development and	T. Mphephu TshinvadzoM@tshwane.gov.za Livhuwani Siphuma LivhuwaniS@tshwane.gov.za **City of Tshwane**	11 October 2013	a) There will be a detailed layout plan, overlaying all sensitivities shall be included with in the plan. The layout plan will be made available to all interested and affected parties. b) More detail on the sewerage treatment and stormwater systems will become available during the EIA phase of the proposed developments. These details will be forwarded to you as soon as it becomes available c) A detailed services report will be included in die Final EIA Report. Refer to Section 6.2.8 d) All identified specialist studies are conducted and included in the EIA Report. Refer to Annexure G. The assessment indicated all potential impacts.

appropriate mitigation measures. e) A general Rehabilitation plan shall be included within the EIA Report which will aim to prevent erosion and aid the return of natural, endemic and indigenous vegetation cover to at least 80% of the rehabilitated area. The proposed rehabilitation plan should be included for the road servitudes as well as any sensitive water and wetland crossings. f) An Environmental Management Plan should be included within the EIA report. The EMP should address impacts and mitigation measures for the pre-construction, construction and post-construction activities. All issues and recommendations from Specialist studies should be included within the final and approved EMP. An Environmental Control Officer and contact details should also be included within the EMP. g) All Alien invasive plant species should be eradicated on the study area in accordance to the Conservation of Agricultural Resources Act (Act no. 43 of 1983). An Invasive species control plan should be implemented at least every 3 months after construction and should be included within the EIA Report and EMP. h) The proposed activity will comply with all Municipal By-laws. **Conclusion** The above recommendations should be considered and included within the EIA report. The Department will provide final comments upon the review of the Environmental Impact Assessment Report, with the inclusion of the above recommendations and			e) A general Rehabilitation plan shall be included within the Final EIA Report which will aim to prevent erosion and aid the return of natural, endemic and indigenous vegetation cover to at least 80% of the rehabilitated area. The proposed rehabilitation plan should be included for the road servitudes as well as any sensitive water and wetland crossings f) An Environmental Management Plan will be included within the EIA Report. Refer to Annexure M in the EIA Report. g) All Alien invasive plant species will be eradicated on the study area in accordance to the Conservation of Agricultural Resources Act (Act no. 43 of 1983). Refer to Annexure M in the EIA Report. h) The proposed activity does comply with all Municipality-By-Laws.

issues.			
EIA Process			
Please register us as an interested and affected party.	Barabara Parker barbara@sagewoodconsulting.co.za	28 July 2015	Thank you for your response, we have already registered you as Interested and/or Affected Party Member for the proposed Rietvlei X10, 11 & 15 Project. We will keep you updated regarding the process in the future.
Thank you for your notification regarding this development. In terms of the National Heritage Resources Act, no 25 of 1999, heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are protected. They may not be disturbed without a permit from the relevant heritage resources authority. This means that prior to development it is incumbent on the developer to ensure that a Heritage Impact Assessment is done. This must include the archaeological component (Phase 1) and any other applicable heritage components. Appropriate (Phase 2) mitigation, which involves recording, sampling and dating sites that are to be destroyed, must be done as required. The quickest process to follow for the archaeological component is to contract an accredited specialist (see the website of the Association of Southern African Professional Archaeologist www.asapa.org.za) to provide a Phase 1 Archaeological Impact Assessment Report. This must be done before any large development takes place. The Phase 1 Impact Assessment Report will identify the archaeological sites and assess their significance. It should also make recommendations (as indicated in section 38) about the process to be followed. For example, there may need to be a mitigation phase (Phase 2) where the specialist will collect or excavate	Andrew Salomon asalomon@sahra.org.za Sahra	29 July 2015	Noted.

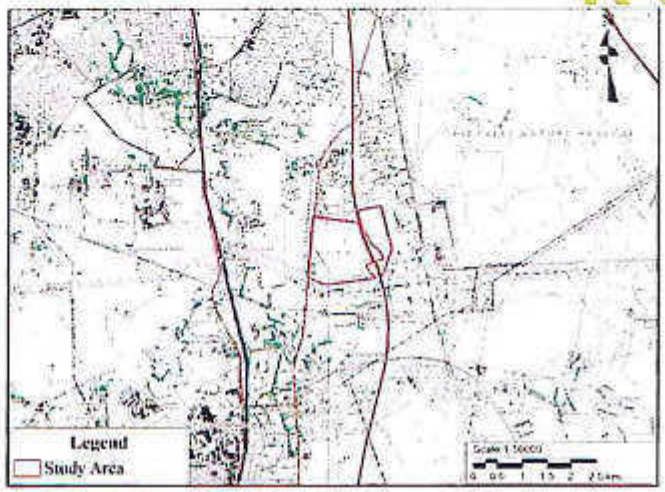
material and date the site. At the end of the process the heritage authority may give permission for destruction of the sites. Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, a Palaeontological Desk Top study must be undertaken to assess whether or not the development will impact upon palaeontological resources – or at lest a letter of exemption from a Palaeontologist is needed to indicate that this is unnecessary. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 rescue operation might be necessary. If the property is very small or disturbed and there is no significant site the heritage specialist may choose to send a letter to the heritage authority to indicate that there is no necessity for any further assessment. Any other heritage resources that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed.			

Annexure L(vii)

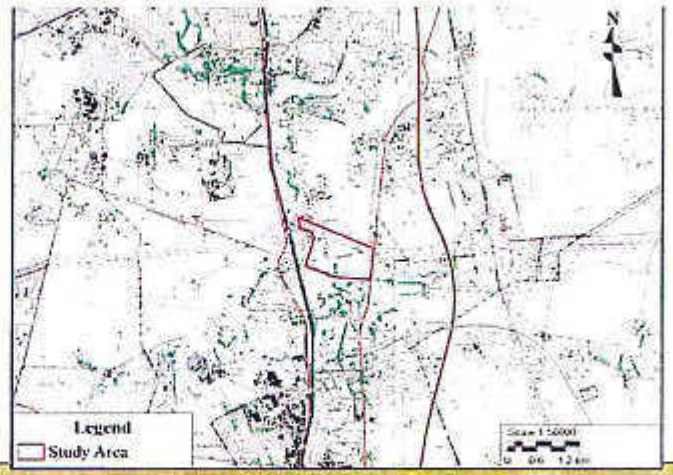
Review Notice

Draft Scoping Reports for Review

Rietvlei X6-X9



Rietvlei X10, X11 & X15



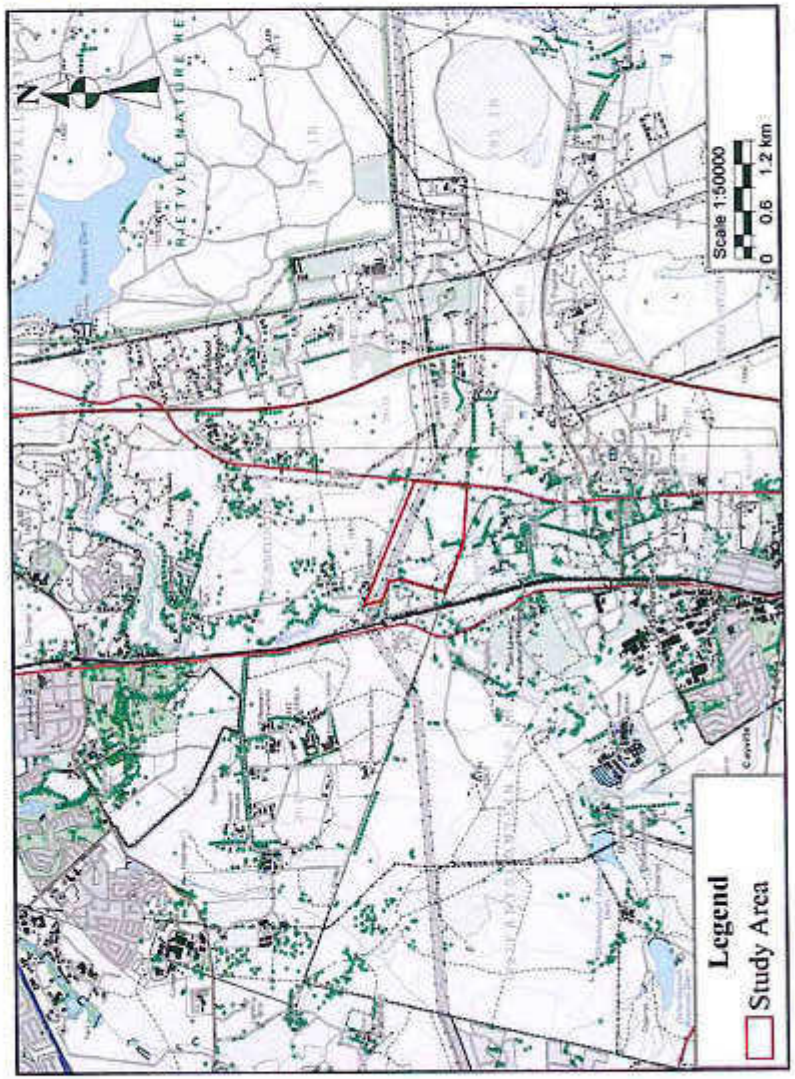
All interested and affected parties are invited to review the development information and to register any issues and concerns to be included and addressed in the Final Scoping Report.

Venue: St George Hotel at Reception
Tel: 011 316 1254
Date: 13 June – 19 August 2013
Website: **www.bokamoso.biz**
Please do not hesitate to contact us if there are any questions in connection with the abovementioned development.

Contact person: **Juanita De Beer**
Tel: 012 346 3810 Fax: 086 570 5659
E-mail: lizelleg@mweb.co.za

Bokamoso ENVIRONMENTAL

Rietvlei X10, 11 & 15 Amended Draft Environmental Impact Assessment Report for Review



All interested and affected parties are invited to review the development information and to register any issues and concerns to be included and addressed in the Final Environmental Impact Assessment Report.

Venue: St George Hotel
Tel: 011 316 1254
Date: 15 June – 15 July 2016
Website: **www.bokamoso.net**

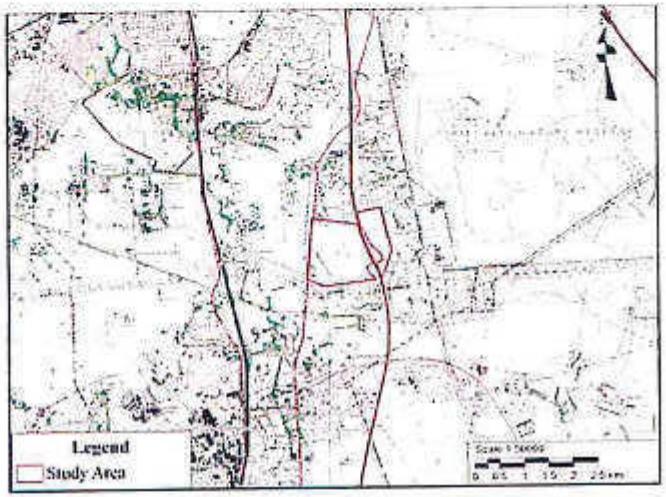
Please do not hesitate to contact us if there are any questions in connection with the abovementioned development.

Contact person: **Juanita De Beer**
Tel: 012 346 3810 Fax: 086 570 5659
E-mail: reception@bokamoso.net

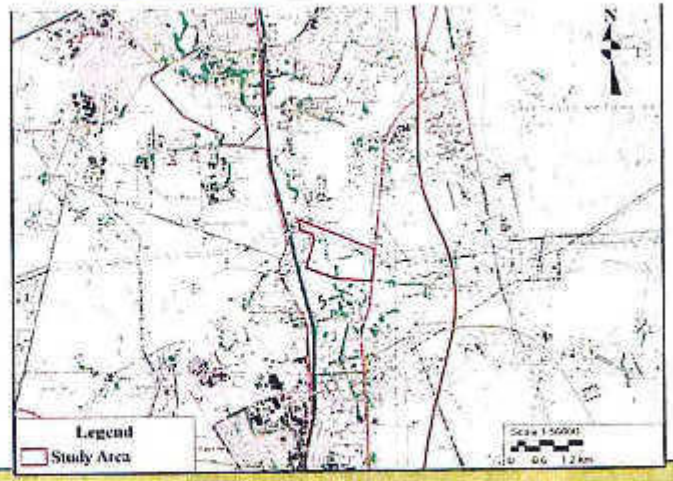
Bokamoso

Final Scoping Reports for Review

Rietvlei X6-X9



Rietvlei X10, X11 & X15



All interested and affected parties are invited to review the development information. Please submit your comments on the Final Scoping Report within 21 days to the Gauteng Department of Agriculture and Rural Development (GDARD) – Attention: Justine Chan (email: Justine.Chan@gauteng.gov.za or fax: 011 355 1000). Please cc your comments to Bokamoso (email: lizelleg@mweb.co.za or fax: 086 570 5659)

Venue: St George Hotel

Tel: 011 316 1254

Date: 11 September – 2 October 2013

Website: www.bokamoso.biz

Please do not hesitate to contact us if there are any questions in connection with the abovementioned development.

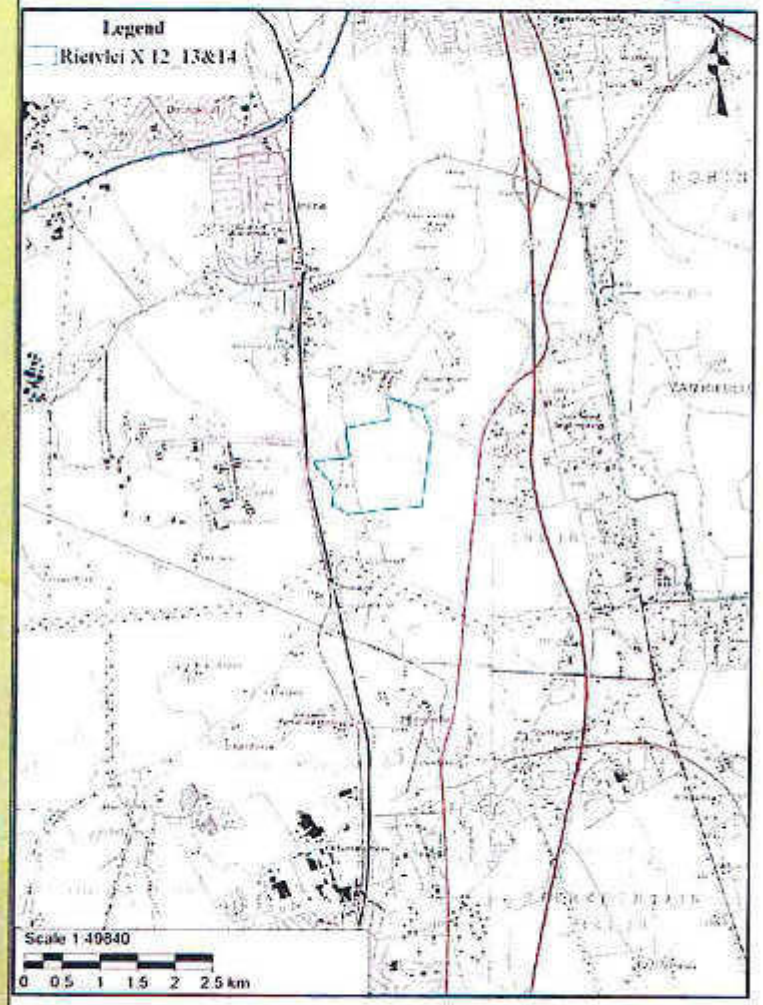
Contact person: **Juanita De Beer**

Tel: 012 346 3810 Fax: 086 570 5659

E-mail: lizelleg@mweb.co.za

Bokamoso

Rietvlei X10, X11 & X15 Draft Environmental Impact Assessment Report for Review



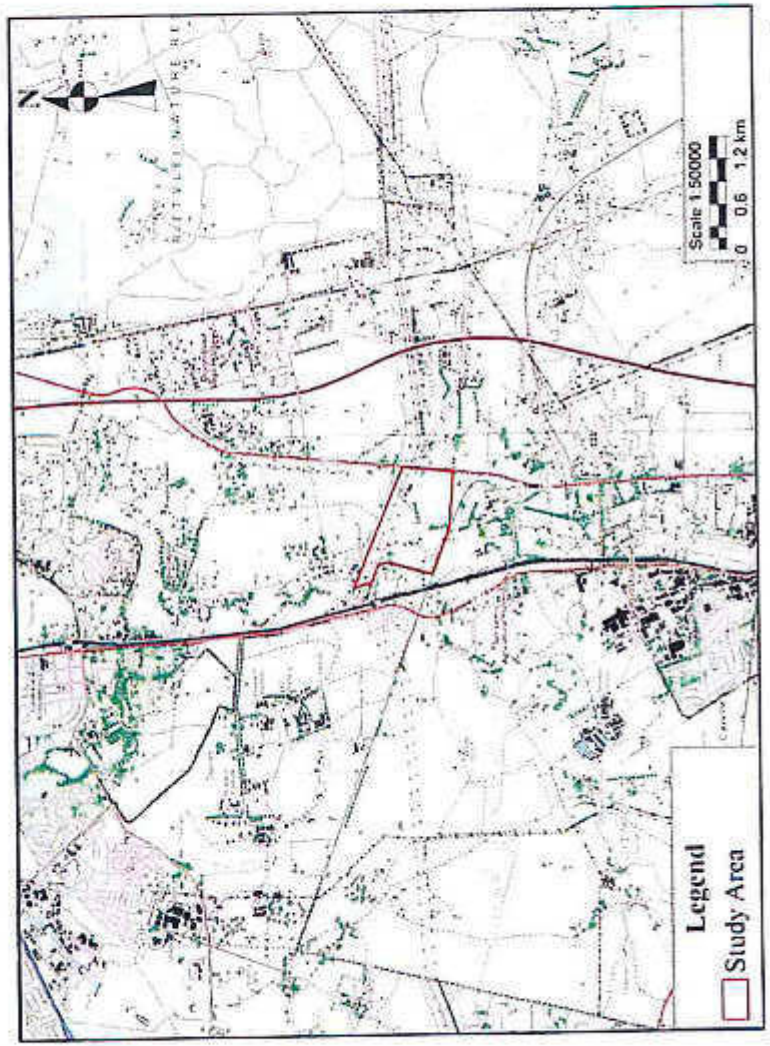
All interested and affected parties kindly note that the invitation to review the development information and to register any issues and concerns to be included and addressed in the Draft Environmental Impact Assessment Report **has been retracted.**

Please do not hesitate to contact us if there are any questions in connection with the abovementioned development.

Contact person: **Juanita De Beer**
Tel: 012 346 3810 Fax: 086 570 5659
E-mail: reception@bokamoso.co.za

Bokamoso

Rietvlei X10, 11 & 15 Draft Environmental Impact Assessment Report for Review



All interested and affected parties are invited to review the development information and to register any issues and concerns to be included and addressed in the Final Environmental Impact Assessment Report.

Venue: St George Hotel

Tel: 011 316 1254

Date: 15 December 2015 – 5 February 2016

Website: **www.bokamoso.biz**

Please do not hesitate to contact us if there are any questions in connection with the abovementioned development.

Contact person: **Juanita De Beer**
Tel: 012 346 3810 Fax: 086 570 5659
E-mail: reception@bokamoso.net

Bokamoso

Annexure M

Environmental Management Plan

FINAL ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED RIETVLEI X 10, 11 & 15

Portions of the Remaining Extents of Portion 15 and Portion 113 of the farm Doornkloof 391 JR

GAUT: 002/12-13/E0224 **AUGUST 2016**

B O K A M O S O

LANDSCAPE ARCHITECTS AND ENVIRONMENTAL CONSULTANTS

Tel: (012) 346 3810
Fax: 086 570 5659
E-mail: lizelleg@mweb.co.za
P O BOX 11375
MAROELANA
0161

1 Project Outline

1.1 Background

Bokamoso Landscape Architects and Environmental Consultants were appointed by ***Gillyfrost 71 (Pty) Ltd*** as ***independent consultants*** to prepare the applicable environmental reports and GDARD accepted the application that was submitted. The Reference Number issued by GDARD for the project is ***GAUT: 002/12-13/E0224.***

1.2 Project description

The proposed Rietvlei **x10, 11 & 15** is situated ***on Portions of the Remaining Extents of Portion 15 and Portion 113 of the farm Doornkloof 391 JR***. The application is made for authorization of the establishment of a mixed land-use development consisting of the following land-uses: Residential 2 (25 dwelling units/hectare), Business 1 (shops, offices, banks, places of refreshment, business buildings), Business 2 (office, banks, display centres, light manufacturing/assembly) and parking***. (Refer to Figure 1: Locality Map and Figure 2: Aerial Map).***

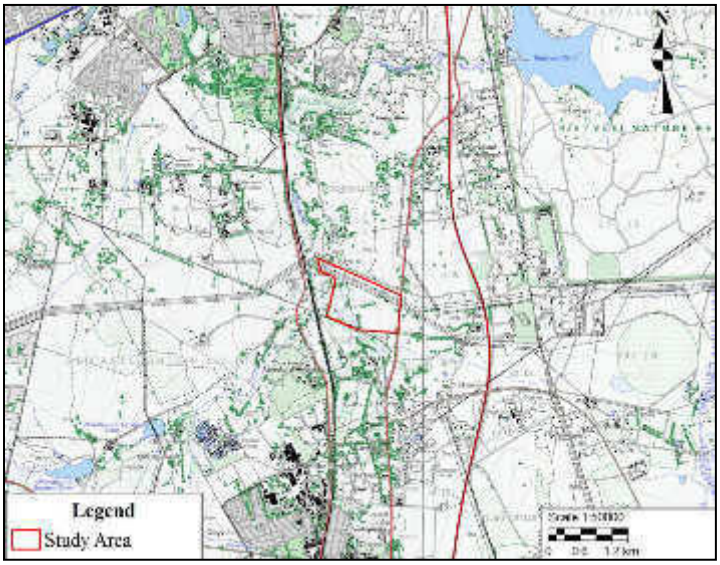


Figure 1 – Locality

Figure 2 – Aerial Map

Timeframe for construction:

The expected timeframe for construction is approximately 18 months.
The EMP will be a binding document for purposes of compliance.

1.3 Receiving Environment

Geology:

- According to a Geotechnical and Dolomite Stability Report by J.P. Venter the site is underlain by dolomite and probably mainly dolomite of the Eccles Formation of the Chuniespoort Group of the Transvaal Supergroup.

Hydrology:

- The study area is not affected by any rivers or streams. The site slopes towards the west and south-west. The relevant engineers are appointed to conduct a Storm Water Management Plan which will be included in the Final EIA Report.

Fauna and flora:

- In general the grassveld area is not suitable for the Striped Harlequin Snake and the African Python due to absence of termitaria and lack of suitable vegetation cover. The river and riparian vegetation does not offer suitable habitat for Gaint Bullfrogs.

- The Ichnestoma stobiai, an endangered fruit chafer that occurs in small habitat fragments has been found at the site on various occasions. There would be a threat to this rare and localized fruit chafe beetle, Ichnestoma stobiai, if the development is approved.

- The vegetation of the study area can be broadly classified as Rocky Highveld Grassland (Bankenveld), and more particularly its variation on dolomite-derived soils. Grassland predominates and indigenous trees are mainly confined to two well demarcated stands associated with rocky outcrops on some of the ridges. In Gauteng Province this vegetation type is highly threatened by urbanization, industrialization, mining, and, to a lesser degree, agriculture.

- The vegetation is near pristine state and contains specialized rock outcrop species such as Xerophyta retinervis and Protea welwitschii, as well as relictual outlier stands of trees species many of which are typical of bushveld vegetation further north.

Ecological conditions of the Ridge:

- The study area on the ecological conditions of the ridge found that the rocky ridges and the lower dolomitic slopes are of considerable conservation importance. These rocky ridges contain habitats which are in good enough conditions for the conservation of smaller fauna as well as very interesting flora diversity.

Cultural /Historical:

- Although a scattering of informal structures were identified throughout the study area, no sites of heritage significance could be found. The area adjacent to the

development site does however have a strong historic association with the Jan Smuts and Jan Smuts Museum is located only 500m south of the boundary of the proposed development. The Irene Concentration Camp was also located close to the site. This lends a strong historic character to this landscape.

Visual:

- The proposed development could have visual impacts on the surrounding view sheds during the construction and operational phases and mitigation measures should be implemented.

Noise:

- The proposed development could have noise impacts on surrounding residents.

Dust:

- Dust could impact the surrounding residences if the construction will be done during the dry and windy months. It is proposed that regular damping down of the study area must be done if constructed during dry and windy months.

2 EMP Objectives and context

Objectives

The objectives of this plan are to:

- Identify the possible environmental impacts of the proposed activity;
- Develop measures to minimise, mitigate and manage these impacts;
- Meet the requirements of the Record of Decision of GDARD and other of other Authorities; and
- Monitor the project.

EMP context

This EMP fits into the overall planning process of the project by carrying out the conditions of consent set out by the GDARD. In addition, all mitigation measures recommended in the EIA report are included in the EMP.

This EMP addresses the following three phases of the development:

- Pre-construction planning phase;
- Construction phase; and
- Operational phase.

3 Monitoring

In order for the EMP to be successfully implemented all the role players involved must have a clear understanding of their roles and responsibilities in the project.

These role players may include the Authorities (A), other Authorities (OA), Developer/proponent (D), Environmental Control Officer (ECO), Project Manager (PM), Contractors (C), Environmental Assessment Practitioner (EAP) and Environmental Site Officer (ESO). Landowners interested and affected parties and the relevant environmental and project specialist's area also important role players.

3.1 Roles and responsibilities

Developer (D)

The developer is ultimately accountable for ensuring compliance with the EMP and conditions contained in the RoD. The developer must appoint an independent Environmental Control Officer (ECO), for the duration of the pre-construction and construction phases, to ensure compliance with the requirements of this EMP. The developer must ensure that the ECO is integrated as part of the project team.

Project Manager (PM)

The project Manager is responsible for the coordination of various activities and ensures compliance with this EMP through delegation of the EMP to the contractors and monitoring of performance as per the Environmental Control Officer's monthly reports.

Environmental Control Officer (ECO)

An independent Environmental Control Officer (ECO) shall be appointed, for the duration of the pre-construction and construction phase of the services and bulk infrastructure, by the developer to ensure compliance with the requirements of this EMP.

Contact details of appointed ECO

ECO details will be available as soon as developer appointed a company.

- The Environmental Control Officer shall ensure that the contractor is aware of all the specifications pertaining to the project.
- Any damage to the environment must be repaired as soon as possible after consultation between the Environmental Control Officer, Consulting Engineer and Contractor.
- The Environmental Control Officer shall ensure that the developer staff and/or contractor are adhering to all stipulations of the EMP.
- The Environmental Control Officer shall be responsible for monitoring the EMP throughout the project by means of site visits and meetings. This should be documented as part of the site meeting minutes.
- The Environmental Control Officer shall be responsible for the environmental training program.

- The Environmental Control Officer shall ensure that all clean up and rehabilitation or any remedial action required, are completed prior to transfer of properties.
- A post construction environmental audit is to be conducted to ensure that all conditions in the EMP have been adhered to.

Contractor (C):

The contractors shall be responsible for ensuring that all activities on site are undertaken in accordance with the environmental provisions detailed in this document and that sub-contractor and laborers are duly informed of their roles and responsibilities in this regard.

The contractor will be required, where specified to provide Method Statements setting out in detail how the management actions contained in the EMP will be implemented.

The contractors will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the environmental regulations.

Environmental Site Officer (ESO):

The ESO is appointed by the developer as his/her environmental representative to monitor, review and verify compliance with the EMP by the contractor. The ESO is not an independent appointment but must be a member of the contractor's management team. The ESO must ensure that he/she is involved at all phases of the construction (from site clearance to rehabilitation).

Authority (A):

The authorities are the relevant environmental department that has issued the Environmental Authorization. The authorities are responsible for ensuring that the monitoring of the EMP and other authorization documentation is carried out by means of reviewing audit reports submitted by the ECO and conducting regular site visits.

Other Authorities (OA):

Other authorities are those that may be involved in the approval process of the EMP.

Environmental Assessment Practitioner (EAP):

According to section 1 of NEMA the definition of an environmental assessment practitioner is "the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental instruments through regulations".

3.2 Lines of Communication

The Environmental Control Officer in writing should immediately report any breach of the EMP to the Project Manager. The Project Manager should then be responsible for rectifying

the problem on-site after discussion with the contractor. Should this require additional cost, then the developer should be notified immediately before any additional steps are taken.

3.3 Reporting Procedures to the Developer

Any pollution incidents must be reported to the Environmental Control Officer immediately (within 12 hours). The Environmental Control Officer shall report to the Developer on a regular basis (site meetings).

3.4 Site Instruction Entries

The site instruction book entries will be used for the recording of general site instructions as they relate to the works on site. There should be issuing of stop work order for the purposes of immediately halting any activities of the contractor that may pose environmental risk.

3.5 ESA/ESO (Environmental Site Officer) Diary Entries

Each of these books must be available in duplicate, with copies for the Engineer and Environmental Site Officer. These books should be available to the authorities for inspection or on request. All spills are to be recorded in the ESA/Environmental Site Officer's dairy.

3.6 Methods Statements

Methods statements from the contractor will be required for specific sensitive actions on request of the authorities or ESA/ESO (Environmental Site Officer). All method statements will form part of the EMP documentation and are subject to all terms and conditions contained within the EMP document. For each instance wherein it is requested that the contractor submit a method statement to the satisfaction of ESA/ESO, the format should clearly indicate the following:

- What – a brief description of the work to be undertaken
- How- a detailed description of the process of work, methods and materials
- Where- a description / sketch map of the locality of work; and
- When- the sequencing of actions with due commencement dates and completion date estimate.

The contractor must submit the method statement before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the ESA/ESO.

3.7 Record Keeping

All records related to the implementation of this management plan (e.g. site instruction book, ESA/ESO dairy, methods statements etc.) must be kept together in an office where it is safe and can be retrieved easily. These records should be kept for two years at any time be available for scrutiny by any relevant authorities.

3.8 Acts

1. The National Water Act, 1998 (Act No: 36 of 1998)

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Reducing and preventing pollution and degradation of water resources;
- Facilitating social and economic development; and
- Providing for the growing demand for water use.

Impact on proposed Development:

Significant – The study area is affected by 1:50 and 1:100 year flood lines and wetlands in the riparian zone. These areas will be left intact and mitigation measures will be implemented to protect these areas. Section 21 water use licences will be required for any development which may take place within and/or impact any water resource and or floodlines. The National Water Act also required that the 1:50 and 1:100 year flood line be indicated on all the development drawings that are being submitted for approval.

2. National Environmental Management: Air Quality Act (Act No. 39 of 2004)

This act replaced the Atmospheric Pollution Prevention Act (Act No. 45 of 1965), however Part 2 of this act is still applicable. Part 2 of the act deals with the control of noxious of offensive gases. The proposed development will not release any of the listed gases into the atmosphere and this act is therefore not applicable to the proposed development.

The purpose of the Act is "To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto."
The purpose of the Act is "To provide for the prevention of the pollution of the atmosphere, for the establishment of a National Air Pollution Advisory Committee, and for matters incidental thereto".

The Atmospheric Pollution Prevention Act was traditionally administered by the Department of Health until 1995, when it was transferred to the jurisdiction of the Department of Environmental Affairs and Tourism. The Act controls four forms of air pollution:

- Part II Noxious or Offensive gases
- Part III Atmospheric Pollution by Smoke
- Part IV Dust Control
- Part V Air Pollution by Fumes Emitted by Vehicles

Impact on proposed Development:

Significant – During the construction phase dust pollution can become a significant factor, especially to the surrounding developments and landowners. Dust control would be adequately minimized during this phase by way of water spraying and possible dust-nets, when required.

The additional vehicles generated by the proposed development will have an insignificant impact on the air pollution due to emissions gasses created by any additional vehicles or traffic of the proposed development.

3. National Environmental Management Act (Act 107 of 1998)

The NEMA is primarily an enabling Act in that it provides for the development of environmental implementation plans and environmental management plans. The principles listed in the act serve as a general framework within which environmental management and implementation plans must be formulated.

The principles in essence state that environmental management must place people and their needs at the forefront of its concern and that development must be socially, environmentally and economically sustainable.

Impact on proposed Development:

Significant – The proposed development is listed under the activities as regulated under NEMA.

4. The Municipal Systems Act (Act 32 of 2000)

This Act was introduced to provide for the core principles, mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and ensure universal access to essential services that are affordable to all.

The proposed development will support the local authority in complying with the principles of the Municipal Systems Act, by assisting in providing the community with essential services, such as water and sewage infrastructure.

Impact on proposed Development:

Significant – The proposed development will contribute to the Municipal system.

5. The Draft Red Data Species Policy

This policy is provided for the protection, conservation and maintenance of Red Data species within the Gauteng Province.

Impact on proposed Development:

Not Significant- No RDL species were identief in the study area.

6. National Veld and Forest Fire Act, 1998 (Act No. 101, 1998)

The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout the Republic. Furthermore the Act provides for a variety of institutions, methods and practices for achieving the prevention of fires.

Impact on proposed Development:

Significant – Fires of construction workers may only be lit in the designated site camp as indicated in assistance with the ECO. It is important that a site development camp be located on a part of the application site that is already disturbed.

7. National Heritage Resources Act, 1999 (Act No. 25 of 1999)

The National Heritage Resources Act legislates the necesity and heritage impact assessment in areas earmarked for development, which exceed 0.5ha. The Act makes provision for the potential destruction to existing sites, pending the archaelogist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

Impact on proposed Development:

Not significant – No features of Heritage importance are present on site.

8. Conservation of Agricultural Resources Act (Act No. 43 of 1983)

This Act provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

Impact on proposed Development:

Not significant – The study area is not located within an Agricultural Hub, an area identified for agricultural use by GDARD according to the **Draft Policy on the Protection of Agricultural Land (2006).**

9. Water Services Act, 1997 (Act No. 108 of 1997)

This Act provides for the minimum standards and measures of which the following Water Services should adhere to:

- Basic sanitation
- Basic water supply
- Interruption in provision of water services
- Quality of potable water
- Control of objectionable substances
- Disposal of grey water
- Use of effluent
- Quantity and quality of industrial effluent discharged into a sewerage system
- Water services audit as a component in the Water Services Development Plan
- Water and effluent balance analysis and determination of water losses
- Repair of leaks
- Consumer installations other than meters
- Pressure in reticulation system

Impact on proposed Development:

Not Significant – The proposed development does not apply to the water service act.

10. National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management of South Africa's biodiversity within the Framework of the NEMA and the protection of species and ecosystems that warrant National protection. As part of the implementation strategy, the National Spatial Biodiversity Assessment was developed.

Impact on proposed Development:

Not Significant – The proposed development is in line with the Biodiversity Act. The study area is also not located within any protected areas.

11. National Spatial Biodiversity assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

Impact on proposed Development:

Significant – The Natural mixed grassland on shallow dolomite, the Natural mixed grassland and the Chert ridge vegetation were deemed sensitive.

12. Protected Species – Provincial Ordinances

Provincial ordinances were developed to protect particular plant species within specific provinces. The protection of these species is enforced through permitting requirements associated with provincial lists of protected species. Permits are administered by the Provincial Departments of Environmental Affairs.

Impact on proposed Development:

Not Significant – The study area is also not located within any protected areas.

13. National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)

The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological biodiversity and its natural landscapes.

Impact on proposed Development:

Not Significant – No area was identified as a system which needs protection, conservation and management.

14. Gauteng Transport Infrastructure Act, 2001

To consolidate the laws relating to roads and other transport infrastructure in Gauteng; and to provide for the planning, design, development, construction, financing, management, control, maintenance, protection and rehabilitation of provincial roads, railway lines and other transport infrastructure in Gauteng.

15. National Road Traffic Act, 1996 (Act No. 93 of 1996)

This Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith.

16. Environmental Conservation Act: Noise Regulations, 1989 (Act no.73 of 1989)

The purpose of this Act is to provide measures and management relating Noise levels. This Act enables Noise levels to be acceptable to standards within a specific area and community.

Impact on proposed Development:

Significant – The proposed development may include some noisy activities with the construction of the proposed interchange and also during the operational phase.

4 Project activities

4.1 Pre-Construction Phase

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
General	**Project contract**	To make the EMP enforceable under the general conditions of the contract.	The EMP document must be included as part of the tender documentation for all contractor appointments	The EMP is included as part of the tender documentation	Developer	-	3
Design and planning	**Stability of structures and restriction of land use due to geology**	To ensure stability of structures	1) The precautionary measures and foundation design from the involved geotechnical engineers must be implemented to ensure the stability of structures and embankments.	The land uses and layout corresponds to the recommended stability zonation and development types.	Individual Developer Engineer	-	
	Storm water design	To prevent and restrict erosion, siltation and groundwater pollution	1) A detailed storm water management plan must be approved by the Local Authority prior to commencement of construction activities. Such approval must be submitted to DWA together with a copy of the original stormwater management plans. Must be implemented according to guidelines provided by the relevant Local Authority Departments. 2) The storm water design for the proposed development must be designed to: Reduce and/ or prevent siltation, erosion and water pollution. 3) Storm water runoff should not be concentrated as far as possible and sheet flow should be implemented. 5) Energy dissipaters must be installed on the study area to break the speed of the	Compilation and approval of storm water management plan	Engineer Individual Developer	-	9

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			water. 6) Surface storm water generated as a result of the development must not be channeled directly into any natural drainage system or wetland. 7) The storm water management plan should be designed in a way that aims to ensure that post development runoff does not exceed predevelopment values in: - Peak discharge for any given storm; - Total volume of runoff for any given storm; - Frequency of runoff; and - Pollutant and debris concentrations reaching water courses.				
Climate	**Extreme change in micro climate temperatures**	To prevent the extreme change in micro climate temperatures	The proposed development will create a warm micro climate on the application site and can be mitigated though the planning of trees next to the road by the City of Tshwane once construction has been completed.	Landscape Development Plan complies	Landscape Architect	-	
Geology and Soils	**Unsuitable Geotechnical conditions**	To prevent unsuitable Geotechnical conditions	The special precautionary measures, as indicated within the Geotechnical Report must be adhered to at all times. 1) A storm water management plan must be implemented on the study area to prevent the erosion of soil. 2) A pro-active maintenance strategy for water bearing services and other infrastructure should be implemented.	Precautionary measures implemented	Geotechnical engineer Dolomite Risk Manager	-	9
	Loss of sensitive vegetation	To ensure some of the existing natural grassland areas on the study area.	Care must be taken to ensure that construction activities remain within the boundary of the planned road reserve.	Medicinal plants rescued prior to construction	Qualified specialist		
Preparing Site Access	**Environmental integrity**	To avoid erosion and	Designated routes shall be determined for the construction vehicles and designated	Access to site is erosion free.	Contractor	Continuous	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
		disturbance to indigenous vegetation	areas for storage of equipment. Clearly mark the site access point and routes on site to be used by construction vehicles and pedestrians. Provide an access map to all contractors whom in turn must provide copies to the construction workers. Instruct all drivers to use access point and determined route.	Minimum disturbance to surrounding vegetation. Vehicles make use of established access routes.			
	Waste storage	To control the temporary storage of waste.	Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks and these points should not be located in sensitive areas /areas highly visible from the properties of the surrounding land-owners/tenants/in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners.		Contractor ESO	-	
		Ensure waste storage area does not generate pollution	Build a bund around waste storage area to stop overflow into storm water and the drainage channel on the application site.		Contractor	-	

4.2 Construction Phase

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
Contractor's Camp	**Loss of Vegetation and topsoil**	To minimize damage to and loss of vegetation and retain quality of	Site to be established under supervision of ECO/ESO.	Minimal vegetation removed/ damaged during	Contractor	Before any construction activity commences	5, 10, 11, 13

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
		topsoil		site activities.		and as and when required	
	Surface and ground water pollution	To minimize pollution of surface and Groundwater resources.	1) Sufficient and temporary facilities including ablution facilities must be provided for construction workers operating on the site. 2) A minimum of one chemical toilet shall be provided per 10 construction workers. The contractor shall keep the toilets in a clean, neat and hygienic condition. Toilets provided by the contractor must be easily accessible and a maximum of 50m from the works area to ensure they are utilized. The contractor (who must use reputable toilet-servicing company) shall be responsible for the cleaning, maintenance and servicing of the toilets. The contractor (using reputable toilet-servicing company) shall ensure that all toilets are cleaned and emptied before the builders' or other public holidays. 3) No person is allowed to use any other area than chemical toilets. 4) No French drain systems may be installed. 5) No chemical or waste water must be allowed to contaminate the run-off on site. This could possibly contaminate the drainage channel. 6) The chemical toilets may not be placed in close proximity of the adjacent dwellings to prevent odors from causing uncomforting situations. 7) Avoid the clearing of the site camp (of specific phase) or paved surfaces with soap.	Effluents managed Effectively. No pollution of water resources from site. Workforce use toilets provided.	Contractor ESO	As and when required	
		To minimize pollution of surface and	1) Drip trays and/ or lined earth bunds must be provided under vehicles and equipment, to contain spills of hazardous materials such	No pollution of the environment	Contractor ESO	Daily	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
		Groundwater resources due to spilling of materials.	as fuel, oil and cement. 2) Repair and storage of vehicles only within the demarcated site area. 3) Spill kits must be available on site. 4) Oils and chemicals must be confined to specific secured areas within the site camp. These areas must be bunded with adequate containment (at least 1.5 times the volume of the fuel) for potential spills or leaks. 5) All spilled hazardous substances must be contained in impermeable containers for removal to a licensed hazardous waste site. 6) No leaking vehicle shall be allowed on site. The mechanic/ the mechanic of the appointed contractor must supply the environmental officer with a letter of confirmation that the vehicles and equipment are leak proof. 7) No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site. **8) If any pollution incident is experienced, DWA must be notified immediately.**				
		To minimize pollution of surface and groundwater resources by cement	The mixing of concrete shall only be done at specifically selected sites, as close as possible to the entrance, on mortar boards or similar structures to prevent run-off into drainage line, streams and natural vegetation.	No evidence of contaminated soil on the construction site.	Contractor ESO	Daily	
		To minimize pollution of surface and Groundwater resources due to effluent.	No effluent (including effluent from any storage areas) may be discharged into any water surface or ground water resource, especially the drainage channel on site.	No evidence of contaminated water resources.	Contractor ESO	Daily	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
	Pollution of the environment	To prevent unhygienic usage on the site and pollution of the natural assets.	1) Weather proof waste bins must be provided and emptied regularly. 2) The contractor shall provide laborers to clean up the contractor's camp and construction site on a daily basis. 3) Temporary waste storage points on the site should be determined. THESE AREAS SHALL BE PREDETERMINED AND LOCATED IN AREAS THAT IS ALREADY DISTURBED AND NOT WITHIN CLOSE PROXIMITY OF DRAINAGE LINES. These storage points should be accessible by waste removal trucks and these points should be located in already disturbed areas /areas not highly visible from the properties of the surrounding land-owners/ in areas where the wind direction will not carry bad odours across the properties of adjacent landowners. This site should comply with the following: • Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • Bunded areas for containment and holding of dry building waste. 4) No solid waste may be disposed of on the site. 5) No waste materials shall at any stage be disposed of in the open veld of adjacent properties or within the drainage lines (No-Go areas). 6) The storage of solid waste on the site, until such time as it may be disposed of, must be in a manner acceptable to the local	No waste bins overflowing No litter or building waste lying in or around the site	Contractor ESO	Daily Weekly	5,13

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			authority and DWA. 7) Cover any wastes that are likely to wash away or contaminate storm water.				
		Recycle material where possible and correctly dispose of unusable wastes	1) Waste shall be separated into recyclable and non-recyclable waste, and shall be separated as follows: • General waste: including (but not limited to) construction rubble, • Reusable construction material. 2) Recyclable waste shall preferably be deposited in separate bins. 3) All solid waste including excess spoil (soil, rock, rubble etc) must be removed to a permitted waste disposal site on a weekly basis. 4) No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site. 5) Keep records of waste reuse, recycling and disposal for future reference. Provide information to ESO.	Sufficient containers available on site No visible signs of pollution	Contractor ESO	Daily Weekly	
	Increased fire risk to site and surrounding areas	**To decrease fire risk.**	1) Fires shall only be permitted on the application site. 2) No food vendors shall be allowed. 3) Fire extinguishers to be provided in all vehicles and fire beaters must be available on site. 4) Emergency numbers/ contact details must be available on site, where applicable.	No open fires on site that have been left unattended	Contractor	Monitor daily	6
Construction site	**Geology and soils**	To prevent the damaging of the existing soils and geology.	1) The top layer of all areas to be excavated for the purposes of construction shall be stripped and stockpiled in areas where this material will not be damaged, removed or compacted. 2) All surfaces that are susceptible to erosion, shall be protected either by cladding with	Excavated materials correctly stockpiled No signs of erosion	Contractor	Monitor daily	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			biodegradable material or with the top layer of soil being seeded with grass seed/planted with a suitable groundcover.				
		To prevent the loss of topsoil To prevent siltation & water pollution.	1) Stockpiling will only be done in designated places where it will not interfere with the natural drainage paths of the environment. 2) In order to minimize erosion and siltation and disturbance to existing vegetation, it is recommended that stockpiling be done/ equipment is stored in already disturbed/exposed areas. 3) Cover stockpiles and surround downhill sides with a sediment fence to stop materials washing away. 4) Remove vegetation only in areas designated during the planning stage and for the purpose of construction. 5) Rehabilitation/ landscaping to be done immediately after the involved works are completed (will prevent erosion of the topsoil layer on site). 6) All compacted areas should be ripped prior to them being rehabilitated/landscaped by the contractor. 7) The top layer of all areas to be excavated must be stripped and stockpiled in areas where this material will not be damaged, removed or compacted. This stockpiled material should be used for the rehabilitation of the site and for landscaping purposes. 8) Strip topsoil at start of works and store in stockpiles no more than 1, 5 m high in designated materials storage area. 9) During the laying of any cables, pipelines or infrastructure (on or adjacent to the site) topsoil shall be kept aside to cover the	Excavated materials correctly stockpiled No visible signs of erosion and sedimentation Minimal invasive weed growth Vegetation only removed in designated areas	Contractor of Developer	Monitor daily	4,9

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			disturbed areas immediately after such activities are completed. Rehabilitation of these areas shall be done directly after infill of the trenches. No rocks shall be placed on the topsoil after re-filling.				
	Erosion and siltation	To prevent erosion and siltation	1) It is recommended that the construction of the development be done in phases. 2) Each phase should be rehabilitated immediately after the construction for that phase has been completed. The rehabilitated areas should be maintained by the appointed rehabilitation contractor until a vegetative coverage of at least 80% has been achieved. 3) Mark out the areas to be excavated. 4) Large exposed areas during the construction phases should be limited. Where possible areas earmarked for construction during later phases should remain covered with vegetation coverage until the actual construction phase. This will prevent unnecessary erosion and siltation in these areas. 5) Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided. 6) All embankments must be adequately compacted and planted with grass to stop any excessive soils erosion and scouring of the landscape if required. 7) The eradication of alien vegetation should be followed up as soon as possible by replacement with indigenous vegetation to ensure quick and sufficient coverage of exposed areas. 8) Storm water outlets shall be correctly designed to prevent any possible soil	No erosion scars No loss of topsoil All damaged areas successfully rehabilitated	Contractor ESO	Monitor daily	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			erosion. 9) All surface run-offs shall be managed in such a way so as to ensure erosion of soil does not occur. 10) Implementation of temporary storm water management measures that will help to reduce the speed of surface water by the individual erf owner / developer. 11) All surfaces that are susceptible to erosion shall be covered with a suitable vegetative cover as soon as construction is completed by the individual erf owner / developer.				
	Stability of structures due to geology	To ensure stability of structures.	Preventative foundation designs shall be done Detailed foundation inspections should be carried out at the time of construction to identify any variances and adjust foundation designs accordingly if need be. The foundation recommendations and geotechnical measures from the geotechnical engineers must be adhered to.		Engineers / Contractor / Individual Developer	When required	
			The normal drainage precautionary measures and special installation measures for underground wet services, applicable to dolomitic terrain and in compliance with the Tshwane Metropolitan Municipality requirements, should be adhered to**.**	Drainage precautions implemented	Engineers Contractors		
	Hydrology	Groundwater management	1) Ongoing monitoring of groundwater levels on and in the immediate vicinity of the site is recommended.	No deviation from baseline data during regular sampling	Engineer	Monthly	
		To minimise pollution of soil, surface and groundwater	1) Increased run-off during construction must be managed using berms and other suitable structures as required to ensure flow velocities are reduced.	No visible signs of erosion. No visible signs of	Contractor	Monitor daily	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			2) The contractor shall ensure that excessive quantities of sand, silt and silted water do not enter the storm water system.	pollution			
	Fauna and flora	To protect the existing fauna and flora.	1) The proposed interchange will eradicate exotic invaders. Indigenous plant species will be preserved where possible if not the species must be relocated prior to the commencing of construction.	Shall be determined by Fauna and Flora specialist.	Fauna and Flora specialist ESO?	Prior to construction.	10,11,13
		To protect the existing fauna and flora.	1) Trees that are intended to be retained shall be clearly marked on site. 2) Snaring and hunting of fauna by construction workers on or adjacent to the study area are strictly prohibited and offenders shall be prosecuted. 3)Should hedgehogs be encountered during the development, these should be relocated to natural grassland areas in the vicinity; 4) Wood harvesting of any trees or shrubs on the study area or adjacent areas shall not be allowed, especially within the Non-perennial drainage line. OFFENDERS WILL BE PROSECUTED AND A FINE WILL BE ISSUED IN ACCORDANCE WITH THE GDARD. 5) Where possible, work should be restricted to one area at a time. 6) Noise should be kept to a minimum and the development should be done in phases to allow faunal species to temporarily migrate into the conservation areas in the vicinity. 7) The contractor must ensure that no fauna species are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for	No measurable signs of habitat destruction	Contractor ESO	As and when required	5,10,11,13, 16

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			non-compliance;				
Social	**Noise impact**	To maintain noise levels below "disturbing" as defined in the national Noise Regulations.	1) Site workers must comply with the Provincial noise requirements as outlined. 2) Noise activities shall only take place during working hours	No complaints from surrounding residents and I & AP	Contractor	Monitored daily	16
	Dust impact	Minimise dust from the site	1) Dust pollution could occur during the construction works, especially during the dry months. Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. 2) When necessary, these working areas should be damped down in the mornings and afternoons.	No visible signs of dust pollution No complaints from surrounding residents and I & AP	Contractor	Monitored daily	2
	Safety and security	To ensure the safety and security of the public.	1) Although regarded as a normal practice, it is important to erect proper signs indicating the operations of heavy vehicles in the vicinity of dangerous crossings and access roads or even in the development site if necessary. 2) With the exception of the appointed security personnel, no other workers, friend or relatives will be allowed to sleep on the construction site (weekends included) 3) Construction vehicles and activities to avoid peak hour traffic times 4) Presence of law enforcement officials at strategic places must be ensured 5) Following actions would assist in management of safety along the road ▪ Adequate road marking ▪ Adequate roadside recovery areas ▪ Allowance for pedestrians and	No incidences reported	Contractor ECO	Monitored daily	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			cyclists where necessary Although regarded as a normal practice, it is important to erect proper signs indicating the danger of the excavation in and around the development site. Putting temporary fencing around excavations where possible.				
	Influx of people from other areas	In order to limit the influx of people from other areas	It is recommended that (where possible) only people from the local communities in and around the application site are employed.	People from local community employed.	Contractor	When required	
	Cultural Resources		Although no features of Cultural of Historical significance is located on site or in the direct vicinity, it is recommended that if any graves or archaeological sites are exposed during construction work it should immediately be reported to a museum. The report from the archaeologist must be provided to the local authorities if any graves are recovered.	No destruction of or damage to archaeological sites	Contractor ECO	Monitor daily	7
	Visual impact	In order to minimise the visual impact	1) The disturbed areas shall be rehabilitated immediately after the involved construction works are completed. 2)Shade cloth must be used to conceal and minimise the visual impact of the site camps and storage areas	Visual impacts minimized	Contractor ESO	Monitor daily	
	Vegetation	Landscaping	1) When planting trees, care should be taken to avoid the incorrect positioning of trees and other plants, to prevent the roots of trees planted in close proximity to the line of water-bearing services from causing leaking in, or malfunctioning of the services. 2) The proposed planting materials for the areas to be landscaped should preferably be endemic and indigenous. 3) All new trees and shrubs to be planted on the study area shall be inspected for pests and diseases prior to them being planted. 4) The inspection shall be carried out by the	Landscaping done according to landscape development plan	Landscape architect Contractor	When required	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			maintenance contractor at the property of the supplier and not on the study area. 5) All trees to be planted shall be in 20L containers with a height of approximately 1,8 metres and a main stem diameter of approximately 300 mm.				
		Loss of plants	1) Aerate compacted soil and check and correct pH for soils affected by construction activities. 2) Make sure plant material will be matured enough and hardened off ready for planting. Water in plants immediately as planting proceeds. 3) Apply mulch to conserve moisture Plant according to the layout and planting techniques specified by the Landscape Architect in the Landscape Development plans for the site.	Landscaping done according to landscape development plan	Landscape architect Contractor	When required	
		Spread of weeds	Ensure that materials used for mulching and topsoil/ fertilisers are certified weed free. Collect certifications where available. Control weed growth that appears during construction.	Weed growth controlled	Landscape architect Contractor	When required	
		To ensure rehabilitation of the site	1) Compacted soils shall be ripped at least 200mm. 2) All clumps and rocks larger than 30mm diameter shall be removed from the soil to be rehabilitated 3) The soil shall be leveled before seeding 4) Hydro-seed the soil with Potch mixture or plant with suitable indigenous ground covering as specified) 5) Watering shall take place at least once per day for the first 14 days until germination of seeds have taken place 6) Thereafter watering should take place at least for 20 minutes every 4 days until grass	Grass have hardened off	Landscape architect Contractor	Once a day Then every 4 days	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Performance indicator*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			have hardened off.				

4.3 Operational Phase

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
SITE CLEAN UP AND PREPARED FOR USE	**Storm water pollution**	Do not allow any materials to wash into the storm water system.	Remove erosion and sediment controls only if all bare soil is sealed, covered or re-vegetated. Sweep roadways clean and remove all debris from kerb and gutter areas. Do not wash into drains.	Contractor	-	
		Minimise waste	Decontaminate and collect waste in storage area ready for off-site recycling or disposal Arrange for final collection and removal of excess and waste materials.	Contractor	-	
ESTABLISHING PLANTS	**Slow or no re-vegetation to stabilise soil; loss or degradation of habitat**	To ensure re-vegetation to stabilize soil	Agreed schedule for regular follow-up watering, weed control, mulch supplements and amenity pruning, if needed. Replace all plant failures within three month period after planting.	Contractor	To be agreed	
DRAINAGE FAILURE	***On-site and downstream drainage pollution or flooding***	Storm water management plan	Inspect all site drainage works and repair any failures. Confer with design engineer and to correct site problems.	Contractor	-	
SITE AUDIT	***Eventual project failure***	Successful project establishment	Routinely audit the works and adjust maintenance schedule accordingly.	Contractor	-	
GENERAL			Open fires and smoking during maintenance works are strictly prohibited.	Contractor	-	6
GEOLOGY	**Erosion of topsoil**	Prevent topsoil erosion	Due to lose topsoil, the soil must be covered by means of re-seeding and vegetation with suitable ground covering.	Engineer / Contractor /	Once off	

TYPE	*Environmental risk or issue*	*Objective or requirement*	*Mitigation measure*	*Responsibility*	*Frequency of Action*	*Applicable Act no.*
			A dolomite risk management plan must be compiled for this township in general and copies must be submitted to the Council for Geoscience and the NHBRC. This system must be practical with detailed requirements applicable to the township. This can, however, only be done after the township established has been approved. Groundwater monitoring must form an integral part of the risk management plan. The local authority in association with the Department of Water Affairs must also ensure that the groundwater level is not drawn down. The normal drainage precautionary measures and special installation measures for underground wet services, applicable to dolomitic terrain and in compliance with the Tshwane Metropolitan Municipality requirements, should be adhered to.	Dolomite risk management plan compiled	Engineer	
Geology	**Erosion of topsoil**	Prevent topsoil erosion	Due to lose topsoil, the soil must be covered by means of re-seeding and vegetation with suitable ground covering.	Engineer/ Contractor	Once off	
	Air pollution	To mitigate air pollution	1) The air pollution impact can be mitigated by screening through the planting of trees. 2) Dust pollution could be mitigated by identifying the source and to recommend the regular dumping down during windy periods.	City of Tshwane		2

5 Procedures for environmental incidents

5.1 Leakages & spills

- Identify source of problem.
- Stop goods leaking, if safe to do so.
- Contain spilt material, using spills kit or sand.
- Notify Environmental Control Officer
- Remove spilt material and place in sealed container for disposal (if possible).
- Environmental Control Officer to follow Incident Management Plan.

5.2 Failure of erosion/sediment control devices

- Prevent further escape of sediment.
- Contain escaped material using silt fence, hay bales, pipes, etc.
- Notify ECO.
- Repair or replace failed device as appropriate.
- Dig/scrape up escaped material; take care not to damage vegetation.
- Remove escaped material from site.
- ECO to follow Incident Management plan.
- Monitor for effectiveness until re-establishment.

5.3 Bank/slope failure

- Stabilize toe of slope to prevent sediment escape using aggregate bags, silt fence, logs, hay bales, pipes, etc.
- Notify ECO.
- ECO to follow Incident Management plan.
- Divert water upslope from failed fence.
- Protect area from further collapse as appropriate.
- Restore as advised by ECO.
- Monitor for effectiveness until stabilized.

5.4 Discovery of rare or endangered species

- Stop work.
- Notify ECO.
- If a plant is found, mark location of plants.
- If an animal, mark location where sighted.
- ECO to identify or arrange for identification of species and or the relocation of the species if possible.
- If confirmed significant, ECO to liaise with Endangered Wildlife Trust.
- Recommence work when cleared by ECO.

5.5 Discovery of archeological or heritage items

- Stop work.
- Do not further disturb the area.
- Notify ECO.
- ECO to arrange appraisal of specimen.
- If confirmed significant, ECO to liaise with National, Cultural and History Museum.
  P.O. Box 28088
  SUNNYSIDE
  0132
  Contact Mr. J. van Schalkwyk

or
Mr. Naude

- Recommence work when cleared by ECO.

6 EMP review

1. The Site supervisor is responsible for ensuring the work crew is complying with procedures, and for informing the work crew of any changes. The site supervisor is responsible for ensuring the work crew is aware of changes that may have been implemented by GDARD before starting any works.

2. If the contractor cannot comply with any of the activities as described above, they should inform the ECO with reasons within 7 working days.