

**Motivation to obtain Stellenbosch Council's endorsement of Regional Cemetery Sites in fulfilment of tender B/SM No 17/16:**

***Identification and Acquisition of Authorisations and Approvals for the establishment of one or More Regional cemeteries for Stellenbosch Municipality (Project duration 2016 – 2018).***

**1. Background**

Stellenbosch Municipality appointed CK Rumboll and Partners to identify and acquire Authorisations and approvals for the establishment of one or more regional cemeteries for Stellenbosch Municipality (Project duration 2016 – 2018) as per tender B/SM No 17/16. This tender has as its purpose the identification and approval of the necessary land use rights and environmental authorizations to expand exiting cemeteries and establish local and regional cemeteries in Stellenbosch Municipal Area.

Stellenbosch Council approved 9 sites for the above purposes on a council meeting on 25 February 2015: These are listed below:

	Property	Ownership	Use	Property size (ha)
1	Erf 619/1 Lyndoch	Municipality	Agriculture	25ha
2	RE 502 Louw's Bos	Municipality	Agriculture	240ha
3	Farm 727/10 De Novo	Department of Transport and Public Works	Agriculture (& existing cemetery)	190ha
4	Farm 1339/1 La motte	Department of Transport and Public Works	Agriculture	660ha
5	Farm 1024/1 Wemmershoek	Municipality	Agriculture	40ha
6	Erf 3666 Dennegeur	Private	Vacant / Residential	70ha
7	Farm 748/40 Klapmuts	Private	Agriculture (adjacent to existing cemetery)	110ha
8	RE/Farm 183 Onder Papegaaiberg	Municipality	Agriculture	126
9	Farm 1166 Jamestown	Private	Agriculture, adjacent to existing cemetery site	81h

**2. Initial Desktop Assessment**

The initial investigation conducted by CK Rumboll and Partners expanded the nine (9) sites to fifty four (54) sites and included:

- a) Sites selected in the 2006 Cemetery Feasibility Study conducted by Dennis Moss Partnership (19 sites).
- b) Sites identified during site visits by CK Rumboll and Partners in May and June 2016 (21 sites).
- c) Sites identified by the Property Management Department of Stellenbosch Municipality (24 sites).
- d) Existing cemetery sites in the Stellenbosch Municipal Area (24 sites)

The desktop assessment considered ownership and proximity (initial assessment) followed by environmental and policy considerations and ultimately a soil scan. The detail of the initial assessment is outlined below whilst the detail of the environmental and policy considerations is outlined in the next section. The initial assessment resulted in a preliminary list of sites as per the tables below:



Region 1: Northern Stellenbosch (Klapmuts – Koelenhof)

Priority	Town/ Settlement	Property	Ownership	Approved by Council
1	De Novo	RE 10/727	State	Approved
2	Klapmuts	Farm 40/748	Private	Approved
3	Koelenhof	Farm 29	Stellenbosch Municipality	No

Region 2: Eastern Stellenbosch (Franschoek Valley)

Priority	Town/ Settlement	Property	Ownership	Approved by Council
1	Meer Lust	Farm 1/1006	State	No
2	Wemmershoek	RE/1/1024	Stellenbosch Municipality	Approved
3	Wemmershoek	Farm 1338	SA Government	No

Region 3: Southern Stellenbosch (Stellenbosch – Jamestown)

Priority	Town/ Settlement	Property	Ownership	Approved by Council
1	Jamestown	RE/502	Stellenbosch Municipality	Approved,
2	Lyndoch	RE 1/619	Private	Approved

Regional cemeteries are thus proposed at Jamestown, Lyndoch (southern Stellenbosch), Meer Lust (T junction of R45 (Paarl to Franschoek) and R310 (to Stellenbosch)) and Wemmershoek (R301) (eastern Stellenbosch) and De Novo, Klapmuts and Koelenhof (northern Stellenbosch).

## 2.1 Initial (Ownership and Proximity) Assessment

The following assessment criteria were applied and ownership records, zoning certificates and diagrams informed the assessment for each site:

1. Extent/ Cemetery Size: Can the property accommodate a 30ha site? Can engineering, geological & geotechnical investigation be justified?
  - 1.
2. Ownership: Does the property belong to Stellenbosch Municipality, a State Department or a private person.
3. Zoning: What is the official zoning of the property?
4. Current Land Use: What is the property used for?
5. Lease: Is the property leased. If yes, for how long is the duration of the lease.
6. Transfer: If the property is not owned by Stellenbosch Municipality, it has to be transferred.
7. Location: Is the proposed development an extension of the existing cemetery or is it a completely new cemetery.
8. Proximity: Is the cemetery accessible for the region or only for the settlement in which it is located?

Two sites, Calcutta and Louw's Bos belong to the Municipality of Stellenbosch and three sites, De Novo, Meer Lust and Keyersdrift belong to Department of Transport and Public Works or the State.

All the sites, except De Novo and Meer Lust, are vacant. De Novo and Meer Lust are each home to a small settlement yet have vast pieces of vacant land available. All sites are zoned Agricultural Zone 1.

Two sites, De Novo and Calcutta, are located in the Northern Region, Louw's Bos in the Southern Region and Meer Lust and Keyersdrif in the east.



Below follows a table detailing the initial assessment of each site:

Dir	Property	Ownership	Zoning	Current Land Use	Extent	Proximity
	Dir: Direction	SM, State, Private	As per SM	Used as	In Ha	Regional or Settlement; Within Settlement
N	RE 10/727 De Novo	RSA, Prov. Gov. W.Cape	Agriculture Zone 1	Fallow land & cemetery	192.28ha	Within close proximity of Kraaifontein, central for North Western region of Stellenbosch Municipal area
N	Farm Calcutta No 29	Municipality of Stellenbosch	Agriculture Zone 1	Woodlot (Eucalyptus)	39.64ha	Central, Northern Region
S	RE Louw's Bos No 502	Municipality of Stellenbosch	Agriculture Zone 1	Fallow land, Airfield and Former Waste Site	217.44ha	Central, Southern Region
E	Farm Meerlust No 1/1006	State, RSA	Agriculture 1	Village and Natural Veldt	67.05ha	Central, Eastern Region
E	RE Farm Keyersdrift No 1158 & 1/1158	State, RSA	Agriculture 1	Natural Veldt	77.13ha (RE) 54.8ha (Prt 1)	Within close proximity of Franschoek Valley

To prioritise the identified sites (as listed above) cemetery extensions forthcoming from the investigation were considered:

Town/ Settlement	Property	Ownership
Franschoek	Erf 739	Stellenbosch Municipality
Kylemore	Erf 36	Stellenbosch Municipality
Pniel	RE 9/1173 & RE1/1176	Stellenbosch Municipality
Languedoc	RE 13/1674	Private
Klapmuts	Farm 36/748	Private
Stellenbosch	RE 183	Stellenbosch Municipality

Thus the regional sites with the most central location to the region are Calcutta, Louw's bos and Meerlust.

### 3. Second Assessment and Field Visit

The sites that could accommodate a 30ha regional cemetery were subjected to the set of selection criteria below: A field visit enabled a more detailed second assessment as per criteria provided by tender B/SM No 17/16.

#### 3.1 Environmental and Policy Assessment

The purpose of this assessment is to determine if there are any policies or natural aspects that may prohibit the expansion or development of cemeteries.

1. Intrinsic Value: What is good for the property? (Use & Heritage Value)



2. Instrumental Value: What is the property good for? (SDF alignment)
3. Systemic Value: Does the property contribute to the health of any eco system and or habitat? Is the property important for conservation purposes (does it form part of a sensitive ecological corridor which may include part of stream, drainage systems & wetlands and may be subject to ground water pollution.
4. Current status: Is there any indigenous Fauna and Flora habitats on the property and are there occurrence high or are there stands of rare endemic plants.
5. Ecological Rehabilitation: What should the property look like if restored to its pristine form? How did it look like? What are the likelihood/ potential of the property being rehabilitated?
6. Geology: What are the Solid features of Earth
7. Pedology: Status of soils in their natural environment
8. Hydrology: Are there any drainage lines
9. Accessibility: Is there physical access to the site? How easily can the site be accessed? What modes of transport can be used to reach the site? What modes of transport are available?
10. Land Availability: What are the competing uses in the area?

This information considered was gathered from data available, site visits, previous studies conducted (see Reference List) and a meeting with municipal officials representing different departments on 4 August 2016. Data available included zoning maps, ecological and hydrological data, geological data, roads network data, programmes & projects from other municipal departments.

The following departments participated in a meeting held on 4 August 2016 and outlined their concerns:

Planning and Economic Development	Competing conservation uses at Pappagaaiberg
Engineering	Access in general
Property	Farm 29, Calcutta, Koelenhof should be added
IDP	Proposals should form part of Spatial Development Framework.
Human Settlements	Competing residential uses at James Town and La Motte
Informal Settlements	None
Community Services	The existing cemeteries should be considered for re-burials

Below follows two tables detailing the assessment of each site considering Value (intrinsic, instrumental, systemic), Environment (Fauna & Flora, Ecological Rehabilitation, Geology, Pedology, Hydrology) and Policy Assessment (Access, Competing uses, SDF & IDP aligned):

Dir	Property	Intrinsic	Instrumental	Systemic	Competing Use	SDF & IDP Alignment	Access
	Dir: Direction	Good for property	Property good for	Contribution to health of Ecosystem (& habitats) / Conservation Importance	Land Availability	As per SM policies and plans	Physical Access, Access realignment & Modes of Transport
N	RE 10/727 De Novo	Agriculture	Agriculture (small holdings & land reform)	Low	Combine ownership and agriculture with future development	SDF IDP - yes	R101 Moderate access realignment
N	Farm Calcutta No 29	Agriculture	Agriculture and Agricultural	Low	Woodlot	SDF IDP - yes	Moderate access realignment



			Industry				
S	RE Louw's Bos No 502	Agriculture	Agriculture, Vineyards, Strawberries	Low	Agricultural Small Holdings	SDF IDP - yes	R44 Extensive access realignment
E	Farm Meer Lust No 1/1006	Agriculture & Village	Agriculture	Medium	Agriculture and or conservation	SDF IDP - yes	R45 and Minor road no 5232 Moderate access realignment
E	RE Farm Keyersdrift No 1158 & 1/1158	Conservation & Forestry	Conservation, Forestry, Agriculture	Medium	Conservation & Forestry	SDF IDP - yes	unregistered gravel road (access from Robertsvlei Rd no 1351) Moderate access realignment

The sites with the best compliance between intrinsic, instrumental and systemic value are De Novo, Calcutta, and Louw's Bos.

The sites with best accessibility (including access realignment i.e. slip ways, widening roads, new roads), are Calcutta, Da Nova, Meer Lust and Keyersdrift, whilst extensive access realignment will have to be implemented at Louw's Bos.

Dir	Property	Fauna & Flora	Ecological Rehabilitation	Geology	Pedology	Hydrology
	Dir: Direction	<b>Fauna &amp; Flora CBA = Critically Biodiversity Area; ESA = Ecological Support Area</b>	<b>If restored to pristine form/ Did look like/ Potential to R</b>	<b>Solid features of Earth, rocks of which composed &amp; processes by which rocks change</b>	<b>Soils in natural environment &amp; Slopes</b>	<b>Drainage Lines; Ground water</b>
N	RE 10/727 De Novo	S-Half & N Middle: CBA & CE; Middle: None	Low	Greyish, sandy excessively drained soils	Limited	Y, on-site
N	Farm Calcutta No 29		Low			Water courses off site, eastern side
S	RE Louw's Bos No 502	Scattered: CBA & CE	Low	Soils with a marked clay accumulation, strongly structured and a non-reddish colour. Granite & weathered deposits; occasional quartz sand	Strong texture contrast	No water courses
E	Farm Meer lust No 1/1006	N-half: CBA S-Half: Vulnerable	Medium	Colluvial and alluvial sand and gravel on granite	Rock with limited soils	No water course on site, Safe distance from Berg river
E	RE Farm Keyersdrift No 1158 & 1/1158	RE: W-Half: None E-Half: CBA & CA  Prt 1: W & E half: Vulnerable & Critical Endangered; Middle: None	Medium	Quarzitic sandstone, quartzite, conglomerate, slate & phyllite	Rock with limited soils	No water course on site



Three sites, Calcutta, De Novo and Louw's Bos, have low environmental sensitivity.

Three sites, Calcutta, De Novo and Louw's Bos, have soils ideal for grave making followed by Meer Lust and Keyersdrift.

Four sites, Calcutta, Louw's Bos, Meer Lust and Keyersdrift have no water courses crossing the sites.

The regional sites with least environmental sensitivity and best policy compliance were Calcutta, De Novo and Louw's bos.

The final criteria applied covers the soil characteristics that determine the complexity of digging graves: Soil excavability, permeability (distance from domestic water sources, drainage features and soil type), drainage features, gradient, basal buffer, grave stability, soil workability and cemetery size

### 3.2 Soil Scan

The purpose of this assessment is to determine if the site will be functionally appropriate to dig graves and bury people.

1. Soil excavability: Is the soil medium dense and firm
2. Soil permeability: Safe distance from domestic water sources (No – too close; Conditional - Certain forms of burials only i.e. walls of remembrance; Developable)
3. Soil permeability: Soil type (Clay Gravel, Silty Sand, Clay Sand, Silt) and permeability ranges. Poor subsurface conditions, either high water table or clay layers - grave surface flooding or perched water tables
4. Soil permeability: Safe distance to drainage features and sources (No – too close; Conditional - Certain forms of burials only i.e. walls of remembrance; No - Adequate surface drainage difficult - flat topographical features)
5. Drainage features: Present, Partial or Absent
6. Topography: Gradient 2° - 6°. No when slope exceeds 9°.
7. Basal Buffer Zone: 2.5m between grave & water table. No when basal buffer is absent.
8. Grave Stability: Verges & Sides to stand up.
9. Soil Workability: Ability of soil to compact on return to grave

This information was gathered as per data available, site visits and previous studies conducted and a meeting with the Directorate Community Services on 21 September 2016; Data available included hydrological data, geological data, a full assessment of Wemmershoek as a housing development was proposed on the site.

Two sites, De Novo and Calcutta, have firm soils with good excavability, are most likely removed from domestic water sources, have low permeability (sufficient clay content), have drainage channels which guide away water.

One site, Louw's Bos has firm soils with good excavability, its location from domestic water sources should be determined, have low permeability (sufficient clay content) and has drainage channels which guide away water.

Two sites, Meer Lust and Keyersdrif, has medium excavability, are most likely removed from domestic water sources, have medium permeability and no drainable features.



Dir	Property	Soil Excavability	Soil Permeability	Soil Permeability	Soil Permeability	Drainage
	Dir: Direction	Medium dense & firm	Domestic Water Source	Permeability Ranges	Drainage Features	
N	RE 10/727 De Novo	Firm	To be determined, but unlikely	Low	Medium	
N	Farm Calcutta No 29	Firm	To be determined, but unlikely	Low	Minimal	
S	RE Louw's Bos No 502	Firm	To be determined	Low	Medium	
E	Farm Meer lust No 1/1006	Medium	To be determined	Medium Low	Minimal	
E	RE Farm Keyersdrift No 1158 & 1/1158	Medium	To be determined, but unlikely	Medium Low	Minimal	

The topography of all the sites is flat and soil workability is high. De Novo, Calcutta and Louw's Bos have high grave stability whilst Meer Lust and Keyersdrift have medium grave stability.

Dir	Property	Topography	Basal Buffer Zone	Grave Stability	Soil Workability
	Dir: Direction	Gradient 2° - 6° ( max 9°)	2.5m between grave & water table	Verges & Sides to stand up	Ability of soil to compact on return to grave
N	RE 10/727 De Novo	< 9°	To be determined	High	High
N	Farm Calcutta No 29	< 5°	To be determined	High	High
S	RE Louw's Bos No 502	< 9°	To be determined	High	High
E	Farm Meer lust No 1/1006	< 5°	To be determined	Medium	High
E	RE Farm Keyersdrift No 1158 & 1/1158	< 5°	To be determined	Medium	High

The regional sites with best soil characteristic to dig graves are Calcutta, De Novo and Louw's bos followed by Meerlust.

#### 4. Conclusion

The sites fitting the criteria best, and ranked from most centrally located, environmentally least sensitive, best compliant with policy and having the best soil characteristics to dig graves, are



- a) Calcutta
- b) De Novo
- c) Louw's Bos
- d) Meerlust
- e) Keyersdrift

## 5. Recommendation

Form the foregoing analysis of 54 sites reduced to 9 regional sites after subjected to three sets of criteria, it is recommended that Stellenbosch Council:

- a) Approves Farm Calcutta No 29 and Portion 1 of Farm Meer Lust No 1006 to be investigated as regional cemetery sites in addition to the sites approved as per Council Meeting of 25 February 2015.
- b) Notes that the process to obtain rights will proceed on two sites belonging to Stellenbosch Municipality i.e. Calcutta and Louw's Bos and one belonging to the state i.e. De Novo, as these sites were from an environmental, policy alignment and soil suitability perspective, the regional sites with least environmental sensitivity and best policy compliance.
- c) Grant power of attorney to the service provider to obtain land from the state for regional cemeteries on at De Novo and Meerlust.





## List of References

Dennis Moss Partnership Inc. October 2006: *Cemetery Feasibility Study, October 2006*

Dennis Moss Partnership Inc. February 2005: *Municipal Land Management Policy Framework, February 2005.*

Dennis Moss Partnership Inc. *Papagaaiberg Spatial Development Plan, October 2006, For Stellenbosch Municipality*

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Municipality of Stellenbosch: *Appendix 2: draft by-law relating to the management and administration of Stellenbosch municipality's immovable property*

Municipality of Stellenbosch: *Franschoek Urban Design Study, July 2005: Addendum to the GAPP urban design framework study produced in 1997*

Municipality of Stellenbosch: *Identification of state-owned land for possible housing projects: la motte, Wemmershoek and Maasdorp, Internal Memorandum, 2008-06-30*

Municipality of Stellenbosch: *Towards a municipal land management policy, a discussion document, Stellenbosch Municipality: Municipal Land in process of alienation:*

*Municipality of Stellenbosch: Minutes*

- a) *With relevant municipal departments (August 2016)*
- b) *With property management (May 2016)*
- c) *With community services (September 2016)*

Planning Partners. *Strategic Framework for Affordable Housing in the Franschoek Valley.*

Smit, P. February 2008: *Stellenbosch municipality, land summit, a strategic analysis of Stellenbosch municipality's property portfolio (land and buildings) compiled by: Piet Smit, manager: property management and administration.*

