



WELCOME TO THE FIRST KSDA NEWSLETTER

Set out herein you will find the project plans for the solution of the problems caused by the large, encroaching Dune at the bottom end of Westbourne Road and its' negative impact on the immediate area.

SOLUTION FOR THE KENTON SAND DUNE

Over the past four years PRDW, the leading Coastal Engineers in Africa, have conducted detailed studies and surveys and CES, Environmental and Social Advisory Services, have contributed valuable advice on the rehabilitation of the area. Combined, their proposals enable us to be in the fortunate position to proceed with restoring this part of Kenton to its' former natural beauty for the whole community to enjoy.

WHO IS KSDA?

Some four years' ago a group of house owners in Land's End Road and Westbourne Road became associated to address and resolve the growing problem of the sand dune. Initially this was led by Niel Howson and then Robert Rose took over seeking the advice of the leading Coastal Engineers, PRDW. Both Jacko Maree as Chairman of KSDA and Ted Gillfillan, then Chairman of Estuary Care, encouraged Robert to progress this with the Ndlambe Coastal MMP and to bring it to fruition. It has become a major project and Estuary Care realised they had neither the financial resources to investigate this fully, nor the necessary professional expertise required in complex sand, sea and river issues.

Research and surveys show this has now been achieved to our satisfaction. KSDA will now communicate progress, through Estuary Care, who are fully appraised and supportive of the project, and thus to our stakeholders. Each and every one of those directly involved have a commitment and interest in restoring this sadly neglected area of Kenton. We are certain that the natural beauty of our surroundings can and should be put right as soon as possible and anticipate the support of the Kenton Community to support the resolution of this problem.

Once this project has been pleasingly completed, the KSDA will maintain a small team to help Estuary Care and The Municipality ensure the sand dune area is properly managed.

HISTORY

Over 75 years ago this valley between Middle Beach and Bushman's river used to be used as a camping ground for holiday makers who lived between the two rivers and Grahamstown, when they originally came down in their wagons.

There was little vegetation in the base of the valley and the prevailing winds used to take what little "blown" sand there was through this valley. The road to middle beach was then built and this then put an end to the wind bypass. The Bushman's river was relatively fast flowing and hence little silting took place, and most of the sea sand from the Bushman's side was deposited in the river. Hence there was no sand dune at the Bushman's river end of the valley and in fact the river flowed along what is now Westbourne road and then at right angles out to sea. The explanation of the build-up of sand in the last 30 years is explained below. The fact is that there was little sand in any volume blown down Dry Bones valley in the past, as there was very little sand build available.

Land's End Road was opened for development in November 1989. Homeowners along this road and valley chose this location as it has reasonable access to the beaches at both ends, and with the beauty of the nature reserve on the opposite side. These residents are determined to preserve the valley in which they have built their homes, and indeed would like to see the nature reserve enhanced and maintained and the natural beauty of this valley improved. (This is another exercise that the whole community will be able to enjoy in the future).

The sand dune has now become a very ugly area. Impossible for elderly to climb. The turning circle becomes a lagoon. The large beach area by the river is less used as access is difficult and the remaining beach areas are now overcrowded and riddled with beach insects. The lack of washroom facilities must also be rectified as this area becomes increasingly contaminated.

There must be no further delays in rectifying this growing problem.

THE GROWTH OF THE SAND DUNE AT THE BUSHMAN RIVER END

The construction of dams in the catchment area of the river and bridges which constricts the flow of the river, are the main reasons why the flow of this river is steadily slowing. The construction of jetties compound the problem and there are over 50 such structures beyond the Kenton bridge. As a result the speed at which water flows in the river has slowed, and this reduces the waters' ability to scour the bed and maintain a deep channel. Slower flowing water also deposits more sediment. Silting from the land has increased the area of sand banks and the growth of vegetation on sand banks stabilises them further. This is the factual situation that man has created and we must therefore manage the outcomes of this and not allow this to cause problems as a result of our failure to manage them.

Over the years the incoming tide has therefore increasingly become far stronger than the outflow of the river at low tide, and hence the steady but increasing escalation of silting.

There is around 100 000 to 300 000 m³/year (1 m³ = 1.6 mt) of sea sand moving along the shore line. The incoming tide carries the sand in suspension as much as 3.5 Km inland but very little beyond this. The existence of the rocks on the Kenton side of the river mouth and the long unhindered beach on the Bushman's side provides a funnel that causes around 5 500 m³/year of sand to be carried inland. The silting in the first 3.5 km of the river is mainly sea sand, river silt diminishes to very little towards the river mouth to the sea.

Hence, the serious silting of the river arises from approx. 3.5 km from the mouth due to sea sand being driven in by the tides. Because of the very nature of the mouth of the river where there are rocks causing the river to diverge, much of this sand is deposited at the mouth. At low tide this dries and is then blown by strong westerly winds towards Westbourne road. This has resulted in the sand dune we now see today, which will continue to grow as there is always sand available at the mouth. This sand does not come from the beach on the Bushman's side. Much of this airborne sand falls into the river. It is the sand from the river being deposited as the tide enters through the mouth on the incoming tide. The prevailing wind blows direct on this sand, propelling it inland and hence the build-up of the sand dune, which has increased in the last 30 or so years.

It is hoped that the Bushman's river will be dredged within the next two years. While this will speed up the river flow and will reduce the sand deposits to some extent, this will not stop the sand from the sea continuing to cause this sand movement.

The present growth of the sand dune is presently increasing each year by approximately 3,000 cubic metres which is part of the 5,500 cubic metres of sand deposited by the river annually.

UNDERSTANDING THE SAND DUNE AND BUSHMAN'S RIVER AND THE SOLUTIONS

Some 4 years ago it was considered that an independent study should be carried out and PRDW were appointed to carry out a preliminary study of the sand dune. This was followed by a thorough study of Bushman's River in order to address the silting issue, to understand the cause of the problems and to obtain the recommendations to manage these in the future.

Chester Wilmot recommended that the vegetation along the base of Dry Bones valley be removed and allow the wind to carry the sand along the valley. The outcome of this study was that this could well happen but it would

not solve the problem. The problem would just be moved from one end to the other end of this valley, with many other anomalies likely to develop during this long process. The flow of the sand would still have to be managed. There were existing sand dunes arising from wind blowing in the opposite direction. The middle beach road would block the path and hence eventually any sand dune that evolved at the other end of the valley would have to be moved into the corner of middle beach. This was clearly no long term solution and it would be unacceptable to the residents in Land's End Road. Over time it would be no less costly. It was no solution and certainly not acceptable to the Land's End Road residents.

There was some belief that this sand from Bushman's river would help the sand dunes between Middle Beach and Main Beach as it was suggested that these were deteriorating. The fact is that these sand dunes have not deteriorated and these are being maintained by the sand from the sea as always in the past. (There is a small area near middle beach which is being eroded because of man-made interventions, but this is readily managed). There is no sand dune erosion beyond middle beach after the launch area for the fishing boats, and hence this is not the problem that some were concerned about.

Following the study of the river a complete understanding of the Sand dune and its future growth was clear. The solution was to remove the unknown risks and create a solution for the ongoing future build-up of sea sand. The objective was therefore to reduce the sand dune to an acceptable size and then manage the future flow of sand.

Many options were considered to achieve this. Moving the sand back into Bushman's river would probably cause more problems than solve them. Trucking would be costly in many respects and environmentally unsatisfactory. Conveyor systems would be costly and inefficient and equally environmentally unacceptable. A better solution was found using a slurry system which would have removed most of the dune sand to the beach between Shelley and Middle beaches and most of this sand would then be taken out to sea.

We then had a look at the similar problems experienced at Hout Bay in the Cape. Their solutions looked very promising and, after very positive discussions about their operations, we asked our leading coastal engineering and rehabilitation consultants (both of whom have been working on our Bushman's River problems over the last 4 years) to come up with a detailed plan. This has now been finalised after completing a detailed aerial survey and has proven the most appropriate. It is the least costly providing a long term solution to maintain this area at minimal cost, and meets all the criteria for this attractive and important area of the river. The problem of sand deposits persist and this proposal provides the solution. Details of the plan are contained in this Newsletter and we recommend this to all stakeholders.

RECOMMENDATIONS OF OUR CONSULTANTS

The Executive Summary from the consultants is shown below and the full 30 page document is attached.

INTRODUCTION

Residents of Kenton have been adversely affected by the build-up of dunes and the problems associated with the accumulation of sand for many decades now. The development of a large dune system at the Westbourne Road Circle (WRC) in Kenton has been the subject of a number of studies by both CES and PRDW. An intervention is becoming urgent as the estimated rate of sand movement has more than doubled, from approximately 0,7m per month in 2013, to 2m per month in 2020. The local municipality has taken no action in addressing the problem, thus the residents formed the Kenton Sand Dune Association (KSDA) to assist with finding a solution.

In the intervening four years the KSDA have investigated a number of options, and noted the successful implementation of sand removal and rehabilitation of dunes, associated with a similar problem of sand accumulation, in Hout Bay. The KSDA then approached PRDW and CES to undertake further investigations and to develop a similar scheme, and to confirm whether this would be feasible as a long-term solution in Kenton.

This report covers aspects related to the revegetation and rehabilitation of the remaining dune system, and for more technical information the reader is referred to the PRDW report.

Dr Ted Avis was invited to develop a rehabilitation and revegetation plan for the relocated

dune. The overall objective is to eliminate the nuisance factor associated with windblown sand, improve access to the river and beach, improve recreational amenities and create a vegetated dune ecosystem that attracts wildlife and is both aesthetically pleasing and stable. This will be achieved through re-profiling that sand around the turning circle, by reducing the height of the sand dune by pushing sand upwind towards the river, and then to stabilise the mobile dune.

LONG TERM MANAGEMENT OF SAND

The effect of the stabilized dune will be to prevent sand from migrating over the dune towards the Dry Bones Valley, instead it will continue to accumulate in front of the stabilized dune. This accumulated sand will be removed from time to time. There will be an experiment carried out to see if this sand can be successfully carried out to sea on the ebbing tide. Should this not be found to be satisfactory, it will be moved by a suitable truck to Middle beach, periodically, in quantities of approx. 75 cu per day. The access path from Westbourne Road to the beach will be widened and wood chips laid for the small loader that will move this sand from the beach. The sand moved to Middle Beach will be readily dispersed by the tide and will represent a very small percentage of the sea sand that moves on this area daily.

The Consultants estimate that the cost of maintaining this area, the removal of the sand and the control of the Washroom facilities will be less than Rand 300,000 per annum, and usefully less if the disposal of the sand into the river proves to be satisfactory.

REVEGETATION AND REHABILITATION PLAN

The most effective long-term method of dune stabilisation is through the planting of vegetation, generally self-maintaining, as coastal vegetation is adaptive to the harsh conditions it is exposed to. It plays a very important role in binding the sand, thus creating a self-sustaining ecosystem, with minimal maintenance requirements, which is the ultimate goal.

Once the bulk earthworks have been completed and the dune has been reformed and rebuilt, there are a number of measures which must be put in place in order to stabilise the dune for revegetation, such as establishing porous dune forming fences (preferably shade cloth wind nets) across the width of the dune, at 5m intervals in the upwind area (which will also prevent people trampling on newly established vegetation). Brushwood is also recommended in areas not fully exposed to the dominant westerly winds, and in areas of lesser wind exposure (hollows/flat areas), surface stability can be achieved by using mulch, which assists with retention of soil moisture and provides protection for seedlings. Wood chips can be used for surface stability in the proposed pathway.

Although brushwood packing is a labour intensive and expensive method of stabilising (involves cutting, transporting and spreading of brush on dunes), vegetation establishes well and grows easily through brushwood matting. The sand trapping qualities of brush matting are useful for burying seed that can be spread over the brushed area. It is incorporated into the soil profile as windblown sand is trapped and deposited on top of the seed.

Irrigation is also required to assist with the establishment of plants in the early stages of their growth, so they can evade moisture stress during their establishment period. It greatly increases the survival rate of planted seedlings. Typically, irrigation will be required during the hot and dry months and possibly for the first two years only. Portable irrigation systems, such as draglines, could be used. It has been confirmed that a borehole can be sunk on site and suitable water for irrigating plants is available

END OF EXECUTIVE SUMMARY

THE WASHROOM FACILITIES

The washroom facilities will be re-located to a position nearer to the beach and will be easily accessible. The borehole will provide water for this facility as well as for irrigation of the Dune vegetation. Additionally, there will be a solar panel for lighting in the building. It is expected that the wider community may assist the Municipality with the costs of building, which could be in the region Rand 550,000.

THE TURNING CIRCLE

The turning circle has never been properly constructed and, as part of Westbourne Road, this is a matter for the Municipality. Proper drainage is required for this area and is an urgent matter which the Municipality should attend to promptly at a minimum cost. As this is not a sand dune matter it has not been included in the plans. The drainage should be attended to now, and the reconstruction of the circle completed once the project has been concluded.

THE TOTAL COSTS OF REHABILITATION

On the basis that the consultants costs are accurate and we include 15% VAT, we should budget for an overall cost of Rand 3,900,000. We are confident that there are a number of residents who wish to restore this area to its' former glory and will want to contribute towards this cost. Further delay increases the problems and costs faced. The Municipal Council has been asked to grant the authority to complete this under appropriate control and in accordance with professionally produced plans.

THE TIMING

We would like to start propagating the hardy plants required for the rehabilitation as soon as we have approval from the Municipality and we trust this will be received as soon as possible, but before August 2020. The Sand re-profiling will commence in May 2021 and be completed by end July 2021. Rehabilitation planting will start following the completion of the re-profiling. The Borehole will be sunk in June and be ready for irrigation in July. The Washroom Facilities will be built in August and will be ready by the end October, to coincide with the completion of the Total Project.

YOUR SUPPORT

The KSDA members have examined these recommendations and are overwhelming in favour of this project being implemented as soon as possible. A very strong message needs to be sent to the relevant authorities that this problem has been thoroughly investigated by both the leading Coastal Engineers and Environmental Consultants over the past four years. We now have a very pleasing long term solution to this growing problem that has threatened property and devalued the quality of this area of Kenton and its' natural beauty.

The Municipality have failed to carry out their responsibilities and have concentrated on other matters under their remit. In the present environment we must face reality and accept that this will continue. However, we can now offer them a very sound and long-term solution.

We are very pleased to advise you that there are members of the community who are prepared to fund this scheme so long as it is approved in a manner which ensures it can be brought to fruition in the professional way recommended in the Consultants' report and by contractors who are fully qualified to implement this and are acceptable to all parties.

The KSDA is therefore asking KOSRA and ESTUARY CARE to obtain the support of its members to progress this to a satisfactory conclusion as soon as possible.

Your support will be much appreciated.

AN IMPRESSION OF THE NEW VEGETATED AND STABILISED SAND DUNE



This impression shows the outcome of the project which will permanently restore the natural beauty of this unique part of our wonderful coast. It removes the risk to property and enables everyone to continue their enjoyment of walking through Dry Bones Valley to Middle Beach and to enjoy unspoilt views of the Estuary.

Kenton, 20 April, 2020