

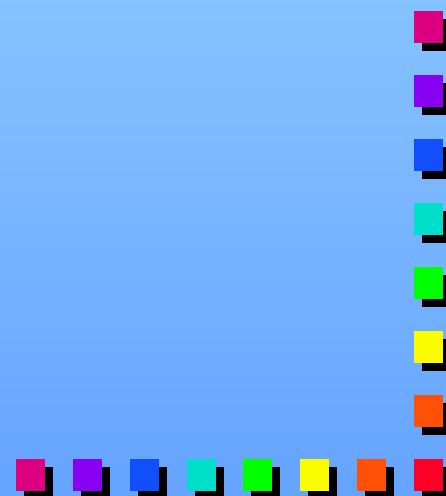


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Property Services Branch

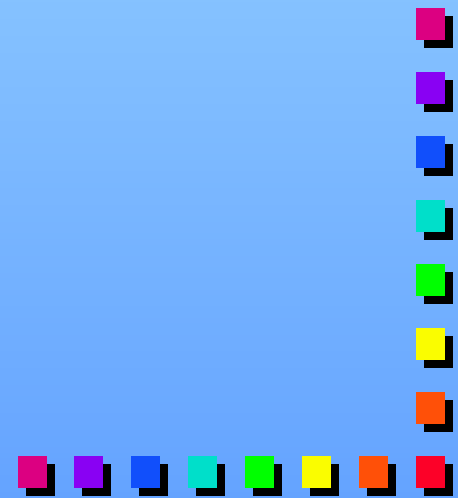
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Rooftop Greening Projects



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Target

To carry out
rooftop greening work
in
40 government buildings



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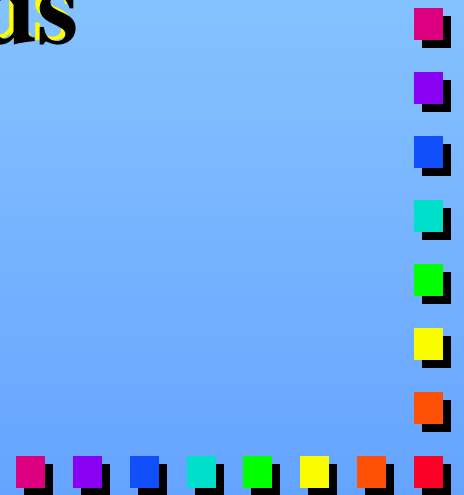


Experience sharing

**9 rooftop greening projects
completed on Hong Kong Island
and Outlying Islands**



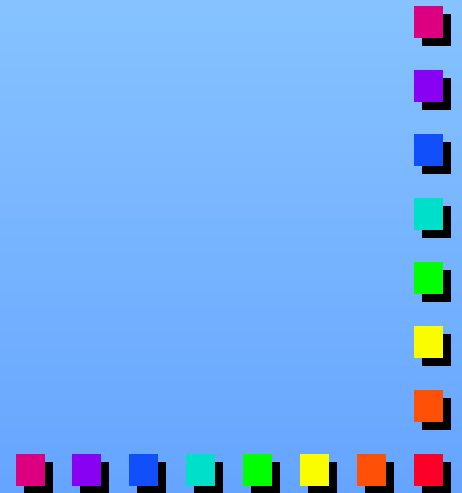
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3 Schools
3 Fire Stations
3 Public Buildings



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project nature

procurement method

site constraint

problem and solution

lesson learnt

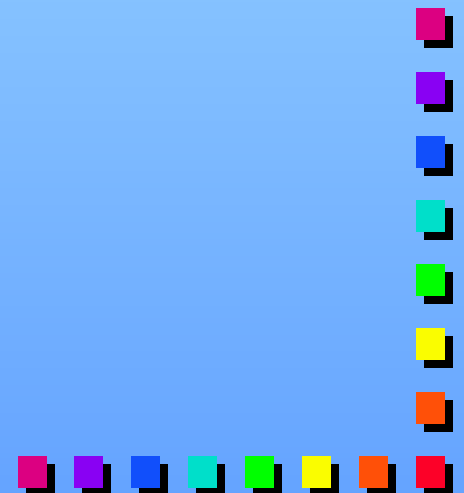


Funding

3004GX in 2009-2010



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Procurement method

Mode 1

Term Consultancy No.
9AT023

Small quotation lump sum
contract

Main contractor to appoint a
specialist green roof
contractor with proven job
reference

Mode 2

Small Consultancy
(Architectural consultant
as lead Consultant for
builder works with
landscape architect
consultant as sub-
consultant for green roof
part)

Small quotation lump sum
contract

Main contractor to appoint a
specialist green roof

Contractor with proven job
reference



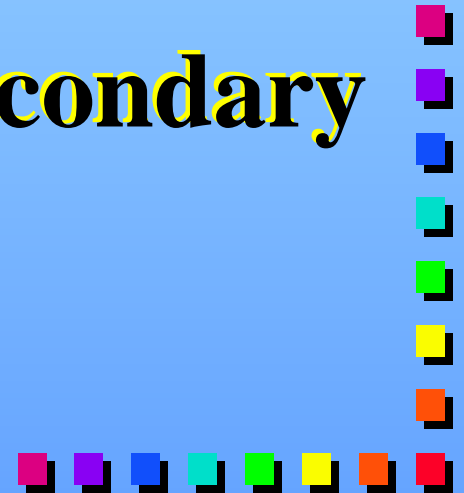
Belilios Public School

**Ho Tung Government Secondary
School**

**Tang Shiu Kin Victoria Secondary
School**



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Belilios Public School



02.09.2010

Belilios Public School

Site constraint	No noisy work during school time that affect school operation. The final solution is to adopt a self protective waterproofing membrane directly applied on existing finishes to avoid noisy work caused by demolition and hack off activities. Limitation of roof loading
Problem encountered and solution	Raised green roof and new floor finishes will raise finished floor level resulting in the height of parapet wall being less than 1.1 m. Thus additional railing had to be installed at peripheral parapet wall. Safety issues such as level difference at open rain water channel. Tailor-made channel gratings were installed. Provision of additional discharge water channel to cater for irrigation water to resolve hygiene problem
Lesson learnt	In addition to provision of greenery, consideration should also be given to the compliance of statutory regulations, safety issues, surface discharge and hygiene problem

Belilios Public School



Belilios Public School



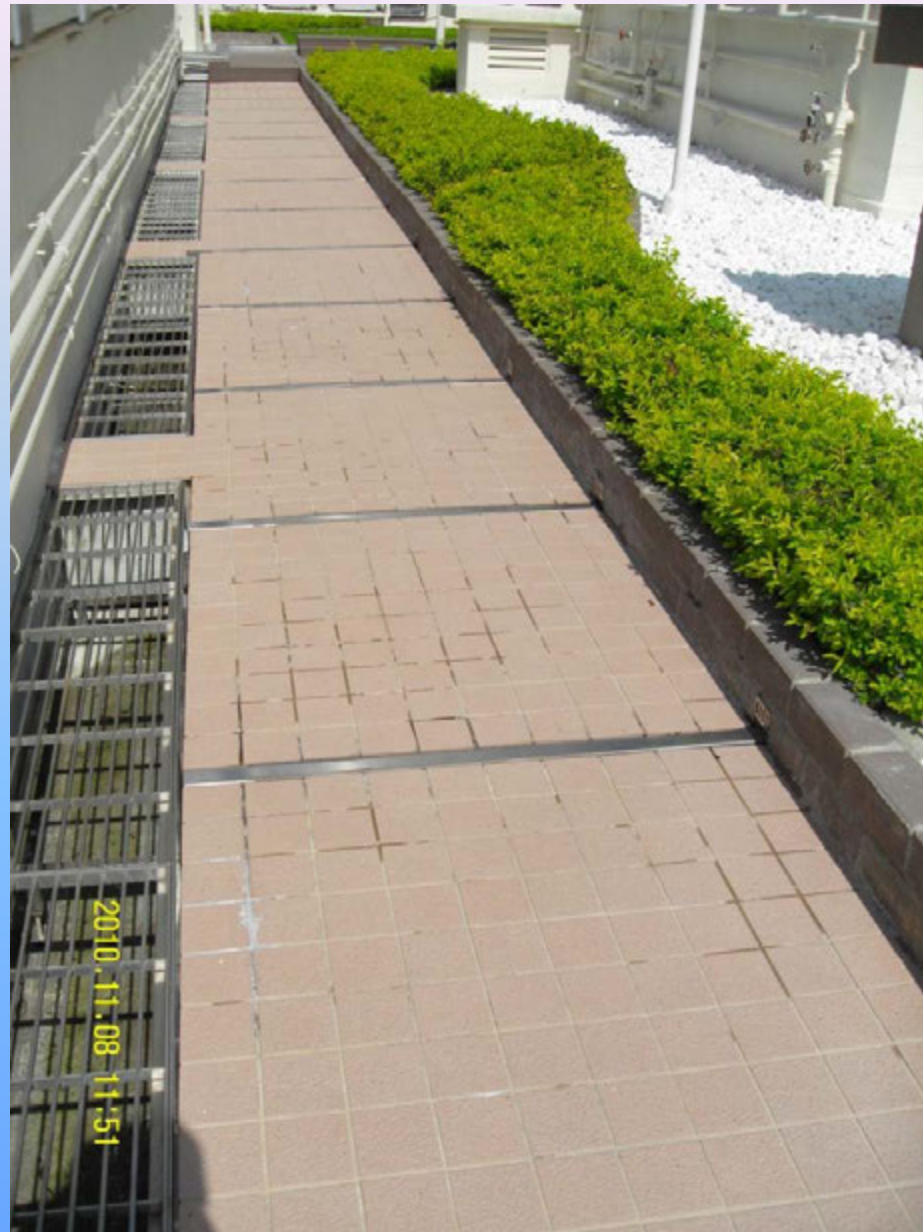
Belilios Public School



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Belilios Public School





**Ho Tung Government
Secondary School**

2010.11.10 10:36

Ho Tung Government Secondary School

Site constraint	Consideration of green roof to be provided on a tilted roof surface. No noisy work during school time that affect school operation. The final solution is to adopt a self protective waterproofing membrane directly applied on existing finishes to avoid noisy work caused by demolition and hack off activities. Limitation of roof loading
Problem encountered and solution	Water pressure is not adequate to provide for all sprinkler irrigation system. Thus drip line system is applied at some portion of green roof area to resolve the problem
Lesson learnt	Different species of green roof are plant side by side without use of divider to create a special aesthetic mixture effect.

Ho Tung Government Secondary School



Ho Tung Government Secondary School



Ho Tung Government Secondary School



Ho Tung Government Secondary School



Ho Tung Government Secondary School



Ho Tung Government Secondary School



Ho Tung Government Secondary School





30.08.2010

**Tang Shiu Kin Victoria
Secondary School**

Tang Shiu Kin Victoria Secondary School

Site constraint	The green roof is built above the occupied staff quarter with roof loading limitation
Problem encountered and solution	School principal request for railing design to match new museum building and original school design style. Consultants are required to study the original architectural style of the old school
Lesson learnt	For this small area of green roof, we selected species that have flowers in order to create an attractive visual pattern

Tang Shiu Kin Victoria Secondary School



Tang Shiu Kin Victoria Secondary School



Tang Shiu Kin Victoria Secondary School



Tang Shiu Kin Victoria Secondary School



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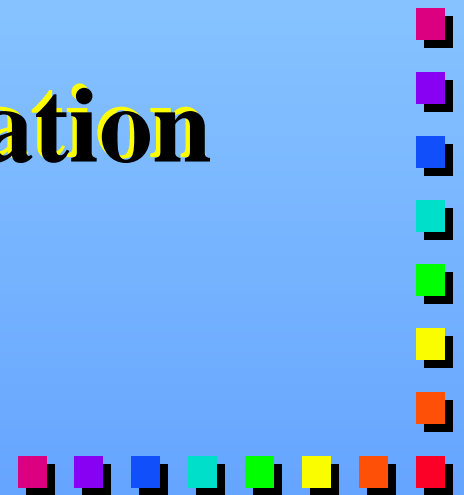
Chai Wan Fire Station

Mui Wo Fire Station

Shau Kei Wan Fire Station



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Chai Wan Fire Station

Chai Wan Fire Station

Site constraint	Roof loading limitation
Problem encountered and solution	Contractor had to keep regular monitoring of greening establishment as weed problem is severe in this site.
Lesson learnt	We should provide adequate fall in the level for the roof to prevent accumulation of irrigation water.

Chai Wan Fire Station



Chai Wan Fire Station



Chai Wan Fire Station



Chai Wan Fire Station



Mui Wo Fire Station



11.08.2010

Mui Wo Fire Station

Site constraint	Remote location and thus cost of material delivery is high. The green roof should accommodate the exhaust fan hood.
Problem encountered and solution	Contractor had to keep regular monitoring of greening establishment for this remote site.
Lesson learnt	Different Species are planted in rectangular pattern to create geometrical form in contrast with natural environment

Mui Wo Fire Station



Shau Kei Wan Fire Station



Shau Kei Wan Fire Station

Site constraint	The site is located in a shaded area. Plant species with low sun shine requirement are proposed.
Problem encountered and solution	As the green roof is located at the podium level of the staff quarter, residents may step on the grass area, causing physical damage. A barrier zone had to be provided to prohibit residents from stepping on the grass area.
Lesson learnt	Buffer zone between resident activities area and green roof area should be considered when the green roof is located in places easily accessible by residents.

Shau Kei Wan Fire Station



Shau Kei Wan Fire Station



Shau Kei Wan Fire Station



District Management Office at Aberdeen Police College

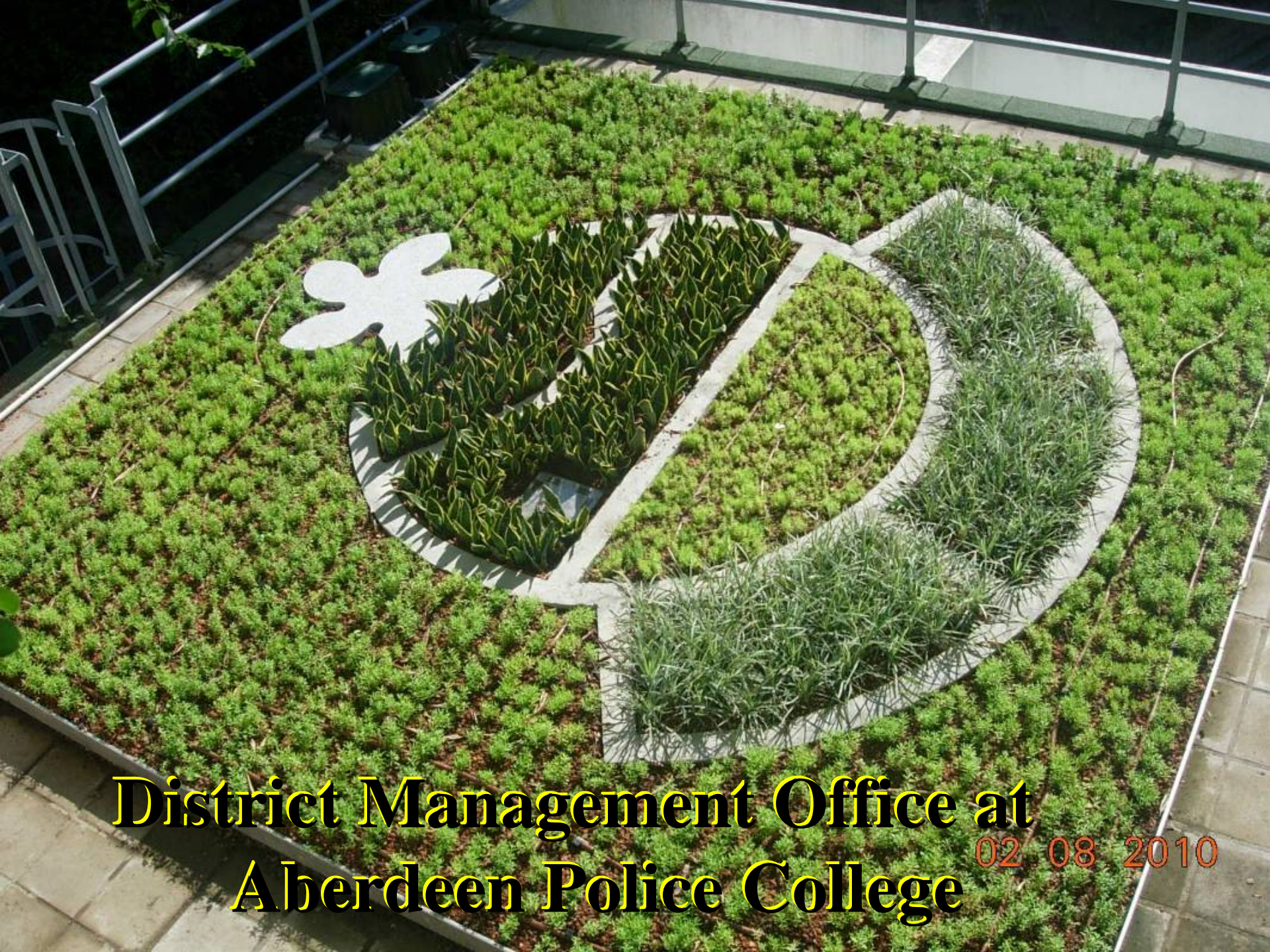
Western Wholesales Food Market

Government Central Pier No. 1



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**District Management Office at
Aberdeen Police College**

02 08 2010

District Management Office at Aberdeen Police College

Site constraint	Inadequate water pressure
Problem encountered and solution	Since the location is much shaded by tree branches species with less requirement of sunshine are selected. Using drip irrigation system to resolve the problem of inadequate water pressure.
Lesson learnt	Simple design using the corporate logo is adopted to create a focal point. This turns out to be quite interesting.



**District Management Office at
Aberdeen Police College 08 2010**



**Western Wholesales Food
Market**

Western Wholesales Food Market

Site constraint	Quite a number of services run across the proposed roof area and only a small portion is available for the green roof
Problem encountered and solution	<p>Diversion of services.</p> <p>Provide adequate fall as far as the site conditions permit.</p>
Lesson learnt	Simple symbolic design is adopted to create an interesting focal point for the local environment

Western Wholesales Food Market



Government Central Pier No. 1



13.08.2010

Government Central Pier No. 1

Site constraint	Allowance of access and maneuvering space for suspended working platform at peripheral of roof area. The existing roof can only allow for 2kPa live load
Problem encountered and solution	<p>One of the end user department cannot allow noisy work at anytime for all the year round due to its 24 hours call centre services. The final solution is to adopt a self protective waterproofing membrane directly applied on existing finishes, thus avoiding noisy work caused by demolition and hacking off activities.</p> <p>End user worried about the maintenance responsibility, thus we provide extra 2 years establishment period.</p> <p>Due to existing roof loading restriction, careful selection of green roof system and control of soil depth.</p>
Lesson learnt	Large area of green roof coverage is always an advantage aesthetically.

Government Central Pier No. 1



Government Central Pier No. 1



Government Central Pier No. 1



Government Central Pier No. 1



Government Central Pier No. 1



Government Central Pier No. 1



Government Central Pier No. 1



Government Central Pier No. 1



Government Central Pier No. 1



Government Central Pier No. 1





13.08.2010



Property

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Services Branch

Thank you

