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Boffa Miskell^{NEWS}

autumn²⁰⁰⁸



Editorial: Making progress with sustainability

Sustainability is a much discussed and currently 'in' topic. The momentum behind the adoption of sustainable practice is seeing increasing numbers of organisations and individuals adopting and promoting sustainability.

The huge scale and complexity of sustainability issues can be daunting. Where do we start? Once started, will we be able to maintain our new way of doing things, especially if we're unsure whether our actions are making a difference?

These questions prompted Boffa Miskell and our partners in the Northern Gateway Alliance to develop and implement the Net Environmental Benefits (NEB) system for the Alpur B2 Motorway project described on page 4 of this issue. The NEB system was one of a number of social, economic and environmental sustainability initiatives adopted by the Alliance and, so far, results have far exceeded expectations.

Much of this success derives from a commitment made at the outset to foster environmental awareness and to change behaviour throughout the entire organisation. It has been inspirational to see how all the contributors in the Alliance team, from the roughest,

toughest workers in the construction crews through to office-based top management have embraced the tangible sustainability objectives set by the NEB system and strived to keep raising standards.

Without doubt, setting and actively promoting explicit every-day base lines around simple measurable targets has enabled direct engagement and helped demonstrate that individually and collectively we can limit the impact of a major construction project and achieve significant sustainability gains.

The NEB system defines a practical approach that can be readily adapted to other project types, scales of operation and situations from households to rural catchments and business ventures. The success of its implementation at Alpur spurs us to believe that we can make a real difference in the way of the future.



Chris Bentley, Director



▲ The memorial gardens were designed symmetrically, with the main axis oriented towards two cliff-top gun emplacements (subsequently covered over) dating from the 1880s 'Russian scare'.

Restoring a designed landscape

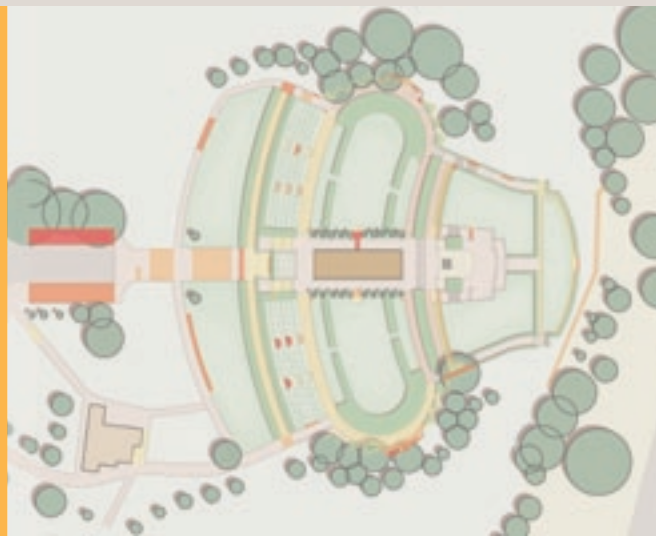
When work begins this year on restoring one of New Zealand's treasured heritage landscapes it will be guided by a landscape restoration plan prepared by Boffa Miskell for the Auckland City Council.

The restoration plan relates to the Michael Joseph Savage Memorial Gardens on Bastion Point, Takaparawhau, now owned by Ngāti Whātua o Orakei and managed jointly with Auckland City. Built in the early 1940s to commemorate former Prime Minister Michael Joseph Savage, the formal design was unusually lavish for the frugal war years, incorporating an obelisk, crypt, sunken garden, reflecting pool and surrounding plantings.

Unfortunately, many of the built and planted features have deteriorated or been changed from the original design. The detailed implementation programme of restoration, repair and ongoing maintenance work has been prepared to implement the policies set out in a Conservation Plan prepared last year by Boffa Miskell, with Salmond Reed conservation architects, historic researchers John Adam and Kate Hill, and arborists from the Specimen Tree Company.

The condition of all hard and soft landscape features has been assessed and recorded in an inventory in the restoration plan together with a description of work needed and best practice guidelines for ongoing maintenance of the category 1 historic place.

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◀ Hard and soft landscape features were mapped in detail on site plans and their condition recorded in detail.

Boffa Miskell NEWS

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This newsletter is published three times a year by Boffa Miskell Ltd.

DESIGNED AND PRODUCED BY: DNA

EDITED BY: Shona McCahon

COVER: Mt Victoria summit lookout, by Kevin Hawkins.

ILLUSTRATIONS: P3, by Kevin Hawkins; P6, lower right courtesy Wai Care; P7, bottom, courtesy Centre for Biodiversity and Ecology Research; P8, top left & right by Studio of Pacific Architecture.

PRINTED IN WELLINGTON BY: Service Printers

Back issues of *Boffa Miskell NEWS* can be found at www.boffamiskell.co.nz



▲ Interpretation panels are designed to enrich visitors' understanding of Wellington's unique landscape.



▲ The new lookout platform 'floats' on the summit to optimise the visitor experience – exposure to the elements and panoramic views.

Stories inspire design at Matairangi

Long ago, Maui pulled a great fish from the sea... its jaw now encloses Wellington Harbour and its eye – called Matairangi – gazes forever heavenward.

Today, visitors to Matairangi, or Mt Victoria, discover they are standing on the great fish eye when they reach the summit lookout, thanks to new on-site interpretation.

Until now there was little to tell visitors about the place they were visiting, even though the summit is a major tourist attraction in Wellington. Boffa Miskell was commissioned by the Wellington City Council to upgrade the facilities and improve visitor information, with interpretation by Natural Textures and engineering by Connell Wagner.

"Wellington's rich heritage was our starting point," says Boffa Miskell landscape architect Boyden Evans. "It was particularly rewarding to work with the Wellington Tenth Trust, who represent Te Atiawa / Taranaki whanui, as their input inspired much of the conceptual design and interpretation themes."

The summit is part of 'Te Ranga a Hiwi' Maori precinct – a ridgeline of great significance to Maori. It is also part of Wellington's Town Belt with a number of historical European as well as Maori sites.

Liz Mellish of the Tenth Trust is delighted that a ridgeline walk will eventually connect the places of interest. "It's exciting that these stories are being told and providing the framework."

Vehicle and foot traffic circulation was redesigned to rationalise access and parking, a new summit visitor area was developed and toilets installed. Interpretation panels, written and designed by Isobel Gabites of Natural Textures, were an integral part of the upgrade – interweaving Maori legends with explanations of Wellington's origins, natural history and settlement.

Boyden says consultation was a key aspect of the project. "Numerous community groups and stakeholders, such as tourist

bus operators, Friends of Wellington Town Belt and residents' associations have interests in the area and it was important that we heard their needs and worked through the issues."

Mike Oates from Wellington City Council Parks and Gardens says the project has had its challenges. The steep, exposed site was difficult and constrained design options, while the high standard and complexity of detailing demanded careful site supervision during construction of the works.

Feedback has been good, however, and Mike says the council is very pleased with the result.

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▼ The new visitor arrival area has improved circulation and includes new paving, seating and interpretation panels.



▼ Evening visitors on their way up to the lookout past a pou (left) signifying Matairangi's deep significance to tangata whenua.



The secret lives of lizards

For many years lizard populations have been destroyed without anyone realising that it's been happening or understanding the consequences.

Boffa Miskell ecologist Simon Chapman says their vulnerability is due to their 'cryptic' qualities; small, coloured and patterned for camouflage, and adept at hiding in nooks and crannies. Consequently, they can be so difficult to detect that no-one sees them until the site-clearing machinery arrives.

Nowadays, resource consents increasingly require lizard protection, as awareness grows of New Zealand's unique lizard fauna with its notable number of rare or endangered species. Consequently, Boffa Miskell has been involved in identifying and assessing the significance of lizard populations on development sites and then implementing their protection.

Simon says that our native reptiles often take refuge in the weedy areas that can occur on disturbed sites – infestations of pampass grass or wandering willy, for instance.

"They can be really difficult to spot and to get at for translocation before removing the weed cover."

To address this problem Boffa Miskell ecologists have developed techniques to supervise habitat deconstruction as it happens on site, rescue the lizards as they are discovered and then translocate them to suitable locations where they can, once more, adopt their cryptic habits.

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▼ Hard to spot: an Auckland green gecko blends in with kanuka foliage.



Measuring environmental benefits

The \$365 million Alpurh B2 motorway extension north of Auckland is Transit New Zealand's largest capital project. It is a huge undertaking, subject to more than 1000 resource consent conditions, and those responsible for its construction are committed to exceeding those standards.

The Northern Gateway Alliance, comprising Transit New Zealand, Fulton Hogan, Leighton Contractors, URS New Zealand, Tonkin Taylor and Boffa Miskell, is responsible for the project's management, design and construction. At its outset, the Alliance set themselves to establish a new benchmark in engineering and environmental excellence.

As the project partner responsible for environmental management, Boffa Miskell's team of planners, landscape architects and ecologists faced the challenge of formulating a system to measure environmental improvements that exceeded the approved developed design. The Net Environmental Benefit System (NEB) had to be workable, rigorous and flexible enough to allow for unforeseen opportunities.

"We went through a lot of soul searching," Boffa Miskell landscape architect Chris Bentley recalls. "It was a first and we had no template to work from."

One of the first questions debated was how to set a base line. Should it be the untouched site before work began? Should it



- ▲ Boffa Miskell computer generated visual simulations show the original tunnel portal design (left) and the revised design (right).
- ▼ The revegetated slope was made possible by extending the tunnel portals.



be the consented design? In the end, it was set on the costed design that formed the basis of the Alliance's project contract. This decision meant that while substantial environmental improvements already incorporated into the design could be noted, the focus would be on developing new innovations.

Net environmental benefit system

The NEB system measures performance against the base line in three key areas: habitat, landscape and resource use. Gains and losses are assessed for site-based factors such as indigenous vegetation cover, visual amenity and revegetation, and for factors with broader environmental effects such as energy use and waste.



The system specifies the base line for each environmental area, the method and regularity of assessment and the reporting framework. Scoring is set at five broad levels; fail, inferior, as expected, superior and breakthrough.

“It’s basically an incentive scheme, measured against a series of key performance indicators,” Michael Cassidy, Boffa Miskell landscape architect and Alpurt Environmental Manager, explains. “If, at the end of the project, we fail to meet the base line contract requirements the Alliance members share the costs. If, on the other hand, we demonstrate net benefits over and above the base line, we share in agreed performance bonuses.

“What really makes the net environmental benefits system work is the culture of achievement that extends right through the project team from top management to the construction workers. It enables all of us to accurately measure where our success in environmental excellence lies, and keep stretching our targets.”

That culture of achievement has seen environmental matters – both big and small – receiving attention in all areas. Michael regularly receives queries from construction staff on such matters as how to minimise vegetation damage or integrate batter slopes. Responding to these kinds of queries is an important part of his job, which includes implementing the project’s Environmental Management Plan as well as managing the NEB system, with its programme of monthly environmental audits and yearly progress reports.

Recognising success and innovation

Michael says the ongoing monitoring enables project workers to demonstrate their successes, see where there’s room for improvement and be encouraged to think creatively.

Such creative thinking, for instance, led to the preservation of four hectares of native bush, which merited a positive ‘habitat’ score. The bush was to be cleared for roadside cuttings but, by steepening the gradients, the volume and footprint of earthworks were reduced, saving both the bush and costs.

Similarly, modifying the design of tunnel portals earned a positive ‘visual amenity’ score. Originally, the cut slopes above the portals were to be reinforced with rock fall mesh and shotcrete faces. Now, the tunnels have been extended 20 metres further out from the base of the hill, so that the slopes above can be re-contoured and revegetated.

Bonus scores are also assigned to recognise and encourage significant environmental enhancements that go beyond the factors measured under the key performance areas. During the resource consent phase of the project, for instance, Boffa Miskell ecologist Dave Slaven was instrumental in ensuring that stream culverts under the motorway would be designed to safeguard fish passage. Subsequently, he has worked with the drainage team to redesign the culverts so that they also provide fish habitat. Although not recognised under the ‘habitat’ vegetation cover criteria this innovation warrants a bonus score for its added ecological restoration value.

Michael says the NEB system has the flexibility to incorporate new components – notably the recent development of a system to measure and monitor the project’s carbon footprint. This new indicator is a refinement of the diesel and electricity use previously measured and has been extended to include such energy-demanding materials as aggregates, cement, steel and lime.

“It’s yet another opportunity to look at improving the way we do things,” Michael says. “Overall, this is really all about taking tangible and practical steps to improve sustainability.”

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▲ Steepened batters, such as the newly planted foreground slope, have preserved 4ha of forest edge along the motorway route.



▲ A 150-year-old kauri stands tall beside the Otenurua viaduct, intact thanks to the construction crew calculating beam placement with precision.

Threatened plant discovery

Finding a threatened plant population in a degraded wetland was an end-of-year highlight for Boffa Miskell ecologist Erik van Eyndhoven. Erik says the discovery demonstrated the value of doing ecological surveys thoroughly; taking the time to look in out-of-the-way places.

He found the aquatic stout water milfoil, *Myriophyllum robustum*, while doing a site survey in the Wairakei Stream catchment for the Tauranga City Council. The milfoil had somehow survived in a secluded corner of a dune wetland that remained after the Wairakei Stream was diverted in the 1920s.

Department of Conservation botanist Paul Cashmore says Erik's discovery is one of the more important recent plant finds in the Tauranga Ecological District. Only two other populations of the milfoil are known within the Bay of Plenty Conservancy, both in higher inland localities dominated by native ecosystems that differ markedly from the modified Wairakei coastal site. Moreover, any indigenous wetland biodiversity is precious in a region where a meagre 3-4% of former wetlands remain, compared to the national average of 10%.

The management of the Wairakei wetland is now being considered in the context of two related resource consent application processes for stormwater management with which Boffa Miskell has been assisting the city council.

A site visit is planned so the landowner can discuss how to manage the wetland with Bay of Plenty Regional Council and Department of Conservation representatives.

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▲ Erik discovered the stout water milfoil, *Myriophyllum robustum*, hidden beneath overhanging willow.

Restoration guidelines for Manukau city

People in Manukau city can find out which native plants are best suited to their locality by looking up their 'eco-address' in a recently published booklet.

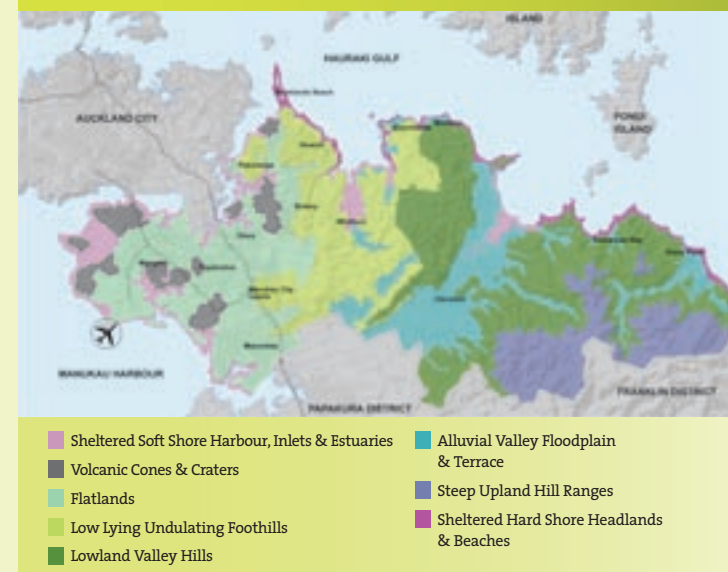
The booklet, "Restoring our Native Plants", was prepared last year, in a collaborative process, by Boffa Miskell for the Manukau City Council to promote sustainability and increased biodiversity.

"We knew this project had to incorporate community input if it was to be relevant for local people," says Boffa Miskell landscape architect Chris Fourie. "We did huge amounts of talking and listening with five iwi groups as well as a number of interest groups like Forest and Bird – hearing about their on-the-ground experiences and getting their feedback on drafts."

The booklet contains guidelines for restoring native plant communities and includes lists of plants suitable for use in each of the district's eight ecosystem character areas. Chris says the 'eco-address' concept was developed to engage readers by enabling them to find 'their' ecosystem on a colour-coded map and read the accompanying information about each area's special character.

Boffa Miskell ecologists researched and mapped the ecosystems. Chris, with Boffa Miskell's graphic designers, then translated the scientific information into explanatory texts, maps, graphics and numerous photographs, with contributions from iwi and other interest groups.

▼ Manukau City district showing the eight ecosystem character areas.



The photographs show representative places throughout Manukau and many examples of local groups carrying out restoration work.

"It was really important that the booklet was recognisably about Manukau – not just the places but also the people," Chris says.

The booklet is available online at www.manukau.govt.nz.

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▲ Good maintenance is as important as planting.

In Brief



Interactive consultation

Working with large aerial photographs, Pokeno residents created their ideal future town at a community workshop run by Boffa Miskell last December.

Participants' ideas will feed into a future structure plan for the rural town, which is expected to expand considerably over the next 20 years. Boffa Miskell with Harrison Grierson has been assisting Franklin District Council to ensure that the town's residents, businesses, landowners and other affected parties have their say through consultation.

The interactive brainstorming and hands-on planning and design exercises were designed to encourage participation and generated valuable insights that will help shape a future vision for the town.

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Pest fish survey

Last winter Boffa Miskell ecologists completed a survey of pest fish in Waitakere water bodies for the Waitakere City Council.

Fish populations were surveyed using set-net sampling, as well as electro-fishing of five stormwater ponds carried out by the Centre for Biodiversity and Ecology Research of the University of Waikato.

Of the twenty-two introduced fish species known in New Zealand, ten have been recorded in Waitakere and those recorded in the boat-based electro-fishing survey were koi carp, tench, perch and mosquitofish. Koi carp (*Cyprinus carpio*) is a priority pest fish nationally.



Alternative approach helps mediation

Boffa Miskell has been assisting with mediation of a disputed subdivision proposal in Marlborough. It relates to land associated with long-established Raetihi Lodge in Kenepuru Sound.

Raetihi Properties Director Don Robertson sought independent advice after neighbour opposition eventually led to the Environment Court.

Boffa Miskell planner Ken Gimblett and landscape architect Boyden Evans assessed the proposal and the opponents' objections and recommended a modified development that would still meet most of the owners' objectives while achieving better environmental outcomes.

The modified proposal includes a series of strict consent conditions and a reduced number of lots from ten to six. It has evolved and been accepted through the Court-led mediation process, and consent documentation now awaits the final approval of all relevant parties.

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Boffa Miskell recommended controlling the koi population within a wider environmental improvement programme for the Waitakere waterways.

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◀ The electro-fishing boat was used for the first time in the Auckland region and proved very effective for surveying large urban stormwater ponds.

Change management – towards sustainability

In January, a group of our senior staff attended a training seminar aimed at managing the changes necessary to implement sustainable practices within Boffa Miskell.

The 'change agent training seminar', run by Maunsell New Zealand, drew significantly on industrial psychology to help participants understand the processes and impacts of change within an organisation and how to apply these concepts to their own change initiatives. Specific case studies included energy and water usage, waste reduction and transportation.

Auckland Managing Principal, Peter Whiting, said the seminar showed Boffa Miskell is already quite a way down the sustainable practices track, with the Maunsell team particularly impressed by the office waste reduction policies implemented by the Auckland office.

The seminar participants are now better equipped to lead ongoing initiatives towards improved awareness and implementation of sustainability throughout the company.

Sponsorship

Boffa Miskell was proud to be a silver sponsor of **'Finding the Balance', the New Zealand Planning Institute Conference 2008**,

that ran from 3-5 April. The conference, in Shantytown on the West Coast, examined the challenge of balancing market forces with sustainability.

Stephanie Styles and **Ken Gimblett**, planners in our Christchurch office, have been active on the conference organising committee and Boffa Miskell graphic designers also assisted with designing the conference logo.

Robert Schofield, a planner in our Wellington office, was a presenter at a workshop about future directions for the New Zealand planning system, based on the discussion paper he wrote last year (See *Boffa Miskell NEWS* 18 on www.boffamiskell.co.nz.)



Creative thinking affirmed at Watermark

“Sometimes, when a site is special the best answer may lie outside the rules”.

This was the advice that developer Donald Stott heard from Boffa Miskell when he sought planning advice for his ‘Watermark’ development in downtown Wellington.

Under the District Plan rules he could build up to 27 metres height over the whole block but, in doing so, would need to demolish or substantially alter the heritage-listed John Chambers building that occupied one half of the site.

Boffa Miskell urban planner Marc Baily says some creative thinking beyond the rules was warranted due to the site’s particular characteristics and strategic location in the city. The wedge-shaped site sits at a prominent focal point close to the waterfront where the high rise and low-rise parts of the city meet.

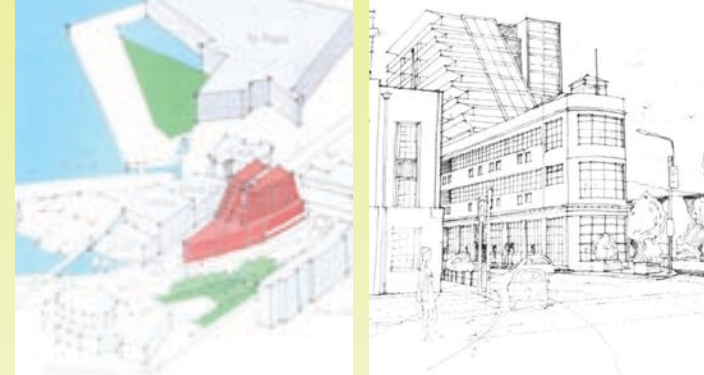
The creative thinking was a collaborative effort between Donald Stott, Studio of Pacific Architecture, Boffa Miskell and

lawyers Morrison Kent. Wellington City Council officers were also key, being willing to consider non-complying options that would achieve a high-quality building and good urban design.

The consented solution is a mixed use development with apartments, boutique hotel, ground level retail space, residential parking and public parking strategically close to the waterfront. The heritage building will largely remain at its existing low height and the remainder of the site will be redeveloped to 11 storeys (41.8 metres height) in a distinctive stepped form.

“It was really an urban design approach that won the day,” Marc says. “The design effectively transferred and added the permitted height from the heritage building to the new building and, at the same time, accentuated the edge between low and high city.”

Boffa Miskell prepared the resource consent application and visual assessment, which included numerous photographs and simulations that showed how the proposal would compare with the as-of-right built form.



▲ The Watermark development (red) in the context of the nearby Wellington waterfront and built form.

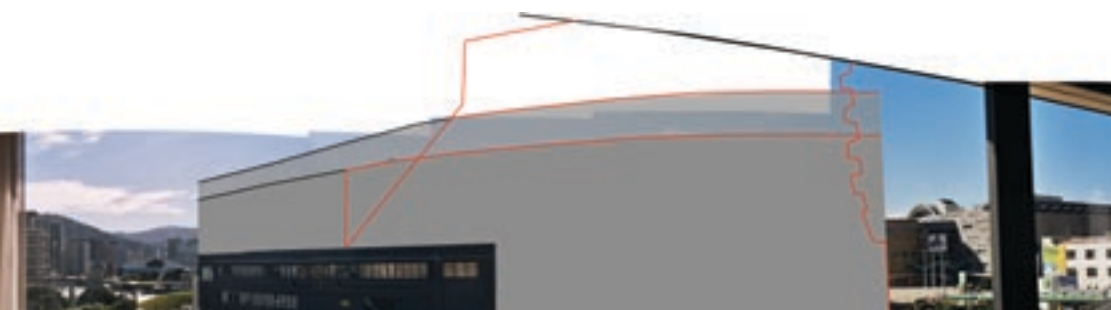
▲ The John Chambers heritage building (centre) will be retained with the new Watermark building stepped up behind.

The proposal was approved but appealed to the Environment Court by nearby property owners who were concerned about potential obstruction of views, shading and wind effects. The Court found in favour of the proposal.

Boffa Miskell is now assisting with the detailed design of the Watermark streetscape. Construction will begin this year.

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▼ Boffa Miskell’s visual simulations compared effects in views from nearby buildings by showing the built form allowed as-of-right under the district plan (left) and as proposed (right).



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