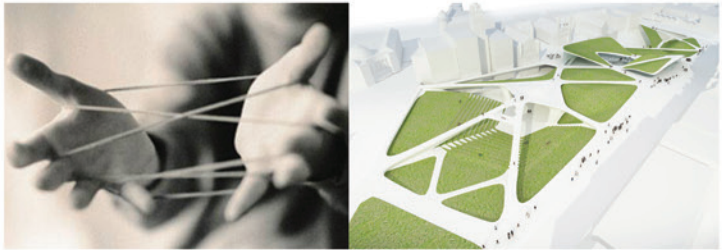


GRANITE WEB

THE NEW HEART OF ABERDEEN

THE ABERDEEN CITY GARDEN WILL FUSE **NATURE** AND **CULTURE** INTO A VITAL SOCIAL NETWORK AT THE HEART OF THE CITY. REJECTING THE CLASSICAL MODEL OF THE CULTURAL BUILDING ISOLATED ON THE GREEN, THE GARDEN EXTENDS THE SURROUNDING URBAN FABRIC AS AN ELASTIC WEB OF 3-DIMENSIONAL INTERCONNECTIONS ACROSS ITS SITE. THE WARP AND WEFT OF URBAN LINES SUPPORT BOTH PARK AND CULTURAL ACTIVITIES WITHIN A RESILIENT FABRIC OF LAYERED PROGRAMS, CONJOINING HISTORY WITH THE CONTEMPORARY AND THE URBANE WITH THE PASTORAL. STRETCHING ACROSS THE HISTORIC RIVER SITE, THIS PARKLAND WEB IS PERMEABLE, REVEALING A MULTI-TIERED ARCHEOLOGY WHILE CONNECTING TO THE CITY'S EMERGENT FUTURE AS A TECHNOLOGICAL HUB FOR ART, PERFORMANCE, LEISURE AND COMMERCE.



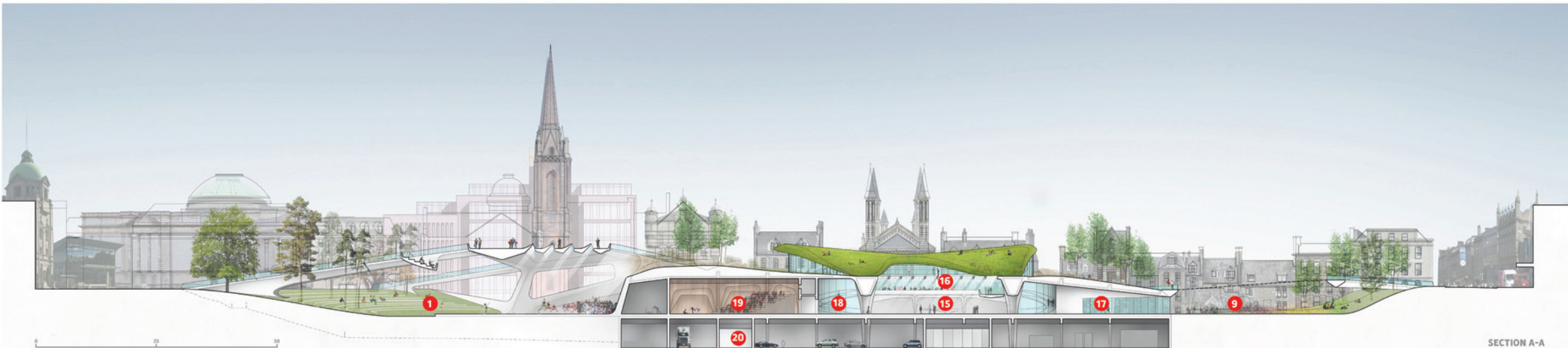
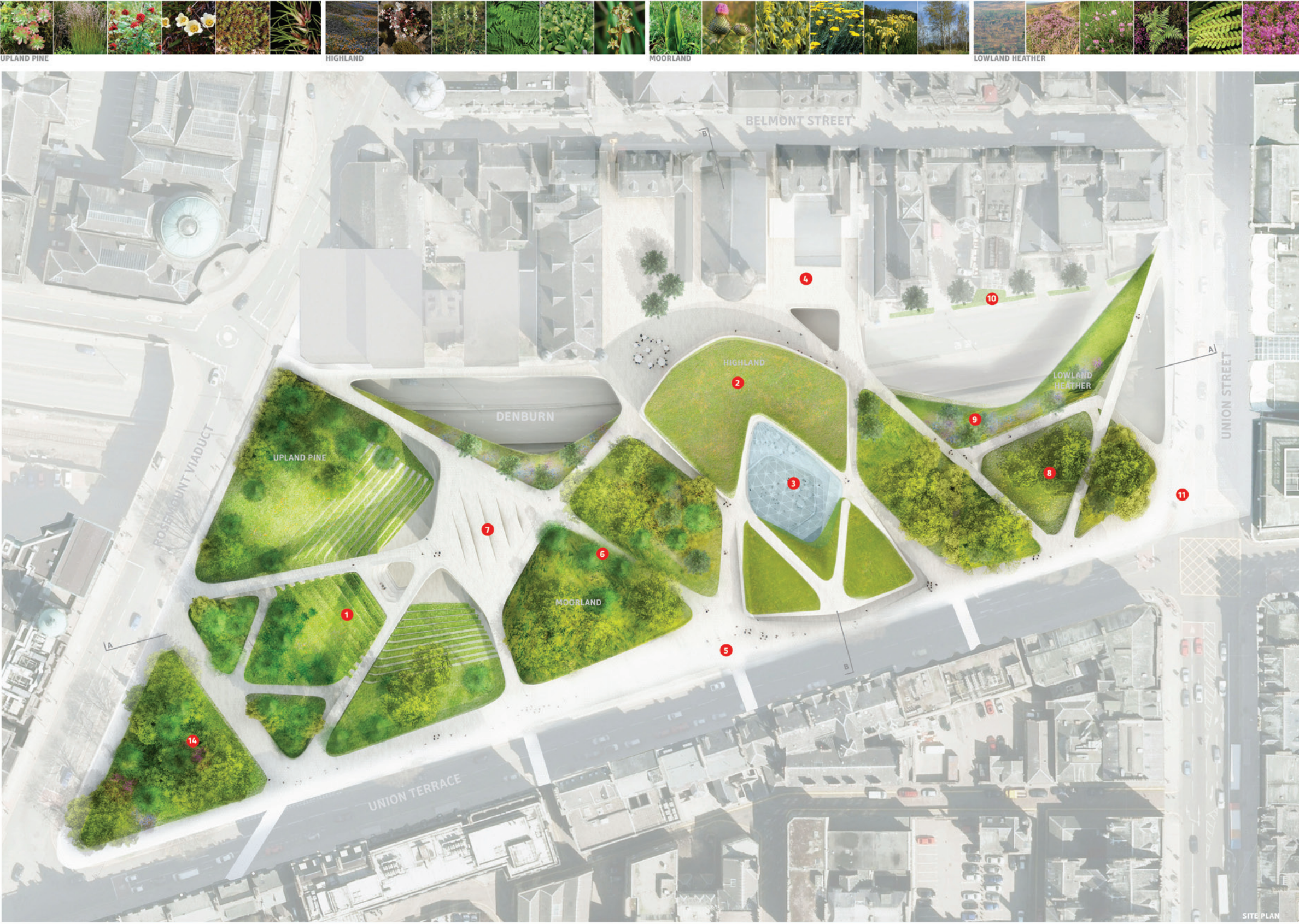
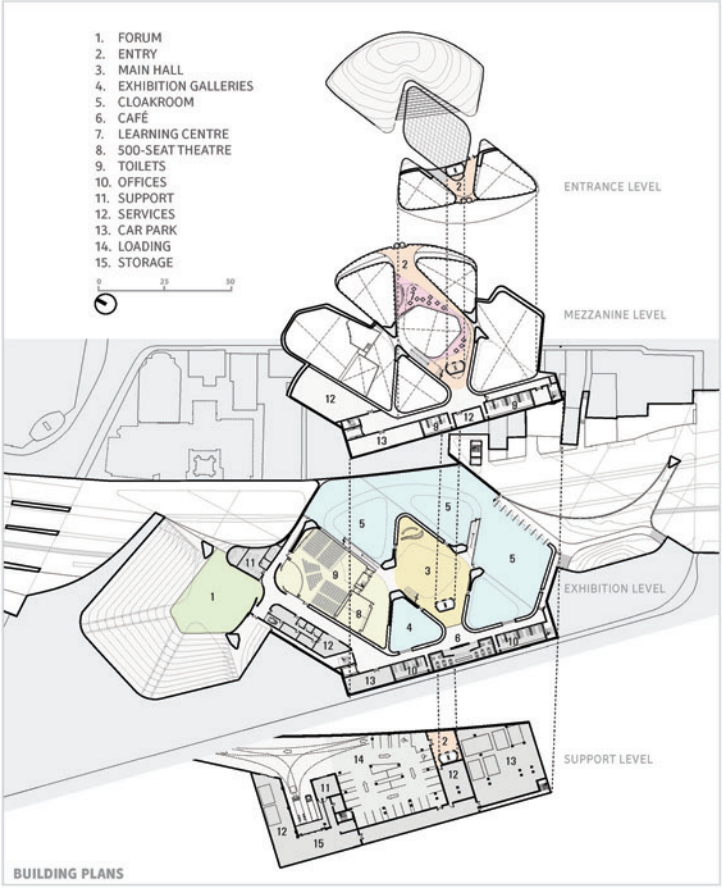
CONNECTIVITY AND PLACEMAKING

A new 3-dimensional Web of pathways through the site emerges from the fabric of the city, drawing it together while revealing its history. It stitches together the pedestrian fabric from Union Terrace across the park, over Denburn Road and through to Belmont Street. Springing from the energy of existing streets, lanes and monuments, the Garden's tendons arch gently out of the ground to sculpturally define the parkland areas above and the spaces of exhibitions, education, events and performance in the built strata below. A tapestry of planted and programmed microclimates creates natural gradients from quiet hang outs to meadows for large gatherings. Shearing between pathways and planted surfaces of the landscape reveals its complex interrelationship with the spaces of cultural activity, flooding exhibition halls below with daylight, and drawing clerestory views of the historic context into the interior and exhibiting activities unexpectedly to the street.

Three distinctive places define the park: south by the Union Street Bridge, the *Brae*, a high hillock with a planted multi-level overlook and hang-out; in the central Garden, the *Butterfly*, a soaring public entrance to the Cultural Centre from Union Terrace and Belmont Street; and to the north the *Forum*, combining the existing green bowl with meadow terracing down to a lower bandshell. Across the site, the rising and falling topographies frame views of the Triple Kirks, Aberdeen Art Gallery, His Majesty's Theatre, and St. Mark's Church. Horticulturally, the park registers the native character of Aberdeen's natural landscape from Upland Pine and Highland meadow at the high ground, to rolling Moorland as the paths descend, and Lowland Heather at the Denburn overlook.

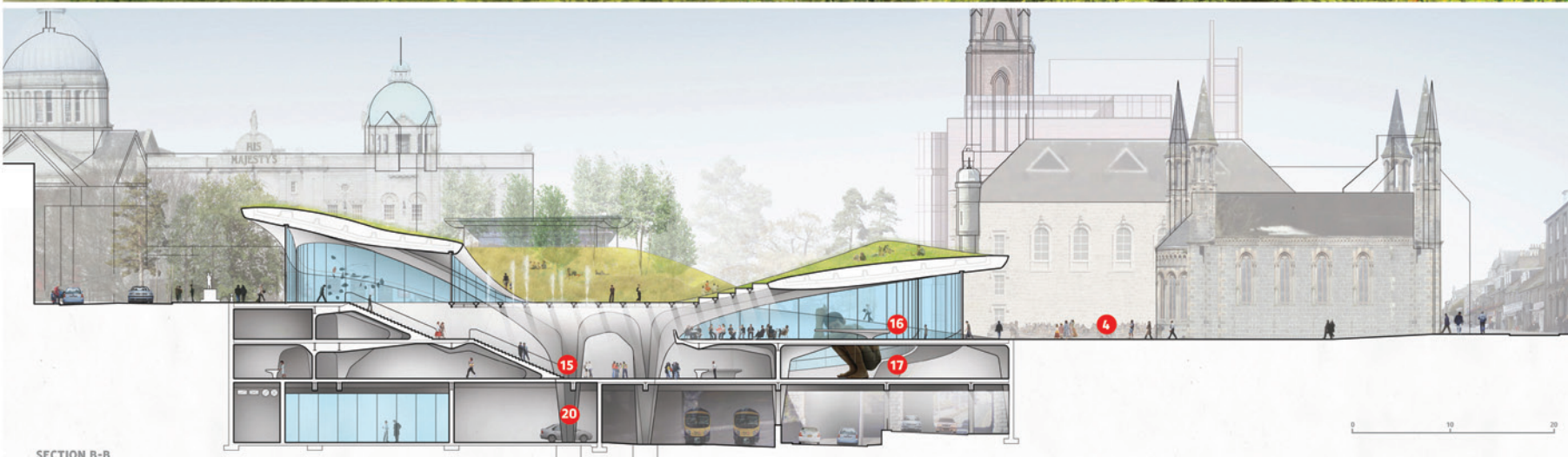
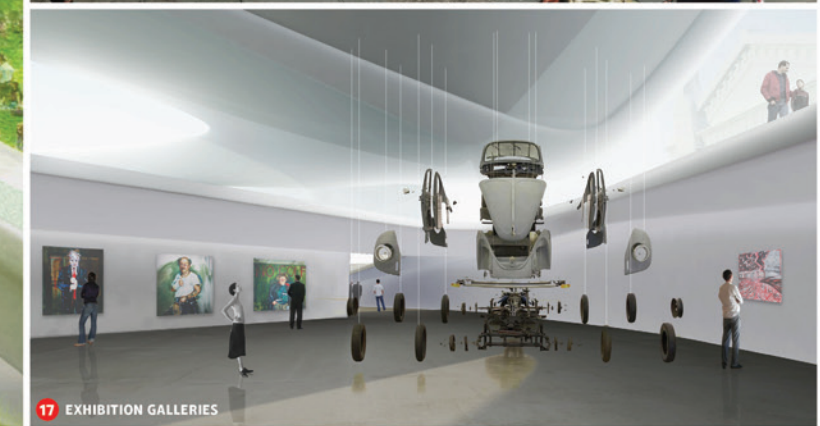
ACCESSIBILITY AND TRANSPORT

The new City Garden provides three major improvements to the city's connective tissue of streets: (1) Belmont Terrace, a new plaza, connects the pedestrian life of Belmont Street directly into the park and provides business opportunities for properties fronting this new urban park; (2) The Union Street sidewalk is expanded into a new Promenade that will draw together the commerce life of Union Street and the institutional life of Rosemount into the Gardens. (3) Denburn Road will remain significantly open to the sky, with a generous public stair and elevator connecting Belmont Terrace to the frontage on Denburn, the lower level streets adjacent to the Market, and the train station. Bus stops and bicycle parking serve the major entrances to the Gardens, and all areas of the park and Cultural Centre are accessible to the disabled by ramp or elevator.





VIEW FROM ROSEMOUNT VIADUCT



SECTION B-B

RESPONSE TO WIDER CONTEXT, SENSE OF PLACE, HERITAGE OF THE SITE

The Garden sharpens the focus the site's heritage and intensifies the sense of place through its intimate knitting with Belmont's lanes, its contours' curation of views to existing monuments, its conservation of statues and stone balustrades, and its surgical revealing of the historic layering of the site. Rather than covering over the entire site as originally proposed, the Garden strategically exposes the infrastructural strata down to Denburn, the rail lines, and the historic Union Street Bridge. Across the site, the rising and falling pathways frame views of Union Bridge, Triple Kirks Tower, Aberdeen Art Gallery, His Majesty's Theatre, and St. Mark's Church.

A primary connection to the wider heritage of Aberdeen is made through the material character and texture of the landscape. The planting palette draws from the North-East of Scotland's landscape and ecology, supplementing the palette with threads from Scotland's European neighbours to expand seasonal diversity and the stimulation of the senses. The gardens will be defined by microcosms of four regional landscapes: Highland, Upland Pine, Moorland, and Lowland Heather. In addition, threads of seasonally colourful plantings offer occasional surprise. By its native character, the landscape will be highly sustainable. Planting layout will create microclimates providing protection from the harsher effects of the local weather. Soil volume, structure and chemistry, permeability and underdrainage will suit each microclimate. Planting mixes in areas of high use will be resistant to compaction, and service accessibility will promote sustainable maintenance.

• *Upland Pine* – A historic forest, dominated by the Scots Pine, defined by



tall straight trunks, high canopies and low understory vegetation. An adaptation of this forest makes it well suited to the perimeter of the Union Terrace, producing a dense woodland character while preserving sight lines through.

- *Highland*: A low, textured landscape is characterised by golden hues and dotted with masses of low evergreens. Typically found on steep slopes and mountain tops, this ecosystem adapts to greenroofs and high points throughout the site with limited soil depth and water resources.
- *Moorland* – Comprised of grass species, low shrubs and oaks, this textured landscape is commonly found in gently sloping pasture lands. The Moorland landscape, flowing from the upper Union Terrace gardens into the Forum amphitheatre below, will perform as stepped meadows for occasional mass public gathering.
- *Lowland Heather* – Found in moist low-lying areas, this landscape is defined notably by its pink flowers and variegated texture. Heather is best suited for lower areas of the site, at Denburn overlook, where water gathers, as well as, in areas that call for accent planting.
- *Threads* – while the four regional typologies above give dynamic dimension to the architecture and help create the over-arching character of the gardens, the threads provide smaller scale moments of surprise and lines of colour; flowering plantings provide seasonal colour, texture and scents.



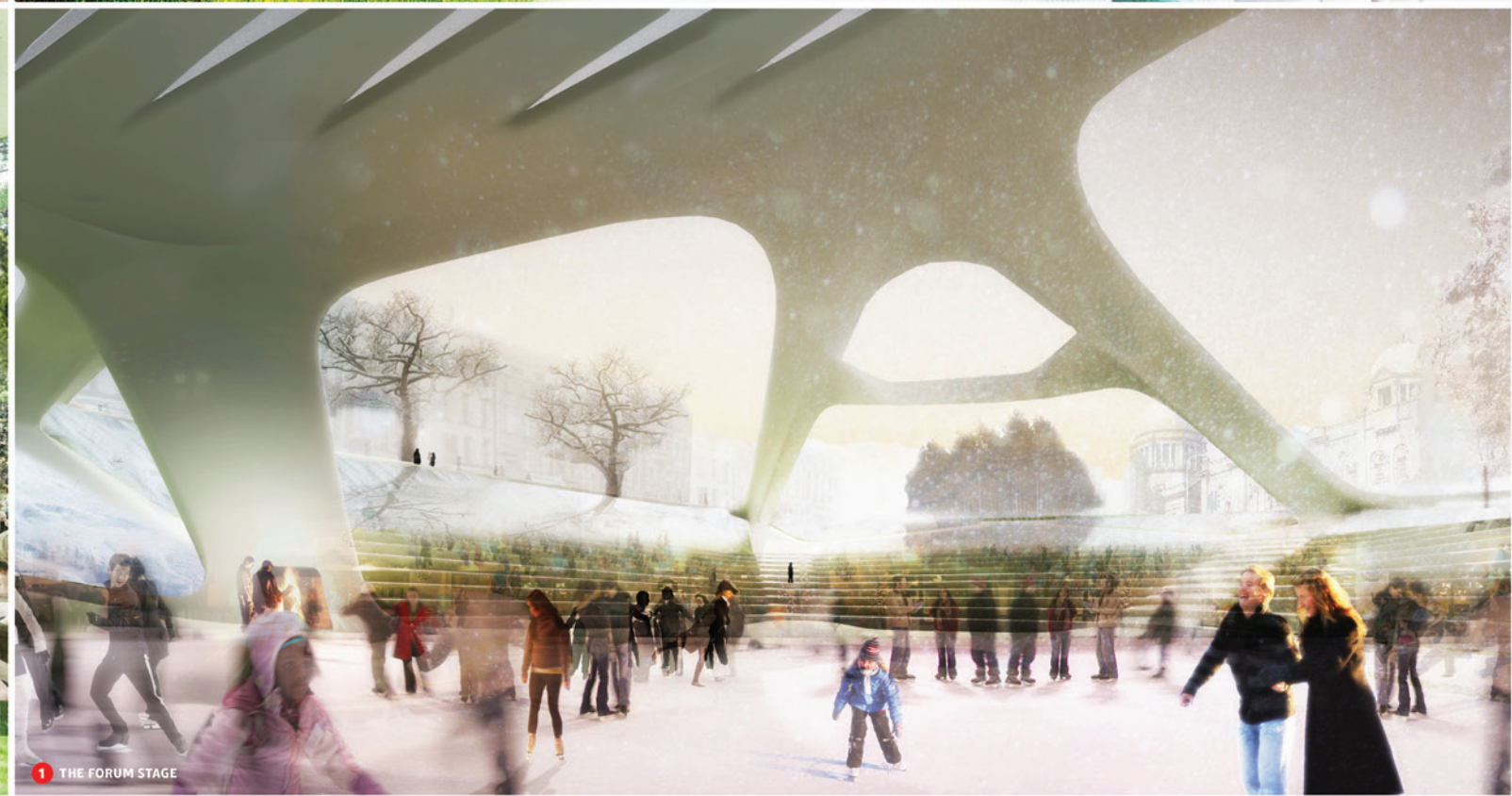
9 LEARNING GARDEN / DENBURN OVERLOOK



3 THE DIAMOND



1 THE FORUM



1 THE FORUM STAGE

APPEARANCE & SCALE

The Garden performs across broad scales of activity and experience. To the city, it offers an iconic landscape—a contemporary picturesque—a place to both escape urban congestion and to re-connect to its streets, lanes, and monuments. To regional visitors, the striking architectural features of the ascending wings of the Butterfly and the flying pathways over the Forum will signal points of entry and orientation for major programs or events. To day-to-day users, the more intimate character of east-west paths—connecting to Belmont Street between historic buildings, and the woodland areas like the Brae and the Grove—provide familiar connections and quiet places to hang out or have a picnic.

ECONOMIC SUSTAINABILITY

Within the Garden, the Cultural Centre proposes a new kind of cultural institution, challenging the narrow definitions of culture—art gallery, music hall, and museum—that are holdovers from centuries past. The Centre builds on the assets of Aberdeen's existing cultural institutions, providing new facilities for their evolving roles. To solidify the City Garden as the green heart and cultural centre of Aberdeen, a rich calendar of event programming will bring new vibrancy to the city centre. Events will range in scale, engaging different areas of the park on a daily, monthly, seasonally, and annual basis. The gardens will provide resources for everything from a large festival to small venues for musicians and artists.

CREATING A CIVIC DESTINATION: THE CITY GARDEN

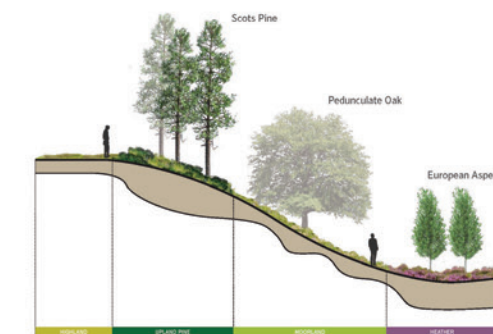
1 The Forum at the north side of the Garden is an amphitheatre using the existing topography of the site to advantage. Throughout the year, it is constantly active and changing with the seasons:

- **Mode #1:** A terraced lawn for casual and un-planned use in the park. The high-limbed trees provide long views to His Majesty's Theatre, the Central Library, St Marks Church and the Aberdeen Art Gallery.
- **Mode #2:** A performance venue for events of 5,000 people or more. High-limbed trees create a park-like tree canopy above while allowing sight lines across the large space. Lighting and sound infrastructure is concealed under the **7 Furrow**, a raised plaza that overlooks the stage. A deployable tensile fabric canopy provides additional shelter from wind and rain.
- **Mode #3:** Skate Rink. The terraced lawn becomes a viewing platform for companions to admire the skaters in motion.

2 The Butterfly creates a new architectural icon integrated at the heart of the Gardens. A soaring public entrance oriented to both Union Terrace and Belmont Street provides access to the Cultural Centre below. **3 The Diamond**—a glass and stone plaza—is a delight to the senses: resembling a reflecting pool, the colours of the sky and clouds register on its surface. Portions of the Diamond are transparent to admit views and light into the Main Hall below, while pathways are oriented along the park's network of paths.

4 Belmont Plaza, sheltered in the Butterfly's east wing, is an entirely new public place for the city of Aberdeen, and the most critical element of the connective tissue that will tie the vibrant life of Belmont Street into the new Gardens and Cultural Centre. The plaza will be at the elevation of Belmont Street

(+18.0) and the east entrance to the Cultural Centre. It is a hard-scaped space, figured on all sides by buildings like an Italian piazza—charged with life and activity, drawing from and amplifying the energy of Belmont Street. The elevation of this new Plaza will require modification to some existing buildings, but provides in return a tremendous potential for top-tier retail frontage on public space. The plaza has an elevator and stair—operational even when the Cultural Centre is closed—connecting between the upper and lower Promenades.



6 The Bosque, directly north of the Butterfly, is constituted by two heavily wooded areas, offering intimate groves of lush and quiet places to spend time individually or in small groups, an environment which feels removed from the bustle of the city.

8 The Brae is a sharply sculpted hillock, another feature of the landscape, defining the southern end of the Gardens at Union Street.

9 The Teaching Garden is visible from the Exhibition Gallery and accessible from the City Garden. Teaching gardens that instruct on growing vegetables and herbs can elevate awareness of contemporary approaches to sustainability and the growing local food movement in Scotland.

11 Union Place is the front door of the park from the commerce-oriented Union Street. On special occasions, the adjacent streets may be closed to motor traffic to provide an expanded park experience.

5 Union Terrace Promenade connects the north and south ends of the park along its western edge and provides the most formal entry points from the city into the Gardens. Existing statues are sited to greatest advantage at prominent crossing points.

10 The Lower Promenade is built at the level of the existing pavement and street on Denburn Road. The pavement will be widened to offer a safer and more public experience. The current dropped kerb will remain to allow for loading support of the properties between Denburn and Belmont. The Lower Promenade has ample light and views and the historic structure of the Union Street Bridge remains visible. A continuation of the Lower Promenade is envisioned to connect to the train station and existing plaza west of the Market building.

14 Rosemount Plaza is the forecourt to the Gardens from His Majesty's The-

atre and the Library at the intersection of Rosemount Viaduct and Union Terrace. The road spur between this island of landscape and the rest of Gardens Closure should be closed, providing a double benefit: expanding the contiguous space of the Gardens and reducing the speed of adjacent roadways to increase pedestrian safety.

TRANSITION TO THE LOWER LEVELS: THE CULTURAL CENTRE

The public approach the **15 Main Hall** is from either entry wing flanking the Gardens' Diamond. Elevator access is available at the west wing and ramp access from the east, ensuring equal access for mobility-impaired citizens. The most dramatic aspect of the Main Hall is its glass roof, opening the space to the sky and strongly connecting it to the landscape above. Historic features such as the Triple Kirks tower will be visible from the Hall, engaging visitors with Aberdeen's heritage. On warm days when the water feature is operating on the Diamond above, daylight and shadows projected into the Hall will be animated by wind and water above.

Patrons enter the **16 Terrace Café** from the Butterfly's East Wing at Belmont Plaza. This intermediate level provides dramatic views out to the landscape, the neighbourhood, and over the Main Hall below. A pair of arching ramps descend from the Café, circuiting the perimeter of the Butterfly galleries and landing in the Main Hall.

The **17 Exhibition Halls** are daylight-filled art galleries capable of supporting other forms of display and events. Flexibility is paramount: the Galleries may be subdivided to support four individual exhibitions, or opened up to support a single large show. The large span of the Butterfly structure overhead pro-

duces two important Gallery features: ample daylight penetration from the clerestory, and large, column-free floor areas for maximum curatorial freedom.

The **18 Learning Centre** enters from the north Main Hall. This facility provides for a lecture and meeting space to suit a variety of different types of groups. A large, subdividable conference room accommodates groups between 20-100 people, the Theatre seats up to 500, small break-out rooms seat groups of four to eight, and a large informal seating space provides for additional open seating configurations.

The 500-seat 19 Theatre, like the Forum, has multiple modes of use. With adjustable seating tiers, it may be used as a traditional proscenium theatre, a black-box theatre, as an extension of the Learning Centre, or as an annexe space for special Exhibitions.

Circulation in the Cultural Centre is organisationally simple and experientially rich. The Main Hall is the central point from which access to all spaces may be controlled. Its connection to the sky overhead provides people with a sense of orientation and a connection to the larger scale of the park. Vertical transportation is clear from the main level: a pair of ramps spiral up through the gallery spaces under the east wing, while a pair of lifts and a monumental stair are sited at the west wing.

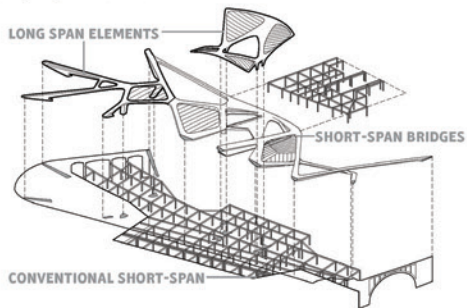
20 Support spaces at the exhibition level are arrayed along a 4-metre wide corridor that doubles as service access and emergency egress. Facilities include a management office, utility rooms, and backstage support spaces for the theatre. A large freight elevator connects the loading area to the service corridors above.



THE STRUCTURAL CHALLENGE

The structural challenge of the project is to produce an iconic green roof landscape and provide broad connectivity across the site's many levels while minimizing the cost and complexity of construction above Denburn Road and the rails. The overall structural design approach employs conventional, cost-efficient systems and repetitive spans for the majority of program spaces, integrated with select long-span structural elements at the major public areas: the Forum, the Butterfly, and pedestrian flyovers. Foundations make use of local rock layers found on site, using local footings or short piles along with typical slab-on-grade construction. Retaining walls are water-tight concrete (approximately 30cm) with upper back-span anchors at taller segments where permitted beyond property line limitations. Typical lower level structural systems, over parking and service, are envisioned as repetitive concrete pre-cast elements, or steel beams and columns with standard pre-cast planks, spanning up to L<12m, to accommodate both parking as well as spans over the railway and Denburn Road. Regularity and repetition will be achieved with a 10-metre structural grid at these levels. Two tapering footbridges crossing over the Forum brace each other against side-sway and lateral torsional buckling. They may be pre-fabricated and pre-stressed concrete beams or built-up steel sections resting on ground abutments. Their sections directly accommodate linear supports and mechanisms for an operable fabric roof that temporarily cover the seating areas. Fabric materials will be ePTFE membranes with stain-

less steel cables. Given the subtle curvature of the footbridges, they are hinged bending members with some camber, pre-fabricated and craned into place on site. The Butterfly's cantilevering wings are long-span steel beam cantilevers with framing edge beams. These beams have back-spans and a row of interior structural columns integrated into the façade to help support the roof edges, with additional green roof super-dead loading. The Diamond is a steel-glass skylight with steel roof purlins and IGU-glazing (non-slip grit frit), with an integrated water-jet system for the fountains in warmer months.



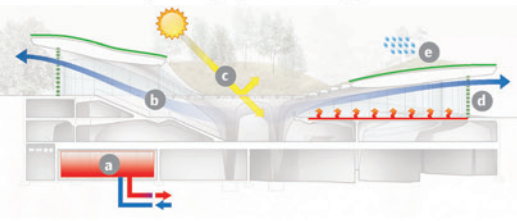
THE ENVIRONMENTAL CHALLENGE

Aberdeen City Gardens will be an icon of sustainable urban design, prioritizing health and well-being while promoting social interaction, creativity and the development of human potential. On a community scale, the Garden will be a hub for cultural and economic activity, contributing to the quality of life of the central city. In addition to stimulating local social and economic activity, the Cultural Centre is designed with sensitivity to the natural world and its limited natural resources. Through smart design, the project will minimize environmental impact, decrease energy consumption, conserve water, and reduce landfill waste. Aberdeen City Gardens will use BREEAM certification as a measure of the building's environmental performance. The project will target a minimum BREEAM Excellent rating as a showcase development in the city centre. Central to the goal of sustainable development, the design will incorporate:

- Central energy plant, including ground source heat pumps, generating and distributing power and heating across the site. (See (a) on the diagram.)
- Solar thermal and photovoltaic technologies to support the domestic water requirements and lighting demands.
- Passive features such as natural ventilation (b), solar shading, daylight harvesting (c), and high performance facade elements which balance thermal and acoustic performance with access to daylight and views (d).
- Sustainable Stormwater Management at green roof surfaces (e).
- Increased biodiversity at green roof gardens.
- Creation of a social amenity 'hub' with the inclusion of program spaces such as the amphitheatre, café spaces, galleries, community gardens, and markets.

The landscape of the City Garden is envisioned as an integral part of the city's urban fabric, a green heart.

- The dynamic character of the larger Garden will be interwoven with regionally significant species that are planted in abstracted patterns to recall the surrounding local landscape of Aberdeen and its region. More intimately scaled plantings and gardens with finer textured and seasonally changing species provide reflective spaces away from the major gathering areas.
- Underlying the design of the landscape is a desire to both engage and teach. This didactic approach embraces civic engagement as a means of developing specific themes and uses for the individual gardens. Themes can be as diverse as formal gardens that draw from historic medicinal cures, gardens that pollinate gardens that celebrate particular seasons – the winter garden – or times of the day – the night garden. Teaching gardens that instruct on



growing vegetables and herbs can elevate awareness of contemporary approaches to sustainability.

The overall layout of building and landscape has been configured to **minimize cutting** into the areas of more superficial rock in the south western areas of the site. The underlying approach to **managing stormwater**, consistent with SUDS principles, is to make water 'receiving' rather than water 'shedding' landscapes. Grading and planting throughout will be developed to retain water within the boundaries of the project. Opportunities to harvest and reuse rainwater for landscape maintenance and toilet flushing will be employed to reduce run-off and the demand for potable water. **Lighting** will reinforce the dynamic of the gardens and create an enchanting nighttime environment that draws visitors into the Garden, while promoting a sense of security and a high degree of energy efficiency. Light reflected off architectural surfaces will provide the majority of illumination, reducing glare and minimizing spill and impact on the night sky. **Building Envelope** - A majority of the space in the Cultural Centre is covered by a great deal of lightweight soil, providing excellent insulative quality and thermal stability to the project as a whole. The glazed areas at the Butterfly will also provide a high R-value by means of a double-insulated cavity. Due to the heating-driven climatic needs of Aberdeen, greater emphasis is placed on insulation than on solar heat gain coefficient (SHGC). A structural insulated glass unit (IGU) system is proposed: the system is unique due to its reliance on the IGU itself to support lateral and gravity loads, thereby obviating the need for a traditional aluminum or steel mullion.

CONSTRUCTION PROCESS AND RISK MANAGEMENT

Given the logistical complexity of building over the active Denburn road and railways and adjacent to numerous existing historic building structures, there is risk inherent in maintaining Project's budget and schedule through the construction process. Several approaches should be taken to manage risk throughout the course of the project:

- Prior to initiating design phases, reliable existing conditions information is critical to the accuracy of the design documents and the scope of construction work. Proper time must be taken to verify site and utilities surveys, geotechnical data, existing buildings and infrastructure documentation.
- Regular cost estimating and value engineering must be undertaken during each design phase to ensure conformance with the project budget.
- Quality assurance will be maintained internally by the Design Team over documents. In addition, independent peer review may be engaged at a milestone in the design process.
- Approaches to phasing the project construction should be contemplated, both to aid with construction staging and logistics and to permit partial use of this crucial public amenity even during construction.
- Design, Construction and Escalation contingencies must be maintained in the budget to adequately insure protection against unforeseen developments discovered as part of design due diligence and development, construction engagement with existing conditions, or fluctuations in the market.