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FOREWORD

It is nothing new to assert that diversity of thought and perspective expands the potential meanings and advances in any field. It was for this reason that in 2012 the Department of Landscape Architecture at the University of Oregon invited Professor Irene Curulli to teach and conduct her own research on the topic of industrial landscapes, especially related to water.

I was already well acquainted with Curulli when my colleague Dr. Deni Ruggeri and I proposed to our colleagues at Oregon that we invite her from Amsterdam, where she was working, to Eugene, Oregon. Both Dr. Ruggeri and I had the good fortune of working alongside Curulli when she was the Lawrence Halprin Fellow and we were both graduate students in 1999-2001 at Cornell University. For me, then and now, Curulli was and is a breath of fresh air. To my eyes in 1999, she epitomized chic Italian, dressing in all black, sporting short burgundy (almost purple) curls and wearing the best shoes Upstate New York had ever seen. Her understanding of post-industrial landscapes has always been sophisticated and well informed. Both Ruggeri and I were motivated to have Curulli to Oregon because we knew she would bring an extensive knowledge of relationships of industry, landscape and identity from a broad spectrum of European case studies.

Being a firm believer in the notion that progress arises out of difference in thought and perspective, I thought that University of Oregon could use Curulli's perspective on post-industrial landscapes, and it was a decision that paid off in so many ways. Oregon is a state that relies heavily on landscape productivity through the industries created by our natural resources and water systems. In recent decades, for a variety of reasons, the natural resource based industries, including timber and fisheries have struggled to survive, and closures of mills and plants has resulted in the waterways of Oregon being dotted with abandoned and polluted industrial landscapes. It's a complex state of affairs, yet one thing had become very clear in the early 2000s: a fresh perspective on our regional post-industrial landscapes was urgently needed. Curulli was the one for the job.

Curulli joined our faculty for only a single year, yet in that short time she renewed our views on the inherent issues of the Oregon landscape. Her teaching and research engaged this landscape with her own distinct view on our local concerns. While she explored the four sites described in this book she made contact with several local experts, engaged with members of municipalities, and conducted research at the University of Oregon libraries. As happens when a visitor joins a faculty, Curulli not only benefited from her access to uniquely Oregonian resources, but we, the Oregon landscape architecture community, also benefitted from viewing our local concerns through Curulli's lens.

This book, which builds on Curulli's two previous books, *Industrial Canal Waterfronts in The Netherlands* (2012, Alinea International) and *The Making and Remaking of Dismissed Industrial Sites* (2014, Alinea International), offers a direct link to the aging and ever-

evolving timber, agricultural and hydropower industries that have been so vital to the Pacific Northwest region of the United States. The industrial landscapes of Oregon are associated with economies that have relied on timber extraction and hydrologic power for a couple of centuries. As a result of peak levels of timber extraction in the mid 20th century, our forests have diminished in size, and the industry has now contracted to a fraction of its most robust scale. Likewise, hydrologic power has deeply impacted the ecology of this region, and old technologies have left behind seriously polluted landscapes.

One cannot help but consider nature when we discuss post-industrial landscapes, as buildings and machinery are corroded by natural systems, especially climate, in short order. In Curulli's work, an American reader finds a great distinction between the North American notion of nature and that of the European. This difference lies first in scale; the North American scale being so large compared to that of Europe; and linked to this scale are the distinct notions of 'pristine' or untouched nature embraced in the United States versus its domesticated human-mediated counterpart in Europe. Unlike American notions of nature, it is seen less as a pure and untouched by Europeans, but more a complex state of systems and processes that inherently includes humans. This notion is closely linked with the aspect of 'industrial heritage' and 'old' buildings: a European 'old' carries many more centuries than that of an American. The distinct perspectives are a given, and even seem stereotypical, yet these vantage points are fundamental to the meaning one finds in post industrial landscapes.

While in Oregon, Curulli not only contributed to our intellectual community but she also made many friends and built a network among municipalities, landscape architects and faculty members. While here, she added a layer of delight and joy, which was appreciated by so many. University of Oregon Department of Landscape Architecture enjoys the mutual benefits of hosting visiting faculty members and supporting their research, especially when they make the impacts like Curulli's work. The students, faculty and local design community is enriched in ways that continue to feed us for many years to come. This book, like Curulli herself, will bring unique insights to the concerns around industrial landscapes and water, and further our field in solving these critical issues.

Eugene, Oregon, USA, June 4, 2018

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PREFACE

As a young student, I devoured Alexis de Toqueville's volumes on his American experience, and became fascinated by the idea of the 'other-ness' in other places and other people. What made them different, how might we recognize and value that idea, and how might we as people of this place better understand where we are by listening to those who are from afar. This is not a new revelation, but one that still resonates.

The value of an 'outsider's' view on local landscapes cannot be overstated. It is often too easy to look at landscapes every day, but not really see them. We too easily fail to 'get' the details of the place, and the changes that happen within even a short time frame. These are dynamic landscapes, places that have evolved over time, at the nexus of natural systems and human aspirations. With sufficient temporal and geographic distance, they are places that inform the understanding of what was here, what is here, and what might be here.

This book is a European perspective on a dynamic, productive, and fruitful landscape – Oregon's Willamette River valley – with an eye toward explaining the complex and often contentious relationship between various people, projects and the water itself. What has that relationship meant in the life of this region? What does it mean now? And how might it be harnessed and strengthened, so that the history and future of this landscape are not diluted in the present.

I first met Irene Curulli some years ago, when she was visiting faculty in the Department of Landscape Architecture at the University of Oregon. We share common interests in cultural landscape studies, and she shared with me her previous research and her interest in the Willamette River. She recognizes and understands how human engagement with the river's power and energy has transformed this landscape. She was especially interested in what would happen next in the life of this 'centerline' of this landscape. We spent time visiting some of the places discussed in this book, walked in the rain and the sunshine, shared insights, drank coffee, raised questions, and searched to garner deeper meaning as we took in the obvious and the obscure features of this landscape. I was struck then, as I continue to be, by the depth of her questions and her burning aspiration to construct a new model and a new diagram of this landscape, through that 'outsider's' lens with which she understood these places. In her time in Oregon, Irene was a long-term visitor to this landscape, someone who taught us about our own landscape, based on her previous work in Europe.

This is a book about place, but it is really a book borne of deep personal interest and professional research to better understand how projects of restoration and reuse might interpret the relationship among industry, landscape and especially water. It is a book about the Willamette River, a tributary of the Columbia River, and the agricultural and, until recently, the industrial, lifeline of the Pacific Northwest.

The book explores the triangular relationship among industry, landscape and water in-depth by providing readers four case-studies of transformations that engage the concept of 'continuity.' These are examples of industrial landscape evolution, insights into its impact on the landscape, and planning and design alternatives in relationship to water. They impart

a clear understanding of the concepts of nature, naturalization, and landscape continuity. Unlike so many other texts and narratives that see the Willamette as a 'lost river' and human endeavors and natural systems as opposites, this book provides analysis and discussions around a counter narrative that views the relationship between nature and humans as dynamic and interrelated forces.

There is no other book in the field that touches upon the issue of water as a vital source for regeneration of abandoned industrial areas, or discusses it as an instrument for public engagement of these sites as physical and cultural – and even spiritual – places. While this speaks to Irene Curulli's intent, it also engages the much wider and broader contemporary discussion that emphasizes the interrelationship of natural and cultural systems. This is a welcomed respite from the prevailing, and mostly archaic, view that isolates cultural landscapes from their natural systemic context. The premise of this book, and the excellent case studies, decrees that we view landscapes in their totality, breaking down the silo walls that for too long in professional practice have established barriers among disciplines in research, planning and stewardship.

This book is also about design with water, and water in design. How can designers engage water as a vital design resource? This is not a new topic, of course, but in this book it is approached in a new and exciting manner. The interviews with practitioners from different fields provide a multidisciplinary approach to this topic. How, then, do different professionals in architecture, landscape architecture and planning understand, incorporate, and reflect on the river and its hydrologic resource as a key component of regenerative design for industrial landscapes? The four case studies, as well, inform this discussion. They each share common attributes, yet are very different. Some are small, some much larger. Some are comforted by the gentle flow of water, while others are challenged by the rush of a waterfall and the changes in seasonal runoff. It is a fascinating comparison of conditions, and design potentials. The book is rich in graphic and illustrative materials, including historic Sanborn Insurance Maps, photos from the archives of the Oregonian newspaper and the University of Oregon knight Library Special Collections, as well as public libraries and other sources. For any scholar, this is an excellent lesson in matching field work and archival sources to arrive at a deep analytical understanding of an increasingly complex landscape.

This is a book, and a lesson, from an enlightened perspective. That is not unusual, as it often happens in excellent texts. What is unusual, however, is the way in which Irene Curulli has woven together the concerns of industry, landscape and water – like a braided river valley landscape – to reveal the inner workings, and great potentials, of these everyday yet very special landscapes. It is well worth visiting again and again, as one would visit the landscapes themselves. Each visit reveals new details, new insights, and new lessons.

Eugene, Oregon, USA, June 1, 2018

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INTRODUCTION

1. GHOST INDUSTRIES ON THE WATER

A triangular relationship between industry, water and landscape along the Oregon's Willamette River, USA

Water has always been an essential feature in the development of industry. Early industry needed water to power looms and other machineries and to move bulks of good across the territory. Running through natural riverbeds or conveyed into canals, water formed the backbone of industrial settlements together with the railway lines. However, either dependent or dominant, the relationship between industry and water was indissoluble.

The development of the electric power as well as the advent of cars and trucks released industry from its dependence on energy sources, such as water or coal, results in the spreading of industry from manufacturing centres to new available lands in town or the countryside, closer to the area of the market demand. Being waterways and railroads less flexible than cars, they lost their dictating role in the choice of the industry location. Many economists and planners, such as Mumford¹ and others, theorised it in the 1930s and 1940s. But, does this apply to the Pacific Northwest too?

The Pacific Northwest is considered to be, roughly, the drainage basin of the Columbia River [...]', as in the words of Edwin J. Cohn, Jr. in 1954. In his book *Industry in the Pacific Northwest and the location theory*, the author highlighted how the power of the natural resources of the Pacific Northwest limited or delayed the spreading of industry.

The vast landscape of forests, the immense volume of water from the Columbia River, the fertile valley of the Willamette River, mineral resources, etc. determined the emergence of a long-lasting resource-based industry, where water was a powerful deterrent in slowing the process. Water was essential for the logging industry, pulp mills, textile mills, food-processing industries, grain mills, fish-canning industry and shipyards. It was also essential for power plants, for producing hydroelectric power, and for fire protection. Finally, tidewater facilitated the ocean shipment. Therefore, water fostered the proliferation of industry both as a resource-oriented industry, benefitting from forest, fish, farms and minerals, and as a resource-based industry, producing pulp, paper and processed food.

According to Edwin J. Cohn, Jr., water was the second factor, after wood, in determining the location of industry in the Pacific Northwest. During the 1860s and the early 1900s, waterfront log-mills and pulp mills were built on rivers or at tidewater, where the stream flow was more powerful. The water flow moved the logs to the mill, and formed also the log ponds. Water made it possible to ship the product (pulp or paper) by sea; water was required in the pulping process² and as a tributary to transport the waste liquor; and lastly, it served for transporting those products required for the papermaking process, such as the abundantly used limestone and sulphur.

However, if the above explains the reasons for the industry dependence on the water, it also

¹ See MUMFORD, L., (1938). *The Culture of Cities*. Brace and Co. Harcourt, New York; and DECHESNE, L., (1945). *La Localisation des diverses productions*. Les Editions Comptables, Commerciales et Financiers, Brussels.

² A sulfite mill needs a 24 hours use of water. It is estimated that for a capacity of 250.000Kg occurs 133.000 m³ of fresh water daily.

expresses the mutual relationship between industry and landscape: industry transformed the landscape, while its resources determined the origin and the industry type.

Moreover, and beyond the location factor, water established a triangular relationship between the three dimensions of landscape and the development of industry, based on the interaction of different interests and within particular contexts. In this specific case, the new development areas coincide with four industrial sites along the Willamette River. They are no longer in use and inaccessible to the public, as it happens for most of the abandoned industrial areas. Moreover, environmental degradation and decay of the existing structures put pressure on landscape restoration and architectural rehabilitation.

The Willamette's transformation was intense during the industrialization period and the accounts on the control of water prove that the river became the focus of competing claims (for water rights and diversions). This is also confirmed by the study of the four specific industrial areas. Therefore, humans had a strong impact on the river overtime, either directly or indirectly. This attitude did not only concern the Willamette River, but also many European and North American rivers, which changed dramatically: riverbeds were engineered and 'corrected' so as to become canals, which were considered the best means for the transportation of goods; rivers were also dammed in order to control water for distribution and generation of energy.

In both cases, environmental changes were immense; let alone the consequences for plenty of people that were displaced by hydraulic engineered interventions. Either in one case or the other, it signified a strong statement of the humans' capabilities on controlling Nature and the glorification of their power.

In the American West, such power was in the hands of the *hydraulic society*, as the historian Donald Worster describes it in the book *Rivers of Empire* (1985). Referring in particular to California, Worster explains the dissimulating political neutrality of hydraulic technologies that this society used to carry out large water projects in the 1930s, by damming and diverting waterways so as to irrigate arid lands (thus favouring economic development). This society was 'a coercive monolithic, and hierarchical system, ruled by a power elite based on the ownership of capital and expertise'³. It took the power out of the hands of local people and put it in the hands of the technological elite. Consequently, this shift led to a redistribution of power and the rise of a new bureaucracy, along with irreversible changes in the landscapes and ecosystems of the West. Ultimately, the technological control of water showed the way in which humans can dominate nature by employing water as a means of dominating society⁴. In Worster's analysis the ecological degradation is intertwined with social transformations. The new bureaucrats fail to establish a balanced relationship between man and nature, where the former does not prevail over the latter. According to Worster, the idea of 'human domination derives from the incessant modern drive to remake nature'⁵, thus restructuring our relationship with it. He argues that this drive characterises the societies where nature does not have an intrinsic value but an instrumental one. Therefore, this persisting attitude legitimizes man's domination of nature and its exploitation. As a result, this view allowed the full appropriation of the rivers of the West, including the Willamette River too, so to say. This belief was unable to prevent a river to 'be abstracted ruthlessly from its dense ecological pattern to become a single abstract commodity having nothing but a cash value'⁶. Maybe this viewpoint caused the European settlers to recognise the water of the Willamette River as a commodity to capitalize on and to use the technology to achieve the aim.

In the endless controversy of Man vs. Nature, human engagement with river is equalled to damage: humans have to be blamed for development, dikes construction and diking riparian wetlands, logging, overfishing, etc. Thus, the river is depicted as a static entity, the victim of an unjustified human activity and the future of which will be the inexorable ecological death. Most of the narrative on the Willamette River and also of many other rivers in the American North West pivots on this image.

It would be interesting to understand if and how this narrative influences the goals of the ecological restoration. Probably, a benevolent attitude and duty in repairing human damage would underlay those goals and the risk would be a compassionate and optimistic attitude that could be either authentic or it could be an *apology* that hides different intentions.

³ WORSTER, D., (1985). *Rivers of Empire. Water, Aridity, and the Growth of the American West*. Oxford University Press, p.7.

⁴ Worster arrives to this statement through the analysis of theories of Carl Marx, Kark Wittfogel and the Frankfurt School.

⁵ *Idem*, p.53.

⁶ *Idem*, p.332.

The restoration of the Willamette River and of the related dismissed industrial sites along it shows some ambiguities in this respect.

But there is a counter narrative to the one on the 'river lost', which envisions humans and nature not as opposites, but as dynamic and interrelated forces.

Already in *Rivers of Empire*, Worster outlines a more balanced relationship between humans and nature, which he considered as the possible move in the 'next stage in the West'. Accordingly, the river should be primarily considered as an entity in itself, which has its own values and dynamics: people must learn 'to use a river without violating its intrinsic qualities.' To achieve such human-balanced connection with nature, Worster states that it is necessary to make 'a change in thinking, from nature domination to nature accommodation'⁶. Consequently, we must learn to think like a river' and 'to become river-adaptive people'⁹.

There are two important consequences of this view: firstly, nature and humans have mutual influence on each other; secondly, the result from this dialectic exchange is a 'new product' that is neither a 'natural' fact nor a 'cultural' one. This 'product', namely the river, is a blend between nature and culture; it is a hybrid, an artefact of human technology.

Within this view, it is not a venture to consider the river that takes shape from the above mentioned human-nature relationship as an '*Organic Machine*', as in Richard White's narrative on the Columbia River's transformation¹⁰. Accordingly, the river is the product of the interplay between natural evolution and human evolution, and 'there is no easy way to disentangle the natural and cultural here. What is real is the mixture [...]'¹¹ Energy is the common denominator between humans and nature: water is the energy of the river; work is the energy from people. Then, the river is an 'energy system' that 'although modified by human interventions, maintains its natural, its 'unmade' qualities'¹². The 'geography of energy' is the combination between water (river) and geomorphology of the Columbia River. Just as people have shaped this 'geography of energy' and vice versa, this geography has shaped people. Thus, this mutual influence formed a dynamic and social geography where the boundary between humans and nature, between civilization and nature are blurred.

The Willamette River shares many of these characteristics with the Columbia River.

According to White, the mechanization of the river, its management and engineering, do not express a supremacy of humans on nature, but it is an intensive way of engaging nature and converting its energy into other forms: 'Nature created the perfect dam site. Nature left the gravel necessary to build the dam. [...]. What nature had so artfully arranged, it would be criminal for humans to neglect to improve and finish. The dam was the final piece necessary to reveal nature's latent harmony'¹³. Therefore, humans have not destroyed natural systems but the have only modified them by their labour: 'We have neither killed the river nor raped it [...]'¹⁴. 'The Columbia, an organic machine, a virtual river, is at once our creation and retains a life of its own beyond our control'¹⁵.

White's theory opposes the concept of nature as a pristine natural world that exists in a stable and harmonious state, outside of humans. He debates what Cronon defines as the cultural construction of wilderness, 'a human creation that works as [...] the best antidote to our human selves, a refuge [...] from modernity'¹⁶. In White's view, nature is about relationships, relationship to human beings and human history: 'it is our work that ultimately links us, for better or worse, to nature'¹⁷.

The concept of wilderness and nature are important elements in the restoration of the four dismissed industrial sites, as they are decisive in the definition of the 'natural state', to which the restoration should return. In the USA, the existence of the 'natural state' is conventionally established to be the time of the European discovery and conquest, when disruption is associated with the start of agricultural activities, wildfire control, land clearance and grazing. There are slight variations and interpretations of nature and wilderness among the design proposals, all of which revolve around a common goal: the *re-naturalization* of the four locations.

The aim of this brief excursus on the different river narratives was to facilitate the understanding the influence of different ideologies on the role and use of water; the varieties of the relationship between mankind and nature; but also to recognize how differently the causes of damage and the very idea of damage are conceived. In general, the identification

⁷ *Idem*, p.331.

⁸ *Idem*, p.332.

⁹ *Idem*, p.331.

¹⁰ WHITE, R., (1995), *The Organic Machine. The remaking of the Columbia River*. Koboglo HD version. New York, Hill and Wang.

¹¹ *Idem*, Chapter 4, 'Salmon'.

¹² *Idem*, Introduction, p.2.

¹³ *Idem*, Chapter 2, 'Putting the river to work'.

¹⁴ *Idem*, Chapter 3, 'The power of the river'.

¹⁵ *Idem*, Chapter 4, 'Salmon'.

¹⁶ CRONON, W., (1996). 'The Trouble with wilderness or, Getting Back to the wrong Nature'. In CRONON, W., (ed.) (1996). *Uncommon ground: rethinking the human place in nature*. Koboglo HD version. New York, WW Norton.

¹⁷ WHITE, R., (1995), *op. cit.*, Introduction.

of the damage is the starting point for the restoration work. In particular, the projects of restoration of the four dismissed industrial sites have a common view on this matter, which is due to the North-American approach, in that it mirrors those cultural beliefs and principles on Humans and Nature that environmental historians consider divergent from the European view. In this regard, it is appropriate to point out the difference in individualizing the causes of land degradation (or damage) between the two views.

In *Transatlantic history of environmental restoration*¹⁸, Marcus Hall states that Europeans regard degradation as resulting from 'acts of nature'. By contrast, Americans acknowledge such effect as caused by humans. Hall refers to George Perkins Marsh (mid XIX century theorist) who considered 'nature' as an untouched wild land that humans could either make pleasant or harm and degrade it. Accordingly, culture was seen as the main source of damage. Marsh originated the idea that underpins the American conception of land degradation. This concept generated the so-called '*reparative naturalizing*' of which Aldo Leopold was the main promoter. Through his well-known metaphor of 'thinking like a mountain'¹⁹ (1949), Leopold believed in repairing the degraded land by stimulating and recreating Nature's processes. Therefore, Leopold considered nature as the main source of redemption. For Europeans, these paradigms are in contrast with the long history of human interaction with the land (cultural landscapes). To validate such mutual influence, Hall refers to Comte de Buffon (XIXth Century French natural philosopher), who believed that the highest goal of humanity on land was to 'garden' and 'improve' it. Consequently, wild nature needed human actions in order to acquire value and also to maintain it against the natural forces, which were considered the causes of land degeneration. According to Buffon, culture was therefore the main source of redemption. Maybe this viewpoint caused the European settlers to recognize the North-American land as wild nature to strive against in order to turn it into a more useful and productive state.

In the intense transformation of the Willamette River, it seems that culture and nature, or even better human history and history of the river, have merged. Thus, it is legitimate to wonder about the possible kind of 'return to nature'. Does restoration transcend these categories? I will take up the discussion again on these categories and the above-mentioned paradigms in the analysis of the design proposals of each of the four sites.

About the research

This book is the result of a research started at the University of Oregon, LA Department, in 2012-13 and carried out until now. At the beginning of the research the industrial context along the Willamette River was unknown to me, and fascination grew while I learnt about the vast dimension of the North-American factories (compared to the European ones) and their overwhelming monumentality. It is well known that these structures drew the attention of masters of modernism (1920s: Le Corbusier, Gropius, Mendelsohn, etc.), who saw the expression of the new world of science and technology in them²⁰.

The site visits did not diminish my appreciation of the above-mentioned characteristics, however, my interest slowly shifted towards a slightly different direction during the studies. Initially, I was interested in historic preservation and water, but this evolved to provide a general demonstration of the relationship between redevelopment and environmental change. Therefore, the investigation focused on the impact of this industry onto the landscape and how projects of restoration-reuse interpret the triangular relationship among industry, landscape and water, namely the Willamette River. In particular, the aim was to understand the development of the current situation and the prospects for combining the water use with the conservation of the site's historic features.

The investigation of four dismissed industrial areas stretching along the Willamette River has been carried out within this belief. The areas are located in the main cities of the Willamette Valley, where two-thirds of the Oregon's population lives. These sites are very different from each other in terms of size. Moreover, the Oregon City Paper Mill area (formerly a saw mill and woollen mill) is the oldest one (1832), followed by the Eweb area (1908) in Eugene, then the Portland's Centennial Mills (1910) and finally Minto-Brown and Boise Cascade in Salem (1920). With regard to materials, each site is remarkable for innovative construction techniques and

¹⁸ HALL, M., (2005). *Earth Repair: A Transatlantic History of Environmental Restoration*. Charlottesville, University of Virginia Press.

¹⁹ LEOPOLD, A., (1949). 'Thinking like a mountain. Wolves and deforestation'. In: *A Sand County Almanac*. New York, Oxford University Press; pp.1-2. Accordingly, mankind is regarded not as an isolated individual but is part of an interconnected web of all the elements in the ecosystem.

²⁰ BANHAM, R., (1986). *A concrete Atlantis. U.S. Industrial building and European Modern Architecture 1900-1925*. Cambridge, Massachusetts, The MIT Press.

the use of reinforced concrete; moreover, industrial architecture celebrities in the Pacific Northwest left their creative design contribution in the industrial structures they designed. All sites are located on the floodplain of the Willamette River or are under the risk of flooding. In the book, the succession order of these sites is based on the direction of flow of the river (south-north). Therefore, the book will begin with the Eweb area in Eugene; then Minto-Brown Island-Boise Cascade Site in Salem and The Blue Heron Mill in Oregon City; and finally, the Centennial Mills area in Portland. These former industrial areas have a unique location in their cities. They are between downtown and the river, and the public use of these 'forbidden areas' would re-engage the related city to its waterfront. Moreover, each city has already made plans/proposals for these areas and held public hearings, thus receiving testimony from the public on the proposals. This research draws on those official plans (and policies) and documents supporting design efforts, observations and public events.

Some questions arise: What is the role of water in the transformation process? Besides 'mirroring' the architecture of the new waterfronts, how is water used in engaging the public to experience these sites both as physical and cultural places? How is the industrial past echoed in the projects of reuse? How does restoration-regeneration re-engage these forgotten industrial landscapes into the urban life? Does the new design aim to incorporate water within the architecture? These core questions are also part of the interviews to academics and practitioners that have contributed to the making of this book. The goal was to register different approaches in sketching scenarios for the transformation of industrial sites and their implications/relationship with water. Finally, the aim was to identify hints for the best strategy to undertake in order to accommodate multiple needs and to promote the improvement and enhancement of the industrial water city.

In practical terms, the Willamette River symbolizes the 'blue' thread connecting the different areas. This river entered the American Heritage in 1998 (amid 14 rivers) and its course was dramatically 'remodelled' during the years. In the past, the Willamette River meandered across the valley floor, frequently changing channels. Nowadays it appears rather tamed compared to the past: dredging, wing dams, revetments and project of flood control have contained the flow pattern into a simpler and deeper channel. Many of these transformations occurred between the 1830s and the early 1900s and later in the 1950s until the 1970s. Industry and safety reasons played a key role in this transformation.

In theoretical terms, the matter concerns how the past distinctiveness and complementarity among the sites, all of which are bound by the river, is nowadays energised in their regeneration and how the water may play a decisive role in this process.

Methodologically, the research strategy focused upon the development of a descriptive model of landscape change based on historical records and contemporary fields observation. The evolution of each site was used to speculate about the future trajectories of the site itself and with relationship to the current design proposals of transformation. The main outcome of the research was to establish the architectural and landscape constraints and opportunities for each site to be preserved and also to find out how new projects valued these features.

The four design interventions were developed on a common ground: the concept of idealization of the '*natural*' river, which contrasts with the effects of the human interventions on the river. '*Natural*' stands for a condition of pristine and untamed nature, which means the return to a pre-industrial state through restoration. The '*natural state*' coincides with the '*ideal land*'. Consistently with this concept, the designs of transformation have three action points in common: a riverfront area to *re-naturalize*; a former industrial complex to regenerate; and a river-path that enables the public to *experience* the *natural* riverfront.

About history

The historical past and evolution of the four sites has a significant role in the book. However, this is not a book on the history of the industry along the Willamette River. History helps us to understand the very qualities that attract us to these places that play a critical role in the cultural positioning and branding of the contemporary city. History teaches us that each

industrial area is unique to its city: despite functional requirements, unpredictable changes in development history and site specific conditions, each area has required tailor-made structures and infrastructures. History tells us about the interplay between human history and history of the river and it calls for our critical examination of what 'nature' or the 'natural state' is within the restoration practice.

These characteristics define the peculiarities of the place, the place identity, and its authenticity. Moreover, history helps us to understand the scale of these sites, which are often intimidating, the appraisal of the many artefacts on the site, which can have a viable role in the future development. Lastly, history helps us build a vocabulary of materials and visual language which are peculiar of industry-industrial landscape and are well-suited to the site specific, thus providing a grounded material and visual fund for the new added layers and experiences of the site.

In general, the projects have a tendency towards a simplification of the site history in order to reinforce the idea of what nature/wilderness should be. To a certain extent, culture as the main source of damage is to be blame. In this respect, Marsh's idea of nature is fully embraced. Culture is then distinct from nature and supposedly each of them can take its own course. In fact, at this point the projects fork and create two diverging lines: the man-made line (architecture) and the natural one (vegetation). Accordingly, it occurs that the first one, the existing industrial structures, are considered expression of the local cultural history and therefore they must be protected for their heritage value; on the contrary, the second one, riverfront riparian nature, must be cleaned up of any trace left by the 'cultural history'.

With regard to the time reference in the projects, this seems elusive and sometime ambiguous. On the one hand, time is 'progressive', i.e. it looks ahead, with regard to the heritage buildings that should be adapted to accommodate *future* uses; on the other hand, it is 'regressive', i.e. it looks back, regarding nature as if it must return to the *past* 'natural' state by peeling off all traces of industry. In so doing, this approach seems to generate a new ideal time frame where to negotiate divergences and where nature and culture did not coevolve.

The sense of nostalgia is often echoed in the projects. The desire to return to the 'natural'-native landscape elicits an emotional response from the visitors/users and reinforces this feeling. The 'naturalness' that the design proposes is not the real wilderness but an attempt to reproduce the people's image of wilderness. Thus, the ideal land coincides with an idealized one. This means that what is restored is an ideal landscape based on human choices, perception and understanding of the place²¹. Environmental scholar Eric Higgs would call this ideal landscape *wildness* instead of wilderness so as to differentiate the condition of mediated places from those ones that are truly wilderness²².

In general, we can say that the four design projects may fall in the category of 'inclusive restoration' as defined by Higgs in his book *Nature by Design* (2003). As meant by the term itself, diverse types of restoration, such as replacements, naturalized areas, new ecosystems, mitigation, etc. are all accepted. 'Such restoration guarantees that a great amount of creativity and broad public attention is given to restoration'²³. Therefore, the boundaries of restoration are vast and the 'great amount of creativity' leaves space for a variety of ambiguities, intentions and probably disregards matters of genesis and history in the name of a comprehensive and positive value of the restoration as perceived by the common people.

About water flows

Water, either stagnant or flowing, either clean or polluted, has shaped the landscape of the Willamette Valley. A landscape considered limitless in its natural resources and ecologically malleable.

The historian William Robbins calls 'systemic alterations' those changes in the landscape that water manipulations and technological innovations generated in the Willamette River²⁴. They increased the speed of water flow, its amount and redirected it. Similarly, designers have managed water in many ways in the revitalization of each former industrial area. Specifically, water is ruled to shape educational habitats, as in the EWEB area in Eugene; the water power is celebrated as a source of unique experience, as for the Willamette Falls next to the Blue Heron Mill in Oregon City; hidden water is revealed, as for the day-lighting of the Mill Creek-

²¹ HALL, M., (1997). 'Co-Workers with Nature: The deeper Roots of Restoration'. In *Restoration & Management Notes*, Vol. 15, No.2, Winter 1997, p.176.

²² HIGGS, E., (2006). 'Restoration Goes Wild: A Reply to Throop and Purdom'. In *Restoration ecology*, Vol. 14, No. 4; p.500.

²³ HIGGS, E., (2003). *Nature by Design. People, natural processes and ecological restoration*. Cambridge, Massachusetts, The MIT Press. p.77.

²⁴ ROBBINS, W.G., (1997). *Landscapes of Promise. The Oregon Story 1800-1940*. Koboglo HD version. Seattle & London, University of Washington Press.

Pringle Creek that flows across Boise Cascade area in Salem; water configures the ecological net of the River District Park System and is a poetic metaphor of the historic Tanner Creek as in the Centennial Mills area in Portland.

Finally, the combination between the flowing water of the Willamette River and the interpretation of water in the four projects point out and strengthen the principles of the Willamette Greenway Program. Each design intervention provides a contextual landscape complying with the Greenway Program and all of them puncture the 'natural' landscape of the river providing a variety of sceneries along this single unifying green-blue corridor that is the Willamette River. Therefore, the Willamette River configures itself as a blue infrastructure along which a stretched park grows. The outcome is a cultural landscape with heritage sites binding the four design interventions. Such connection plays a significant role in reinforcing the landscape of memory characterizing the Willamette River. Just as it happened in the past, also in the future the flowing water will shape the Willamette Riverfront once again.

I would like to conclude by explaining the title of the book. I use the term '*ghost*' in a provocative manner: the buildings are physically in place but the activities are no longer within. Although the factory is a spectre, its spirit can activate a new phase for the site. Therefore, industry is not a nebulous or faint secondary image; on the contrary '*ghost*' is meant as a generating device, able to perform logical operations on an initial set.

The reference to the '*ghost cities*' described in the book '*Willamette Landings*' by McKinley Corning (1947) is not a coincidence. These cities appeared and disappeared according to the fluctuation in the growth of industry along the Willamette River. They were mere products of the industry.

'*Ghost*' has an inductive meaning, and gives rise to regeneration and to a new water flow.

2. INDUSTRY AND LANDSCAPE IN THE PACIFIC NORTHWEST

A brief history

²⁵ VAUGHAN, T., (ed.), GUEST FERRIDAY, V., (associate ed.) (1974). *Space, Style and Structure. Building in Northwest America*. Portland, Oregon Historical Society (Vol.1 and Vol.2).

²⁶ ANDREWS, R.W., (1968). *Timber: Toil and Trouble in the Big Woods*. Schiffer Publishing Ltd, West Chester, Pennsylvania.

²⁷ Puget Sound, in Washington State, is an inlet of the Pacific Ocean formed by three connections. In hydrology term, it is a bay, according to the USGS, with several channels and side streams. It is a complex area formed by four deep connected basins forming a large salt water estuary, or system of many estuaries, fed by highly seasonal freshwater from the Olympic and Cascade Mountain watersheds. The name Puget Sound is also used to indicate the related region.

²⁸ Named also as the Corps of Discovery Expedition, the Lewis and Clark expedition travelled about 13.000 Km, while exploring and mapping the route. The expedition named geographic locations after expeditions' members, loved once, etc. The exploration started from Camp Dubois, Missouri and the final arrival point was Astoria (Oregon), on the Pacific Ocean; from this location the expedition returned to St. Louis, Missouri where Lewis and Clark reported their discoveries to president Jefferson, who commissioned the expedition.

²⁹ WILLINGHAM, W.F., (1983). 'Army Engineers come to the Pacific Northwest'. In: WILLINGHAM, W.F., (1983). *Army Engineers and the Development of Oregon. A History of the Portland District U.S. Army Corps of Engineers*, Washington, D.C.: Government Printing Office (GPO) pp.2-3.

In the book *Space, Style and Structure. Building in Northwest America*²⁵, Lewis L. McArthur presents a detailed description of the development of industrial architecture in the Pacific Northwest. Accordingly, the historical evolution can be divided into four main periods, namely: *after trade, railroad era, motor age* and *freeway form*. This division expresses the growth and diversity of industry with relationship to the development of the transport infrastructure in the Pacific Northwest and the changes that occurred in the landscape.

The goal of this chapter is to provide only the background to the four industrial areas that are the subject of this book. Therefore, this chapter is not exhaustive with regard to the rich and complex industrial history that shaped the landscape of the Pacific Northwest.

The vast forests of conifers, mainly Douglas fir²⁶, the abundant bodies of water and fish (salmon), mineral resources, and the high fertile alluvial soil of the Willamette Valley were the basic features to attract pioneers and settlers and the rise of the industry in the Pacific Northwest. The Spaniards and the English explored the Oregon coast in the XVI and XVII centuries, followed by the Chinese traders. After the discovery of Puget Sound inlet²⁷ by George Vancouver and the mouth of the Columbia River in 1792, the United States claimed the 'Oregon Country'. Such claim was also strengthened by the discoveries of Lewis and Clark expedition (1804-1806)²⁸, whose primary aims were to find a direct and practicable water communication for fur trade across the western part of Louisiana until the Pacific Coast, to make diplomatic contacts with the Indians and 'to determine the feasibility of using the explored region as link in fostering commerce with the Orient'²⁹.

The knowledge of the western landscape of that period results from sketches, chronicles and more than 140 accurate maps made by captains Lewis and Clark during their expeditions.



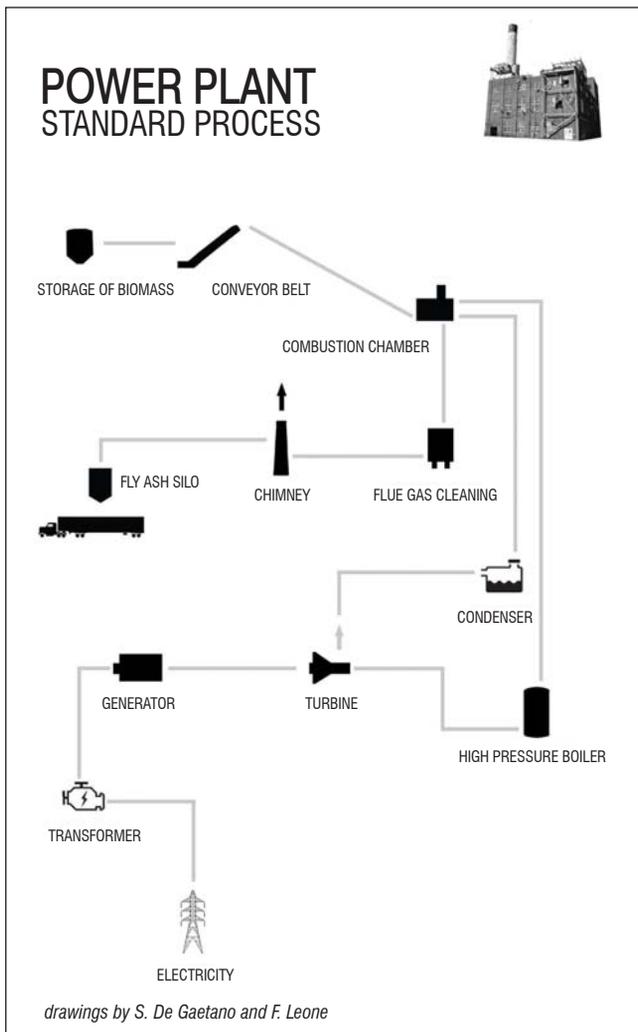
How does water influence the regeneration of industrial waterfronts? Which water features are involved when engaging the public in experiencing these sites? What is the role of the industrial heritage in the process of reuse? How are these forgotten industrial landscapes reengaged in the urban life within a restoration-regeneration perspective?

This section of the book attempts to provide an answer to the questions listed above. It includes four chapters focusing on the projects of reuse of four selected sites located along the Willamette River: EWEB, Minto Island-Boise Cascade, Blue Heron Mill and Centennial Mills.

Each chapter discusses and highlights the key points of the triangular relationship between water, industry and landscape in the design proposal for the site regeneration. The site history is the starting point, followed by the study of the current situation and the critical assessment of the design proposal. Each site is provided with a data sheet displaying technical specifications that help recognize the relationship among the various sites, as well as their similarities and differences.

Literature sources from the local historical archives, online archive material and visual representations either existing or made on purpose such as unpublished drawings, aerial pictures and Sanborn maps, illustrate and enrich the biography of the four dismissed industrial areas while supporting the discussion on each selected case. Moreover, official plans envisaged by the City Council plans for these areas, which include relevant documents supporting such design proposals and articles from newspapers, supply evidence on the exploration of each transformation plan and how this has been both envisioned and described.

The EWEB area in Eugene



DEVELOPMENT FACTS



LOCATION: Eugene, OR, USA

PROPERTY: City of Eugene

TYPOLOGY: electricity, water

CHRONOLOGY:
 construction start: 1908
 addition until: 1988
 closure: 2008

DESIGNERS OF OLD STRUCTURES:

Rowell Brokaw Architects, with: City of Eugene, PWL Partnership Landscape Architects, WRT / Solomon E.T.C. with MZM DesignWorks, Cogito / T'NT Consultants, Leland Consulting Group, Interfluve River Restoration.

COMMISSIONED BY: Eugene Water & Electric Board

Total area: 11 ha

Buildings: 6

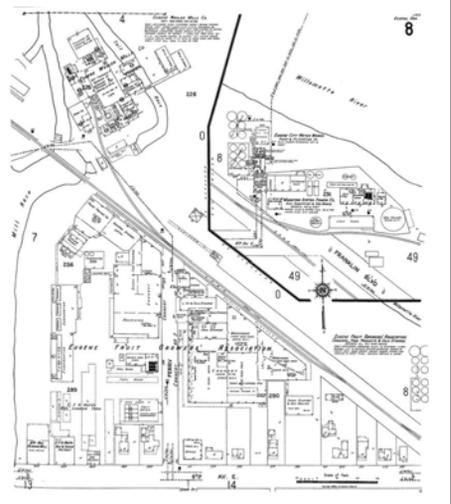
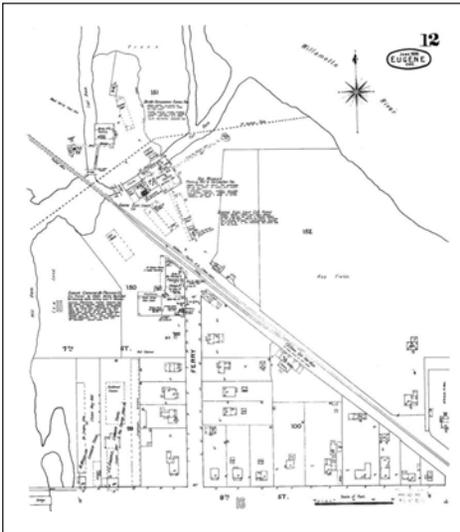
Open space: 3.5 ha

New develop: 3.2 ha

Adaptive reuse: 3.2 ha

Relationship with water:
 recreation, recycling, education



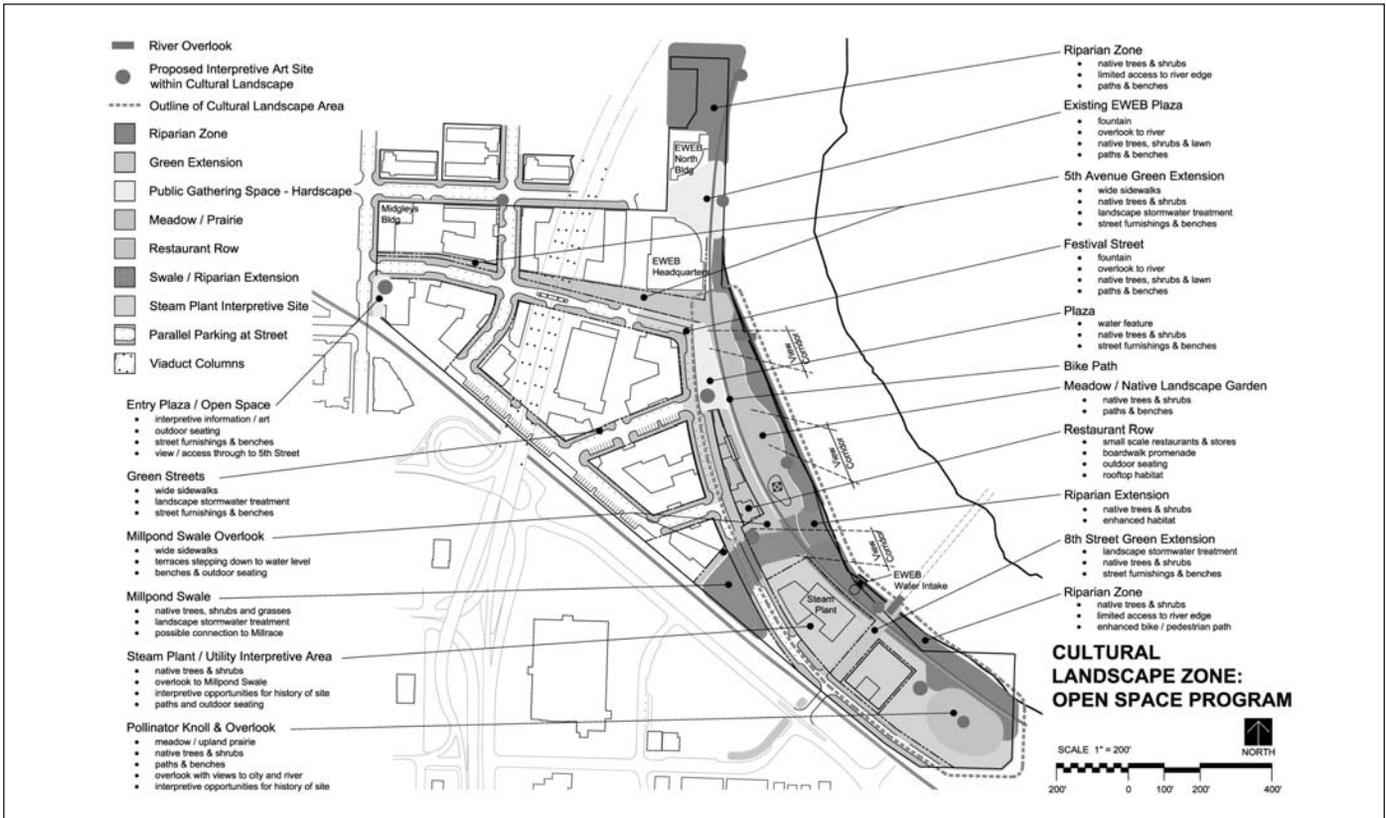


The Willamette River and the EWEB site in the background.

Current view of the Steam Plant with its huge sliding doors for equipment access.

The Operations Building was built in 1949 and housed the first head-quarter of EWEB. The barrel roof shape makes it a visual icon on the site.





Stormwater Management

A Functioning Ecology

Form Based Guidelines

Concepts



Green Fingers pull the river in



Great Loop

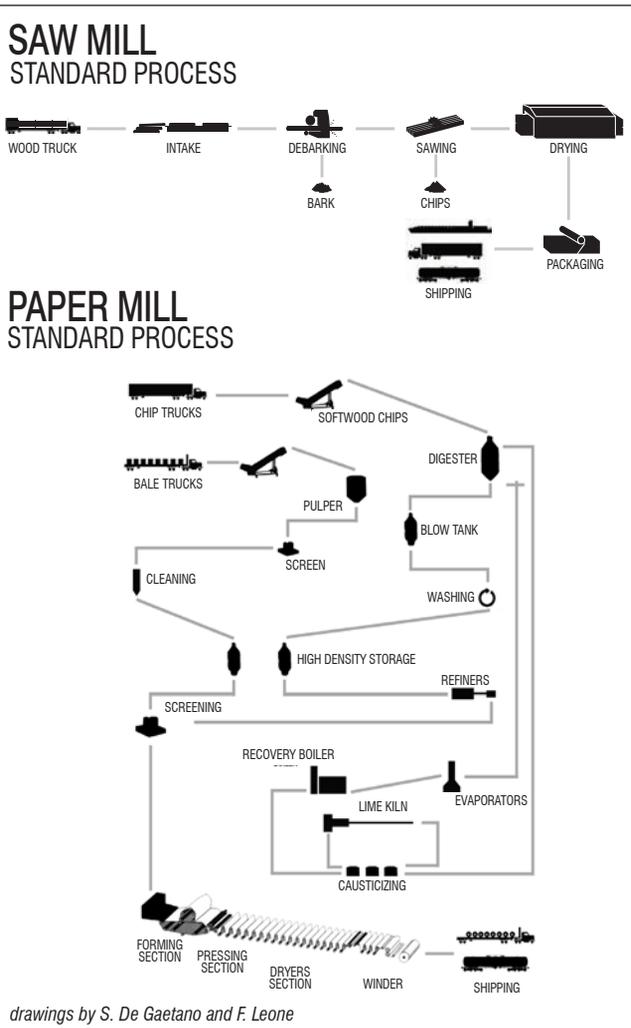


Flexible Framework

The Cultural Landscape brings together diverse and distinct open spaces, interpretative sites and the remaining historical buildings. (Courtesy of Rowell Brokaw Architects)

Key design concepts: they help to translate the guiding principles of the Master Plan into concrete proposals and operate at various levels of the design. (Courtesy of Rowell Brokaw Architects)

Minto-Brown Island and Boise Cascade area in Salem



DEVELOPMENT FACTS



LOCATION: Salem, OR, USA

PROPERTY: City of Salem + private

TYPOLOGY: saw mill, paper mill

CHRONOLOGY: construction start: 1920
additions until: 1965
closure: 2008

DESIGN TEAM: City of Salem, Public Works Department, Pacific Habitat Service in partnership with Greenworks, CB|TWO Architects.

COMMISSIONED BY: City of Salem
Mountain West Investment Corporation

Total area: 124 ha (Minto island)
2.8 ha (Pringle Square)

Buildings: 5

Open space: Pringle Creek promenade

Relationship with water: recreation



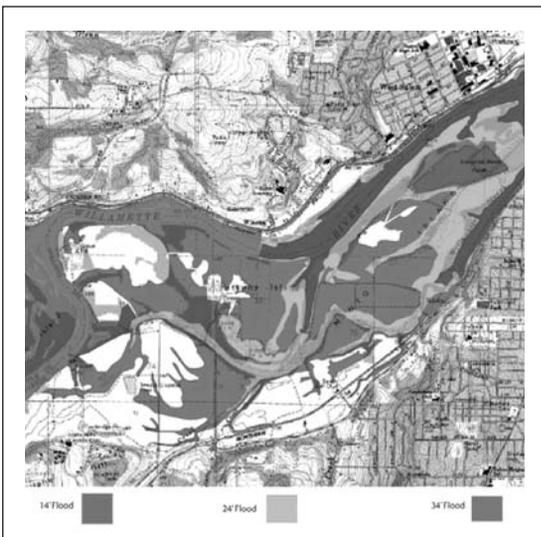


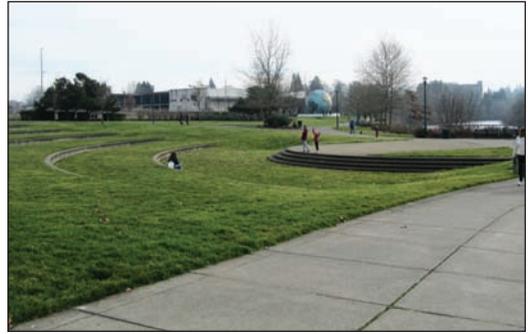
Minto Island flooded in 1996 (courtesy City of Salem)

The parks connections. The new Minto Island bridge provides direct connection to 3 major urban parks. (Courtesy City of Salem)

Flood patterns (Courtesy D. Ruggeri)

Minto Brown Park and riverside trails (dark lines) flooded in 2012





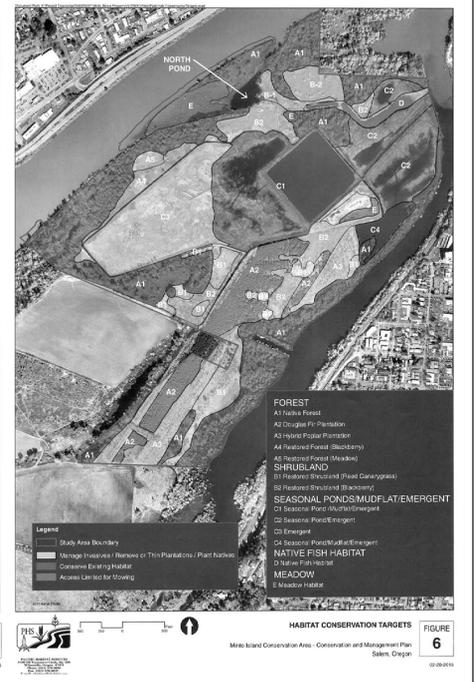
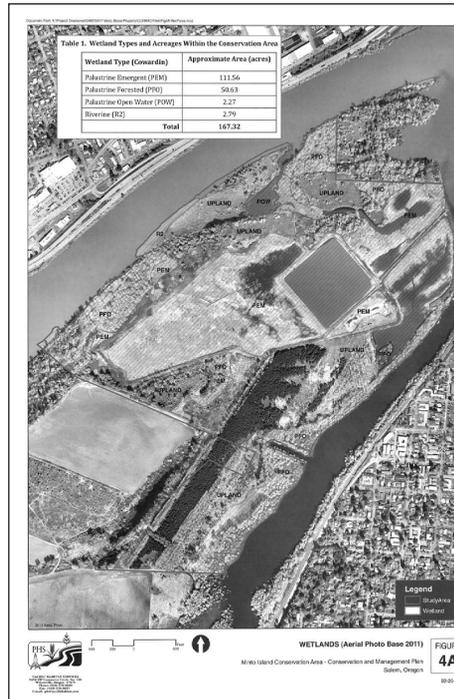
Left: The newly built Peter Courtney Minto Island Bridge, opened to the public in 2017 (Photo by N. Joshi); the treatment ponds softly blending into the surrounding landscape after breaching the interior berm (2011)

Right: Views of Boise Cascade plant, partially demolished (2013) from the Park Parcel; view of the Historic Union Street Railroad Bridge (1912)

Pringle Square Master Plan Area by CB|Two Architects (2014) and MWI

South Waterfront Urban Renewal Area (darker area)

The 307-acre Minto Island Conservation area includes 4 wetland types (fig.1) and is characterized by 7 habitat types (fig.2) that are also restoration targets (fig.3). (source: Conservation Plan by Pacific Habitat Service)



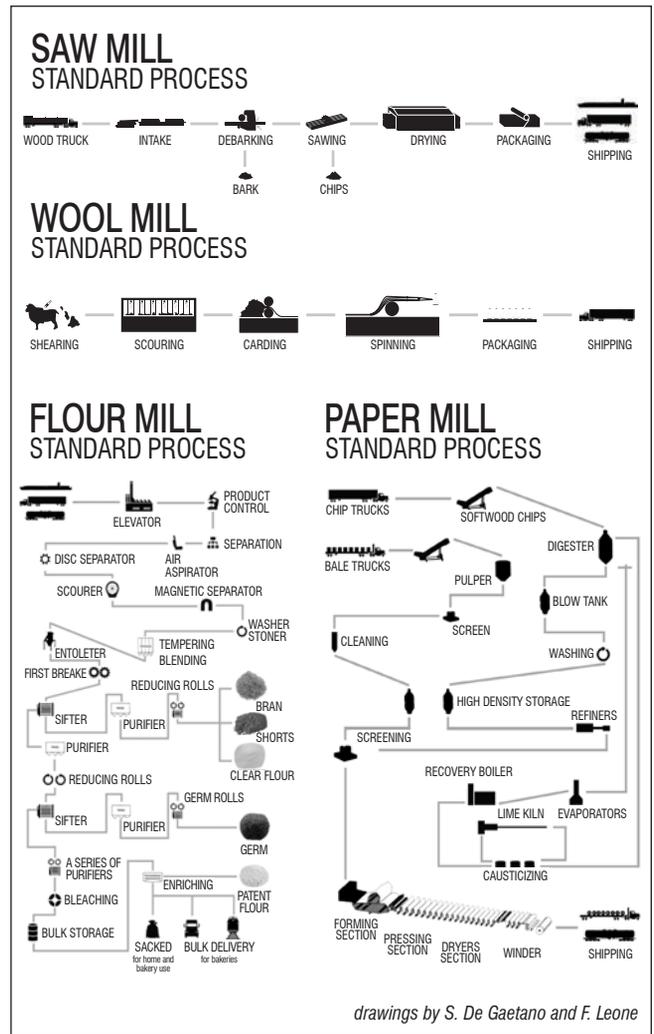


The Blue Heron Paper Mill in Oregon City

DEVELOPMENT FACTS



LOCATION:	Oregon city, OR, USA	Total area:	9.3 ha
PROPERTY:	Falls Legacy LLC + Portland General Electric	Buildings:	57
TYPOLOGY:	saw mill, flour mill, woolen mill, paper mill	New develop:	6-8 ha
CHRONOLOGY:	construction start: 1832 additions until: 1970 closure: 2011	Adaptive reuse:	6 bldgs (scenario 2)
DESIGN TEAM:	Walker Macy (vision, 2014) with: Winterbook Planning, Cogan Owens Cogan, LOCI, ECO Northwest, GBD Architects, DKS, KPFF Engineers, George Kramer, ESA, HRA, Flowing Solutions Snøhetta / Mayer/Reed, DIALOG (riverwalk, 2015) with: JLA Public Involvement, KPFF Consulting Engineers, Flowing Solutions, DKS, NW Geotech, Inc., DCW Cost Management	Relationship with water:	recreation, education
COMMISSIONED BY:	Willamette Falls Legacy Project Partners: Oregon City, Clackamas County, Metro and the State of Oregon		



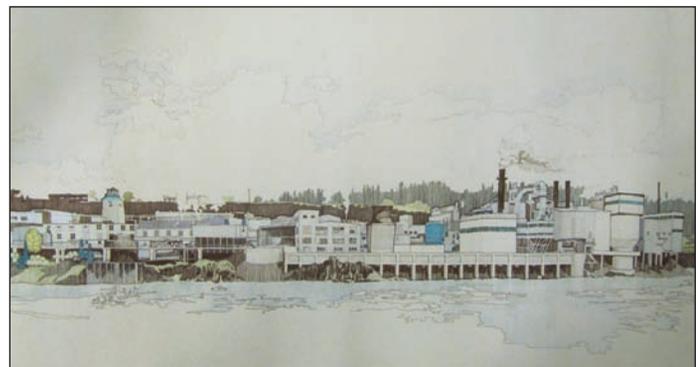
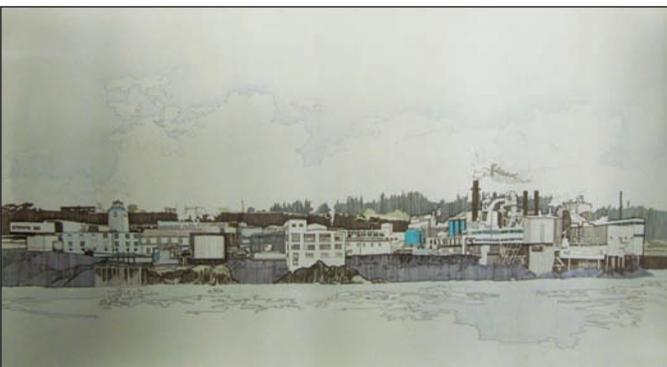
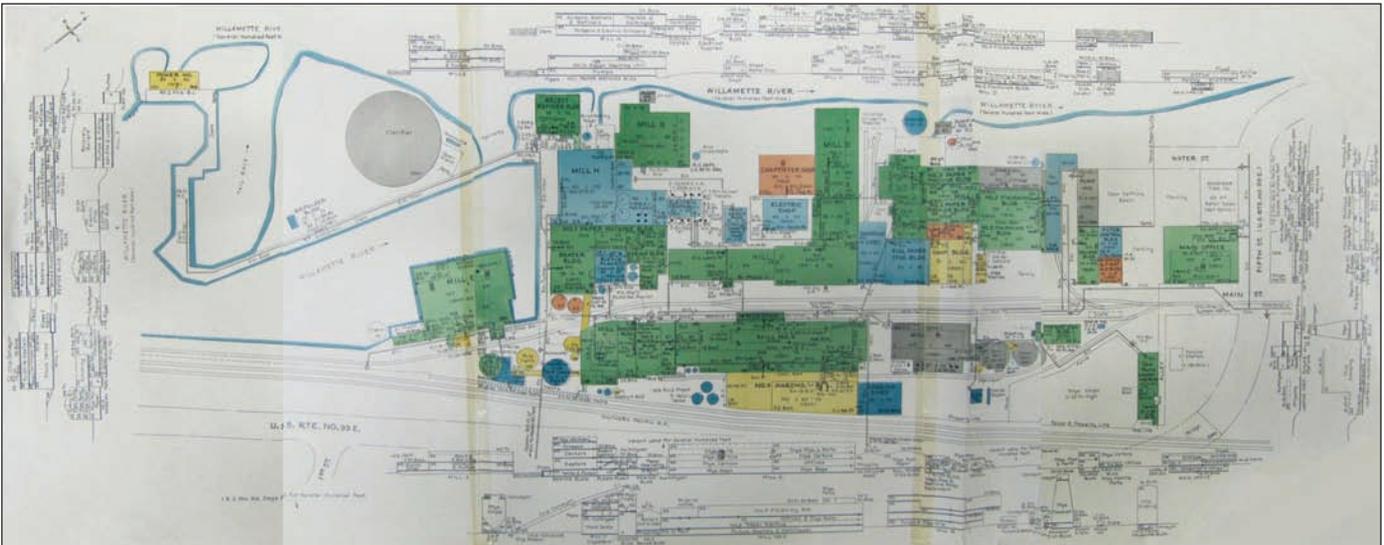
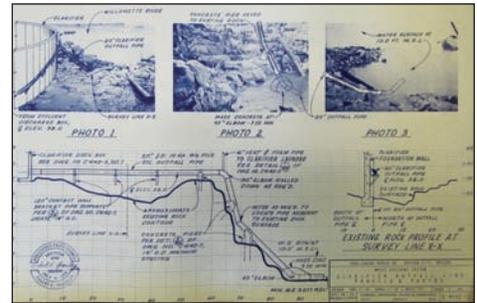
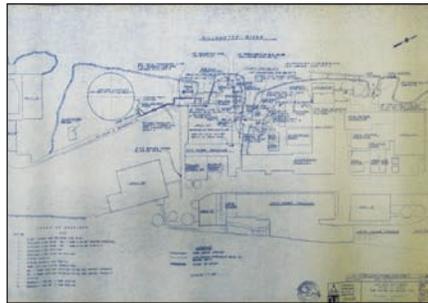
drawings by S. De Gaetano and F. Leone

Views of the flood occurred in 1996 in the Blue Heron Paper Mill. Approx. 5 hectares of the area is within the 100-year floodplain of the Willamette River. (Courtesy of CCHSOC)

Pump stations and pipes running above and below ground; industrial structures clinging to the steep slope of the river as in the blueprint drawings dated probably 1980 (elevation) and 1967. (Courtesy of CCHSOC)

Site plan and sections of the area showing the complex, large and contiguous industrial development. The drawings date probably back from the late 1970s. (Courtesy of CCHSOC)

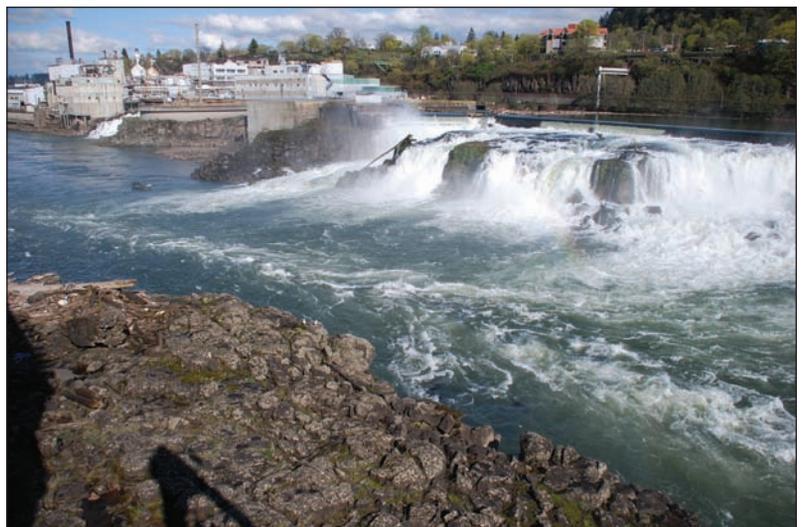
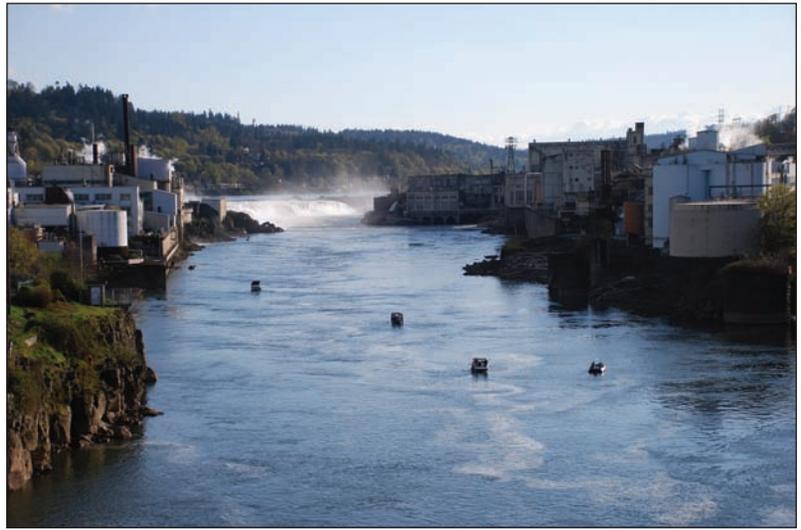
The industrial riverfront 'before' and 'after' 1981. The two hand drawings (aquarelles) of the façade along the Willamette River show the increasing occupation of the available land. (Courtesy of CCHSOC)



The Blue Heron Mill area with its interlocked buildings

Current view of the industrial development flanking the Willamette River in Oregon City and West Linn. In the background the renown Falls whose water powered industries since 1832 (photo by R. Ribe)

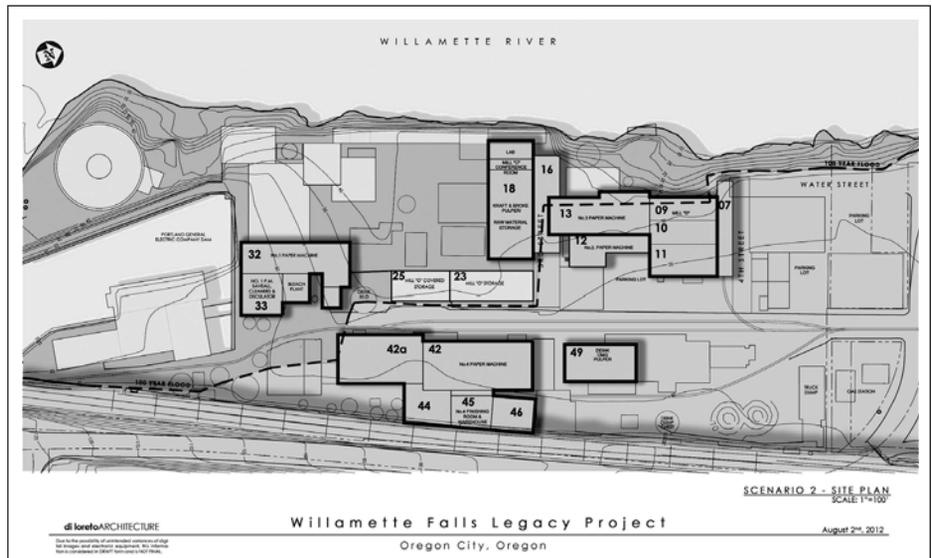
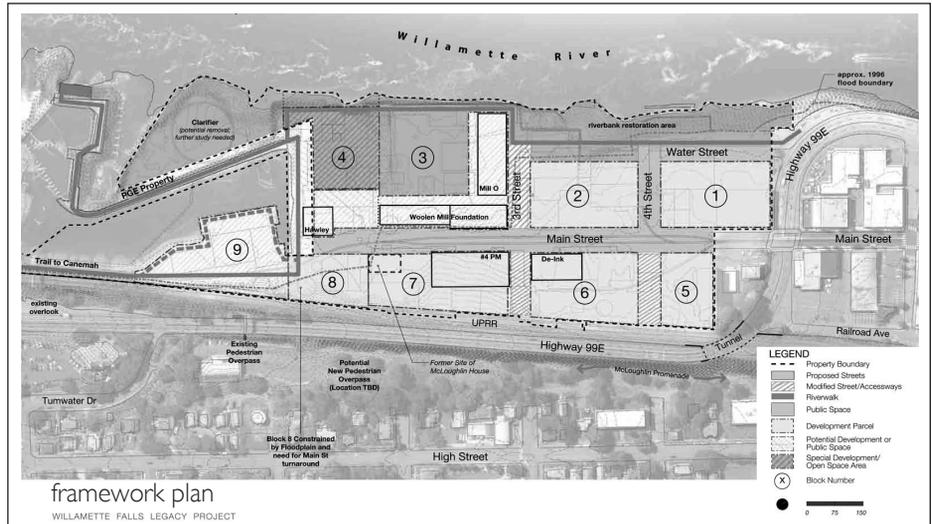
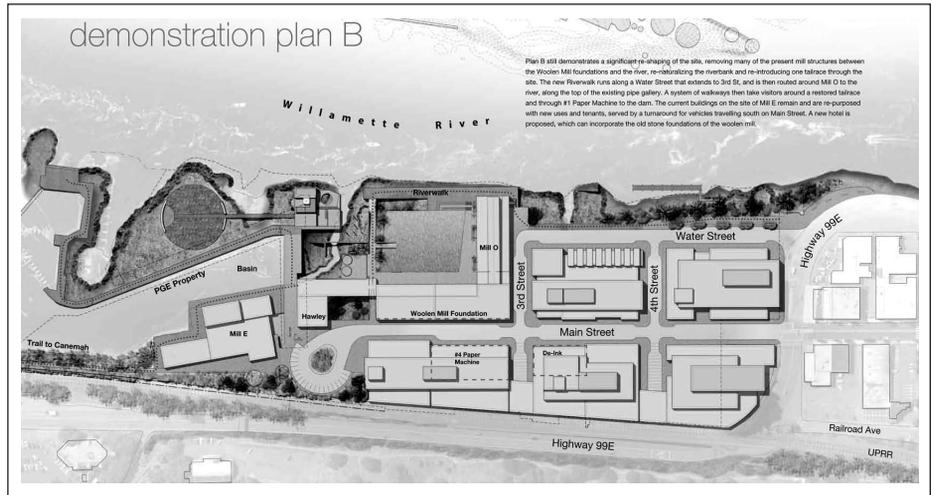
The steep and rocky river edge limiting the linear configuration of the site together with the railroad (photo by R. Ribe)



'Plan B' re-introduces one tailrace in the profile of the riverbank and removes several mill structures between the river and the Woolen Mill foundations. (Source: 'Vision' report by Walker|Macy)

Framework Plan. The green area shows the flood inundation zone in 1996; light yellow and hashed red areas show structures that may be rehabilitated; the orange line is the route of the 'the Riverwalk'. (Source: 'Vision' report by Walker|Macy)

Building 'Scenario 2'. It creates 3 'clusters' of development that include key historical buildings and their adjacent structures for adaptive reuse. (Source: Site Stabilization and Building Assessment Report)



The Centennial Mills area in Portland

DEVELOPMENT FACTS



LOCATION: Portland, OR, USA

PROPERTY: City of Portland

TPOLOGY: flour mill

CHRONOLOGY: construction start: 1910
additions until: 1940
closure: 2000

DESIGNERS OF OLD STRUCTURES:
I.S. Rosener, Whitehouse & Foulhoux, L.H. Hoffman

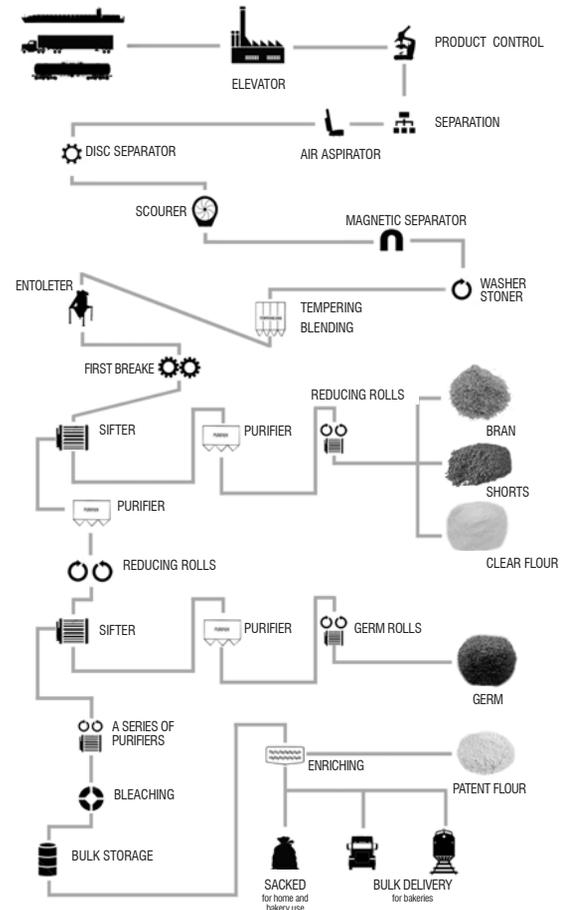
Total area: 1.78 ha

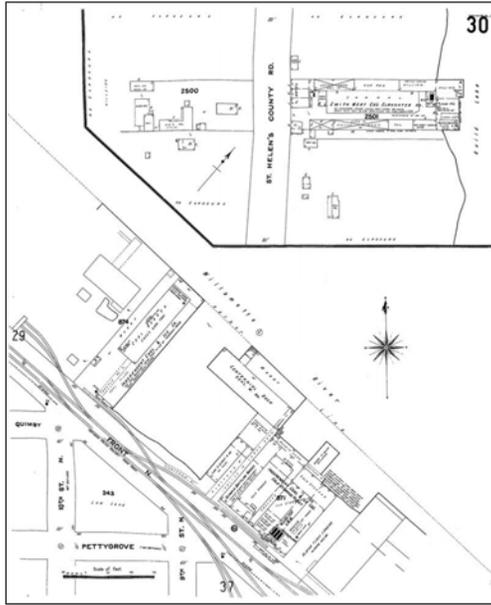
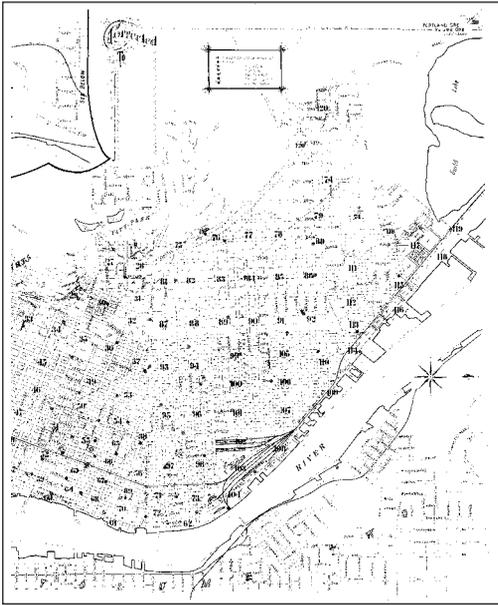
Buildings: 11

Relationship with water:
riverfront park



FLOUR MILL STANDARD PROCESS

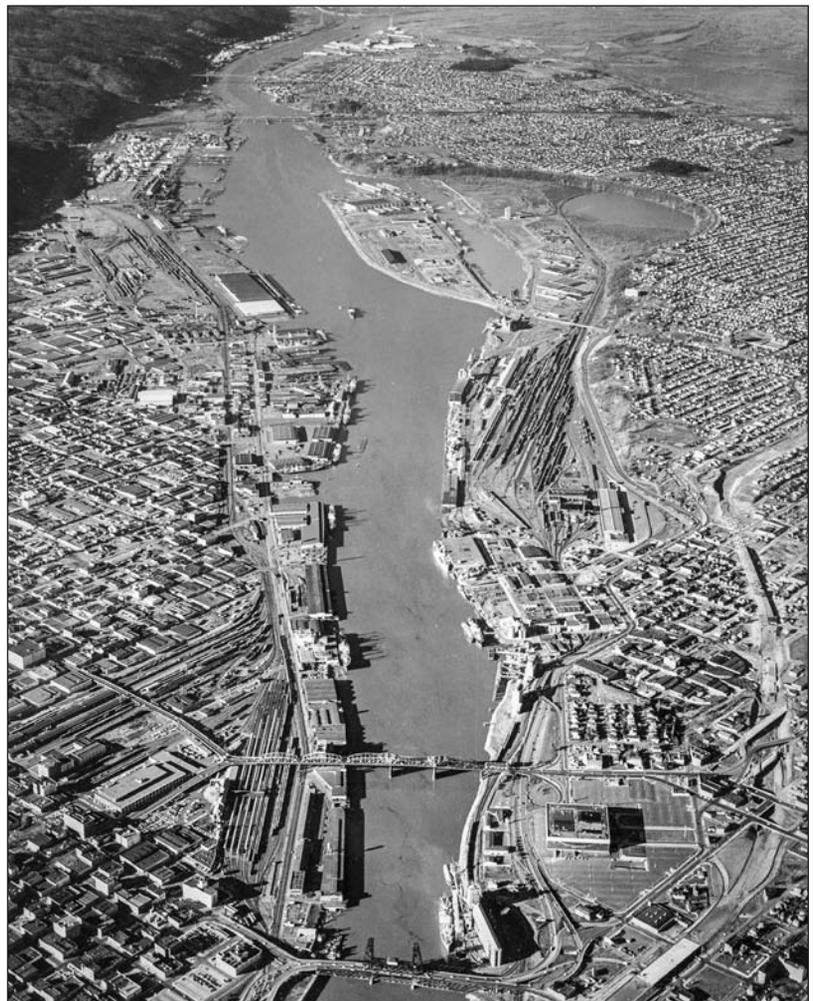




Sanborn Fire Insurance maps showing the high industrial development on the riverfront of Portland (left image, 1901) and a close-up of the Centennial Mills area in 1908 (right). (Courtesy of The Sanborn Library, LLC)

Two aerial photographs of the area in 1936 and in 1980. (Courtesy UOAPRS)

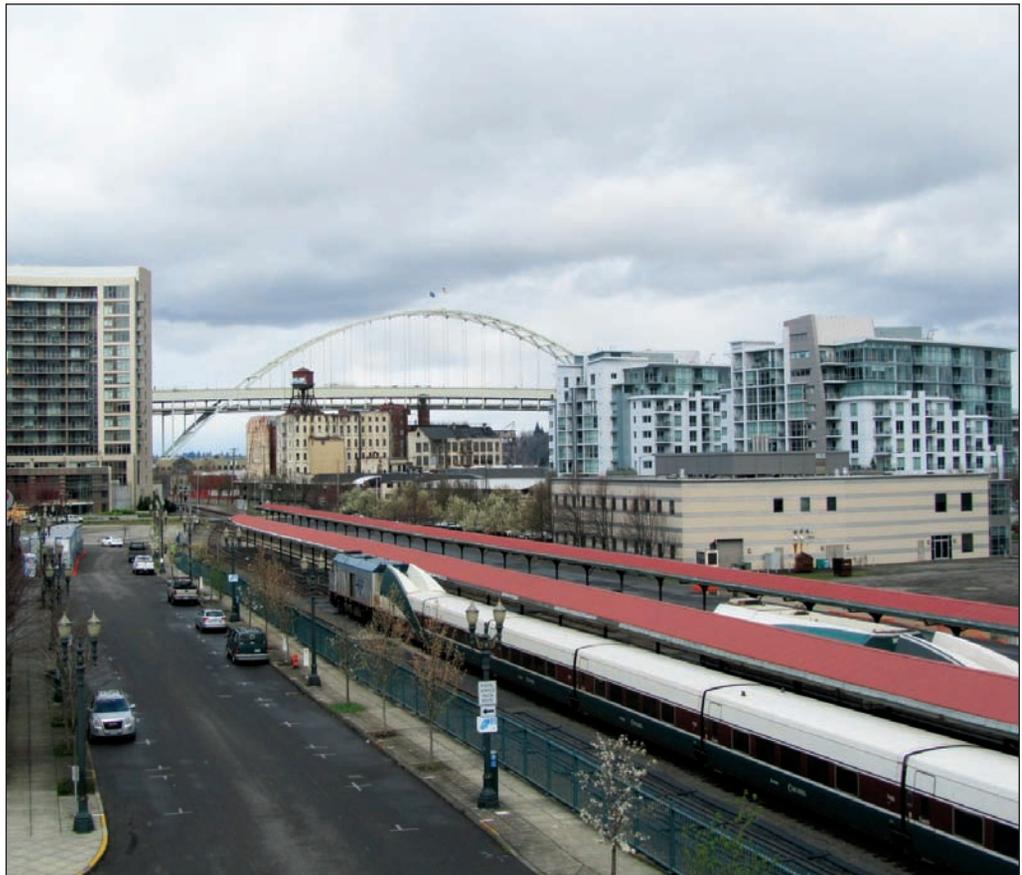
View of the industrial riverfront of Portland in 1963. The Centennial Mills area is located on the left bank of the Willamette River (Courtesy OHS)



The Centennial Mills and the several primary access routes that surround the complex

View from the river of the interconnected structures of the complex, with the Fremont Bridge in the background

The historical Albers Mill Building, former grain mill, stands close to the Centennial Mills and symbolizes Portland's rich industrial-maritime history



The set of amenities along the riverfront of Portland including the Centennial Mills area (Source: PDC, Portland)

Various profiles of the water edge of the Willamette River in Portland as in the Willamette Greenway Design Guidelines (Source: Willamette Greenway Plan, BPP)

