

**Industrial Commemoration:  
A Grain Elevator Prototype for  
Economic Development in Rural Manitoba**

by

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at

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Dédié à mes grand-parents  
(Sabourin et Fillion)  
qui ont persévéré à travers des  
épreuves agrariennes et qui  
ont transmis cette culture à la  
génération suivante

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## **ABSTRACT**

This thesis is inspired by Manitoba's rural industrial heritage that identifies with the iconic, traditional, prairie grain elevator. The evolution of the globalized agricultural industry is made visible through the elevators' system and architectural models, from vanishing wood archetypes to mega concrete structures. The intention of this work is to find economic opportunities generating new networks by initiating a local crop processing program as means of empowering small, local farming groups. This research is a systemic approach that explores the power that a site-specific activity survey may have on prototypical objects that make evident the attributes of crop, land owner type, and local economies. The assembly and disassembly of the new elevator's structure and machine at the micro- and macro-site not only mirror past local networks but also activate the memory of the rise and fall of the powerful wooden steeples that were once rooted in the infinite prairie horizon.

## ACKNOWLEDGEMENTS

There are various people who deserve acknowledgement for their constant support during my thesis journey. First are those who are most precious to me: my parents (Réjane and Denis), and family (Daniel, Lynne, Richard, and Tiffany) for their continuous prayers and confidence in my work. To my friends back home for encouraging me every step of the way and sending me love notes or parcelled gifts as energy boosters; these are Mercédès Mulaire, Brandi Soloway, Lynn Dolyniuk, Kelly Cotterill, Valérie Marion, Ashley Forest-Hamonic, and Joannie Lapointe.

I would also like to thank *mononcles* Hubert and Donald Sabourin for sharing their farming insights; *mononcle* Daniel Sabourin and Rolly Ritchot for teaching me how grain elevators work by way of a personal tour of their work place; Léo and Rosalie Magne for lending their Cessna plane for my aerial photography excursion, along with my brother, Daniel, for piloting the plane; Tiffany Hall for taking time to edit parts of the written work when help was desperately needed.

I am very grateful to the staff at the Village of St-Pierre-Jolys office, Janine Wiebe and Murielle Bugera, and the Rural Municipality of de DeSalaberry office, Chantal Catellier, who connected me with helpful documents about the region.

Significant inspiration for the development of my research was made possible with the guidance of my thesis preparation tutor, Sarah Bonnemaïson. Thank you to my advisor, Christine Macy, and especially my supervisor, Catherine Venart, for pushing me into fields that frightened me; with much trust, I jumped in and discovered valuable architectural ground I never believed possible. Thanks to Robert Collins for instilling in me a rigorous design practice; if you first draw what you see, the rest comes naturally. Thank you to Diogo Burnay for keeping it real when I felt lost, "If you knew what you were doing, you wouldn't need to be here." I'll cherish those moments when we exchanged smiles that essentially carried their own conversations.

Other people who deserve acknowledgement are those who tolerated me in studio, in thick and thin: Logan Brown, Mikko Navarette, Thomas Villiger, Yi-Ran Weng, Matthew Jones, and Adrienne Gerrits. Their constant encouragement and availability to discuss the process of the thesis has been appreciated. Without the late night discussions and the coffee shop brainstorming sessions, the thesis would have taken a different route.

Lastly, the one who deserves most recognition is the Holy Spirit who provided me with many virtues, such as trust, understanding, perseverance, and patience. It is by His grace that I held on to the journey at Dalhousie University. "Amen to that!"

## CHAPTER 1: INTRODUCTION

### Thesis Question

How can a grain elevator prototype that is based on the evolution of local and regional systems and is attuned to site-specific activity initiate economic development for small farming groups in rural Manitoba?

### Context, Site, and Place

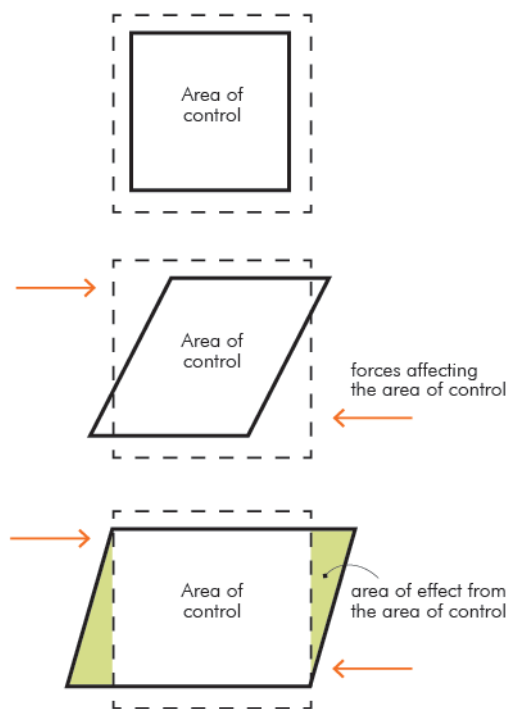
The traditional grain elevator is the architectural icon of the prairies. It identifies the agricultural backbone of the region and the majority of small rural towns. With the new construction of mega silos at the edge of large urban areas, the wooden prairie icons have lost their capacity to support global markets. Ergo, a vast majority of the traditional grain elevators are no longer in operation, some demolished, resulting in a visual erasure of the vertical element on a purely flat horizon. The removal of the industrial infrastructure within the rural regions interrupts many established connections within communities, including environmental paths, social interaction, and economic production - all in the name of global markets.

Activities on a given site have external influences and reciprocating impact on its surrounding environment - socially, economically, and culturally. This goes to discuss how Carol Burns describes "sites" as "three distinct areas". First, there's

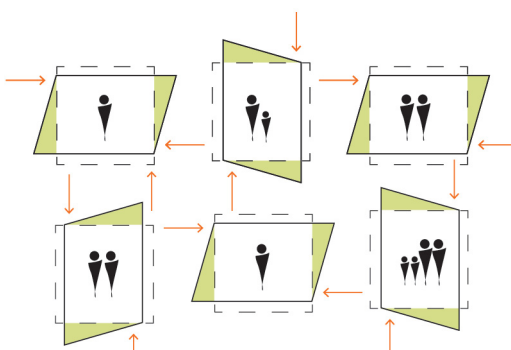
the “area of control” defined by a property with boundaries; second, the outside forces affecting the property in study; and third, the activities on the area of control imposing reciprocating forces on the neighbouring regions.<sup>1</sup> We can look at site at various scales or as social groups. The growth of communities, technology, and industries cannot be done without impacting other groups. Thus, the rise and fall of systems imply a dynamic shift in geopopulation, ecosystems, industry, and even culture. Political and corporate activities have had an impact - positive and negative - on *places* throughout the prairies.

It is important to distinguish the difference between “site” and “place”. “Site-specific is not the same as place-specific.”<sup>2</sup> When we observe a place, we observe its history and narrative through traces. A “place” is much more than space as it encompasses the activities, the emotions, and the natural phenomenon it witnessed until the present moment. A site-specific activity analysis could inform the nature of architectural programs that would create new connections to site and shape our understanding of “place” through time. Using current systems to inspire the essence of new activities will evince human

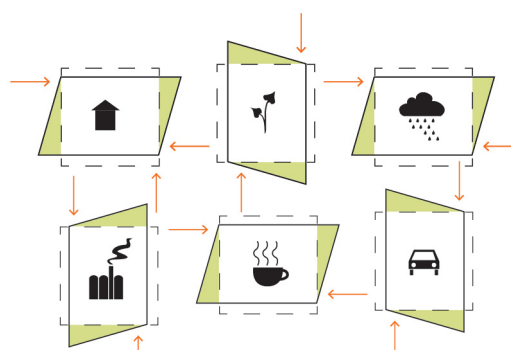
1. Carol Burns and Andrea Kahn, introduction to *Site Matters: Design Concepts, Histories, and Strategies*, by Carol Burns and Andrea Kahn (New York: Routledge, 2005), xii.
2. Lucy Lippard, “Around the Corner: A Photo Essay,” in *Site Matters: Design Concepts, Histories, and Strategies*, ed. Carol Burns and Andrea Kahn (New York: Routledge, 2005), 2.



an interpretive diagram of “site”.



An interpretive diagram of “site” as people.



An interpretive diagram of “site” as industries, environment, and networks.



ingenuity and our ability to adapt to new situations. Consequently, the introduction of new networks to process local crops will inevitably transform the farming community; a new “place” will be created on “site.”

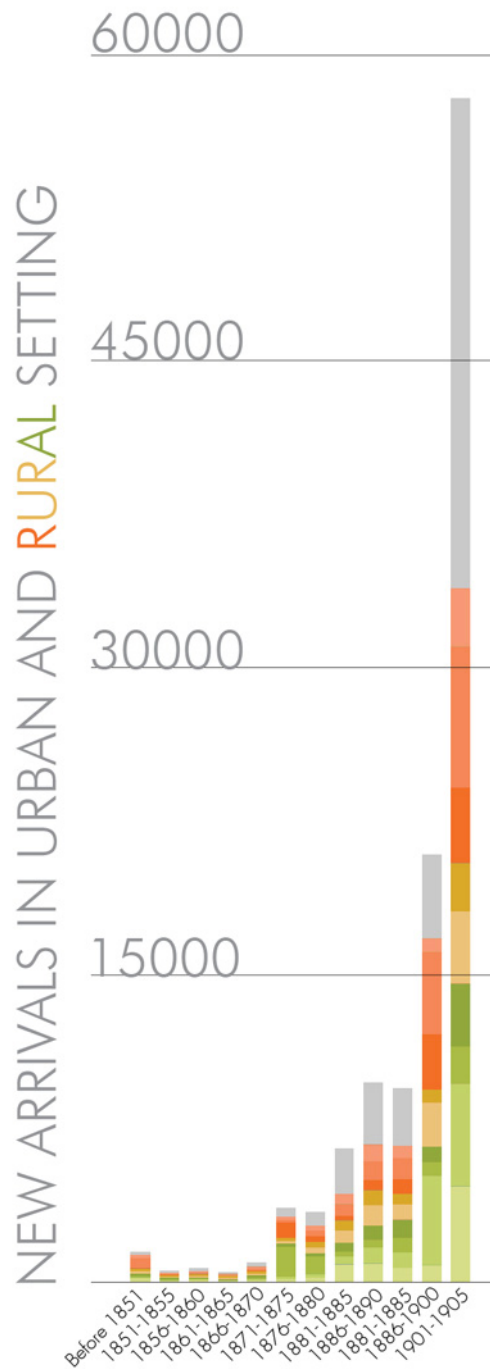
## The Story of Place

When the agricultural industry sparked a market in Manitoba, circa 1870, there was a significant attraction to the water courses slithering through the plains. The water provided the farmers with a source for irrigation and with a distribution line for their agricultural product.<sup>3</sup> As population rose speedily, demand for land increased and almost every acre of rural land was devoted to the agricultural industry. The majority of new arrivals had one goal in mind, and this was to farm. As technology advanced, the means of distribution also improved with the railway system completed in 1885.<sup>4</sup> The railroad became the new river; where there was a railroad, there was a grain elevator, each located at approximately 10 mile intervals along the rails, which was the average distance a farmer would travel with an ox-cart full of bushels and be back home before dusk.<sup>5</sup>

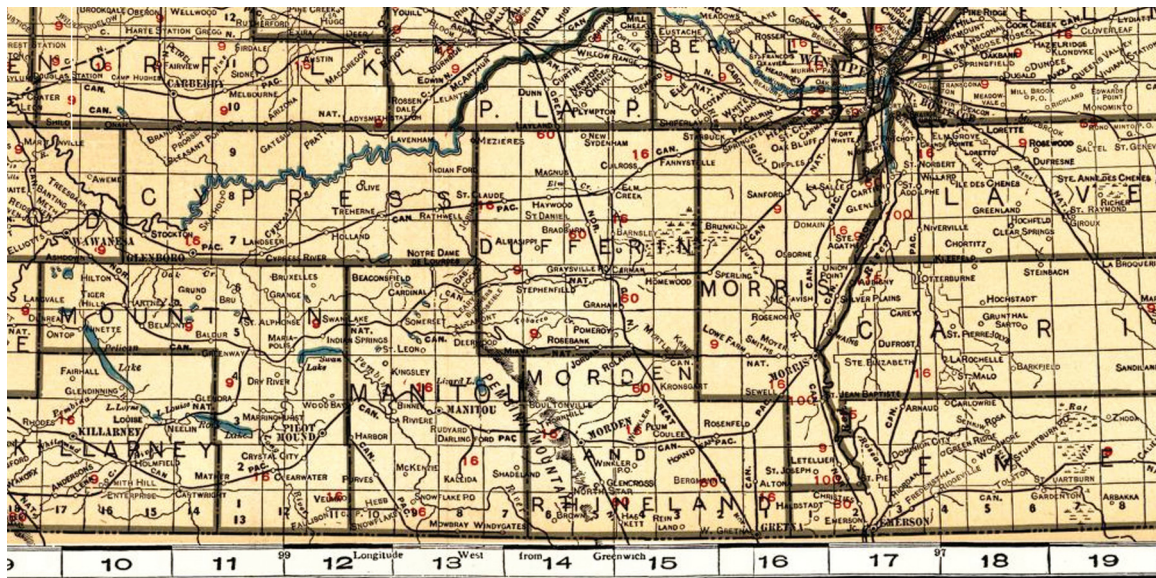
3. William Mackintosh, *Agricultural Progress on the Prairie Frontier* (Toronto: The Macmillan Company of Canada Ltd, 1936), 7.

4. Jake MacDonald, *Paterson: A Century of Service & Innovation*. (Winnipeg: Paterson GlobalFoods Inc, 2008), 8.

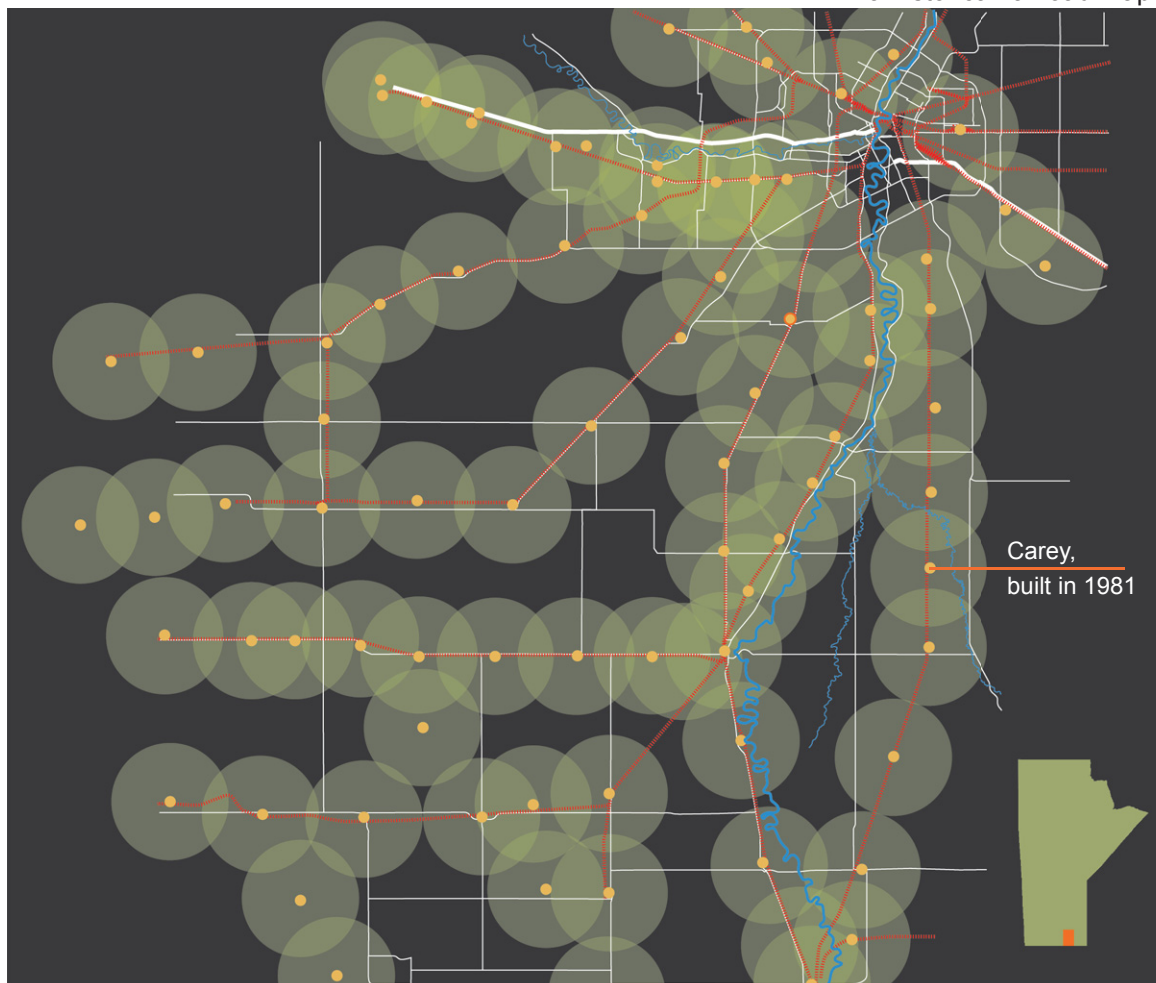
5. Bruce Cherney, “Rural grain elevators - silent sentinels vanishing from the prairies (part 1),” *Winnipeg REALTORS* (2013), <http://www.winnipegrealtors.ca/Resources/Article/?sysid=1749>.



Statistical graph depicting the immigrants arriving in Manitoba between the years of 1851 and 1905. The coloured bars in the graph express the rural population; the gray, Winnipeg. Data from Sydney Fisher, *Census of Population and Agriculture of the Northwest Provinces, 1907*.



“Manitoba,” by Rand McNally and Company, 1921, reprinted in *Alabama Maps*; a historical railroad map.



A translation of the historical map along with a 10 mile diameter area around each grain elevator in southeastern Manitoba. The red lines show today’s railway system; the white, current provincial transportation highways; blue, main watercourses.

The prairie culture is symbolized by flat lands, a cultivating economy, and the building of a rural family lifestyle with eyes on the prairie cathedrals that will store the fruit of the farmers' labour. A true sense of rural industry was created as the agricultural community took force in the prairies. At the elevator grounds, neighbours crossed path, conversed and partook in a growing support of their affairs. The grain elevator created a *place*, that drew its power from the community and the land. This is where space and time unite through the "creation of the social, psychological, and cultural relationships that people have to particular landscapes or physical spaces."<sup>6</sup> Three generations later, this "place" fell to the ground and gave way to the larger demand for efficacy. A few decades after the oxen and horses ceased to be the 'horse-power' in the field, farmers invested in their first tractors, swathers, and combines. Mechanization took over the agricultural production.

Efficacy in distribution brought about Darwin's theory of natural selection into the farming culture; only the toughest, richest, risk taking farmers attain the land, expanding it with more machinery and more land - buying the smaller farmers out. The constant growth is causing a battle - economically, ecologically, and visually. The farming culture has veered from a common family lifestyle to a business enterprise demand-



"Wagons loaded with bags of grain awaiting delivery to elevators in Brandon, circa 1888", from Archives of Manitoba, Manitoba Historical Society.

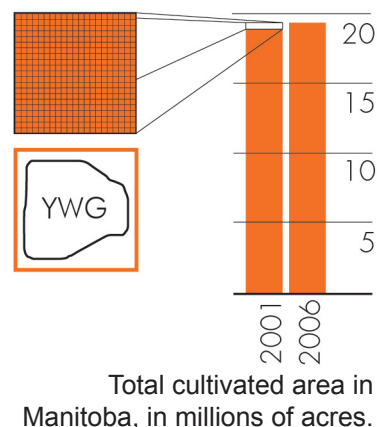
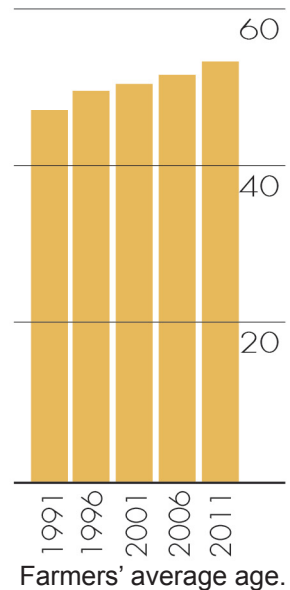
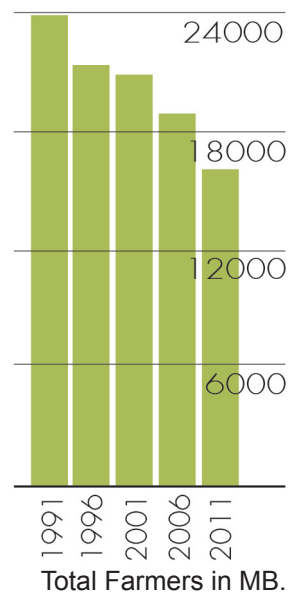
6. Sue Sorensen, *West of Eden: Essays on Canadian Prairie Literature* (Winnipeg: CMU Press, 2008), 9.

ing higher education in highly specialized fields. The result is trifold: first, a constant clearing of land for more productive acres;<sup>7</sup> second, a constant decrease in numbers of farmers;<sup>8</sup> and third, an increased average age of farm operators.<sup>9</sup>

With technological progress came a need for improved efficiency of grain storage, land management and product distribution via rail and truck. In the last two decades, loading regulations kept increasing; the Canadian Pacific Railway and the Canadian National Railway imposed regulations for minimum of 50 to 100+ carloads per train stop.<sup>10</sup> Thus, mega concrete silos erected and select traditional elevators expanded with wood or steel annexes - the side additions - to store larger quantities of grain.

While the injection of larger terminals strategically dispersed throughout the region evince a positive outlook within the progressive realm of our agricultural industry, the demolition of the primary prairie icons deceives community members. Paul Virilio, a French urbanist and theorist, reflects on speed during an interview with Andrea Ruby, an architectural theorist. Virilio states,

7. Statistics Canada, *2006 Census of Agriculture, Farm Data and Farm Operator Data*, Catalogue no. 95-629-XWE.
8. Ibid.
9. Statistics Canada, *2011 Census of Agriculture, Farm Data and Farm Operator Data*. [http://www.statcan.gc.ca/pub/95-640-x/2012002/prov/46-eng.htm#Farm\\_operators](http://www.statcan.gc.ca/pub/95-640-x/2012002/prov/46-eng.htm#Farm_operators).
10. Canadian Pacific Railway, *Canadian Grain Elevator and Terminal Directory*. [www.cpr.ca](http://www.cpr.ca), January 2013, 12.



...whereas up to now, a construction permit was enough to put up a building, nowadays (...) you also need a demolition permit. A building has ceased to be something lasting, something eternal, as it used to be. As its life span is now limited to fifty or hundred years, it has become something of a moment in time, a three-dimensional image that will vanish before long.<sup>11</sup>

Canadian history is still young, and touching a building of 100 years old is touching the roots of our comings. How can we build our architectural history if buildings are demolished on a regular basis? Were the wooden grain elevators built for obsolescence? No. Was there an epoch when people thought these traditional grain elevators were *the* climax of economic progress, just as we might think of the concrete silos today? Probably. What would the world look like if demolition was forbidden or if we built with planned re-use eras? Explorations of this last question will take place in the area of the Carey elevator, 33 years old, as a direct reaction to its demolition.

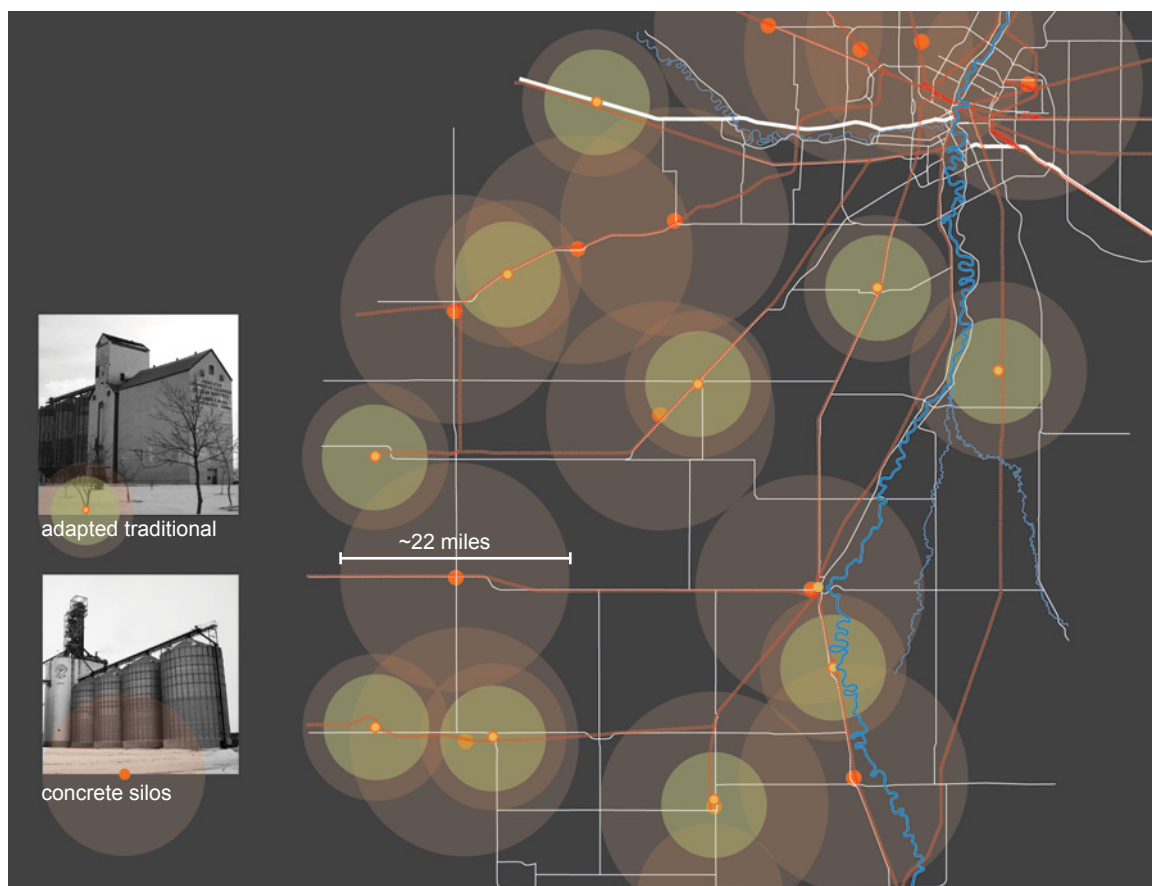


The demolition of Carey's Pioneer Elevator, 2014; photograph by Matt Raffard, from email to author.

11. John Armitage, *Virilio Live: Selective Interviews* (London: Sage, 2001), 58.



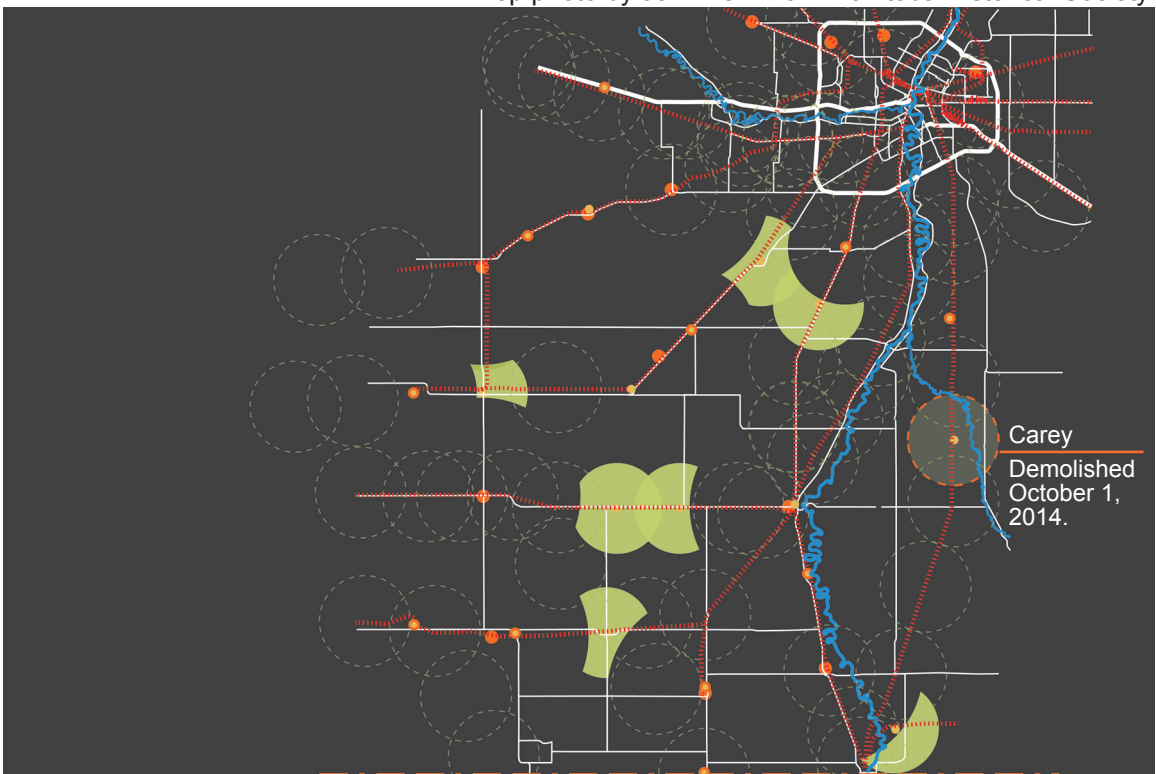
The progression of grain elevators and of mechanization in the field.



A map of the currently functioning elevators and their approximate area of service.



Overlaying the current situation with the remainder of the past.  
Top photo by John Lehr from Manitoba Historical Society.



A figure-ground map highlighting areas furthest from today's infrastructural energy.

## The Carey Site in the Rural Municipality of/de DeSalaberry

The Rural Municipality of DeSalaberry was home to four grain elevators. These landmarks that once strengthened the farming community and its heritage are gone - changing the face of the region forever. These elevators were the farmers' prized destination for selling and distributing their crops to a world market. James Richardson and Sons Ltd, the owner of the once standing relic in Carey, states that "with today's farming realities, wooden structures like the one in Carey are being replaced by high-efficiency grain elevators."<sup>12</sup> Carey was home of the iconic orange Pioneer steeple, demolished on October 1<sup>st</sup>, 2014. Though its direct neighbours were few, the razing of the architectural evidence of our industrial progress affects the entire region. The repercussions of the demolition are more than the removal of walls; it is a drastic shift in the visual landscape, it is a loss of the horizon compass, and a displacement of the prairie heritage and pride. The deletion of an industrial high-rise removes the sense of identity in the rural communities. This proves that "site" has its three distinct zones: area of control, the external forces shaping the site in study, and the effects the site may have on its surroundings. The majority of prairie residents feel a deep connection to the elevator more as an object in the landscape than for what its function attained.

12. Ian Froese, "Carey grain elevator decimated," *The Carillon News*. (October 3, 2014).



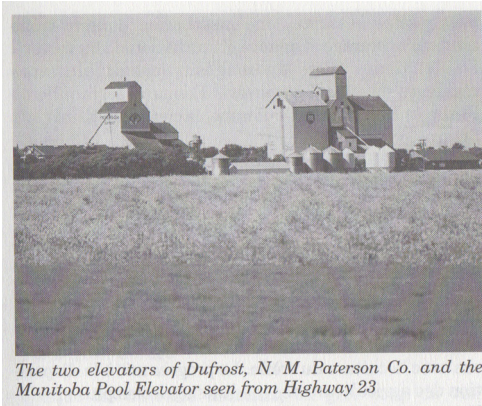
The Carey Pioneer grain elevator fallen to the ground while workers clear the site, 2014; photographs by Anja Eliassen from email to author.



**Reflection about the loss of a grain elevators in Dufrost, 6 miles south of Carey:**

It [losing both elevators] was the beginning of the end for Dufrost, as we once knew it - as buzzing like a bee hive in the Fall when all surrounding farmers would haul their grain to either Pool or Paterson Elevators. It was a famous landmark for many people, because so many would say ,“Ah Dufrost, I know where that is - it’s the small town with two elevators!” The autumn sun setting on them was like a spot light on the twin towers. It was used by many as a Winter blizzard barometer; if you can’t see the elevators, stay off the roads!

-Anonymous, Dufrost resident. Email to author. November 12, 2013.



*The two elevators of Dufrost, N. M. Paterson Co. and the Manitoba Pool Elevator seen from Highway 23*

The Pool and Paterson grain elevators in Dufrost; both have been razed at the turn of the millenium. Photo from Paroisse de St-Malo, *St-MALO, Dufrost, La Rochelle: À l’ombre de nos clochers*, 131.



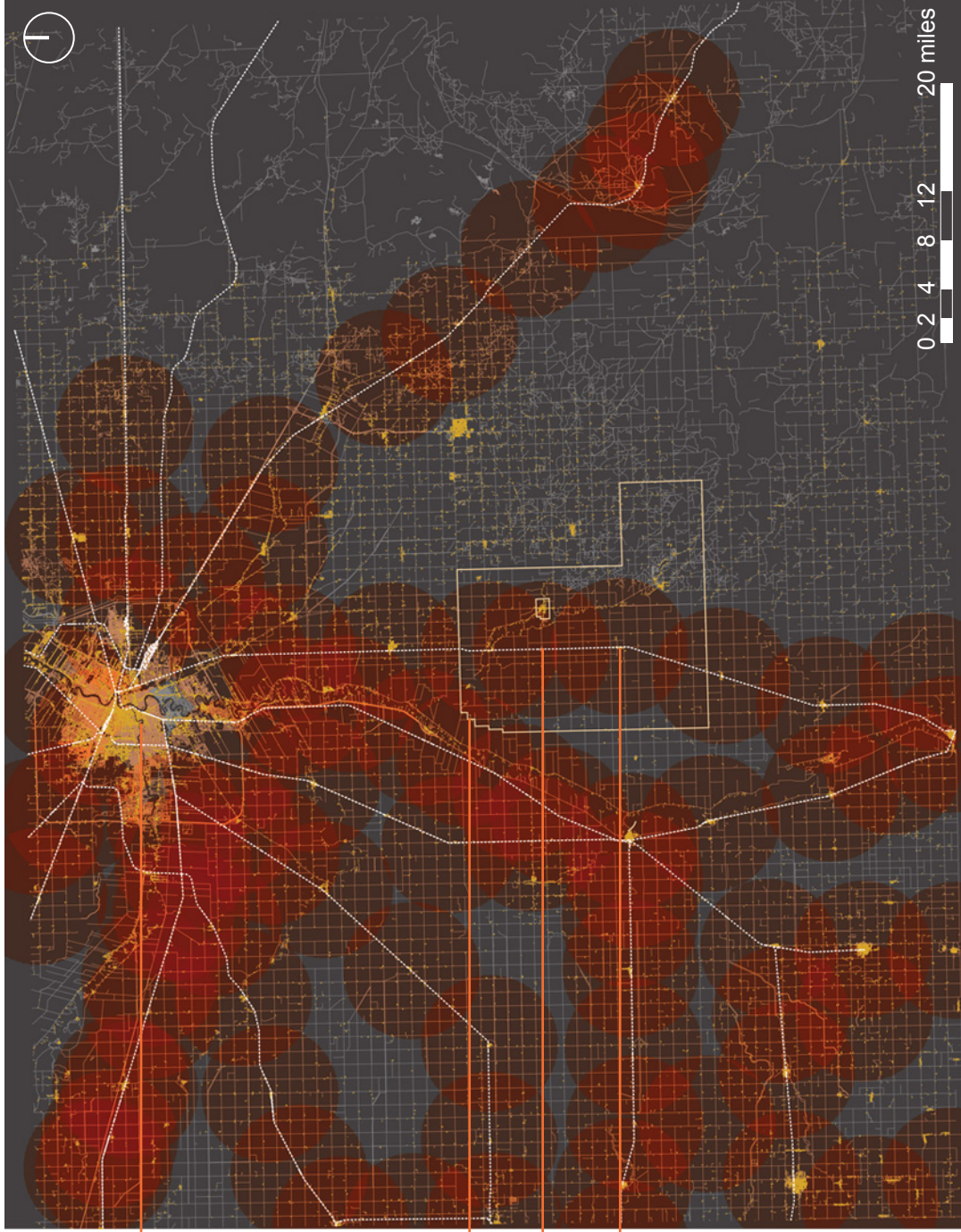
View of the prairie ocean. Photo from Google Streetview, “Map of MB-205,” 2009.

YWG

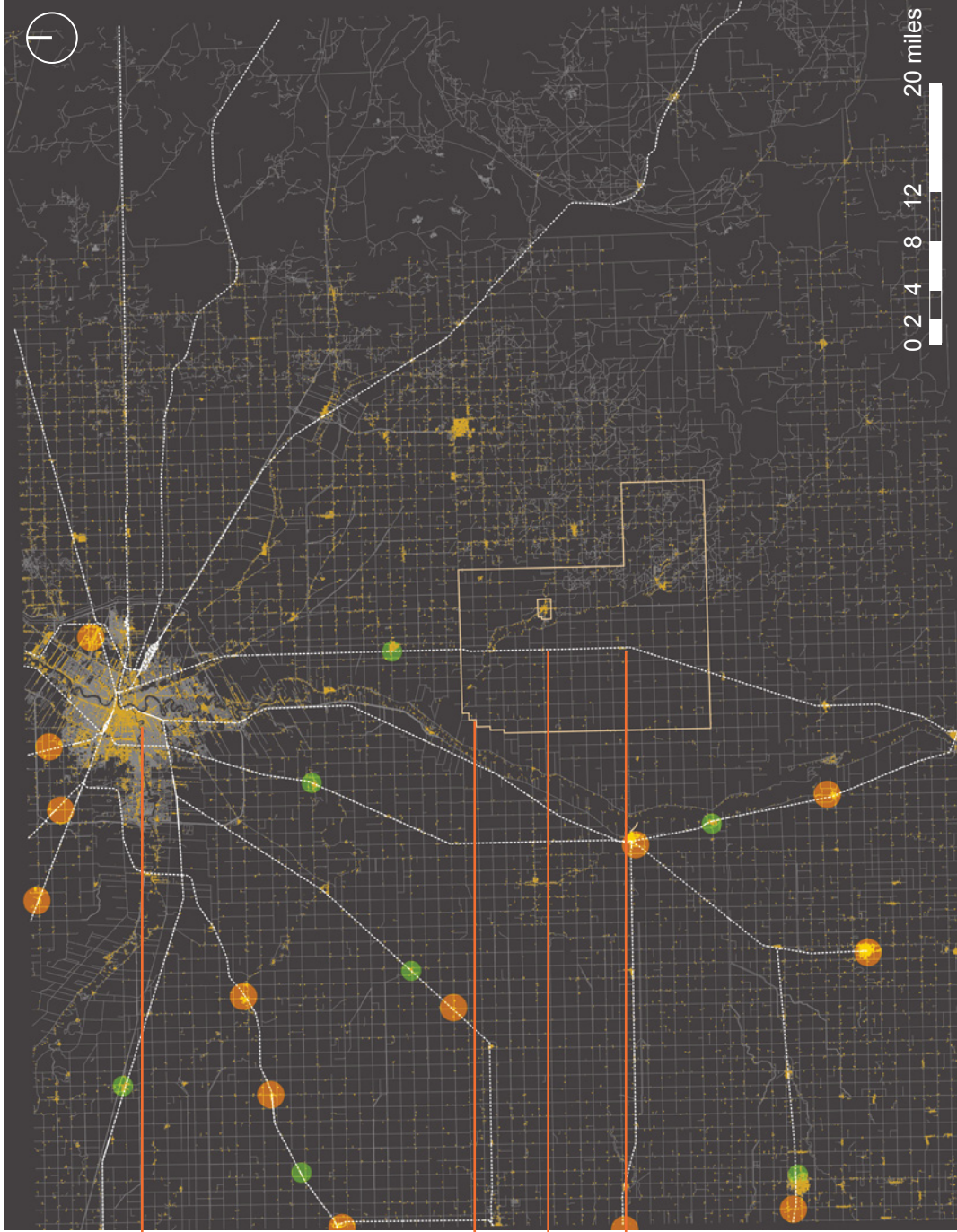
RM of/de DeSalaberry  
boundary

Carey

Dufrost



A map showing the location of the traditional prairie grain elevators in reference to the political boundaries of the Rural Municipality of/de DeSalaberry. Map database from Government of Manitoba, *Manitoba Land initiative*.



YWG

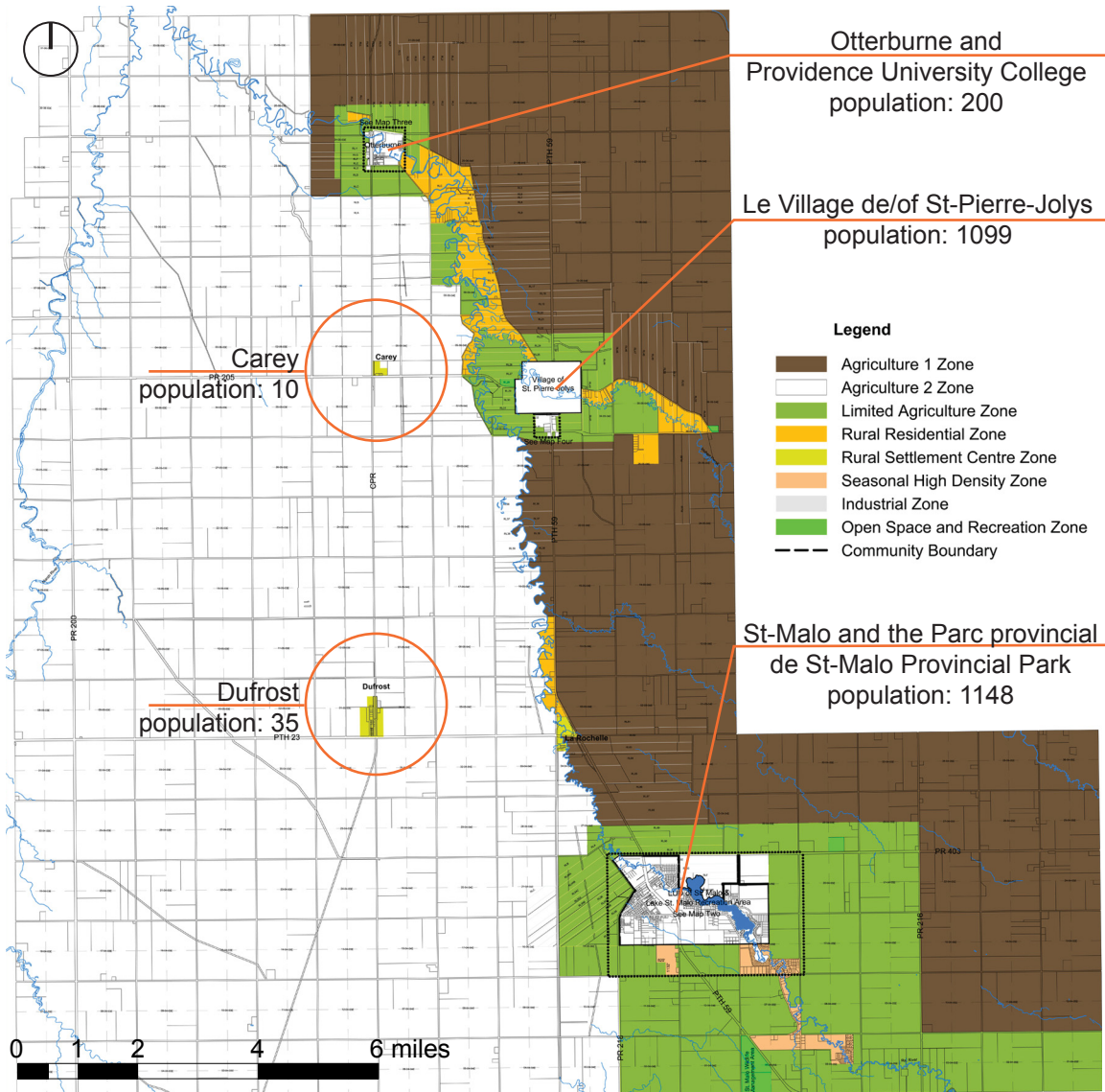
RM of de Salaberry  
boundary

Carey

Dufrost

A map showing the location of concrete silos (yellow) and annexed wooden grain elevators (green) in reference to the political boundaries of the Rural Municipality of de Salaberry.

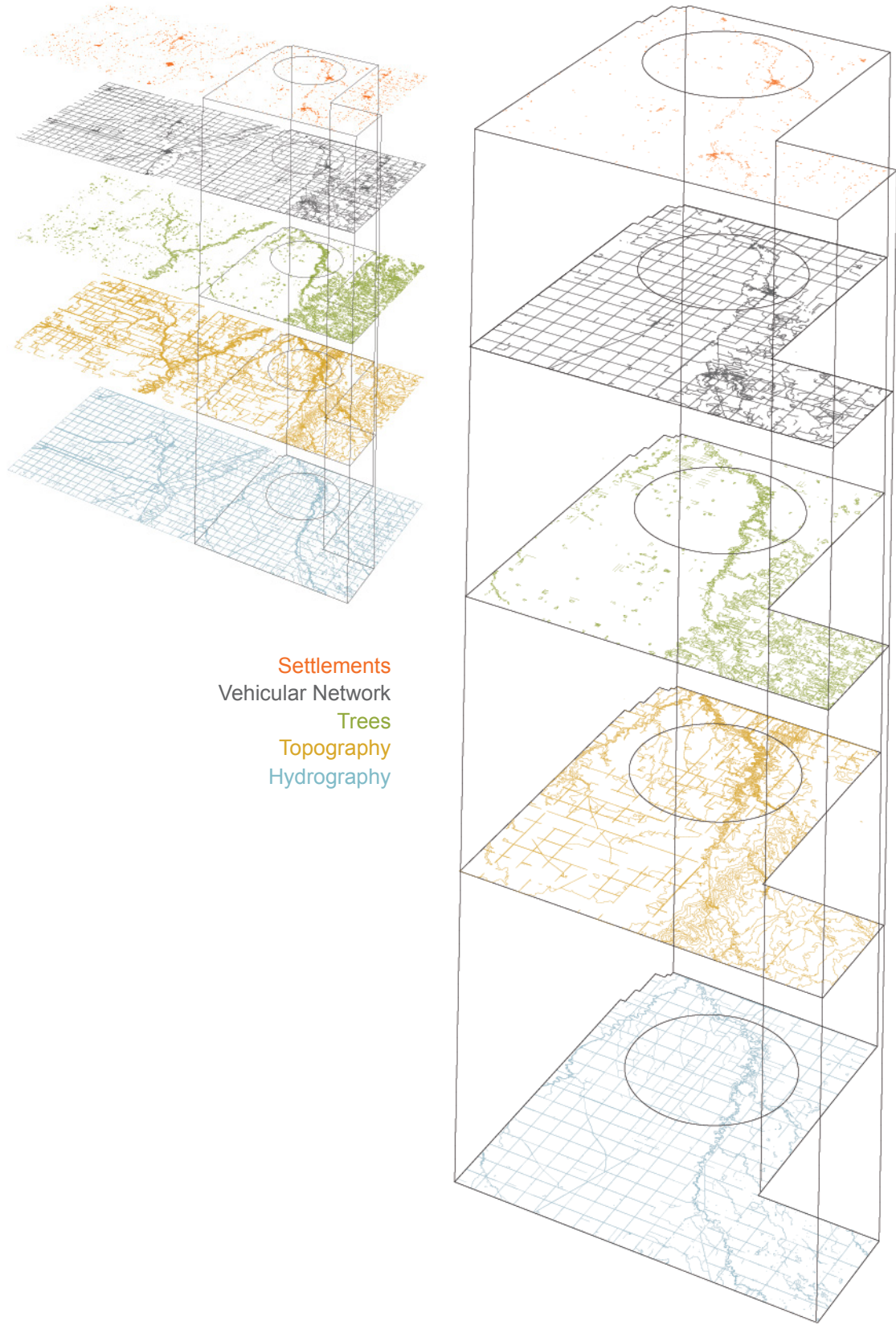
Map database from Government of Manitoba, *Manitoba Land initiative*.



The Rural Municipality of DeSalaberry map noting the locations of developed villages; map from the Manitoba Department of Local Government Community Planning Services.

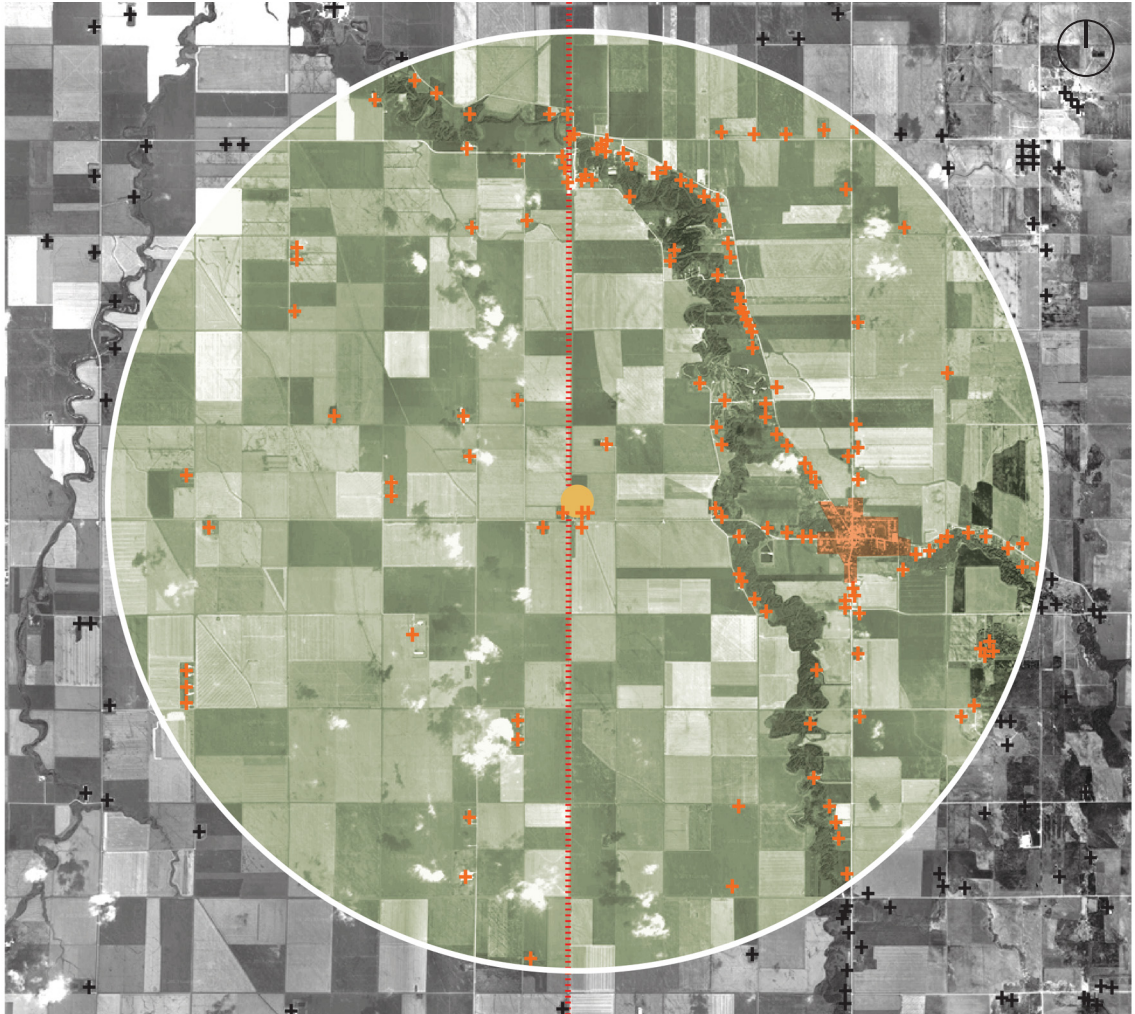
Fifteen percent (463) of the population in the municipality reside outside of villages;<sup>13</sup> this shows that some individuals choose to keep their frontier settlement alive or to take part of the landscape views on a daily basis.

13. Statistics Canada. "DeSalaberry, RM, Manitoba." *National Household Survey (NHS) Profile*. Catalogue no. 99-004-XWE. 2011. <http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/index.cfm?Lang=E>.  
<http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/index.cfm?Lang=E>.



Settlements  
Vehicular Network  
Trees  
Topography  
Hydrography

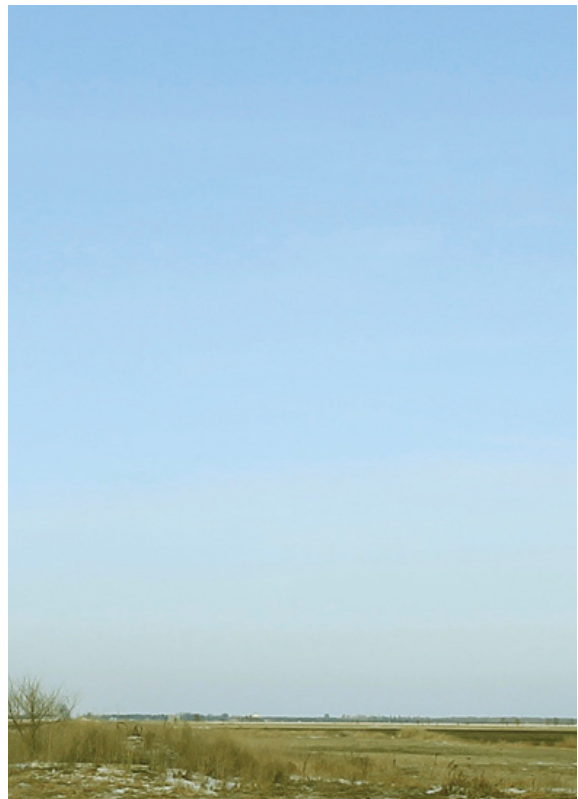
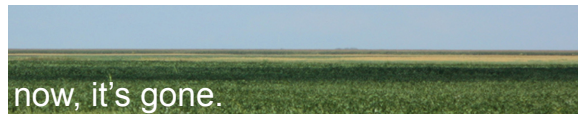
Investigating the environment through mapping.  
Map database from Government of Manitoba, *Manitoba Land Initiative*.



A map portraying the 10 mile radius around Carey and the homesteads settled in the landscape. Background photo from Google Maps, "Maps of Rural Municipality of Hanover," 2014.



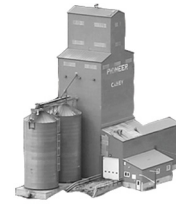
The subdued village of Carey.



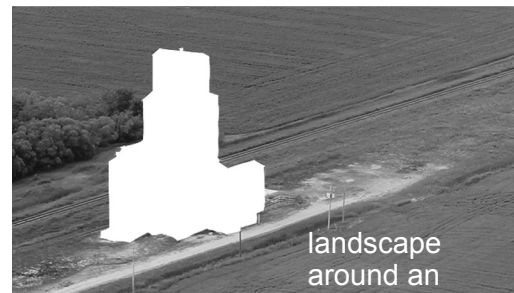
Imagery showing change in landscape.

## Identity of the Object in a Landscape

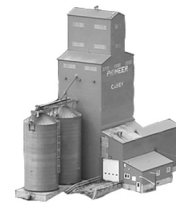
The prairie identity is often represented in artistic forms. The elevator, a typical architectural element in prairie art, has inspired many artists and architects who interpret the structure through different perspectives and modes of representation. Lisa Mahar-Keplinger documented a series of representations that generally show how the buildings have become part of the landscape. Rarely do they portray the interior spatial qualities, and more rarely do they express the essence of the machine. The prairie cathedral is a simple structure when viewed from the outside, but once it is dissected, the interior reveals a complex webbed system. Without the machine that employs gravity to move the grain into passages and storage bins, the elevator would lose its purpose. Exposing this to the public is revealing what the community has not been seeing all these years and decades; it's showcasing the skeleton of the flesh that grew from the land. If it wasn't for the land and the site, the sentinel's flesh would have no blood. The newer concrete



object  
in the  
landscape



landscape  
around an  
object

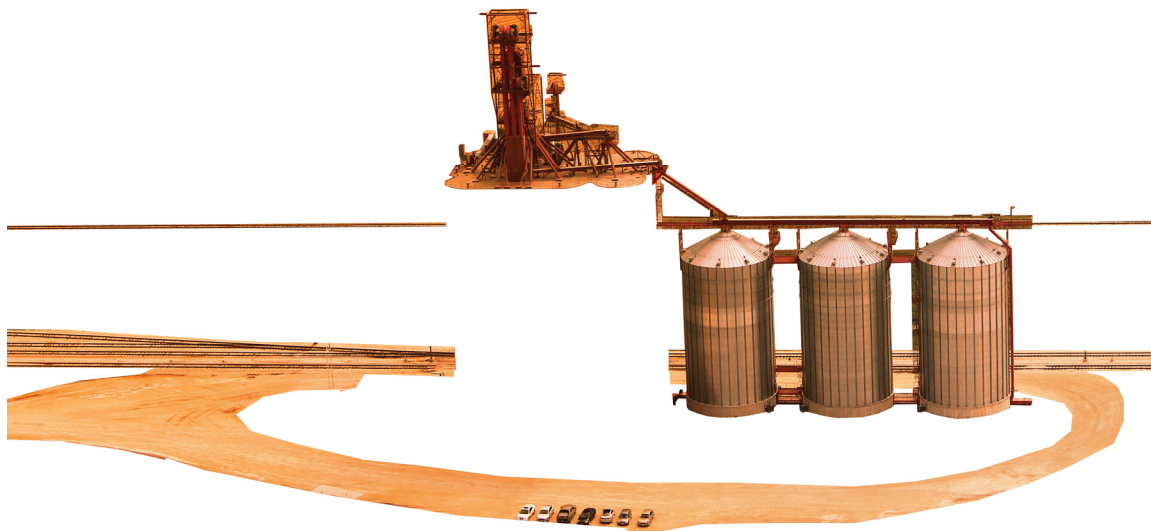


object and landscape

Imagery showing different viewing perspective.

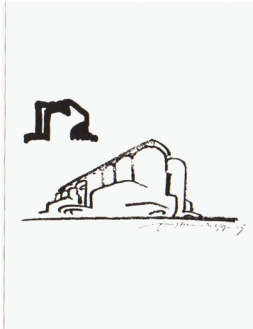


silos expose the machine beyond the storage space, an attribute not represented in the artistic forms found by Lisa Mahar-Keplinger. It is presumed this occurrence is because people don't identify with the machine of the grain elevator. "Our architecture is contemporary, but it has its roots in what has gone before. These buildings are strangely familiar, in the sense that their forms might be unconventional but on closer inspection, they reveal traditional methods and materials." states Todd Saunders in regards to traditional architecture.<sup>14</sup> The architecture of the elevator has been constantly evolving; however, the essence of its machine has always remained part of the traditional methods of moving grain through the economic network. The exposure of the machine and structure in the design work will express the traditional hidden qualities that are integral to the sentinels standing in the field of a rooted culture.



An expression of the machine of the Brunkild Pioneer concrete silos, Manitoba.

14. Ellie Stathaki and Jonathan Bell, *Todd Saunders: Architecture in Northern Landscapes* (Basel: Birkäuser, 2013), 59.



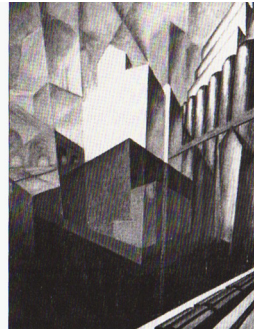
1915

Grain Elevator  
Erich Mendelsohn



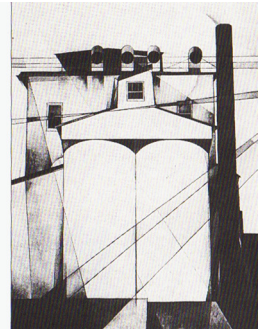
1923

Towards a New Architecture  
Le Corbusier



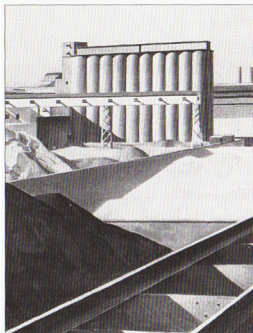
1926

Minneapolis  
Louis Lozowick



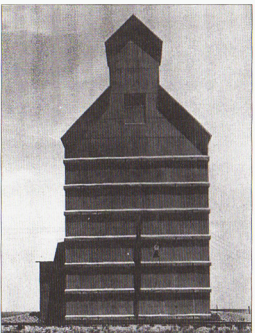
1927

My Egypt  
Charles Demuth



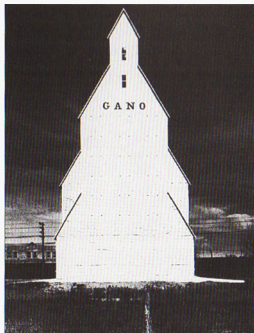
1931

Classic Landscape  
Charles Sheeler



1938

Grain Elevator, Everett, Texas  
Dorothea Lange



1940

Gano Grain Elevator, Western Kansas  
Wright Morris



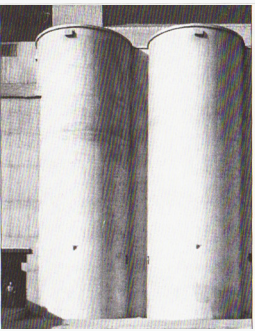
1942

Grain Elevators from the Bridge  
Ralston Crawford



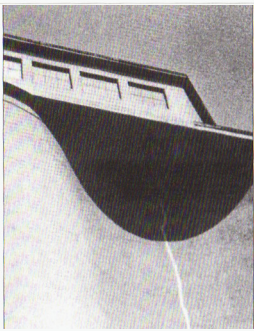
1945

Filling a silo, Kanona, New York  
Charlotte Brooks



1948

Rice Silos, Sacramento Valley  
Ansel Adams



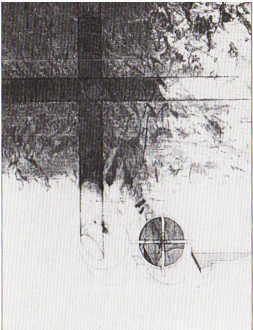
1949

Untitled  
Ralston Crawford



1973

Abandoned grain elevator, Kansas  
Frank Gohlke



1975

Kreuz auf einem Silo  
Walter Pichler



1985

Figure and elevator  
Colin Grey



1987

Grain elevator and cemetery  
David Plowden



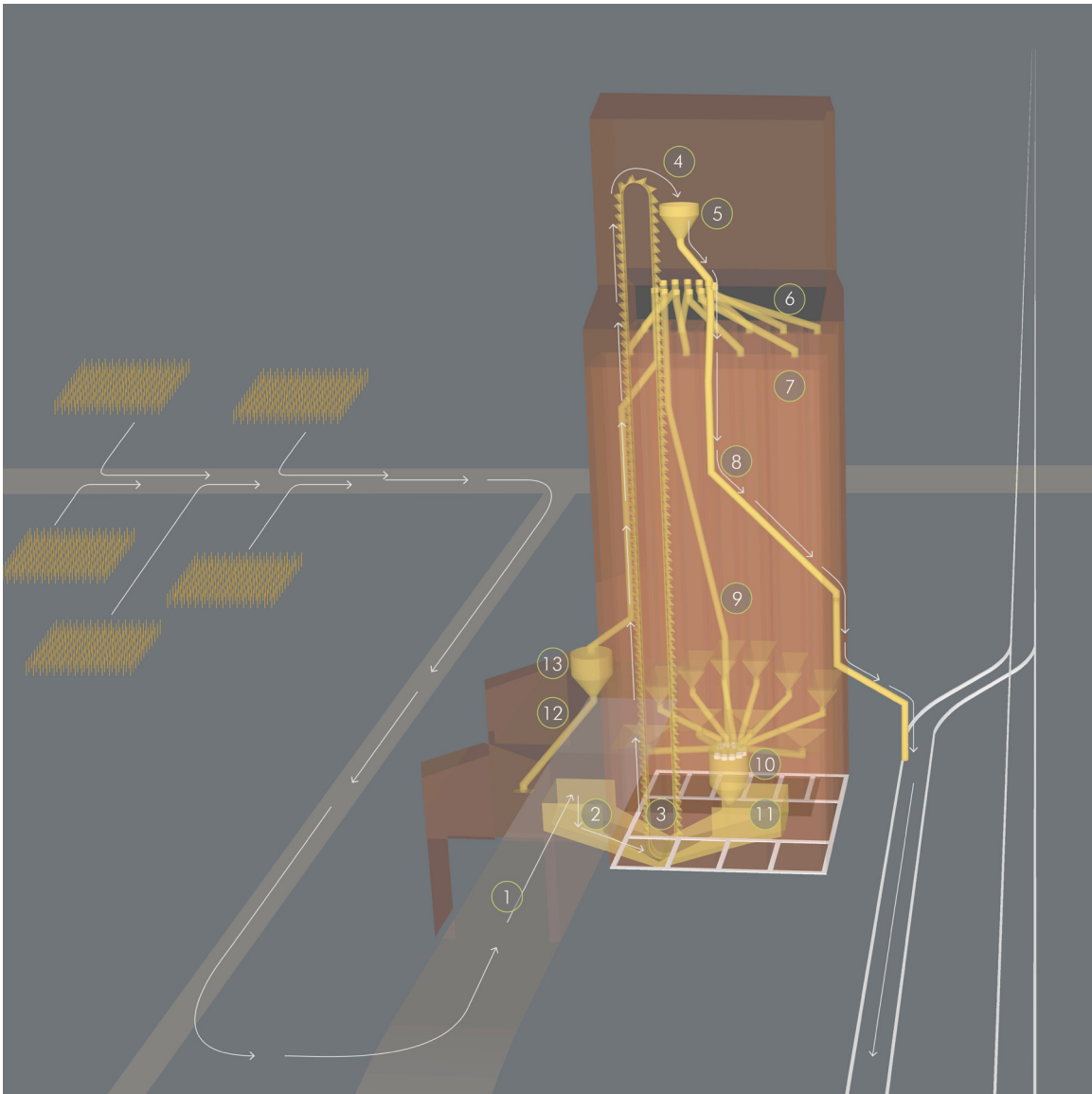
1992

Grain elevator  
Aldo Rossi

A series of representations of grain elevators;  
image compilation by Lisa Mahar-Keplinger from *Grain Elevators*, 10-11.



A collage highlighting light and machine within St-Jean Baptiste's grain elevator, 2013.



Looking beyond the envelope: a representation showing the elevator's fundamental mechanism and grain flow:

A truck enters the *driveway* (1) to empty his load into the *pit* (2). A long conveyer belt with buckets, known as the *leg* (3) is turned on. At the *head* (4), the grain is tossed into the *distributor* (5). The distributor directs the grain into four types of passages: a *bin spout* (6) that leads grain into bins (7); a *car spout* (8) that leads grain to a train car; the *hopper spout* (9) that leads the product to a *mixer and scale* (10), or *back hopper* (11); or a *wagon spout* (12) via the *grain cleaner* (13). To move the grain is to re-elevate it and redirect it to the desired location.



A representation of the steel structure and grain flow above concrete silos.

## Economic Opportunities, Landscape Programming

One of the difficulties with large scale mechanization is that it passively forces farm operators to invest in larger, stronger equipment that speedily cultivate more acres. We believe this is progress because we can farm more land with less people; however, this endangers not only the small farmers but also the local economic opportunities at the cost of the global market. The loss of control presents challenges for those who prefer to participate in the industry at a small scale or to keep the small family farm alive. This section explores entrepreneurial opportunities for landscape programming that empowers and strengthens the local economy by adding local value to the small farming groups. The field of ecological economy and the Antigonish Movement (1853) became models for the development of a cooperative program that links community and agriculture.

Universally, agriculture is the dominant industry in most rural landscapes, it holds the responsibility of land shifts that may occur in time with the evolution of agricultural practices. Biodiversity, cultural heritage, recreation, and general lifestyle in a rural setting depend on landscape; thus, agricultural practices affect those life elements as well.<sup>15</sup> “Landscape means an area, as perceived by people, whose character is the

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15. J. Primdahl, Lone S. Kristensen and Anne G. Busck, “The Farmer and Landscape Management: Different Roles, Different Policy Approaches” *Geography Compass* 7, no. 4 (2013): 300.

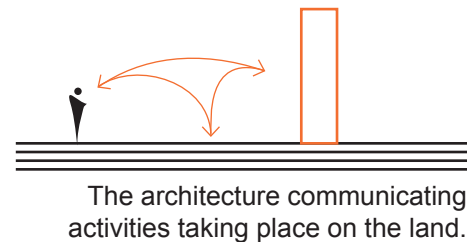
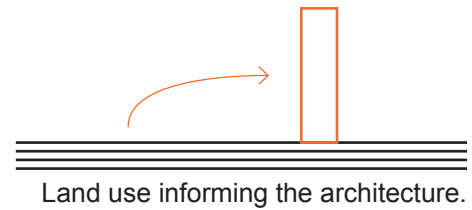
result of the action and interaction of natural and human factors.”<sup>16</sup> Farmers may have different roles when working on the land. If he is the owner and farmer of the field, his decisions regarding land management will likely be for long-term visions; if he is a land leaser, he is making decisions for short-term benefits and for immediate tenancy; if he is a food producer, he observes the qualities and attributes of the land for higher productivity.<sup>17</sup> What would happen if all types of land owners and local citizens saw the field as the source of energy for a local economy? How could the land prescribe the architecture - the economy - and the architecture then communicate to the viewers the type of activities taking place on the land? How can this be seen as an agro-economic identity while shaping the architectural landscape?

This position on how we view our cultural landscape deserves attention. Some view land management as an economic domain; others view it as purely an environmental discipline. Sagoff discusses a debate about the value of nature between Douglas McCauley, author of the article “Selling out of Nature” in *Nature*, and Robert Costanza, a professor and director at the Gund Institute for Ecological Economics at the University of Vermont.<sup>18</sup> McCauley fights for the price-

16. Ibid., 301.

17. Ibid., 300.

18. Mark Sagoff, “The Rise and Fall of Ecological Economics: A Cautionary Tale,” *The Breakthrough Journal*, Issue 2 (Winter 2012).



lessness of nature by arguing “that ‘conservation must be framed as a moral issue,’ because nature has ‘an intrinsic value (...), and this is reason enough to protect it.’”<sup>19</sup> Costanza responds that he does not believe “that more progress will be made by appealing to people’s hearts rather than their wallets.”<sup>20</sup> Both present constructive views. Putting a price on a natural or built resource not only provides a unit of measure for evaluation but also effects capital, both positive and negative; however, it is impossible to put an adequate value on a cultural and cultivated resource. Translated in an architectural and agricultural sense, the architecture of the new elevator aspires to appeal both to people’s hearts in the sense of progressing our prairie identity and to their wallets by producing local crop products that can feed the local economy, rather than the global economy. “Growth can be uneconomic as well as economic.”<sup>21</sup> Local economic growth comes hand in hand with local participation and community building. A community with a collective spirit and identity will look deeper for entrepreneurial and economic opportunities that will foster its local industry. Agricultural architecture can play a role in rural development provided

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19. Douglas McCauley, “Selling out on Nature,” *Nature* 443 (2006): 27-28.

20. Robert Costanza, “Nature: Ecosystems Without Commodifying Them,” *Nature* 443 (October 19, 2006): 749.

21. Herman Daly and Joshua Farley, “The Fundamental Vision,” *Ecological Economics: Principles and Applications* (Washington: Island Press, 2004), 16.



that the situation remains under local control for a strengthening of local identity.

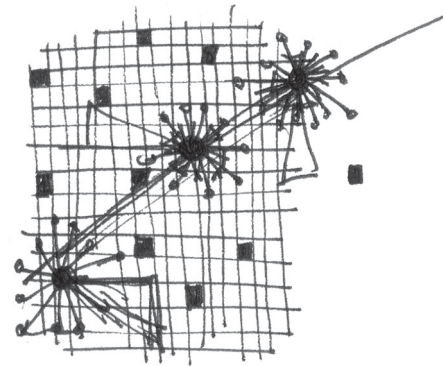
Time, practicality, culture, knowledge, change, and control are keywords that describe a cooperative movement that aims for local development. One of the biggest challenge is to shift from an individualistic mind-set into a communal, locally moving mind-set.

In the old communities where life was grown up on the individualistic system, it will not be so easy to remedy the situation. This will be a case, not of building, but of rebuilding. There will be mind-sets to be broken - habits to be changed. It is clear that the people must first invade the fields of business that their forefathers relinquished in the past. In doing this, they will only be claiming their rights and no one may justly prevent them.<sup>22</sup>

The action of rebuilding a structure that honours the technology our forefather engineered and supplementing it with a program demonstrates the intrinsic value associated with our industrial fabric. "Life is built upon paradoxes and one of the greatest is that the only constant thing in the world is change."<sup>23</sup> Integrating a communal and adaptable mode of architecture will inevitably change the landscape, whether it be with an increase of traffic in the region, a change of traffic type, added pragmatic elements plotted in the land, or all of these working together. The added program in the elevator should encourage immediate production of crops, like milling,

22. Michael Coady, *Master of Their Own Destiny* (New York: Harper & Brothers, 1939), 25.

23. *Ibid.*, 28.



A sketch of local networks working together.

oil pressing, or fermentation. It begins a new local network between environment, land, farmer, food producer, and consumers. It initiates a market niche for old and new small farmers who may be seeking ways to contribute to the local economy and still do what they love - to farm. Together, they will turn the little businesses into a big business. This can succeed at a different level if we make use of the old grain elevator site as a hub that unites program and workers. The use of the heritage place as part of the story line commemorates the relationship between locals and the old prairie magnet in the distance.

As the focus has been on the locals working the land, it would be worth speaking briefly about the outsiders looking in. "Whilst community development workers place a high value on the process of working with local people, outside bodies assess achievements in terms of the visible end product."<sup>24</sup> In this case, the end product will be the architecture that attunes to landscape activity. The experience of driving along a prairie road and recognizing how the industry's physically shaped will inevitably be an educational moment for those who are unfamiliar with the process. An added value to the scene in the landscape will occur when people, local and non-local, purchase the locally grown food products. In addition, the



A collage of flour, oil and beer as final local product.

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24. Rosemary Lumb, "Rural Community Development: process versus product," in *Rural Development: Problems and Practices*, ed. Henry Buller and Susan Wright (Aldershot: Avebury, 1990), 177.

agricultural architectural network will express a sense of independent industrial accomplishment, much like how the traditional prairie elevators manifested prosperity and rural development.

## **The Survey of the Prairie Cathedrals**

Designing for progress also means to apprehend the past. Investigating architectural heritage is about listening to the voices of the community and gaining understanding of the heritage value, the industrial and cultural evolution. UNESCO defines cultural heritage as

the entire corpus of material signs - either artistic or symbolic - handed down by the past to each culture and, therefore, to the whole of humankind. (...) The cultural heritage gives each particular place its recognizable features and is the storehouse of human experience. The preservation and the presentation of the cultural heritage are therefore a cornerstone of any cultural policy.<sup>25</sup>

Cultural policy, therefore, falls back on the built industry that sustains the community on a daily basis. It is critical to gain an understanding of the built forms that once kept the economy moving and the concrete silos that are today's key players in the grain flow. The structure's power in the landscape reveals a perception into time and setting. Gordon Matta-Clark's work brings about the discussion of perception and time with his "building cuts" (1977) that contributed to the architectural discourse of spatial sculpture.

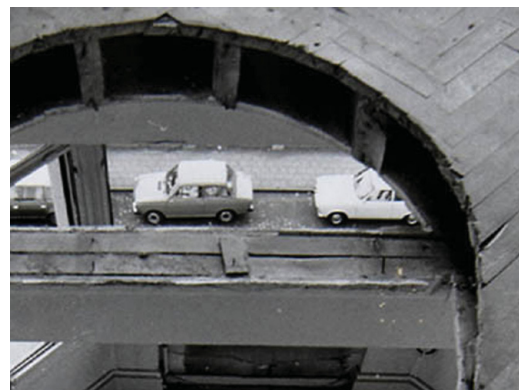
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25. UNESCO, *Draft Medium Term Plan 1990-1995* (Paris: United Nations Educational, Scientific and Cultural Organization, 1989), 57.

We see into and out of a building in a different view that reveals more information about the site than what was communicated previously. The relationship between the structure and users is heightened.

Usually the thing that interests me is to make a gesture that in a very simple way complicates the visual area I'm working in. Looking through the cut, looking at edges of the cut, should create a clearly new sense of space. But the cut also must reveal a portion of the existing building system, simply as that which exists.<sup>26</sup>

Though the premise of this thesis is not an adaptive-reuse research or a demolition study, there is value in Matta-Clark's work that can be analyzed. In essence, Matta-Clark's investigation turns the familiar (the original building) into something unfamiliar (the cut) and turns the unfamiliar (the visual product of the attack) into something familiar (the exposure of structure). In synthesizing this into the essence of an imposed agricultural architecture, the whole can turn the familiar (the industry) into something unfamiliar (the industrial shift with added commodity of local product) and turn the unfamiliar (the elevator's machine) into something familiar (the structure and the machine that take part the fabrication of a local commodity for economic development).



Gordon Matta-Clark, *Office Baroque*, 1977;  
from Museum of Modern Art,  
The Collection.

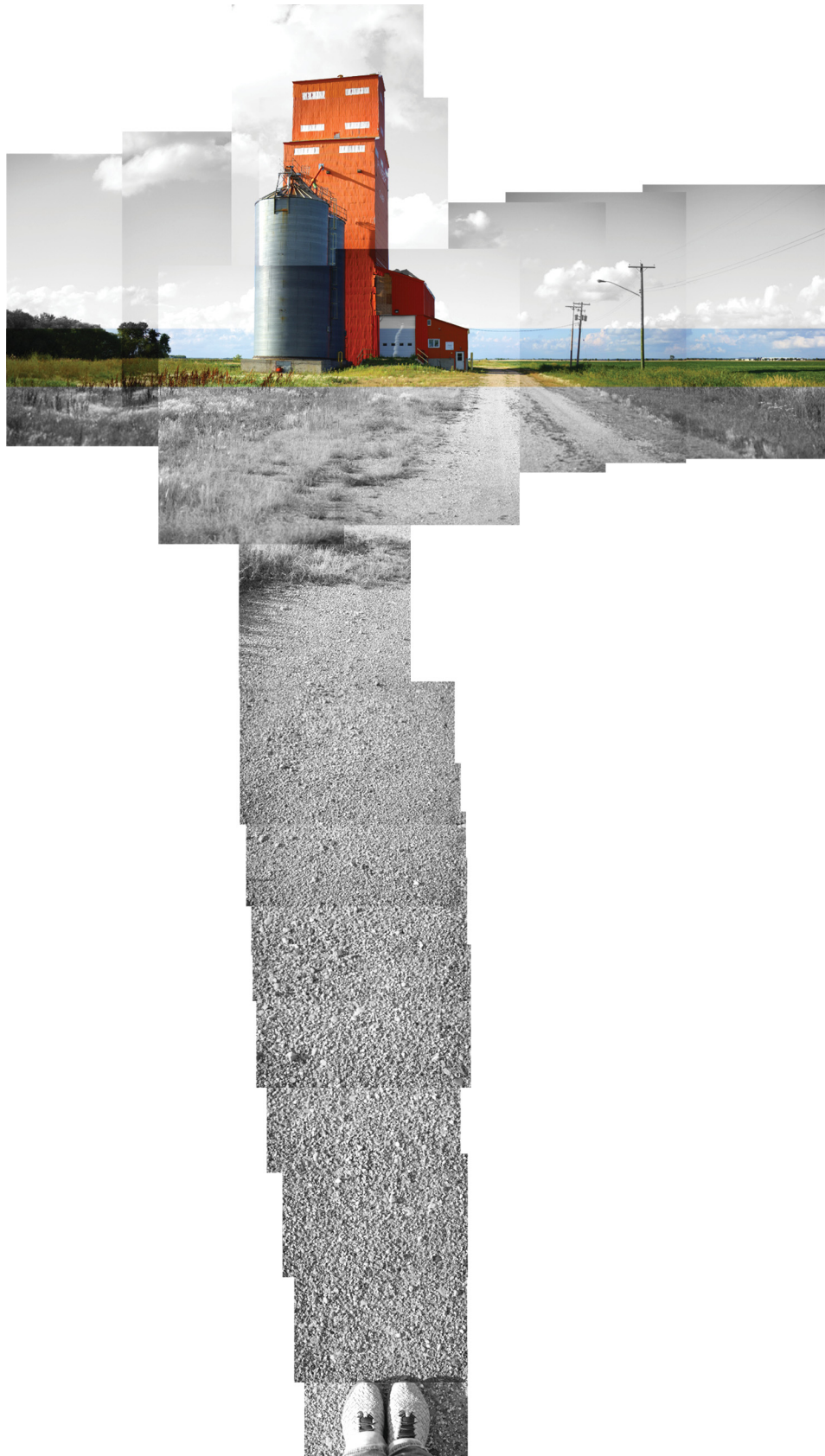
26. Stephen Walker, *Gordon Matta-Clark: Art, Architecture and the Attack on Modernism* (New York: I.B. Tauris, 2009), 15.



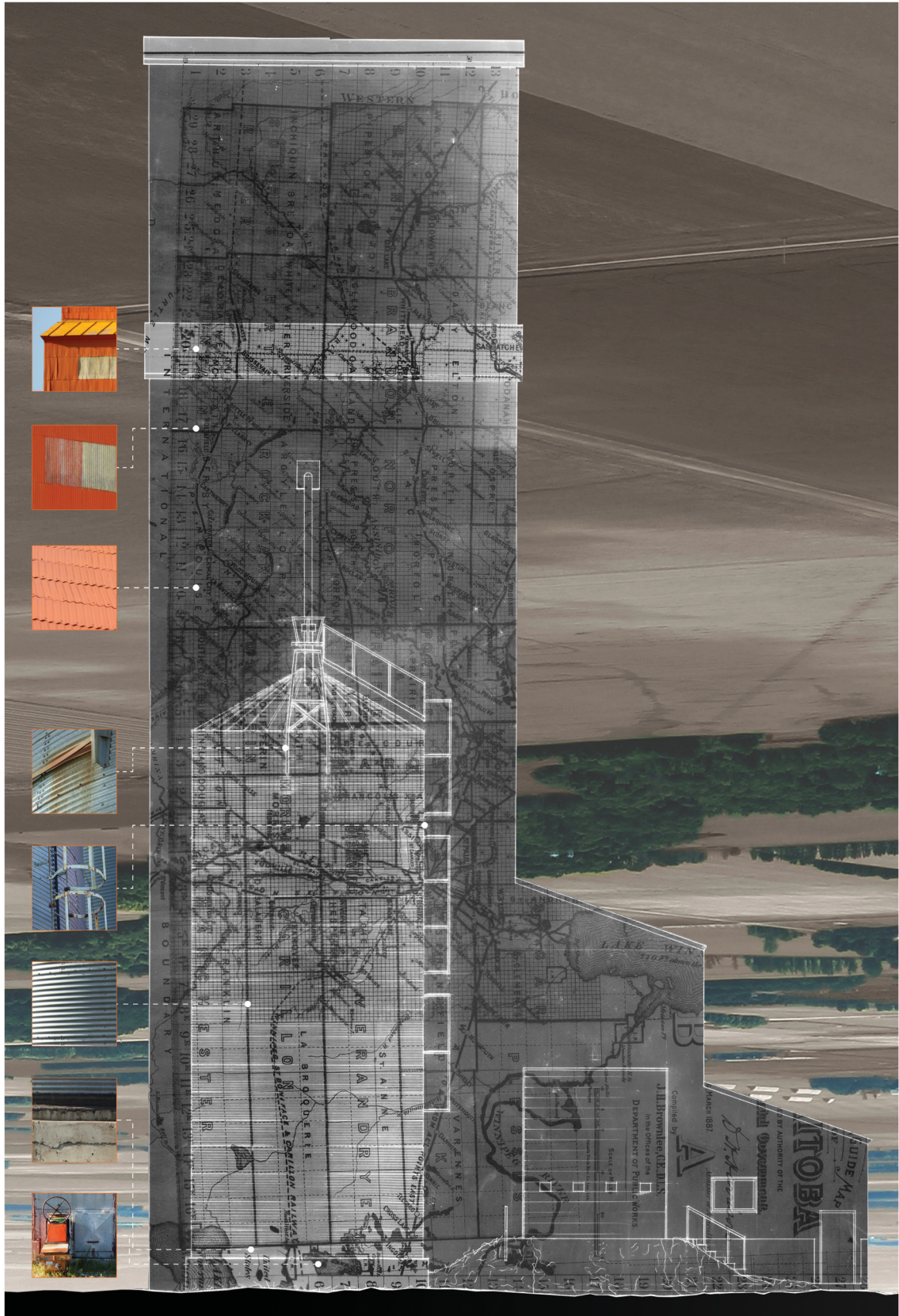
A spatial study of a wooden grain elevator that measures 115' tall (90' shoulders).  
Bin capacity: 70 and 110 tons. Original model scale: 1:100.



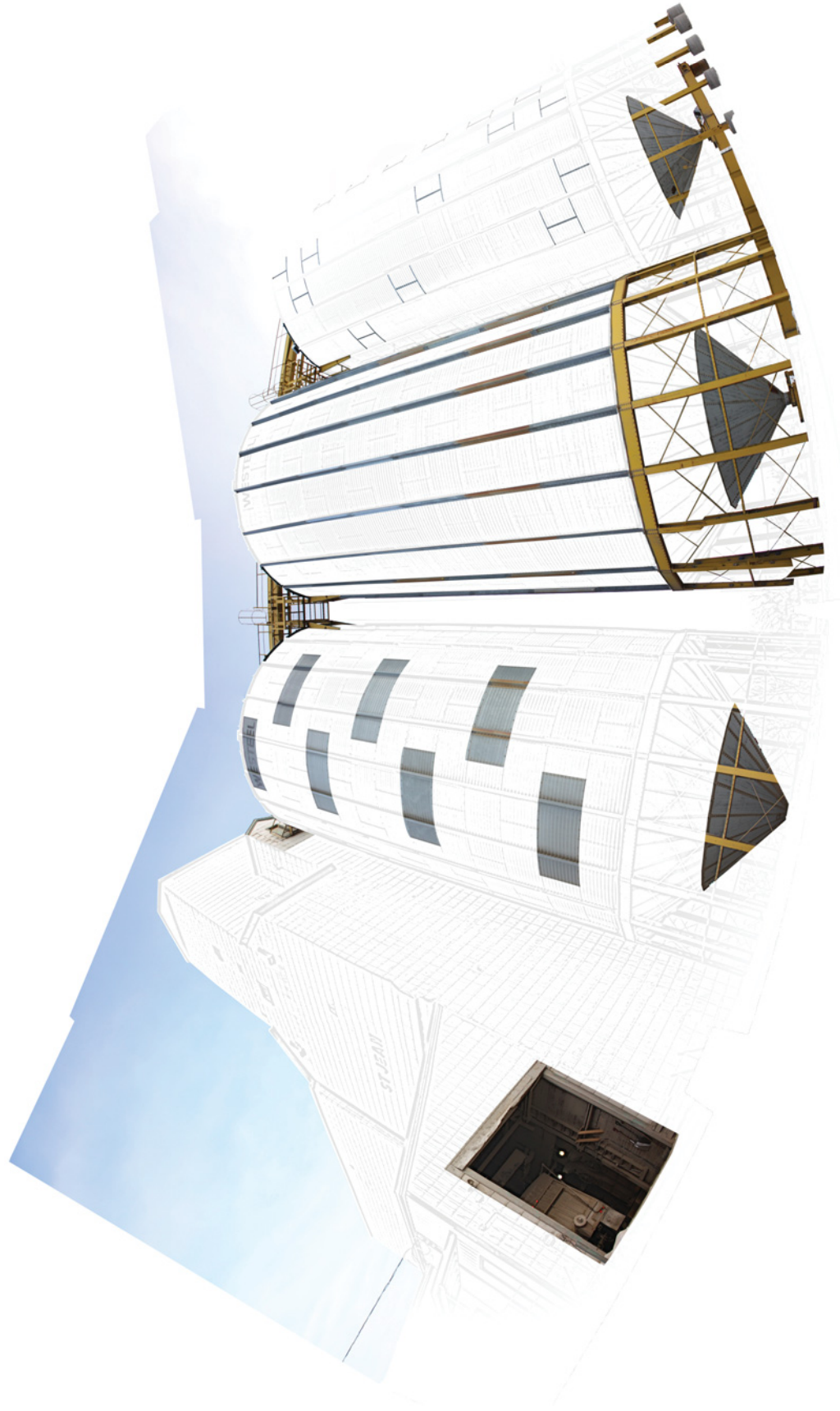
A spatial study of concrete silos that can reach the height of 150'.  
Original model scale: 1:100.



Viewing the vertical object on the horizontal landscape.

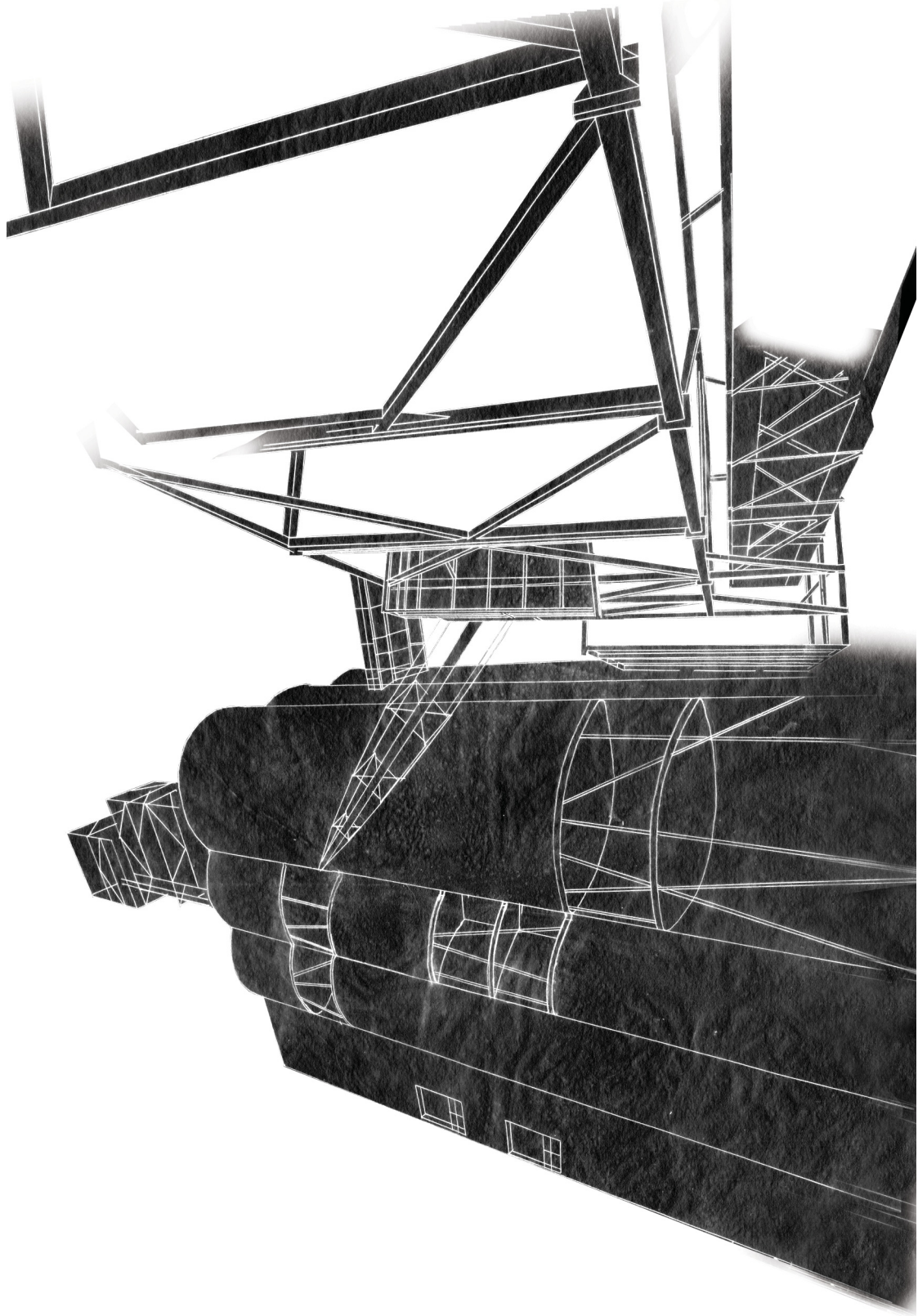


An elevation of Carey's grain elevator with a visual material list.  
Original drawing scale: 1:100.

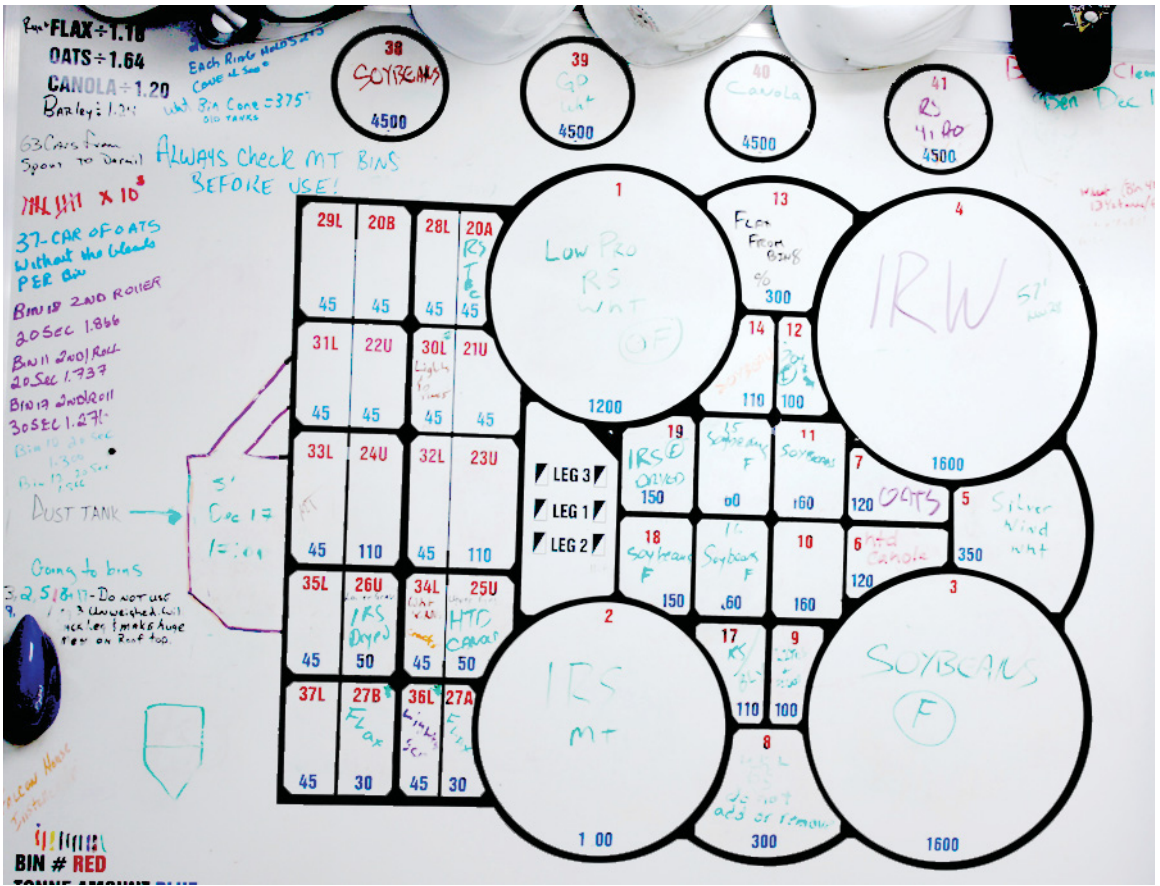


A map of parts of a steel annex in St-Jean-Baptiste, Manitoba.

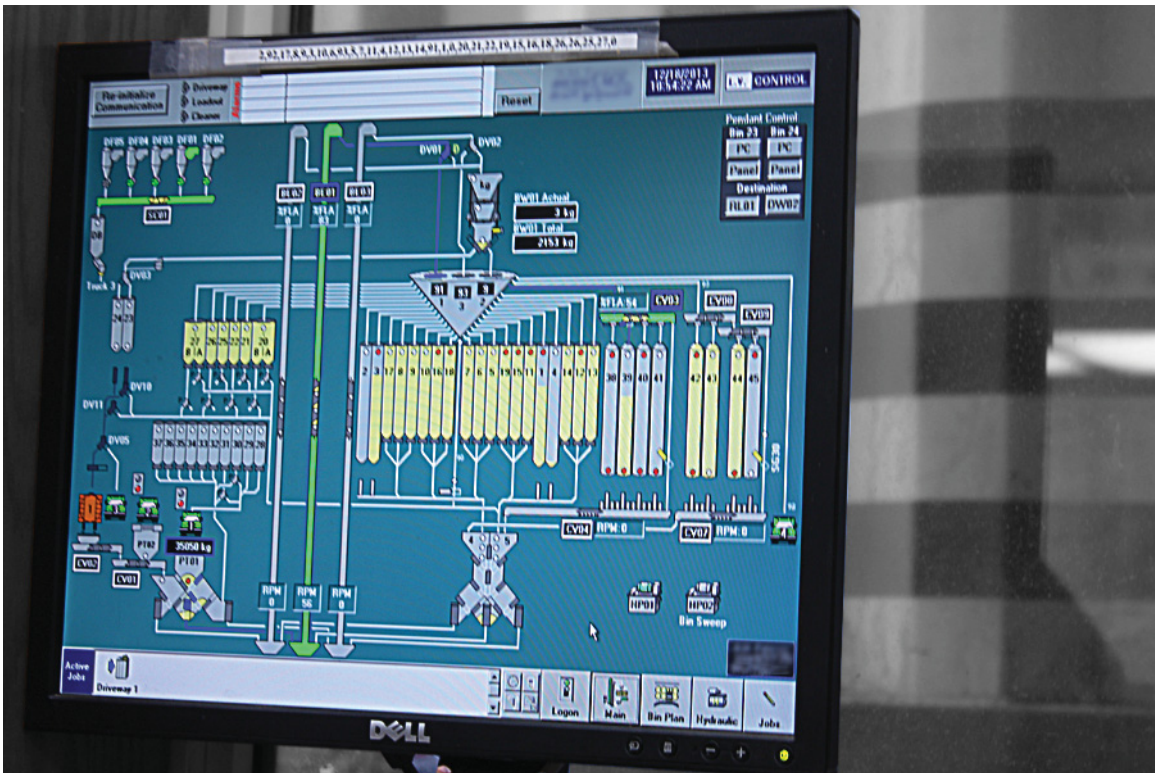




A hand drawing interpreting the spatial study of concrete silos. 35



A plan of concrete silos showing storage capacity in tons.

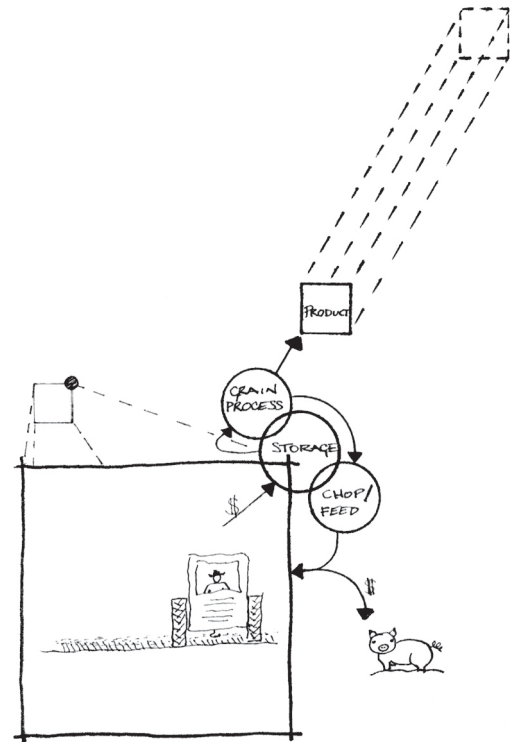


A computational map of a concrete silo system.



A collage study of objects in the landscape.

It is only by knowing where we've been that we can learn where we should be heading. The previous collage speaks about the concept of a transformable structure that moves through the landscape as needed. Sometimes it is seen as just a frame work - a true sentinel over the prairie ocean; sometimes it is filled with massing hosting local, shared equipment that processes the grain from the adjacent site. Rather than bringing the farmer to the mill, the mill is brought to the farmer. Doing so eliminates the farmers' need to transport the crop. Plus, any waste from the processing stages goes back to the farmer who can choose to sell it to livestock farmers or to infuse it back onto his property.

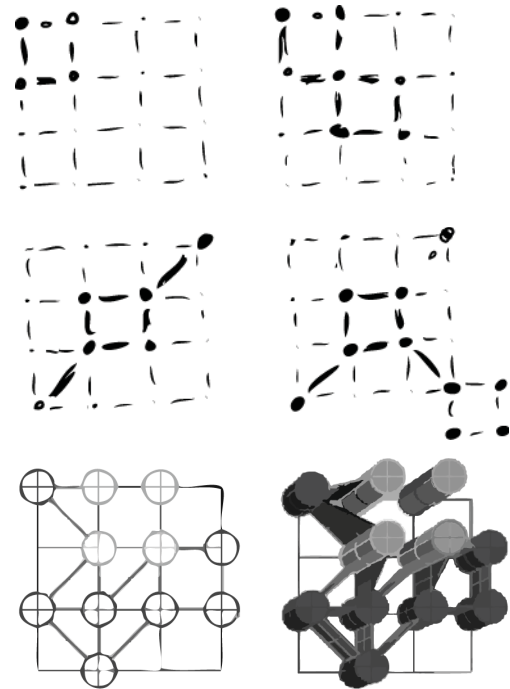


A diagram of crop flow.

## Points and Lines

The prairie landscape with its road network displays a cultural phenomenon of rhythmic points and lines - an agricultural grid drawing man-made boundaries on the flat terrain. Stan Allen's "Points and Lines" concept discusses the manifestation of boundaries set out in the landscape, whether natural or man-made;

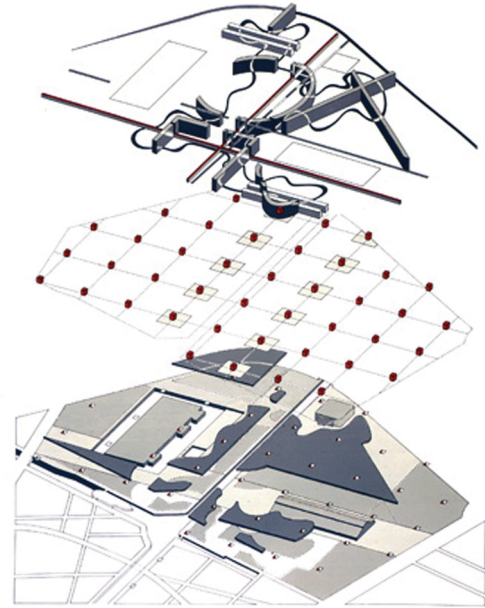
its [The American city] boundaries contingent on a particular geography and topography, reterritorialized by any of various patterns (grids, patchwork, mosaics), some of which are inscribed on the ground, (...) infrastructural points and lines of force whose positions and relations have been determined by a notational language conventionally understood...<sup>27</sup>



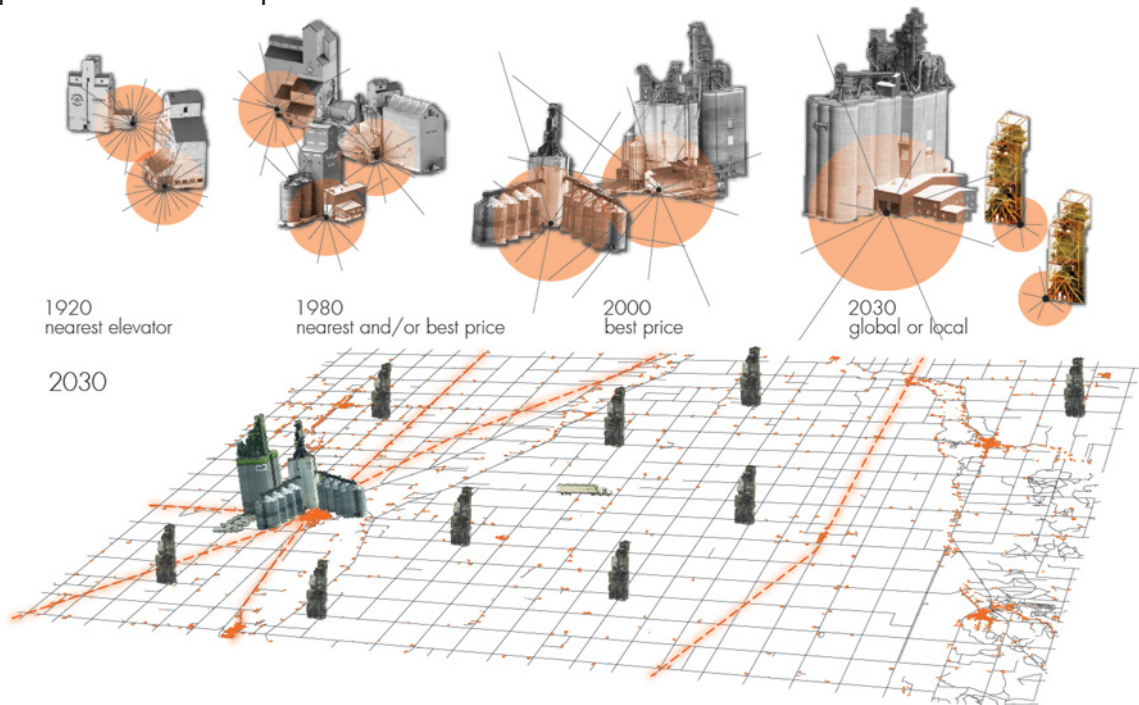
Interpretive diagrams of 'Points and Lines'.

27. Stan Allen, *Points and Lines: Diagrams and Projects for the City* (New York: Princeton Architectural Press, 1999), 8.

The grid seen on the land automatically provides an opportunity to read the landscape as a patchwork. The existing 1 mile by 1 mile grid (1 section) indicates a rhythm already set on the flat terrain, The points are potential areas for built form; lines, for network paths. Bernard Tschumi Architects worked with a “system of dispersed ‘points’ ”<sup>28</sup> that locates where cultural and leisure activities are held in Parc de la Villette, Paris. The lines emphasize the movement through the park, much like the existing roads in Manitoba, gravel and asphalt, are engrained network paths. Built forms in the field provide the farmers with a choice of either contributing to the global market - at the existing concrete elevators - or supporting the local market where the new points will be developed.



Bernard Tschumi Architects, “Parc de la Villette” in Paris; 1982-1998.



A map linking the collage with “Points and Lines” - objects in the landscape.  
Map database from Government of Manitoba, *Manitoba Land Initiative*.

28. Bernard Tschumi Architects, “Parc de la Villette,” accessed January 20, 2015.

## CHAPTER 2: THE MANIFESTO

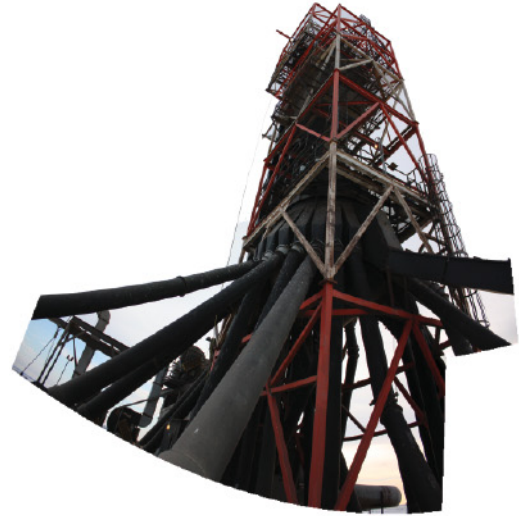
### Design Strategy and Principles

The design explorations of this thesis are bipartite: the Land and the Object. A reading of the land - economically and spatially - encompasses data gathering and mapping that will govern the spatial requirements for the objects. The objects encompass the form and function of parts that can be determined by site-specific activity discovered through the mapping analysis. The union of the Land and the Object establish new connections between farmers and land parcels by way of a new network for a local economy and landscape development.

Design principles brought forth are first, to express the machine and structure; second, to design with flexibility of assembly and disassembly, not for construction and demolition; and third, to be attuned to site specific activity that will create new networks.

### The Land

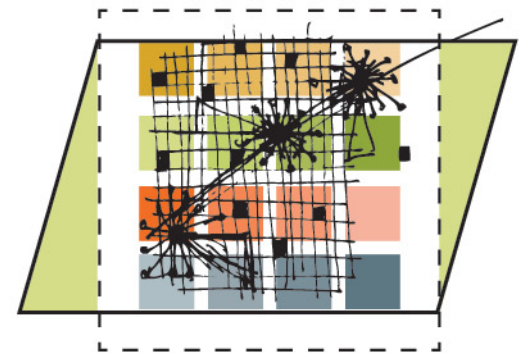
The land is the surface on which rural societies work. This thesis uses mapping of the land as the dominant means of investigation for finding patterns and ratios of farm sizes and crop production. As James Corner describes, mapping is the part that evolves the “ ‘artistic’ renderings to



Principle 1: to express the structure and the machine.



Principle 2: designing with flexibility for assembly and disassembly.



Principle 3: to be attuned to site-specific activity to create networks.

‘technical’ working documents.”<sup>29</sup> Rather than attempting to develop a formal landscape design, mapping becomes an investigative tool<sup>30</sup> that finds where farmers work and that graphically describes the qualities of the cultivated product. Isolation of information visually communicate not only the physical but also the social construct of agriculture. James Corner articulates, “the dismantling and isolation of layers and elements in plan (...) focuses attention on the logic of making the landscape rather than on its appearance per se.”<sup>31</sup> The reading of a land ownership map will disclose potential siting locations for the new infrastructural form.

According to Statistics Canada, farm size brackets are determined on annual gross receipts. A small sized farming group brings in less than \$100,000 per year; a medium, between \$100,000 and \$250,000; a large size, over \$250,000.<sup>32</sup> Should every farmer seed spring wheat, the most common crop type in the Rural Municipality of DeSalaberry, at a forecasted price of \$6.26/ bushel (60 pounds) and a forecasted production yield of approximately 45 bushels per acre<sup>33</sup>, the calculations present a monetary value per acre

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29. James Corner, *Rediscovering Landscapes: Essays in Contemporary Landscape Architecture* (New York: Princeton Architectural Press, 1999), 164.

30. *Ibid.*, 165.

31. *Ibid.*, 164.

32. Statistics Canada, 2015. “Farm size and demographic changes” (table 3), 2011.

33. Agriculture and Agri-Food Canada. (2014-07-22). *Canada: Outlook for Principal Field Crops*.

which can be translated to a value per quarter section of land. From this, small, medium, and large farms can be identified. The following points are other groups represented in a 10 mile by 10 mile coverage, the approximate area a traditional grain elevator once serviced:

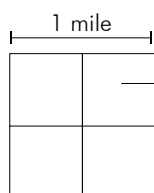
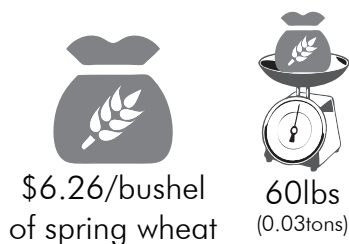
- Holding companies: these companies own land and equipment to be rented out to operating companies. They will most likely own shares of the operating company. In most cases, their tenants are large sized farmers.

- Local land owners: typical local residents who own small parcels of land for rent.

- Larger, remote farms: these are identified with \*enter business name\* Farms Ltd./Inc., who's farm bases are in other municipalities.

- Livestock farmers: these are farmers focused on forage and livestock needs.

2015 forecast:



7264 bushels of Spring Wheat per quarter section. (45.4 bushels per acre; 160 acres per quarter sections; 217 tons of wheat.)

Large sized farmers  
 > \$250,000 =   
 + (1032t)

Medium sized farmers  
 > \$100,000 =   
 to (645t) to (1085t)  
 < \$250,000

Small sized farmers  
 < \$100,000 = -   
 (< 645t)

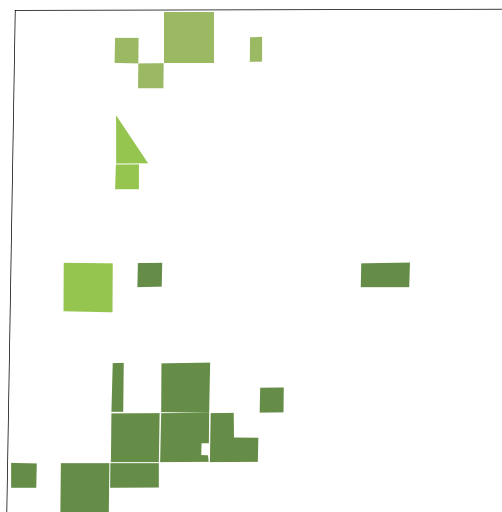




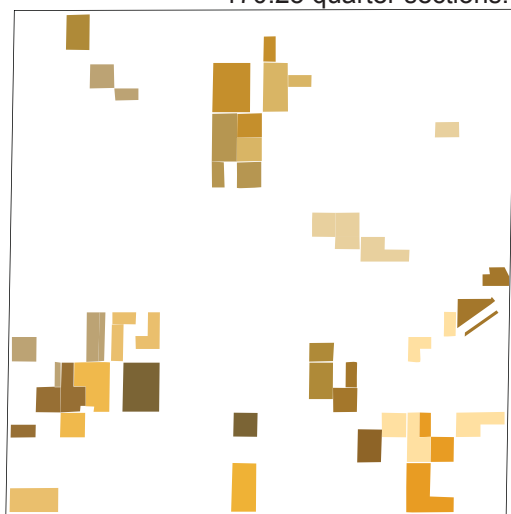
A 10 section by 10 section map showing all farming size groups.  
Top map from the Rural Municipality of DeSalaberry, *Township Maps 2006*.



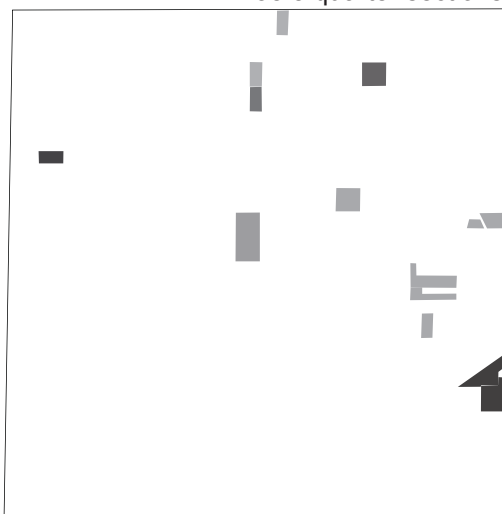
Large sized farmers; 15 groups,  
170.25 quarter sections.



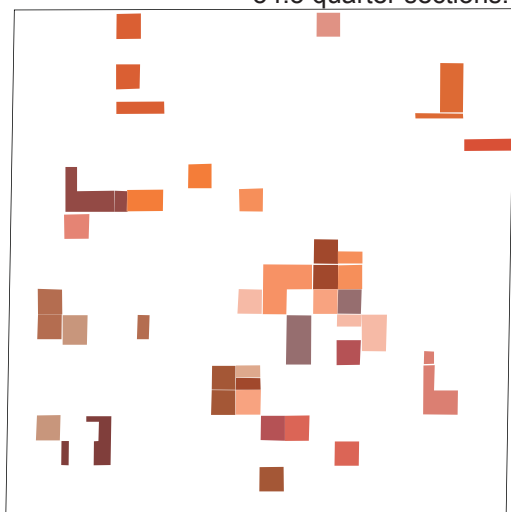
Holding Companies; 3 groups,  
38.5 quarter sections.



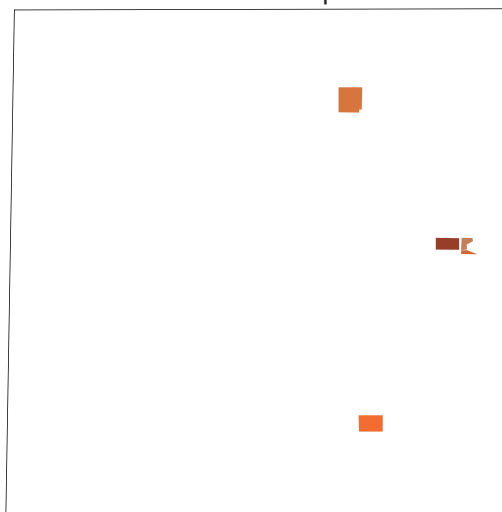
Medium sized farmers; 14 groups,  
54.5 quarter sections.



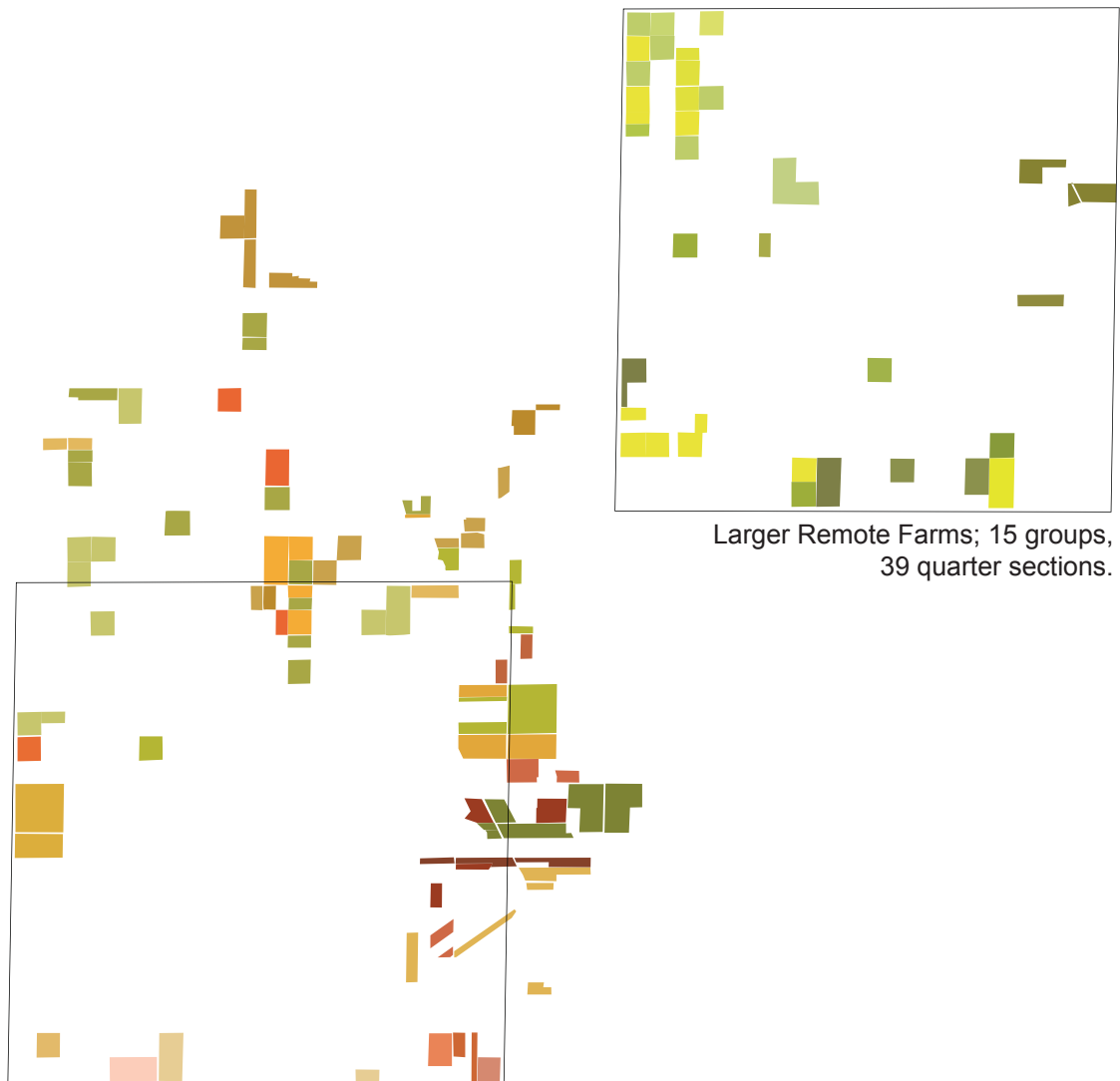
Livestock and Forage; 7 groups,  
11.5 quarter sections.



Small sized farmers; 21 groups,  
45.75 quarter sections.



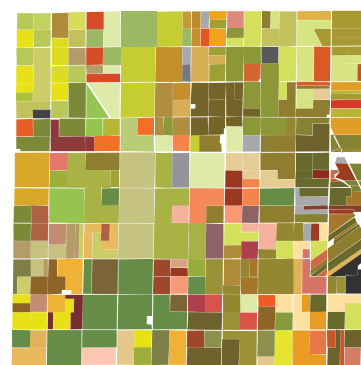
Local land owners; 5 groups,  
2.5 quarter sections.



Larger Remote Farms; 15 groups, 39 quarter sections.

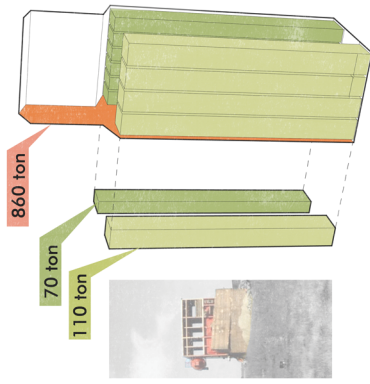
Farms on the 10 mile boundary (labeled as a personal name with the majority of ownership on the hinterlands but no ownership in the interior) are isolated to accurately assess the amount of land belonging in the small, medium, and large brackets.

- Small sized farmers: 10 groups, 9 quarter sections
- Medium sized: 9 groups, 17.5 quarter sections
- Large sized: 4 groups, 10.5 quarter sections.

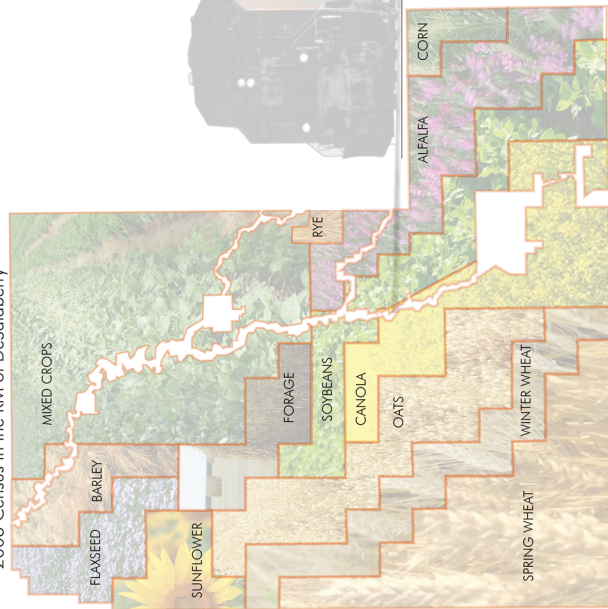


Overall key map: 10miles x 10 miles.

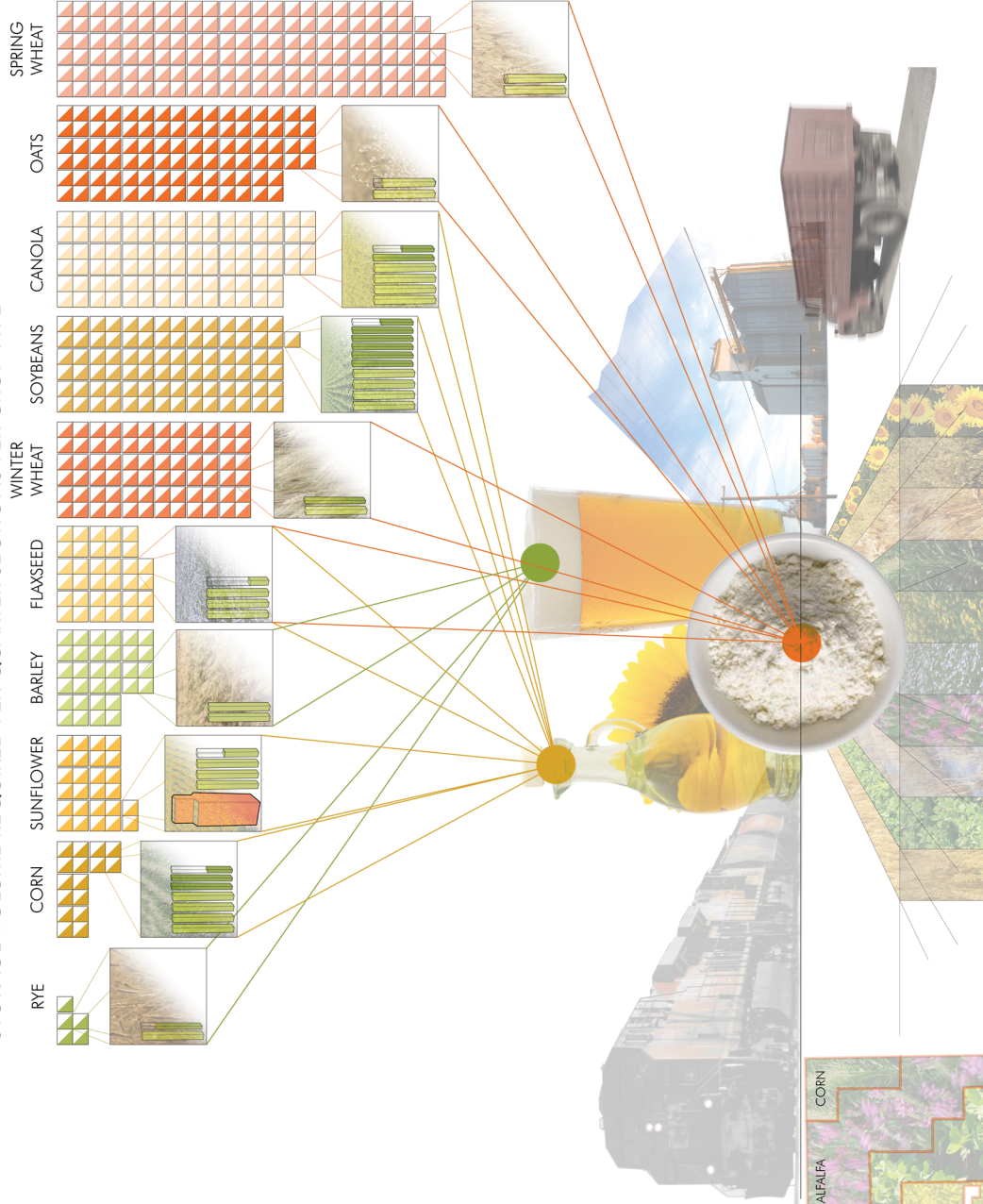
**CROP FORECAST FOR 2015  
CAREY ELEVATOR BIN CAPACITY**



**HAY AND FIELD CROP REPORTED FOR  
2006 Census in the RM of DeSalaberry**

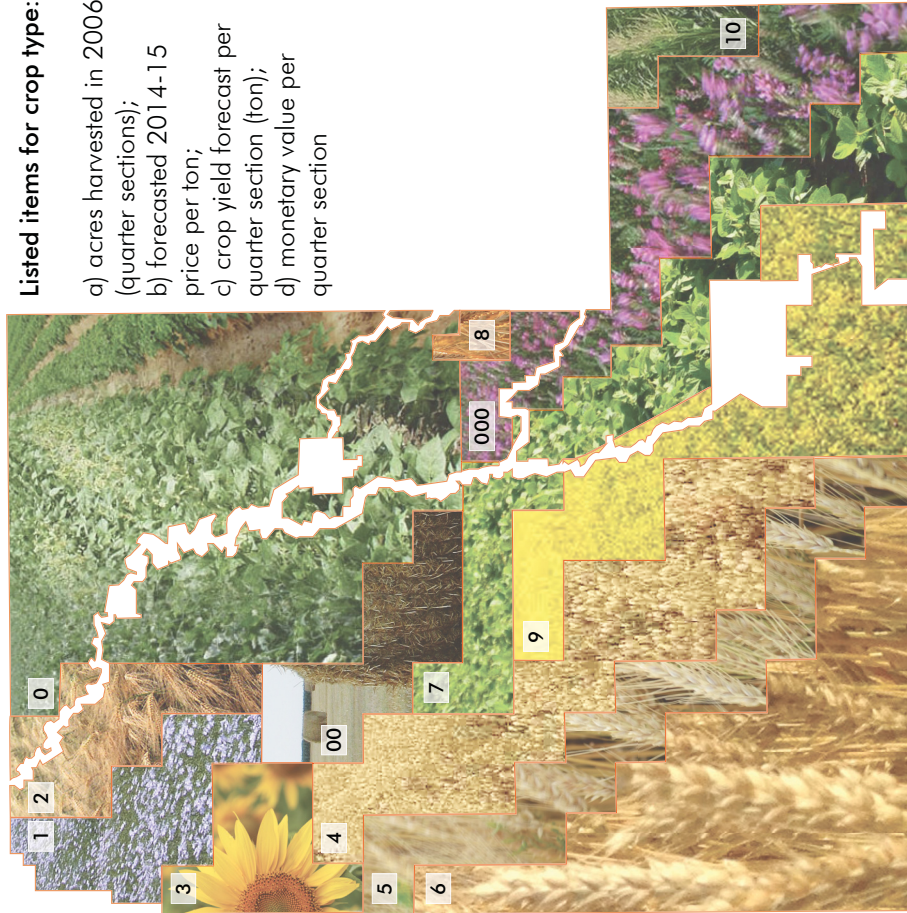


**STORAGE VOLUME REQUIRED PER QUARTER SECTIONS PER CROP TYPE**



2006 Field crop census map for the RM of DeSalaberry and the crop forecast for 2015 with corresponding bin volume required per quarter section of crop type. Data from Agriculture and Agri-Food Canada, Canada: *Outlook for Principal Field Crops*. 2014.

2014 PRODUCTIVITY AND FORECASTED VOLUME



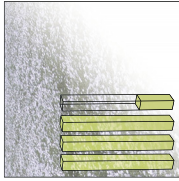
Limited data with published StatsCan reports on following crops due to confidentiality: 0: Mixed crops; 00: Forage; 000: Alfalfa.

Listed items for crop type:

- a) acres harvested in 2006 (quarter sections);
- b) forecasted 2014-15 price per ton;
- c) crop yield forecast per quarter section (ton);
- d) monetary value per quarter section

**1 Flaxseed**

- a) 5482 (34.2)
- b) \$525.00
- c) 424.3 tons
- d) \$222,793



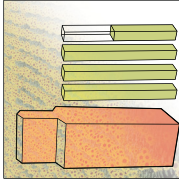
**2 Barley**

- a) 5164 (32.25)
- b) \$223.00
- c) 217.13 tons
- d) \$48,420



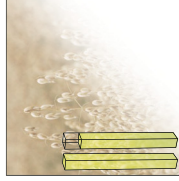
**3 Sunflower**

- a) 4145 (26)
- b) \$645.00
- c) 1252.3 tons
- d) \$807,755



**4 Oats**

- a) 14629 (91.5)
- b) \$264.33
- c) 201.6 tons
- d) \$53,287



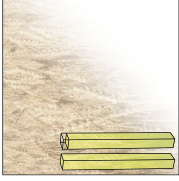
**5 Winter Wh.**

- a) 11565 (72)
- b) \$253.33
- c) 180.6 tons
- d) \$45,766



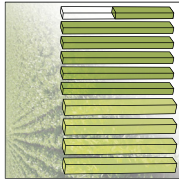
**6 Spring Wh.**

- a) 22665 (141)
- b) \$241.67
- c) 215.83 tons
- d) \$52,161



**7 Soybeans**

- a) 13705 (85.6)
- b) \$512.33
- c) 836.2 tons
- d) \$428,396



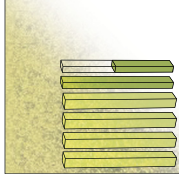
**8 Rye**

- a) 834 (5.2)
- b) \$176.66
- c) 180.5 tons
- d) \$29,132



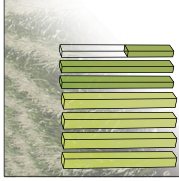
**9 Canola**

- a) 14591 (91.25)
- b) \$558.33
- c) 548.1 tons
- d) \$306,023

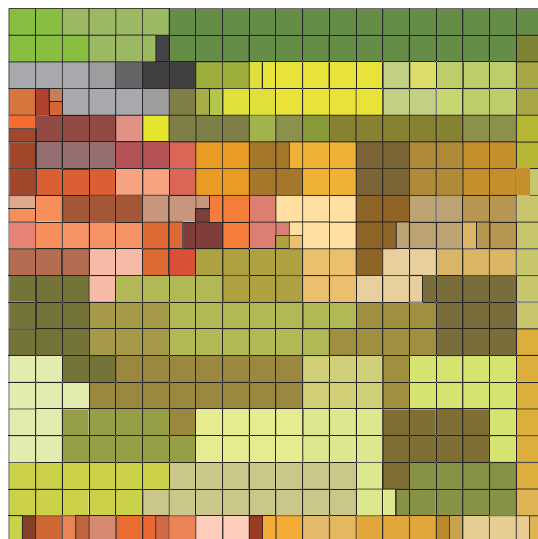


**10 Corn**

- a) 2709 (16)
- b) \$205.66
- c) 602.6 tons
- d) \$123,938

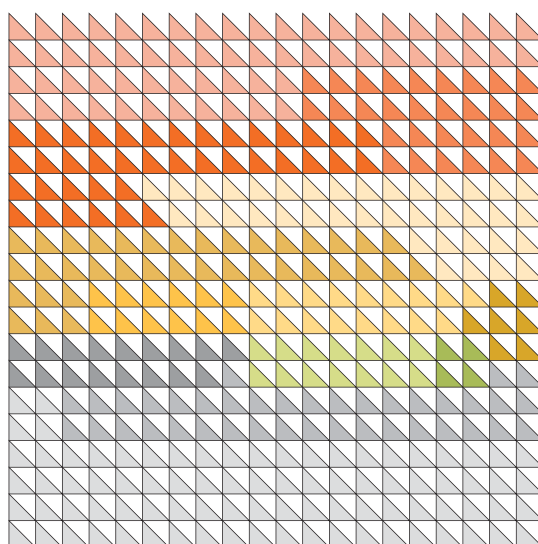


2006 Field crop census map for the RM of DeSalaberry and the crop forecast for 2015 with corresponding bin volume required per quarter section of crop type, enlarged and described data images.



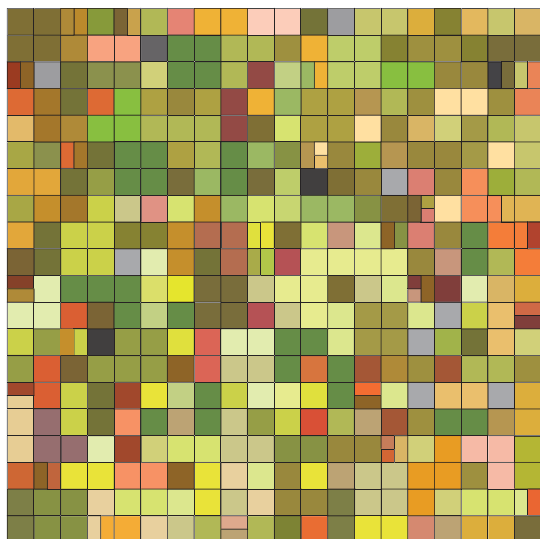
- Holdings 9.5%
- Livestocks 2.8%
- Large farms 52.6%
- Medium farms 20.6%
- Small farms 14.5%

Organized map of user type to visualize ratios within the 10mile x 10mile grid.

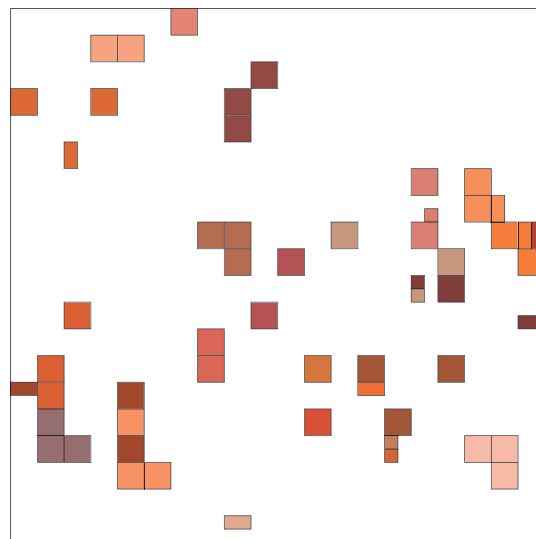


- Spring Wheat 15.5%
- Winter Wheat 17.5%
- Oat 9.75%
- Canola 9.5%
- Flax 4.25%
- Sunflowers 3.25%
- Soybeans 9.25%
- Corn 1.75%
- Barley 3.25%
- Rye 4.25%
- Mixed crops 21%
- Alfalfa 9.75%
- Forage 4.25%

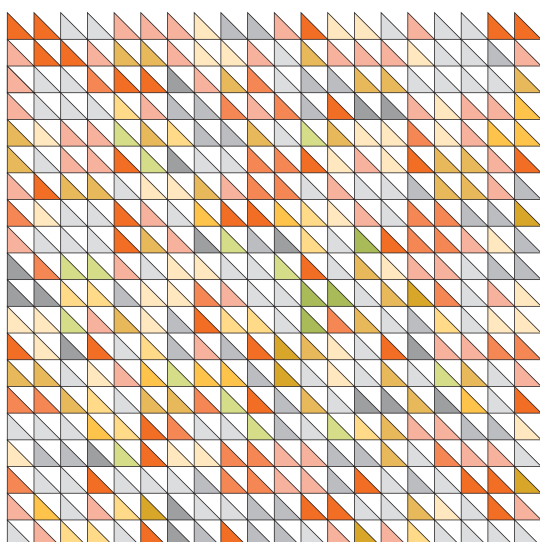
Organized map of crop type to visualize ratios within the 10mile x 10mile grid.



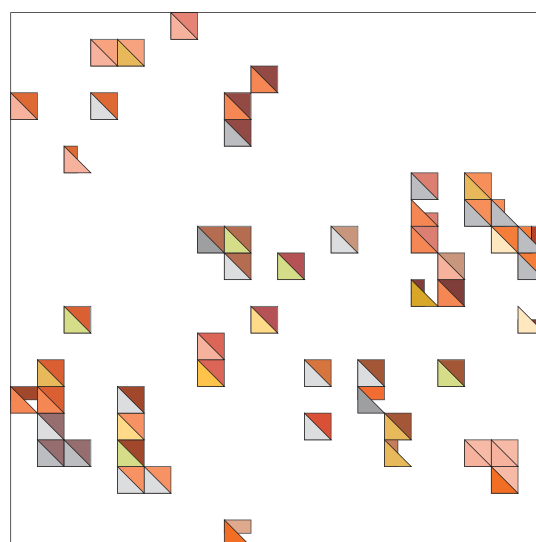
Shuffled map of land users for a rebuilding of a farming scenario.



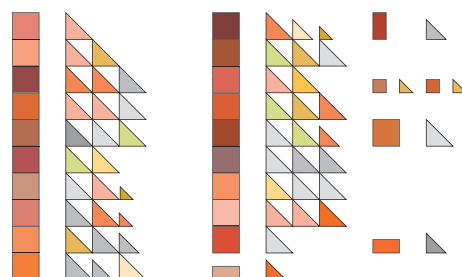
An isolation of small farms that will guide the "Points" of industrial fabric.



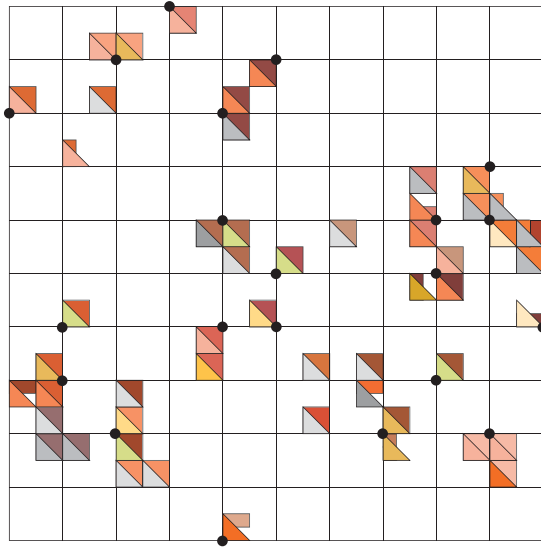
Shuffled map of crop users for a rebuilding of a farming scenario.



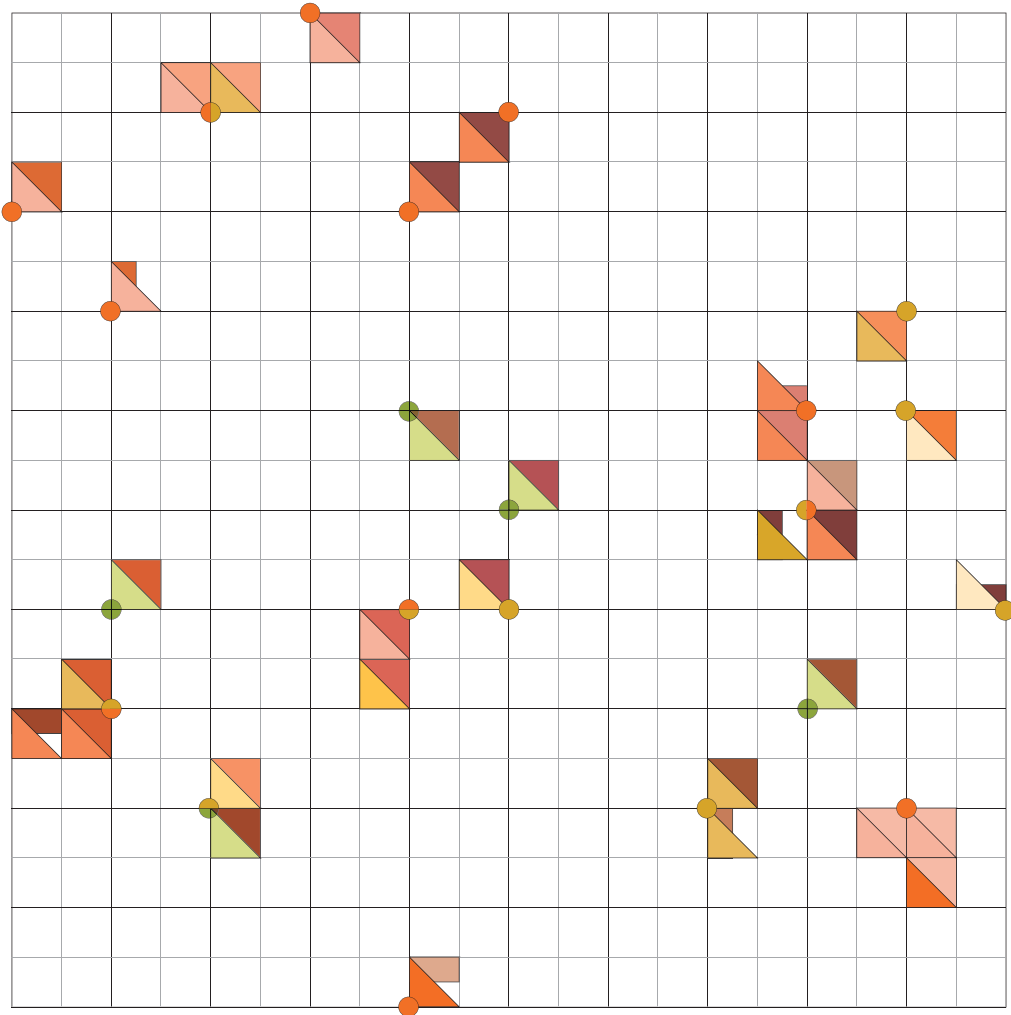
Isolation of small farms overlaid with their corresponding crop type.



An analysis of every farmer and their designated crops and rented land.

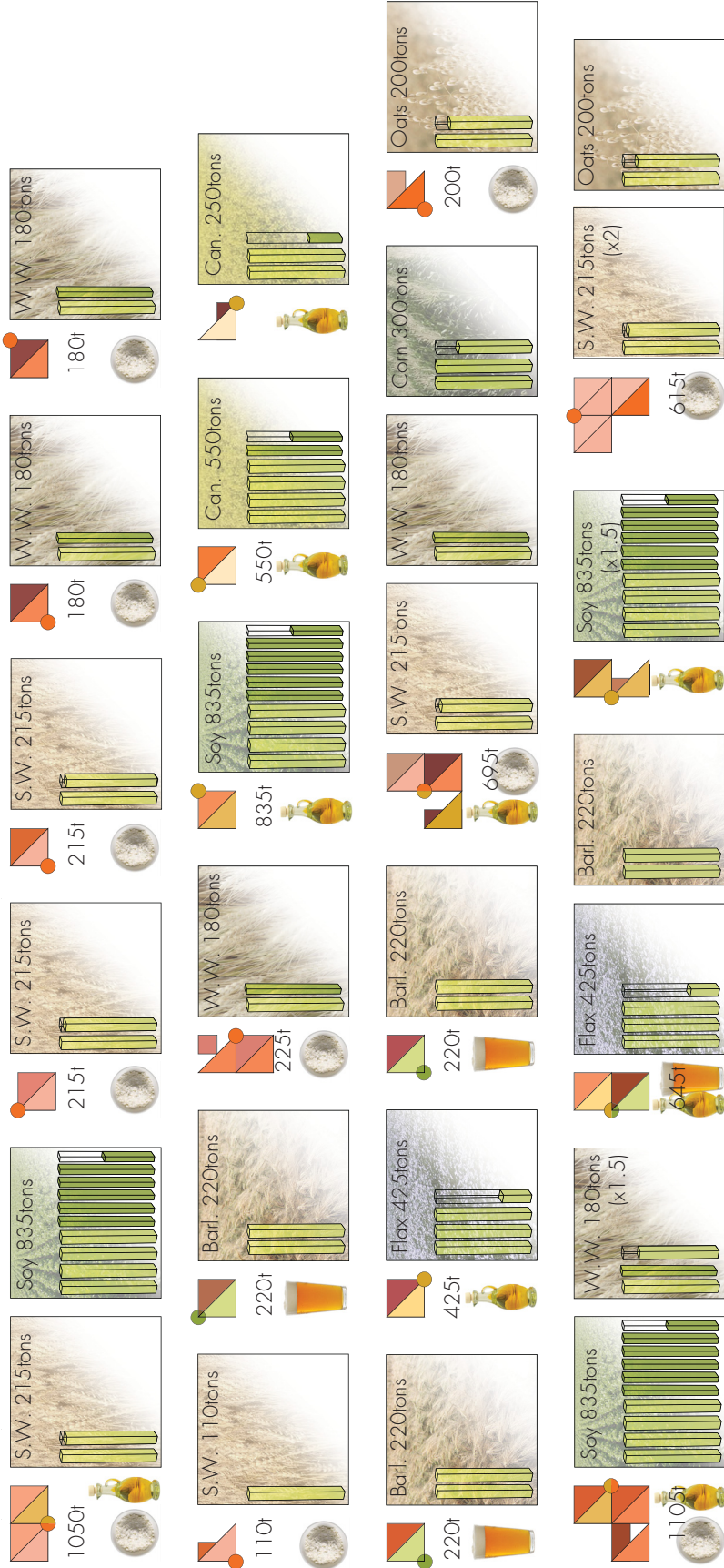


Determining the “points” of industrial fabric along the section grid.



Identifying the crop processing program based on the cultivated crop type.  
 ● Flour mill    ● Oil Pressing    ● Fermentation





Unfolding the required storage volume at the micro-sites.

## The Object

The object of this thesis is the result of research based on systems at the local and regional scale developed by way of investigating “site” as “three distinct areas” and carrying through the sites’ impact to applied scales. The three site scale studied are, the program site, the micro-site, and the macro-site. Through each scale, the “Object” is determined by site-specific activity; furthermore, it makes evident aspects of the surrounding environment at their correlated scale. The “Land” mapping analysis provides direct qualifications for the architectural objects on each micro-site which will have repercussions on the macro-site. The crop type dictates the crop processing program; the crop volume of the fields influences the architectural scale of the micro-site; the number of participants in the region affect the scale of the macro-site from which all the parts originate.

Every part of the design is to be exposed; when a visitor drives by, they see the local industry and the parts that shape it. It can be deciphered down to the structure and the machine; people can trace down the flow of grain. These “Objects” become points in the landscape and icons representing the small sized farm. Their presence becomes a symbol of added economic value to the local agricultural industry. The farmers working with these elevators are then identified as the people who support the local food movement in rural Manitoba.

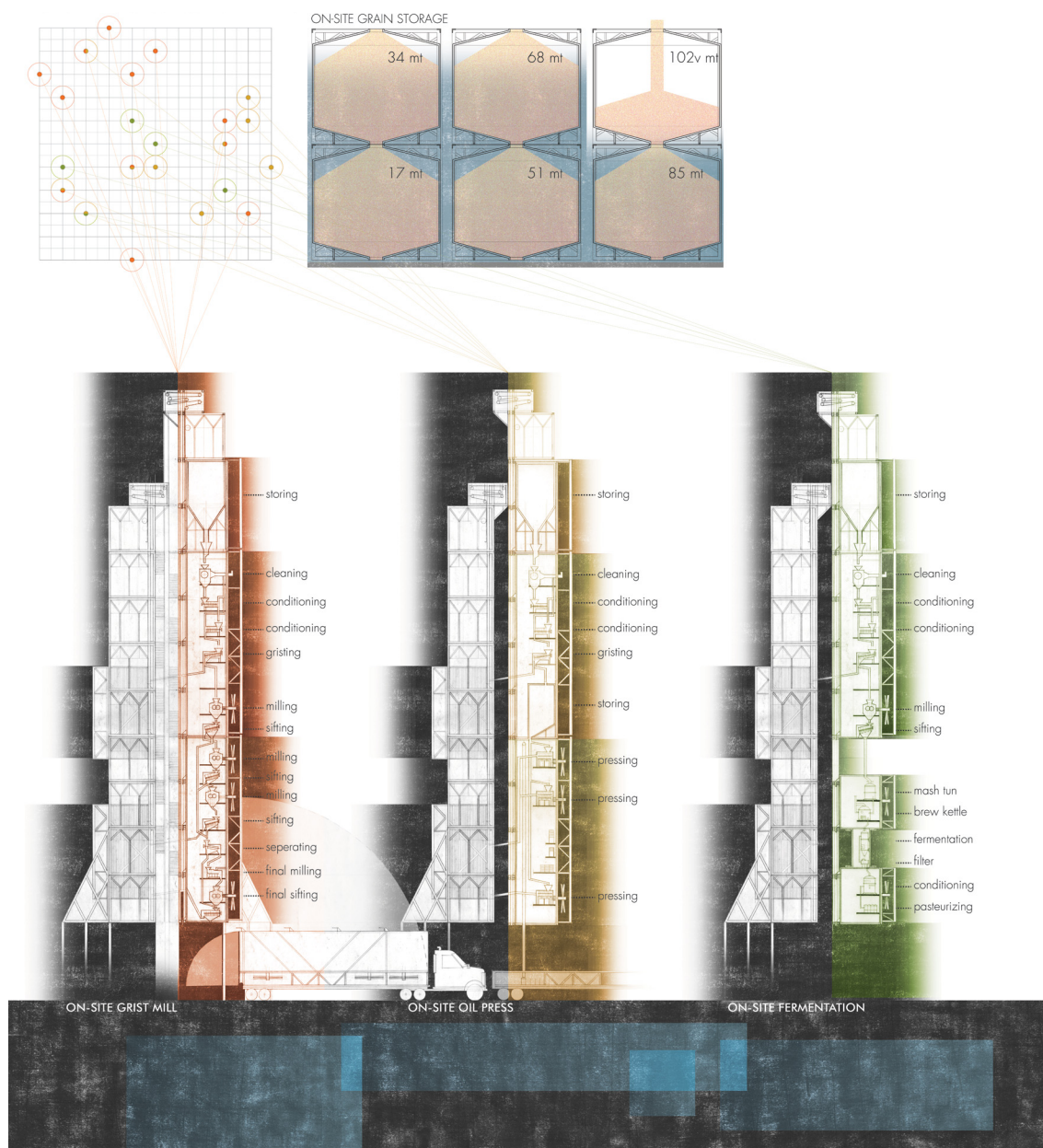
## The Program Site

The program site respond to crop type. The harvested product can either be transformed into flour, oil, or beer, each of which are identified with a coloured trailer: orange, yellow, and green, respectively. Thus, the on-site colour identity communicates to the viewer the general type of crop being grown in the adjacent field and the type of processing occurring with that grain.

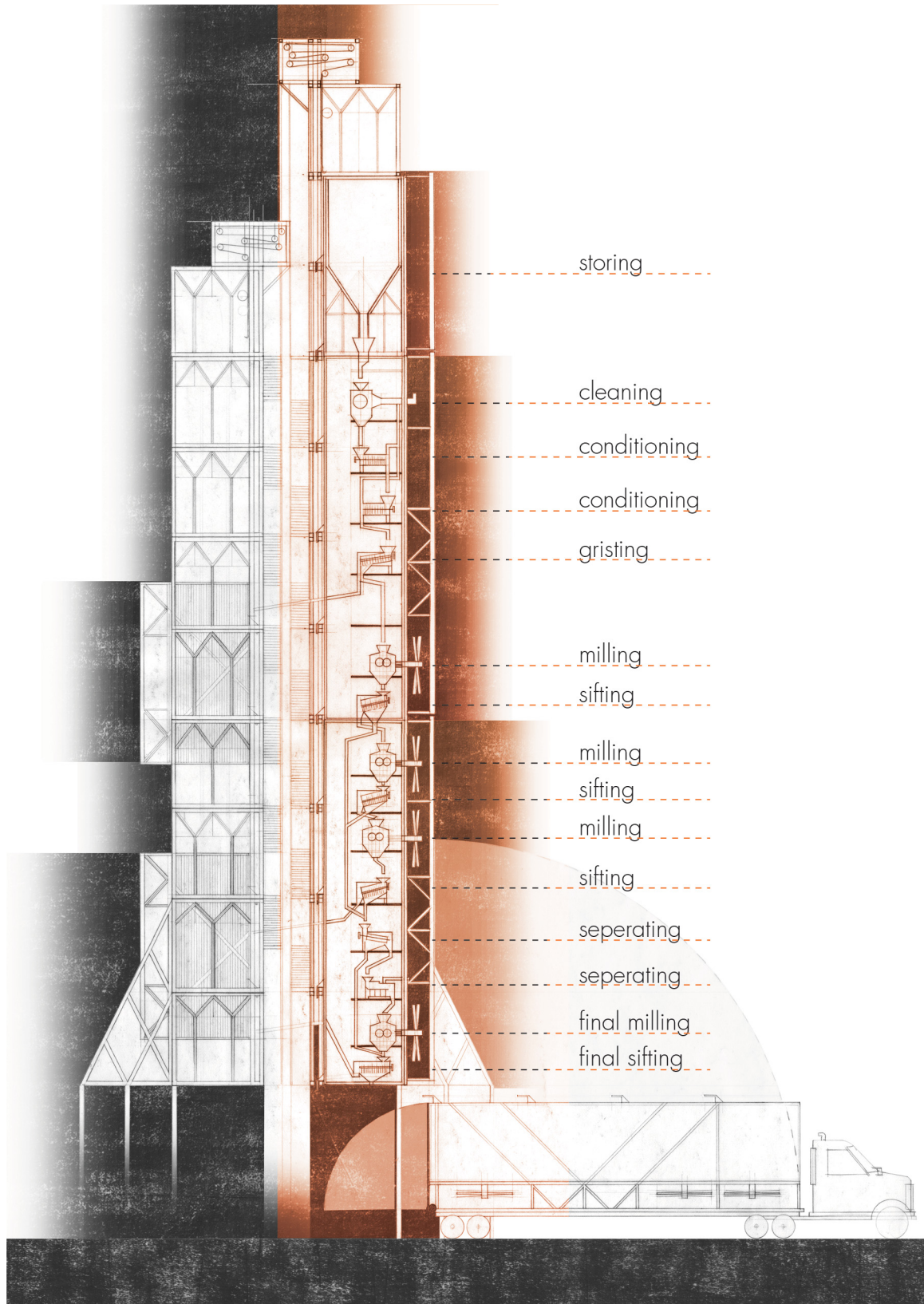
The install of the program trailer on site may also influence the type of seeds the farmer chooses to plant the following year. A flour mill on site may mean a flaxseed field harvested the next year, and oats the next. Once the orange flourmill is replaced by the yellow oil press, the farmer may decide to work with sunflower, corn, and soybeans for the next few years. This is how the architecture of a “site” can have reciprocating influence on its surrounding region.

All the trailers are designed using the proportions and mathematical factors of a 48' trailer (1-48; 2-24; 3-16; 4-12). These all fit within a structural steel framework that also comes in parts transported by trailer bed. There are two methods of installation (diagrammed on page 61), they are either levered up into a vertical position then hoisted into place with the strength of pulleys and gears, or they are simply hoisted into place as they are positioned on the trailer bed.

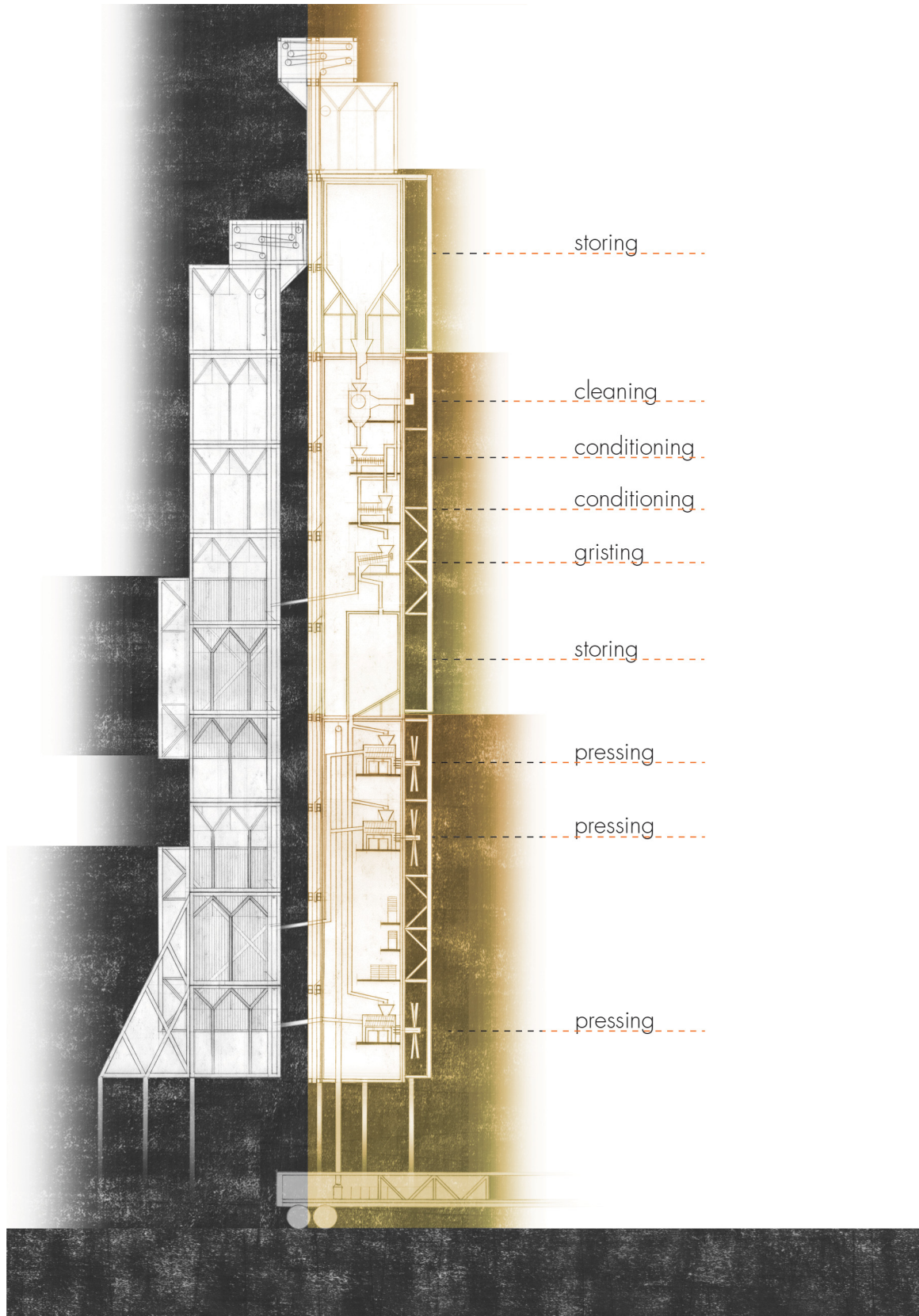
Wind is the main source of energy for the programmed trailers. The framework underneath the trailer allows space for the wind turbines' rotor and blades. When installing the trailers in the structural framework, the turbines become exposed and may start powering the equipment and turning the mills.



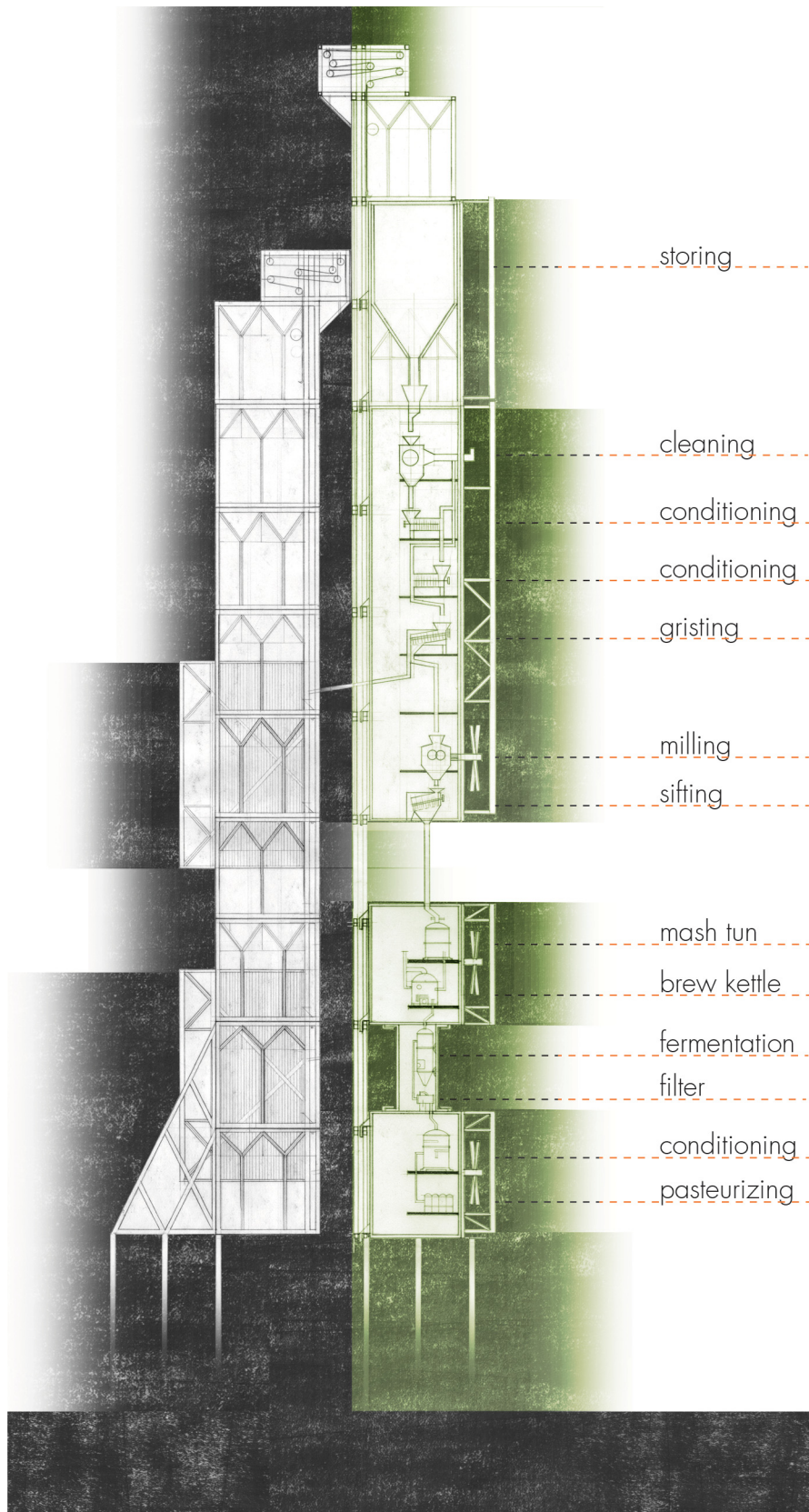
Panel of the three types of crop processing trailers distinguishable by colour. Expansion of drawings shown on the following pages.



On-site flour mill.  
 Process diagram inspired by John H. Finley ed., *Nelson's  
 Perpetual Loose-Leaf Encyclopaedia* (vol. 5).



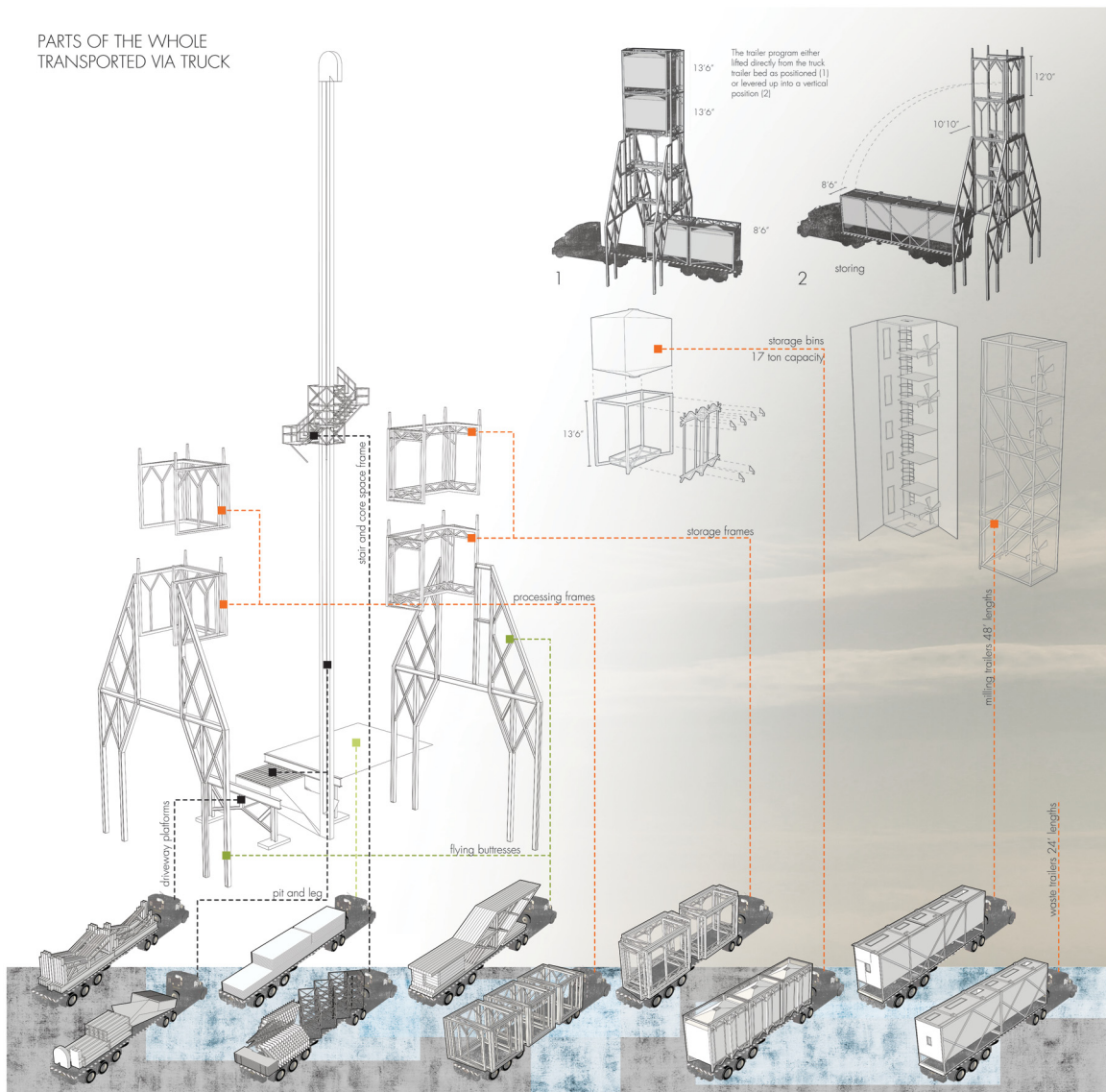
On-site oil press.  
Process diagram inspired by the Kern Kraft 100 Cold Press, Circle Energy.



On-site fermentation/brewing.  
 Process diagram inspired by Calhoun's Microbrewery, "The Brewing Process."

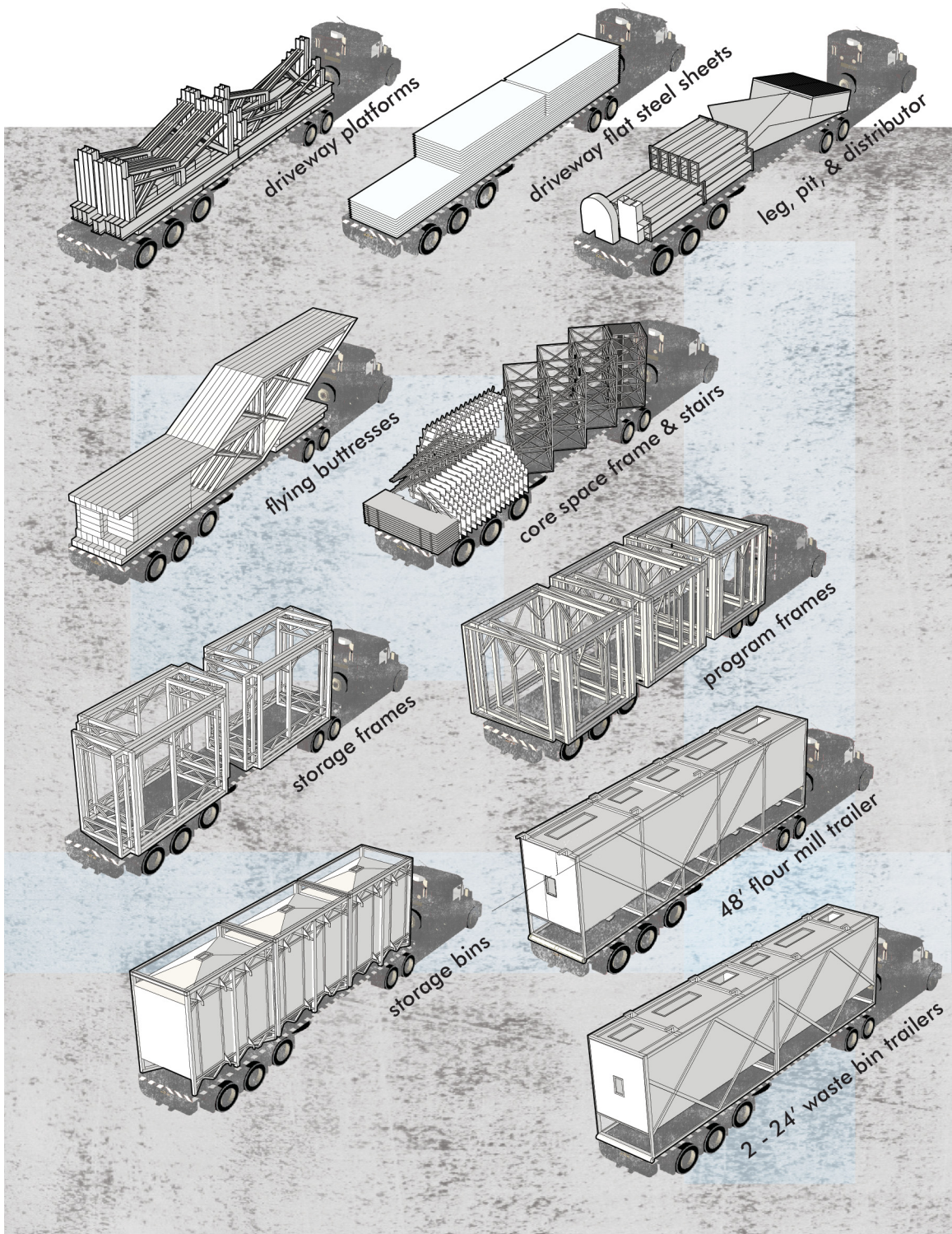
## The Micro-Site

The scale of the micro-site is relative to the crop volume of the adjacent fields. The structure is composed of parts, all of which can be transported on trailer beds. The main components are: the driveway platforms, the pit, the leg, the distributor and spouts, the flying buttresses, the processing frames, and the storage frames.



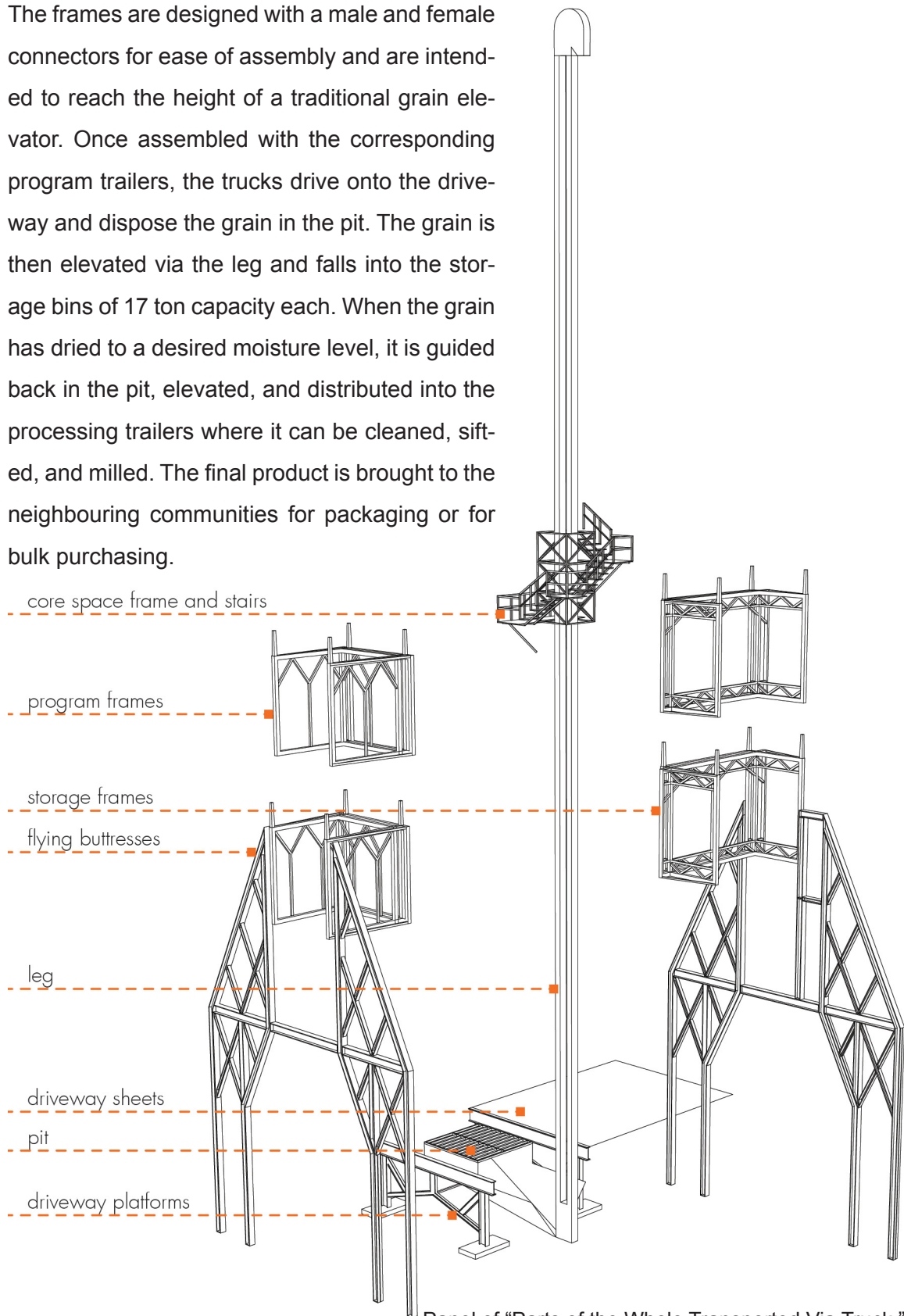
Panel of "Parts of the Whole Transported Via Truck" with program trailer integration. Expansion of drawings shown on the following pages.





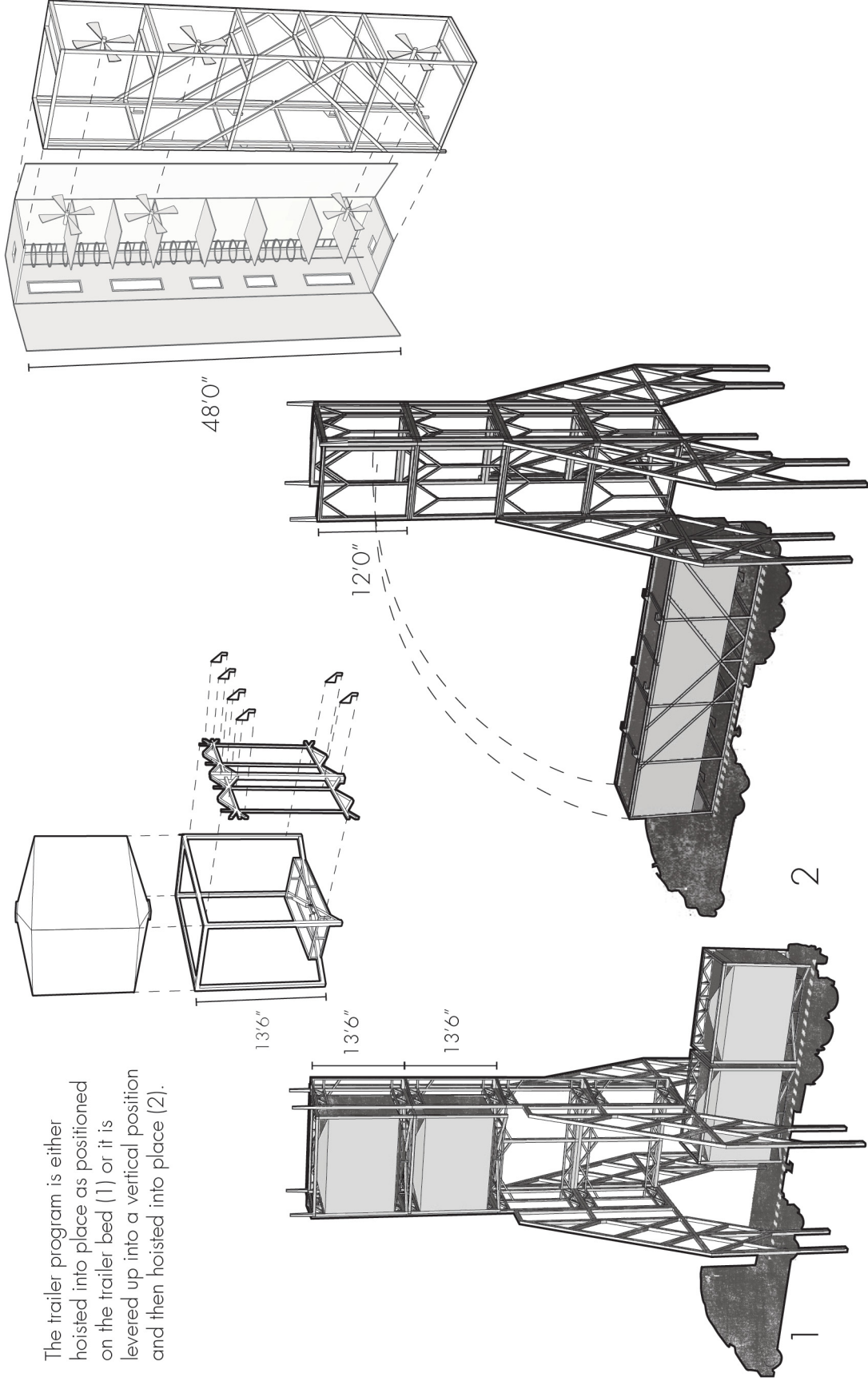
Panel of "Parts of the Whole Transported Via Truck," expanded diagrams of parts fitting on a 48' trailer bed.

The frames are designed with a male and female connectors for ease of assembly and are intended to reach the height of a traditional grain elevator. Once assembled with the corresponding program trailers, the trucks drive onto the driveway and dispose the grain in the pit. The grain is then elevated via the leg and falls into the storage bins of 17 ton capacity each. When the grain has dried to a desired moisture level, it is guided back in the pit, elevated, and distributed into the processing trailers where it can be cleaned, sifted, and milled. The final product is brought to the neighbouring communities for packaging or for bulk purchasing.

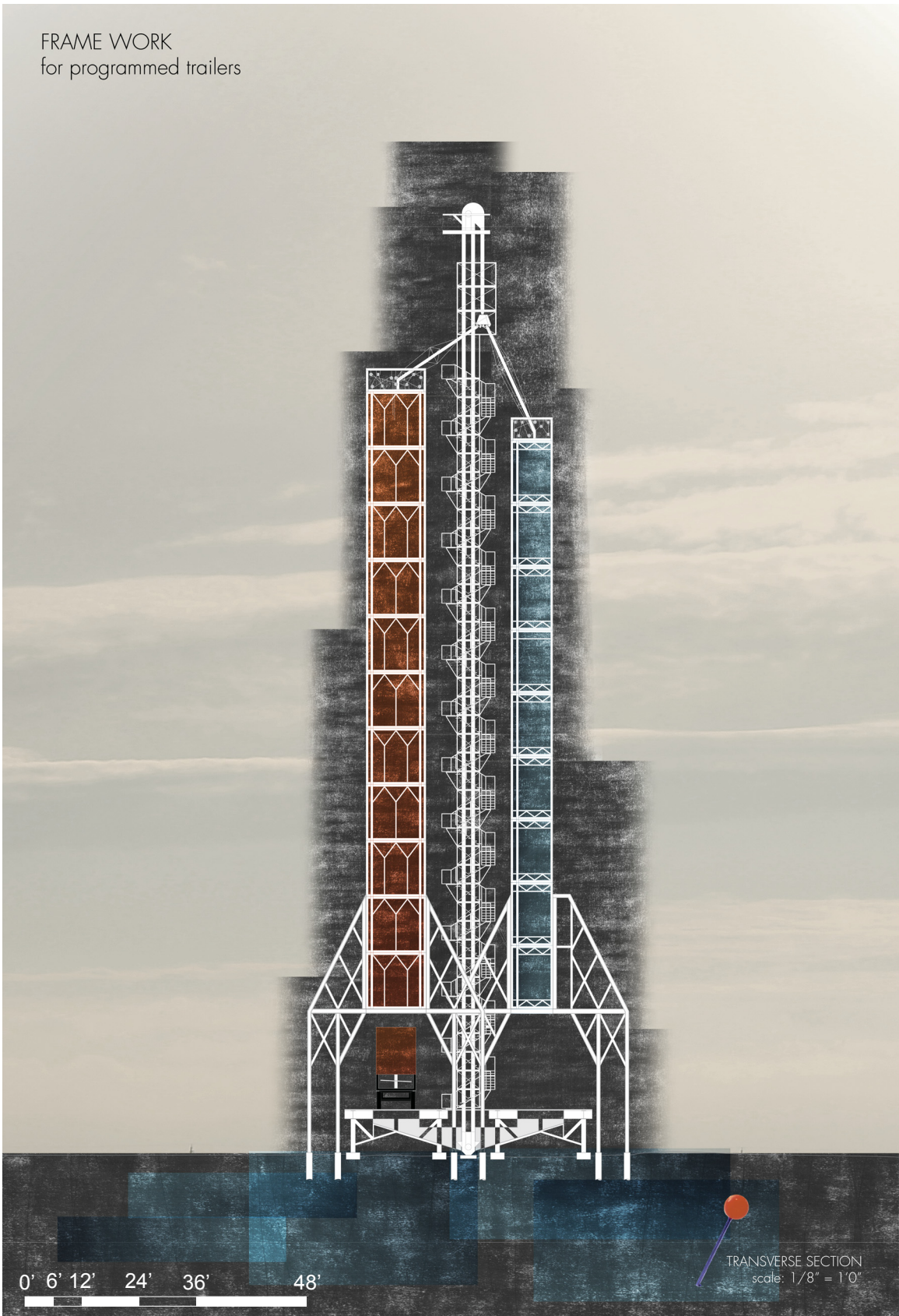


Panel of "Parts of the Whole Transported Via Truck," expanded diagram of the exploded axo demonstrating the assembly of parts.

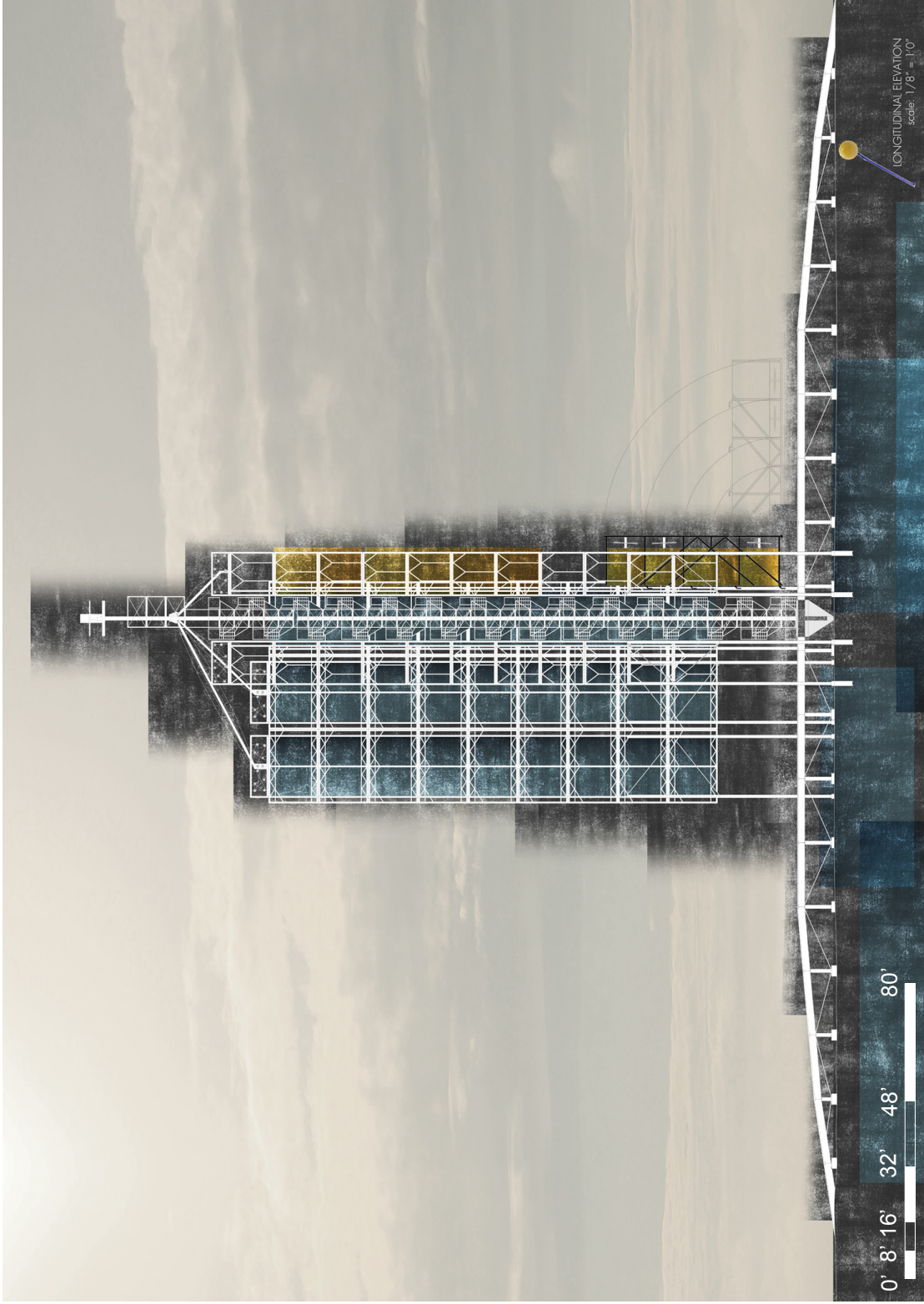
The trailer program is either hoisted into place as positioned on the trailer bed (1) or it is levered up into a vertical position and then hoisted into place (2).



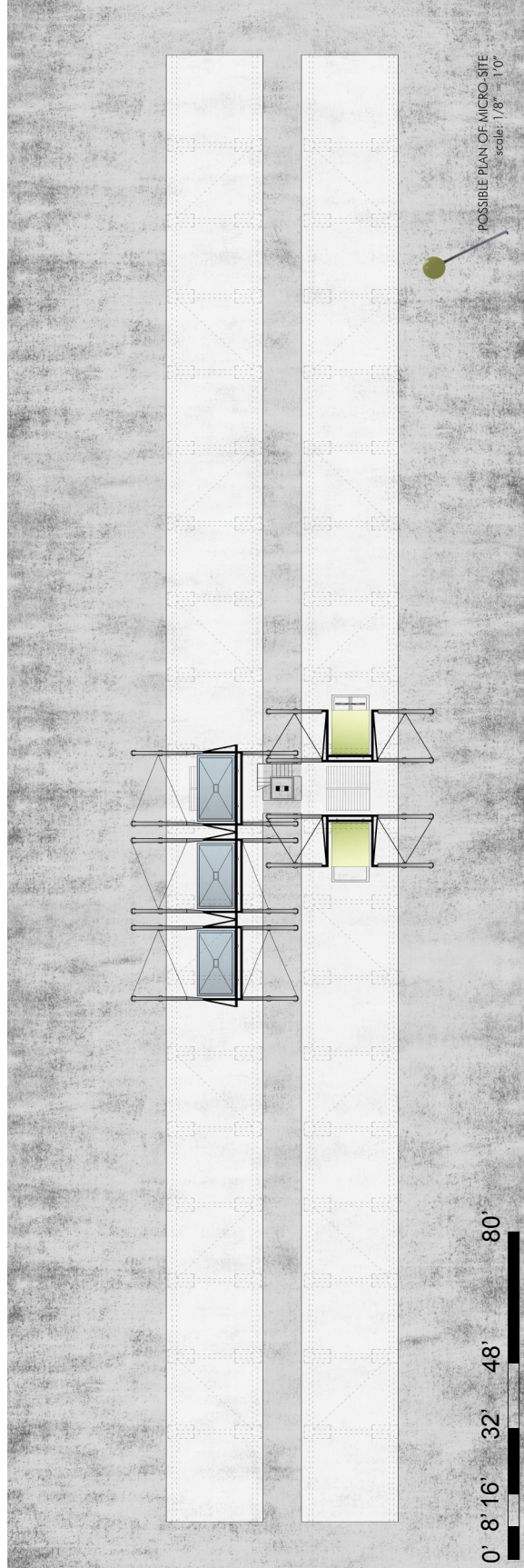
Panel of "Parts of the Whole Transported Via Truck," expanded diagram of the program hoisted into the structural frame work.



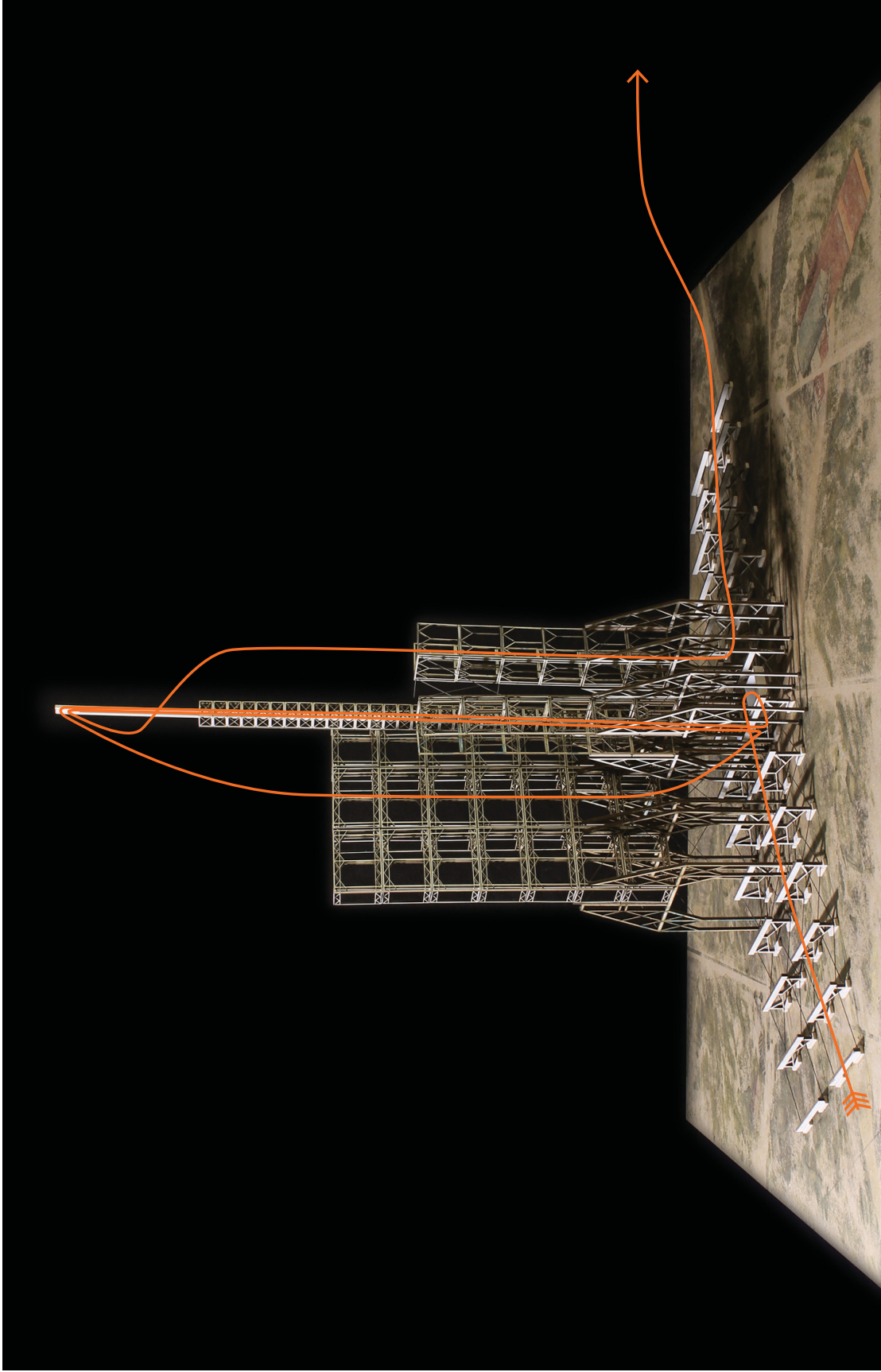
Transverse section, original drawing scale: 1/8" = 1'0"



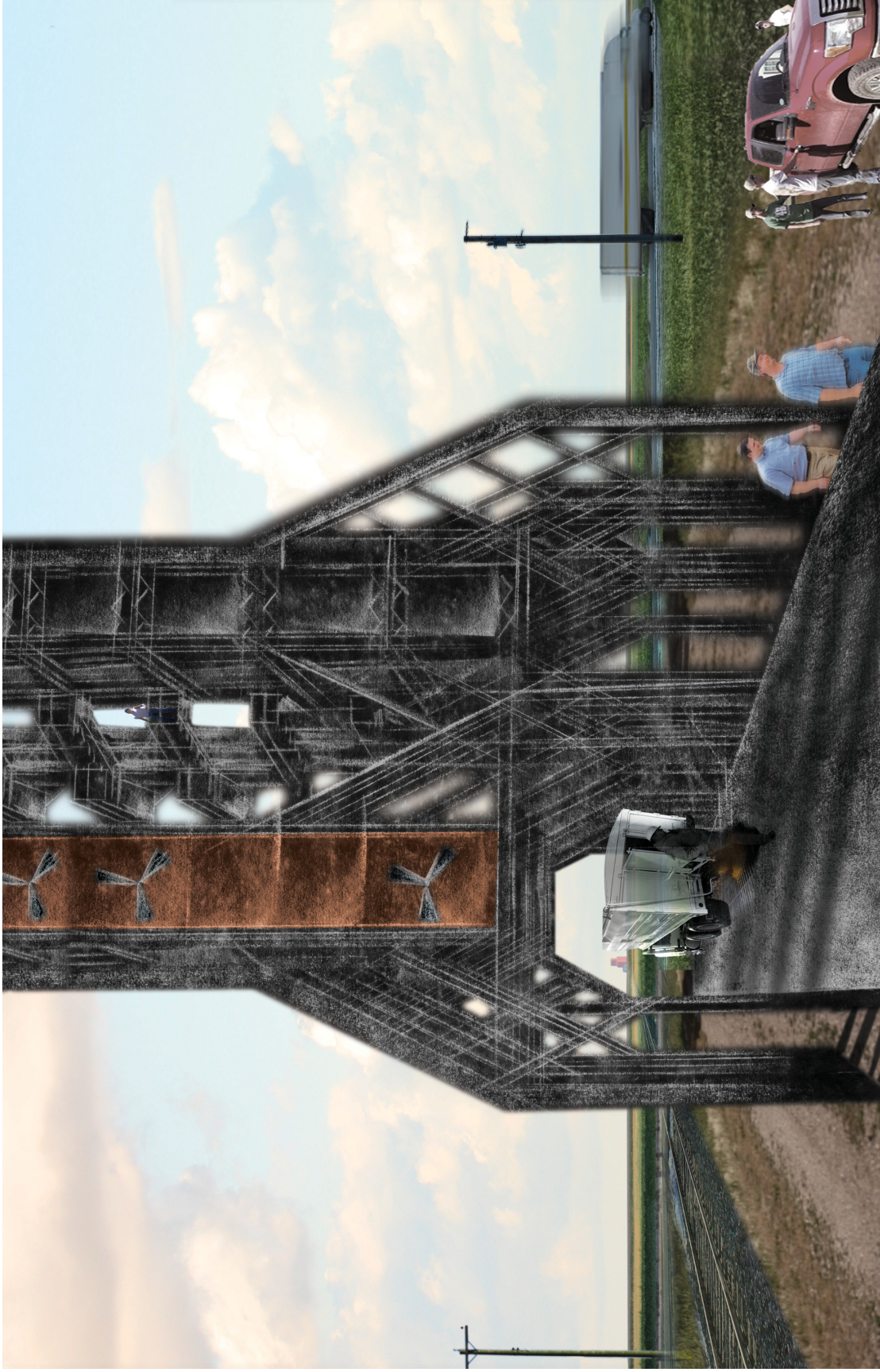
Longitudinal elevation, original drawing scale: 1/8" = 1'0"



Typical plan, original drawing scale: 1/8" = 1'0"

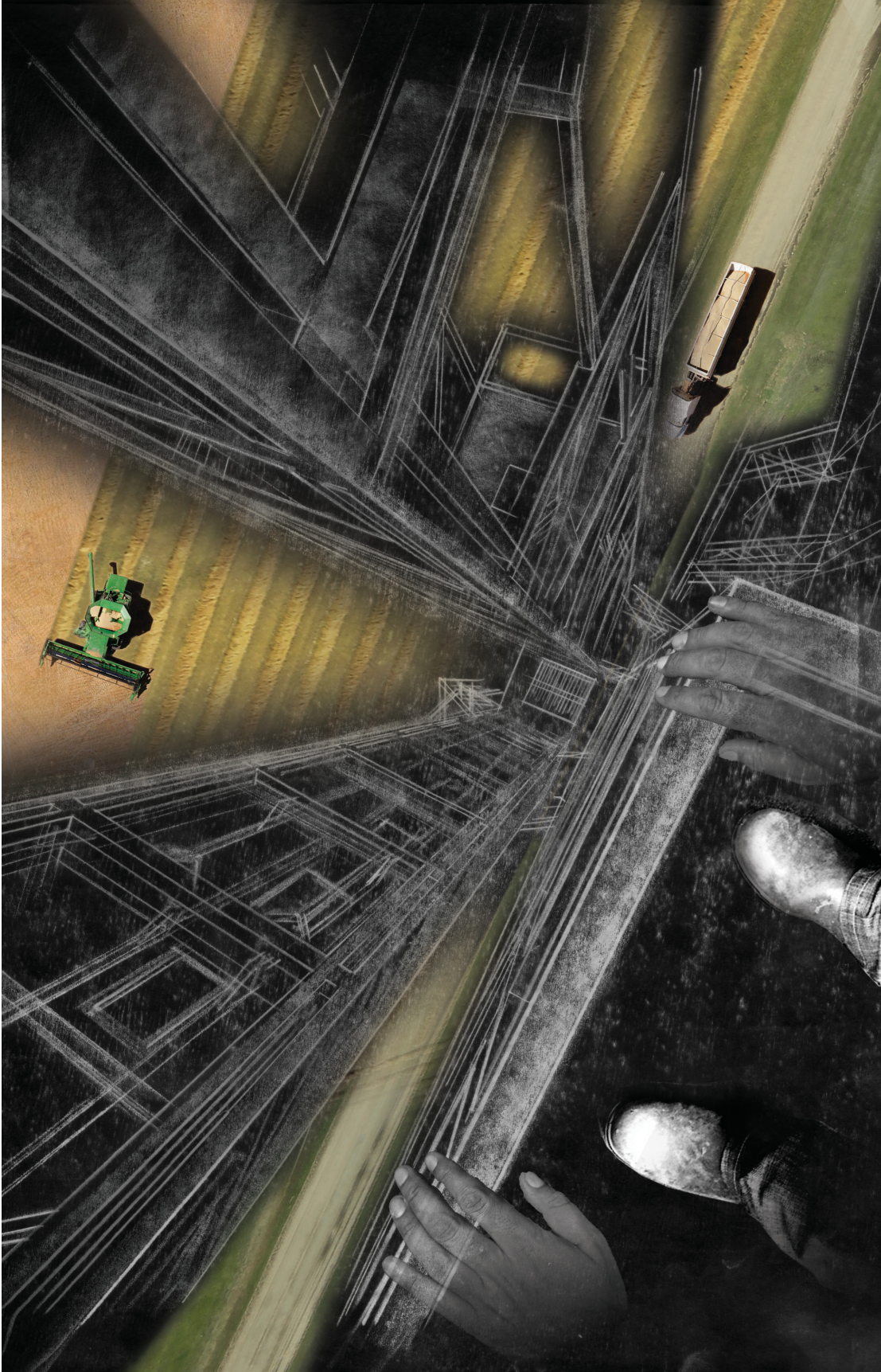


A grain flow diagram. Original model scale: 1/8" = 1'0"

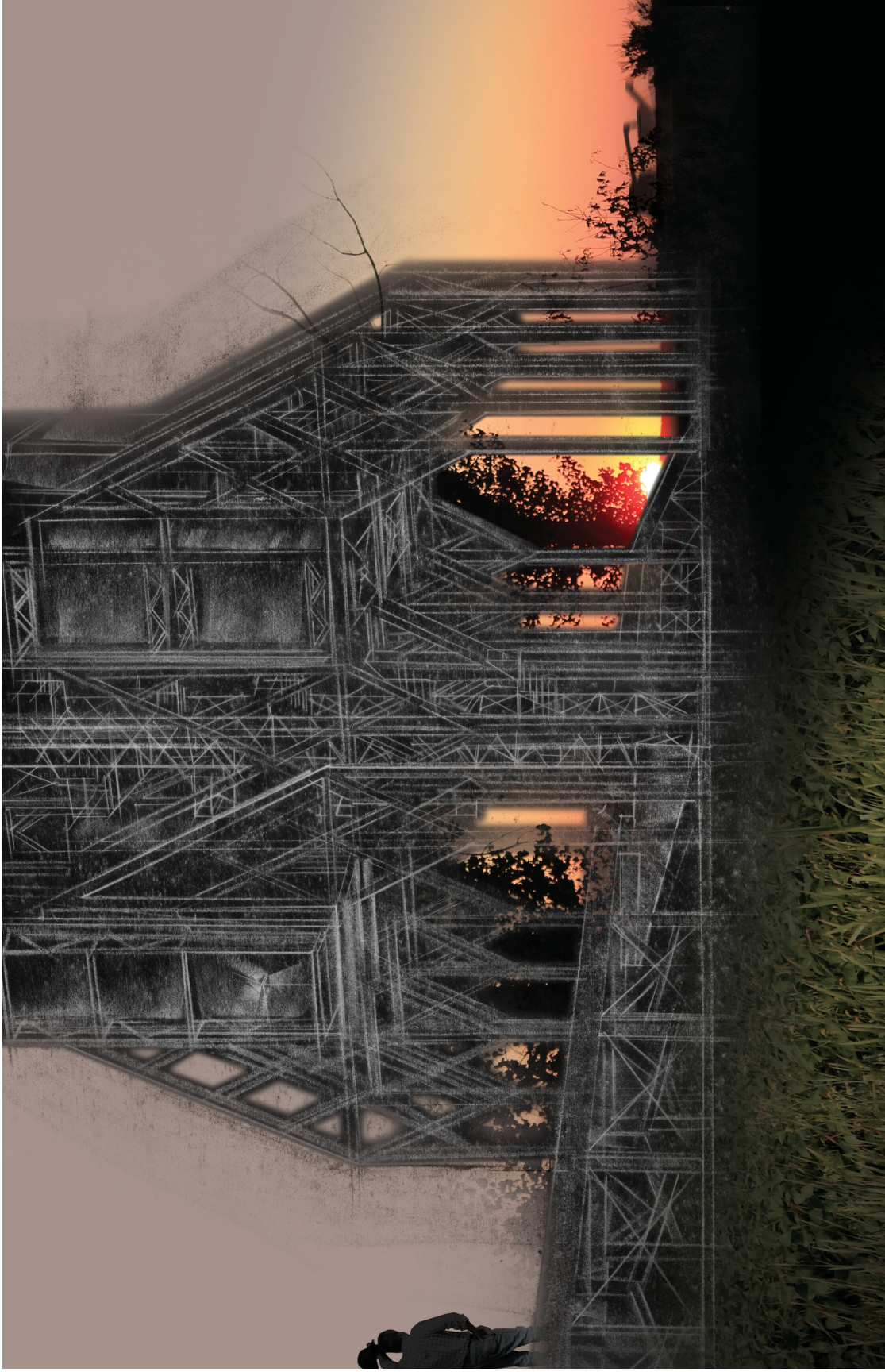


A rendering of people on the micro-site; farmers talking to farmers while the one dumps his grain in the pit.

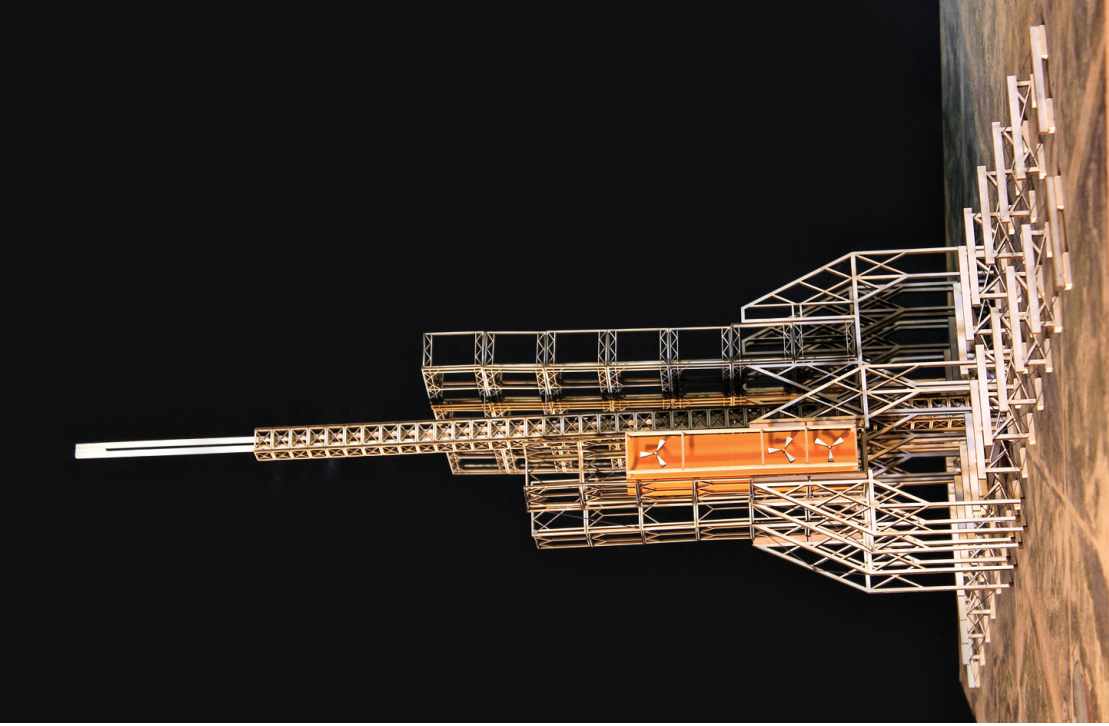




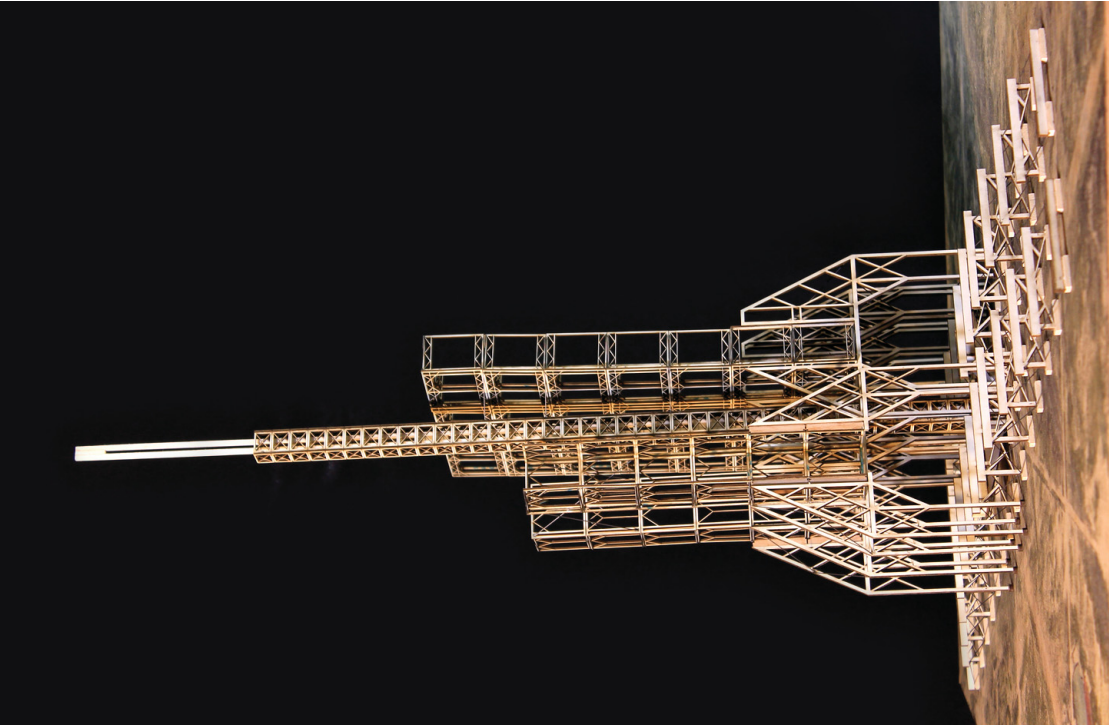
67  
A rendering of the experience from the top looking down.



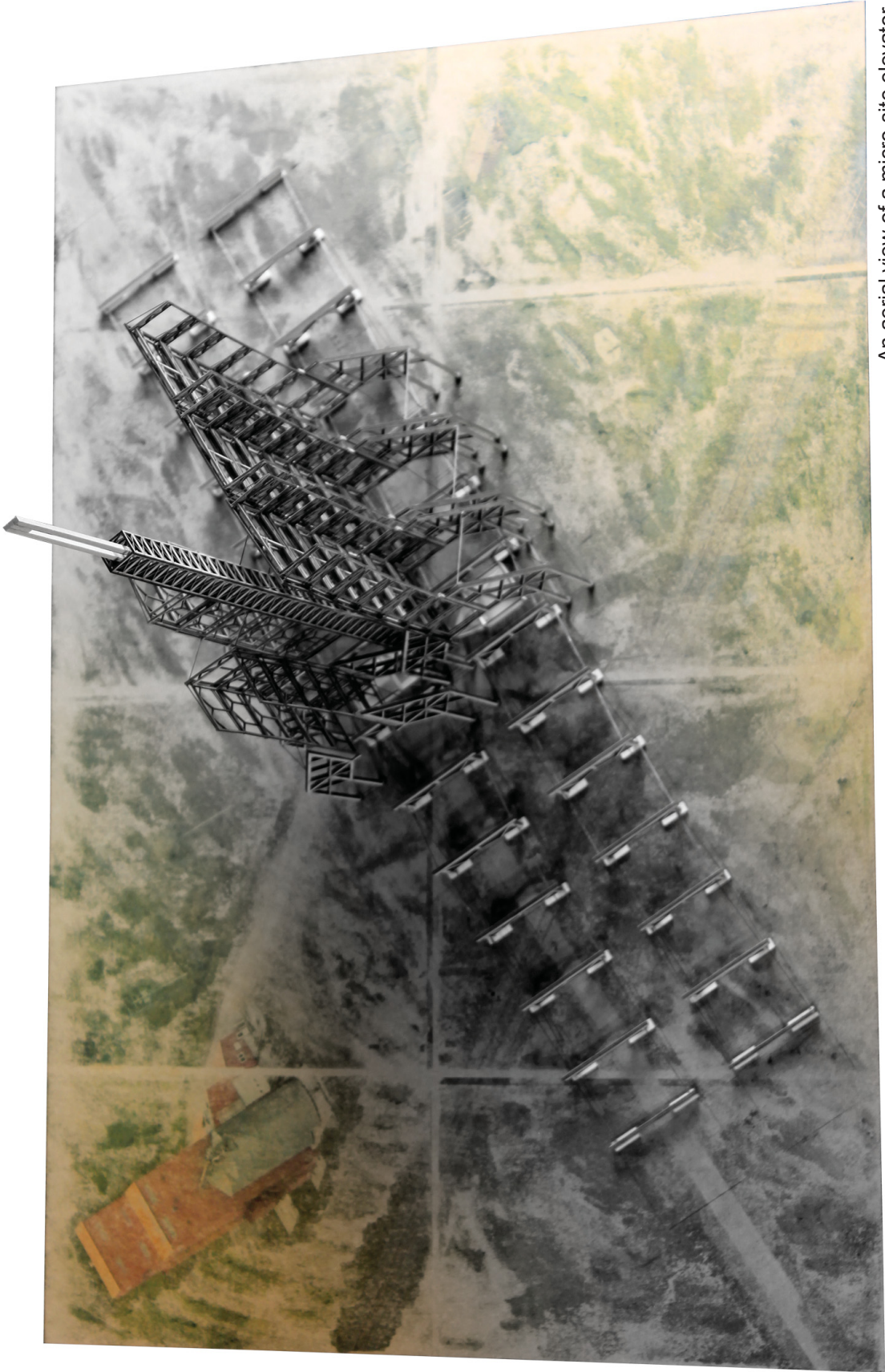
A rendering of the object taking part of the landscape of daily life.



An elevator as utilitarian architecture.



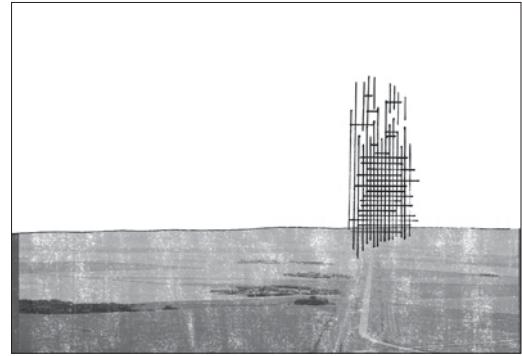
An elevator as monumental architecture.



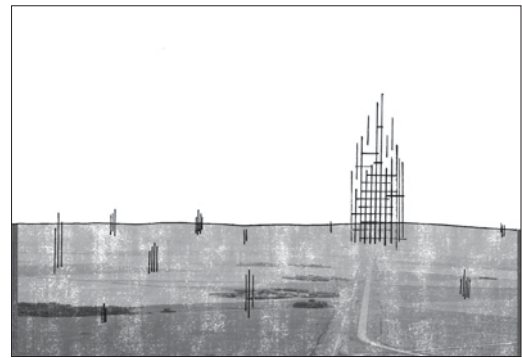
An aerial view of a micro-site elevator.

## The Macro-Site

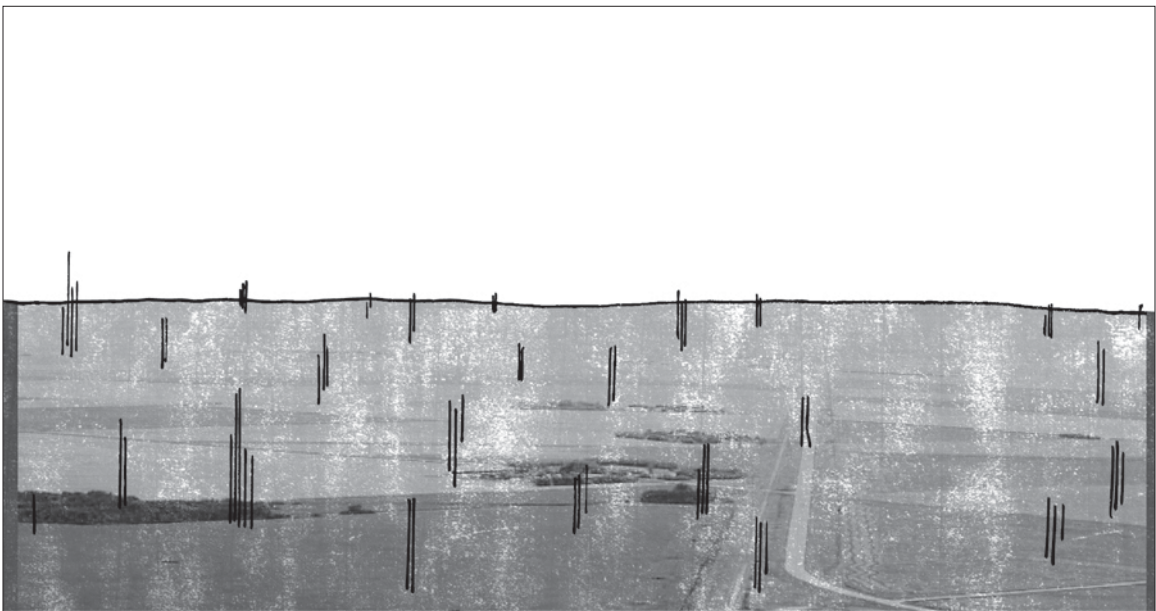
The network requires a hub which would be located on the old traditional grain elevator site in Carey as a way of commemorating the architecture that was once there. This is where all the unused pieces are stored and maintained. The hub, the mothership that pollinates the micro-sites, demonstrates a density that relates to the activity in the surrounding area. The denser and taller the hub, fewer parts can be identified in the prairie ocean. As seasons or years come along and the hub becomes less dense, the more parts are distributed across the land. Thus, there are two scales at which site-activity can be read: the local and the regional. The local is between the land at the micro-site and its elevator. This elevator is a barometer for its site activity. At the regional scale, the density of the mothership is a barometer for what is occurring in the region.



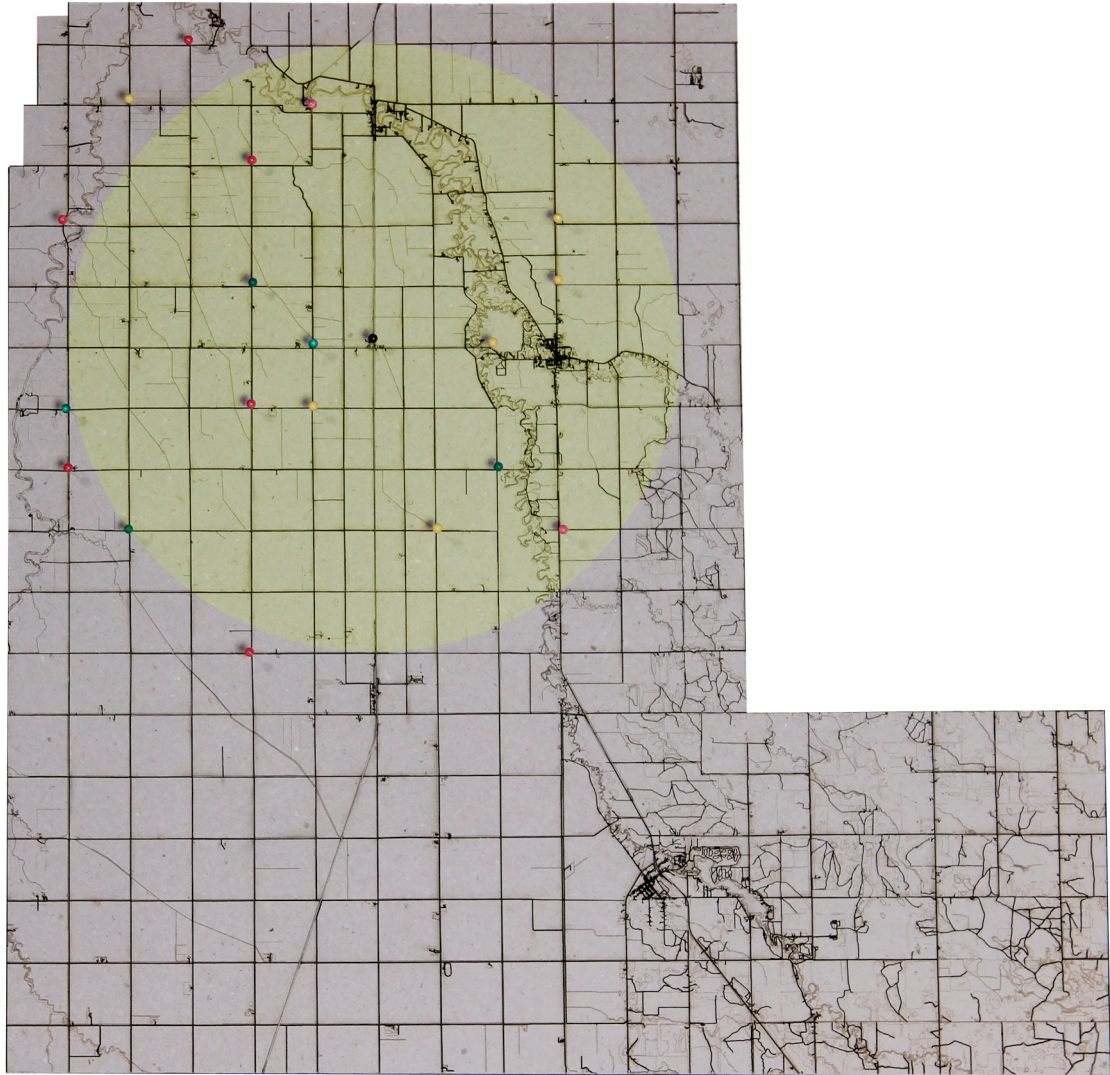
High-density parti sketch.



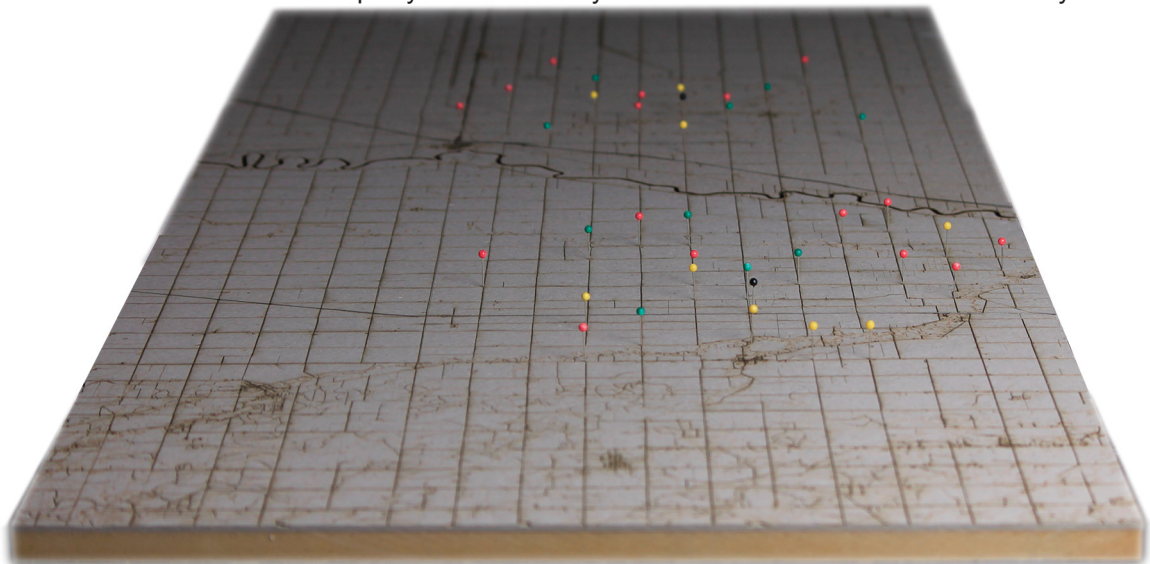
Mid-density parti sketch.



Low-density parti sketch.

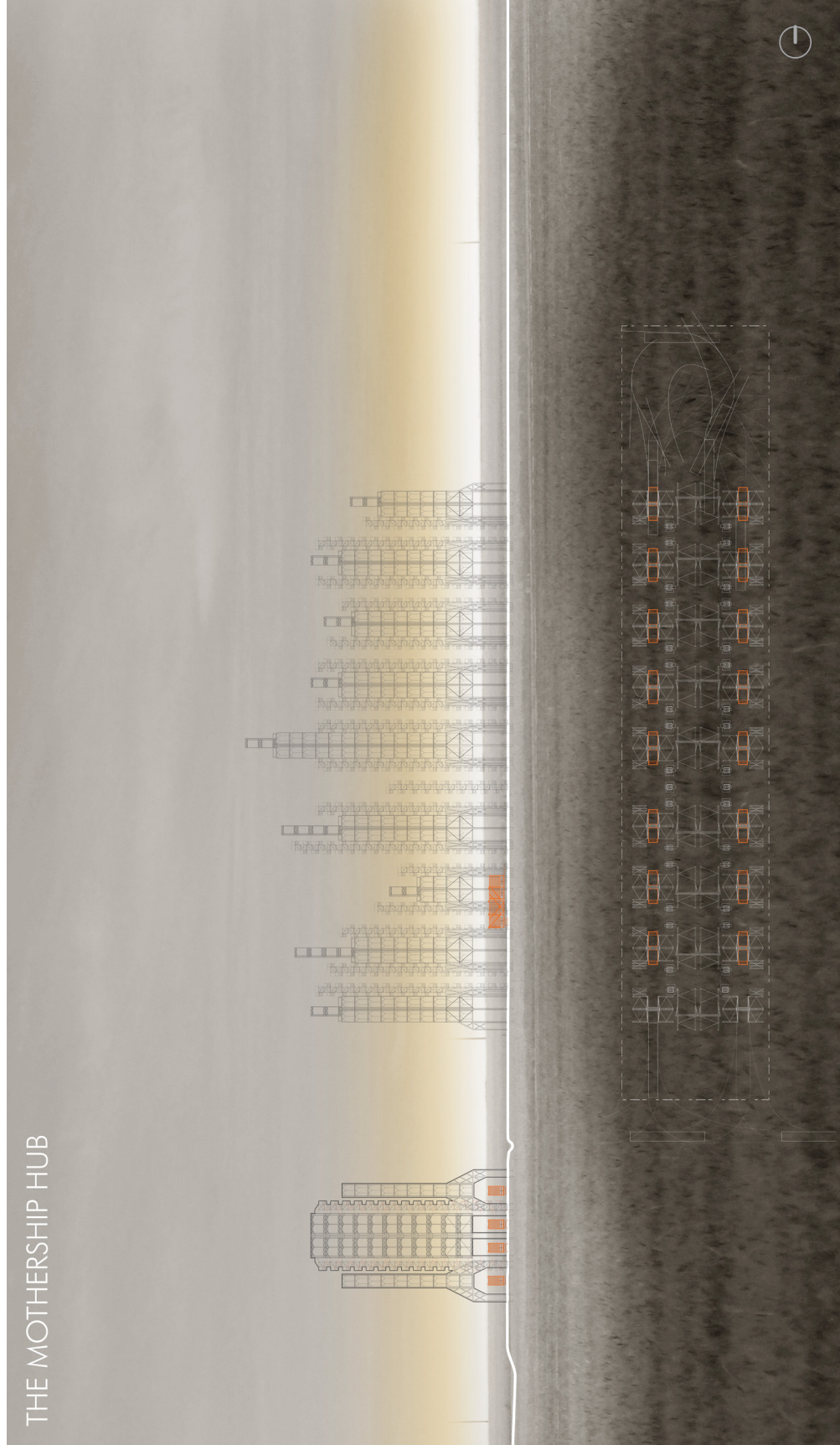


Rural Municipality of DeSalaberry and the new network around the Carey site.



Rural Municipality of DeSalaberry and Rural Municipality of Morris with new "Points" in the landscape participating in local movements.

# THE MOTHERSHIP HUB



Elevations and plan of the mothership at the Carey site.



Aerial view of the established network between the micro-sites and the mothership.



## CHAPTER 3: CONCLUSION

This thesis used a systemic approach that required an analysis and understanding at key scales, local and regional, to reveal the impacts design decisions have at other scales. It looked at “site,” more than just a property lot, but as an industry with its impact on social groups, environment, local economies, and networks as they have evolved through time. Furthermore, it looked at the methods of operation, the role the agricultural system plays in the region it services, and the power the industry carries on the landscape of cultural identity. It was found through analysis that two main interconnected scales were critical to understand for the development of a local economy. These are at the level of the “Land” and the “Object.” The land is the genesis of the whole system of horizontal fields that looks to the elevator - the object - as the place of transformation that will feed an economy.

The mapping of the “Land” incorporated a study of the targeted end users and crops. It made visible the need for constant grain flow - from field, to elevators, to distribution - in order to service the region at hand. The challenges in mapping lied in the difficulty of attaining accuracy while rendering ownership and operating realities; however, the underlining principles remain relevant in the research. Potential networks that would give rise to a local economy were found by locating the small farming groups and determining

the product they might cultivate. Required knowledge about crop products along with their relationship to the elevator's volume expressed why traditional grain elevators are indeed no longer efficient for storing and distributing the product to a global market. The mapping also generated more than an analysis of facts; it also brought to light realities of daily life from different realms, realms not directly associated with architecture, but realms that may influence architecture - the "Object".

Upon gaining a cultural and technical understanding, there was a search for the essence of the "Object" that remains constant through time. The essence is the machine - the elevator - that allows for a strong vertical presence within a horizontal landscape. The height of the elevators on the flat terrain inspired artists and architects who portray them as prominent iconic objects in the landscape. The new design creates an architecture that continues the progression of the industrial story by ensuring that the use of the essence not only remains, but is also exposed for all to see. With this foundation and the synthesis of Carol Burns' description of "site," an object arose as both a monumental and a utilitarian "place" that is attuned to the location of users and to crop characteristics.

All in all, the architecture of this thesis is thoroughly tied to the qualities of the industry, from costing, to the size and weight of the grain, and to the his-

tory of the prairie life. It not only looks at site activity and its responding architecture, but it also introduces entrepreneurial and economic opportunities that could be made possible in reality. It recognized a potential for the minority, those who are fading from the industry. The survey of the industry, prairie identity, and mapping were key stages in the design process that guided the design vision through a full cycle that can be appropriated to any industry, location, and scale. It started with romantic ideas that necessitated an investigation of the most practical and functional attributes of the daily life of the industry. The findings - the calculated, pragmatistic data - were shaped back into a romantic concept of a regional network. People can indeed trace down the structure, its organization and flow, the machine, and get a deeper understanding of the utilitarian prairie architecture known as the prairie cathedrals.

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