



# GREY TO GREEN

13 GATES TO THE GREENBELT







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## 13 GATES TO THE GREENBELT

by

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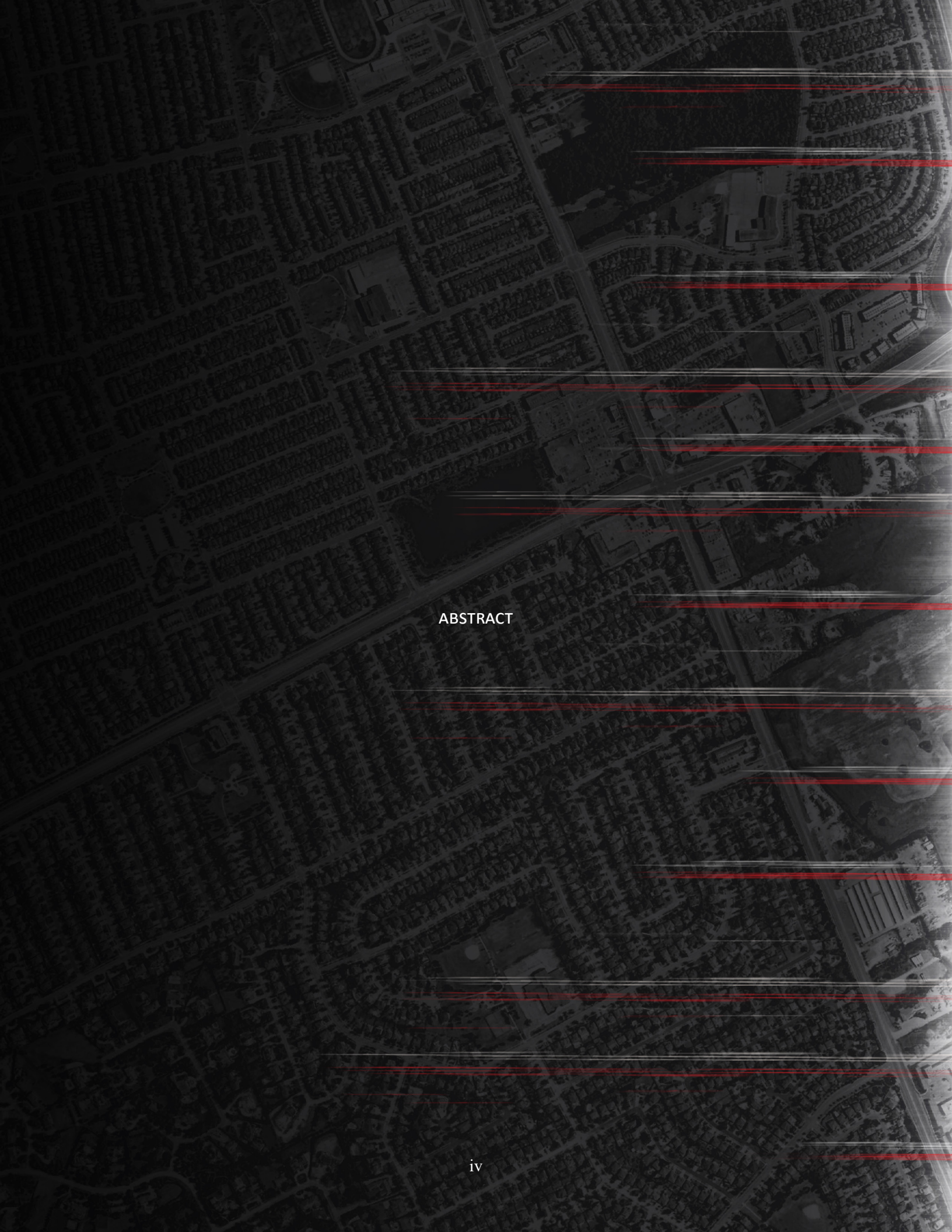


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ABSTRACT



An aerial photograph of a rural landscape, likely in the Greenbelt region of Ontario. The image shows a mix of green fields, brown roads, and a winding river or stream. The overall tone is somewhat muted, with a dark, almost black background that makes the lighter colors of the landscape stand out.

The Greenbelt was created by the Government of Ontario in 2005 to protect working farms, wetlands, natural habitats, woods and river valleys that surround the Greater Toronto Area. Its vast 8000 square kilometers connects the Niagara escarpments in the west with the Oak Ridges Moraine in the east. Less than 20 years after its formation, its survival is threatened by the very same suburban sprawl that it intended to contain.

This thesis poses the question: how can the Greenbelt declare and assert its legitimate boundaries and defend itself against incursions from multiple stakeholders? Adding to the complexity of the current situation, many politicians unhesitatingly blame the Greenbelt for causing rampant escalation of housing prices in the Greater Toronto Area (GTA) while at the same time advocating policies that favour both densification and building of new highways as a solution to urban sprawl.

This thesis proposes a series of landscape-scaled intervention along the 13 highways that intersect the Greenbelt. Because these highways carry 668,400 cars a day through the Greenbelt, they offer an opportunity for bringing a precise awareness about the amorphous Greenbelt boundaries to the citizens of southern Ontario as they traverse its otherwise invisible boundaries. The thesis posits that by bringing awareness to these “gates,” it is possible to create a more visible Greenbelt that can lead the public to better understand the need to protect the fragile ecology of these lands by helping them to become more visible, more respected, and ultimately likely to survive and thrive.



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*To my mother and my father,*

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## *introduction*

This thesis is a journey into understanding some fundamental questions that urbanization is facing today. It is a thesis that mediates between two distinct realities—on one side is “nature,” claiming its rightful place, and on the other side, the “city,” which today is de facto endemic and unrestrained. Finding a way where they can each peacefully exist, evolve and trust the other is not easy and requires complex reflection and a provocative design approach.

From an urban design strategy in the beginning to an architectural landscape project at the end, developing this thesis was two years of intense negotiations within myself, going through numerous upsetting and euphoric moments and having to make difficult decisions. I abandoned almost a term of design progress driven by large scale urban design approach, uncertain if I was at all helping the Greenbelt through this approach. Instead, I decided to explore the potential of a simpler and smaller-scale design with a more significant impact: an architectural landscape intervention. Taking this decision made me realize that the challenge I was taking on in this thesis had surprisingly become something very personal. Eventually, details of the plan became clearer, and I gained confidence in the path I chose to follow.

April 2000. That was the time when this thesis was actually conceived. My mother, a Moroccan artist, would always take me with her to art galleries, monuments, iconic landscape or structures, and archeological sites. Once when she took me and my cousin Ali to Volubilis, an ancient Roman city in Morocco built in the 3rd century B.C., my first relationship with architecture—and in essence with this thesis—began. I saw the triumphal arch of the city, the main monument built by the Volubilians in 216-217 to express gratitude to Emperor Caracalla for his discount on their taxes. Commonly, triumphal arches



*Fig 0.1. My cousin Ali and I at the Entrance of Volubilis*



were built in the Roman Empire to welcome victorious generals to their cities.<sup>1</sup> And of course, at the young age of nine, far from understanding the symbolic and ceremonial meaning of it, my first reaction was to wonder why might someone build a door without a wall. At that age, I was observing things based merely on their aesthetic and sometimes functional purpose, but soon, when my mother explained that the Romans built such arches to assert their power, I learnt that architecture has a deeper aspiration than that: like sending a message. Indeed, throughout history, architecture has stood as testimonies to different power plays or has mediated between them, becoming a crucial tool of communication. I wanted to share this anecdote with you, because I have realized the truth of this as well, when working on this thesis. I have strongly felt that the Greenbelt of Ontario must loudly proclaim a message. A very simple one actually: claiming its existence spatially, and allowing people to give their own interpretation to it because after all, it belongs to the people.

More than a Greenbelt, this natural fragment of the province of Ontario has become a treasure, the value of which all Ontarians can agree on: Not just for its natural features but for its contribution in supplying water to the region around the Greenbelt, called the Golden Horseshoe.<sup>2</sup> Born from the fusion of the Niagara Escarpments, the Oak Ridges Moraine and the farmlands around it, the Greenbelt Act was approved in 2005 under the administration of Ontario Liberal Party.<sup>3</sup> This Act made it possible for Canada to have the largest protected Greenbelt in the world, with more than 90% of Ontarians believing this initiative to be vital for the survival of the region. Unfortunately, due to its geographical form and location, the future of Greenbelt does not seem secure. The Greenbelt encloses a zone around the Greater Toronto Area (GTA), called the inner ring, which hosts the city of Toronto, Mississauga, Hamilton and others, and is found to be threatened by a projected growth of almost 50% more residents by 2041.<sup>4</sup> It poses the urgent question of how the Greenbelt's legitimate boundaries might withstand anticipated overtimes when only a small amount of free lands—called the Whitebelt—is left in the

<sup>1</sup> Volubilis Website, "L'arc De Triomphe," accessed August 12, 2019, <https://sitevolubilis.com/larc-de-triomphe/>

<sup>2</sup> Environics, "Public Opinion on the Greenbelt, its Review and Local Food, August & September, 2015," distributed by Friends of the Greenbelt Foundation, Accessed August 10, 2019 [https://d3n8a8pro7vhmx.cloudfront.net/greenbelt/pages/2545/attachments/original/1449265610/2015-12-07\\_OVERALL\\_Environics\\_Poll\\_-\\_FINAL\\_\(1\).pdf?1449265610z](https://d3n8a8pro7vhmx.cloudfront.net/greenbelt/pages/2545/attachments/original/1449265610/2015-12-07_OVERALL_Environics_Poll_-_FINAL_(1).pdf?1449265610z)

<sup>3</sup> Burkhard Mausberg, *The Greenbelt: Protecting and Cultivating a Great Ontario Treasure* (Toronto: Barlow Book Publishing, 2017).

<sup>4</sup> "Learn About the Greenbelt," Friends of the Greenbelt Foundation, accessed August 12, 2019, [https://www.greenbelt.ca/about\\_the\\_greenbelt](https://www.greenbelt.ca/about_the_greenbelt)



*Fig 0.2. The Triumphal Arch of Volubilis*

*“Eiffel saw his Tower in the form of a serious object, rational, useful; men return it to him in the form of a great baroque dream which quite naturally touches on the borders of the irrational ... architecture is always dream and function, expression of a utopia and instrument of a convenience.”*

Roland Barthes

buffer zone, with only few kilometers or at times only few metres to stand between the urban sprawl and the most protected greenbelt in the world.

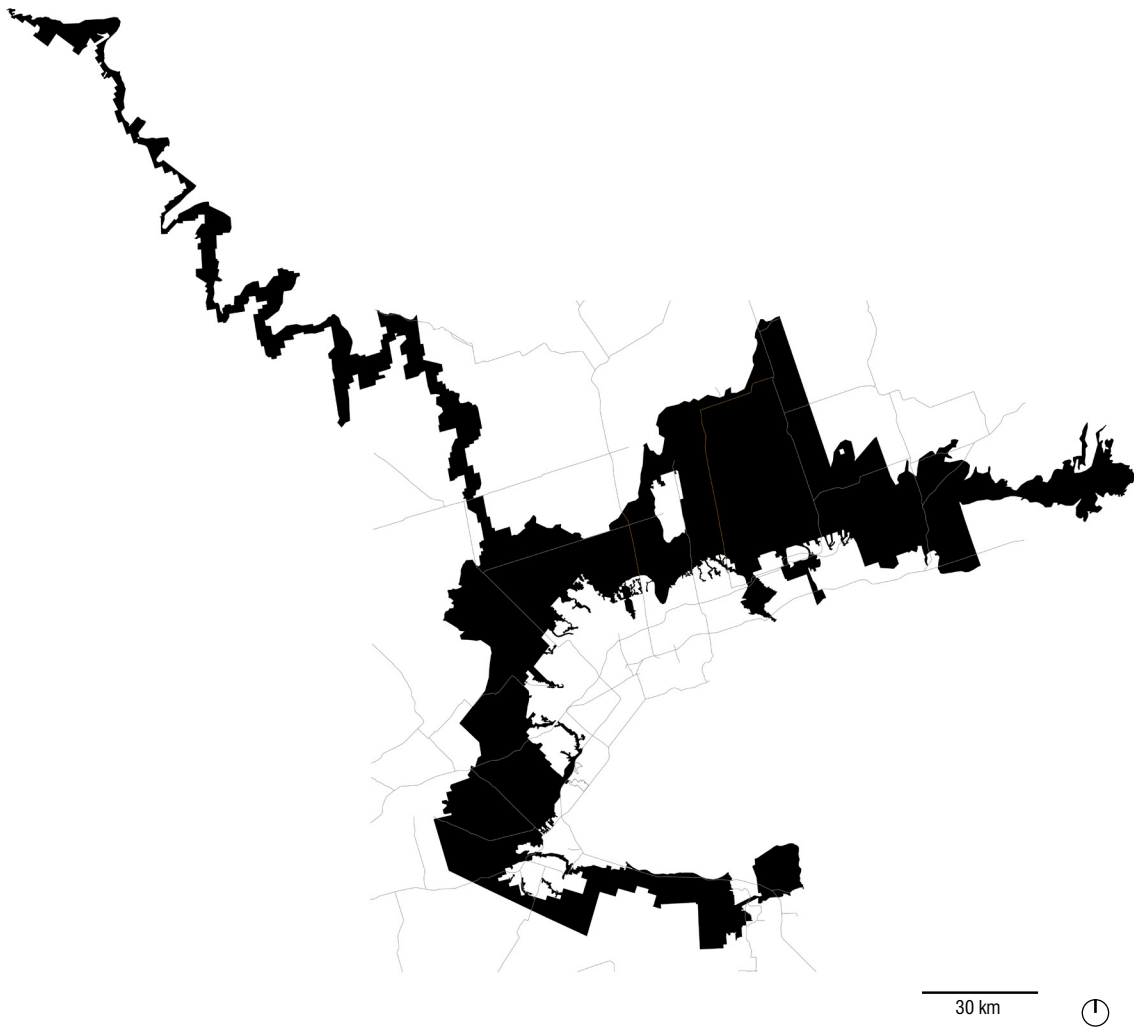
Of course, no one in the social sphere wants to lose the Greenbelt or parts of it. Unfortunately, leaders who support urban sprawl, like Premier Doug Ford, unreasonably blame the Greenbelt for causing the speculative real estate bubble in the GTA.<sup>5</sup> In reality however, this is a false assumption because the average travel time to cross the Greenbelt from the outer ring to the inner one is about 15 minutes on most highways. In addition, the growth plan for the Greater Golden Horseshoe, showcased as *place to grow*,<sup>6</sup> is an ambitious plan for the development of communities located outside, in order to redirect the densification of the GTA in the outer ring of the Greenbelt, and densify the existing cities instead of expanding them. Therefore, there exists a strong argument against development inside the Greenbelt.

While people have strong connection to this large natural space, their knowledge of the boundaries of the Greenbelt, mainly made through political negotiation, is unclear. Therefore, it poses a challenge: How to claim the rightful place of something that cannot be seen but only be known conceptually? The Greenbelt has the potential to become visible precisely in locations where people confront it the most—the highways. Every day, 668,400 cars cross the Greenbelt’s boundaries in the inner ring,

<sup>5</sup> Bill Kelly, “Bill Kelly: Doug Ford Backtracks on Greenbelt Promise,” Global News, December 11, 2018, <https://globalnews.ca/news/4749633/doug-ford-greenbelt/>

<sup>6</sup> Ministry of Municipal Affairs and Housing, Ontario, *A Place to Grow Growth Plan for the Greater Golden Horseshoe* (Ottawa: Queen’s Printer for Ontario, 2019).

through the 13 highways that overpass it.<sup>7</sup> It grants each of the 13 gates the possibility of obtaining a massive audience for the Greenbelt—through the notion of border crossing through an architectural and landscape design that brings landmarks to people and pays tribute to the Greenbelt with its legitimate boundaries. In this thesis, we will design two of these “gates.”



*Fig 0.3. The Greenbelt of Ontario and Highways*

<sup>7</sup> Ministry of Transportation, Provincial Highways Traffic Volumes 1988-2016, <http://www.raqsa.mto.gov.on.ca/techpubs/TrafficVolumes.nsf/>



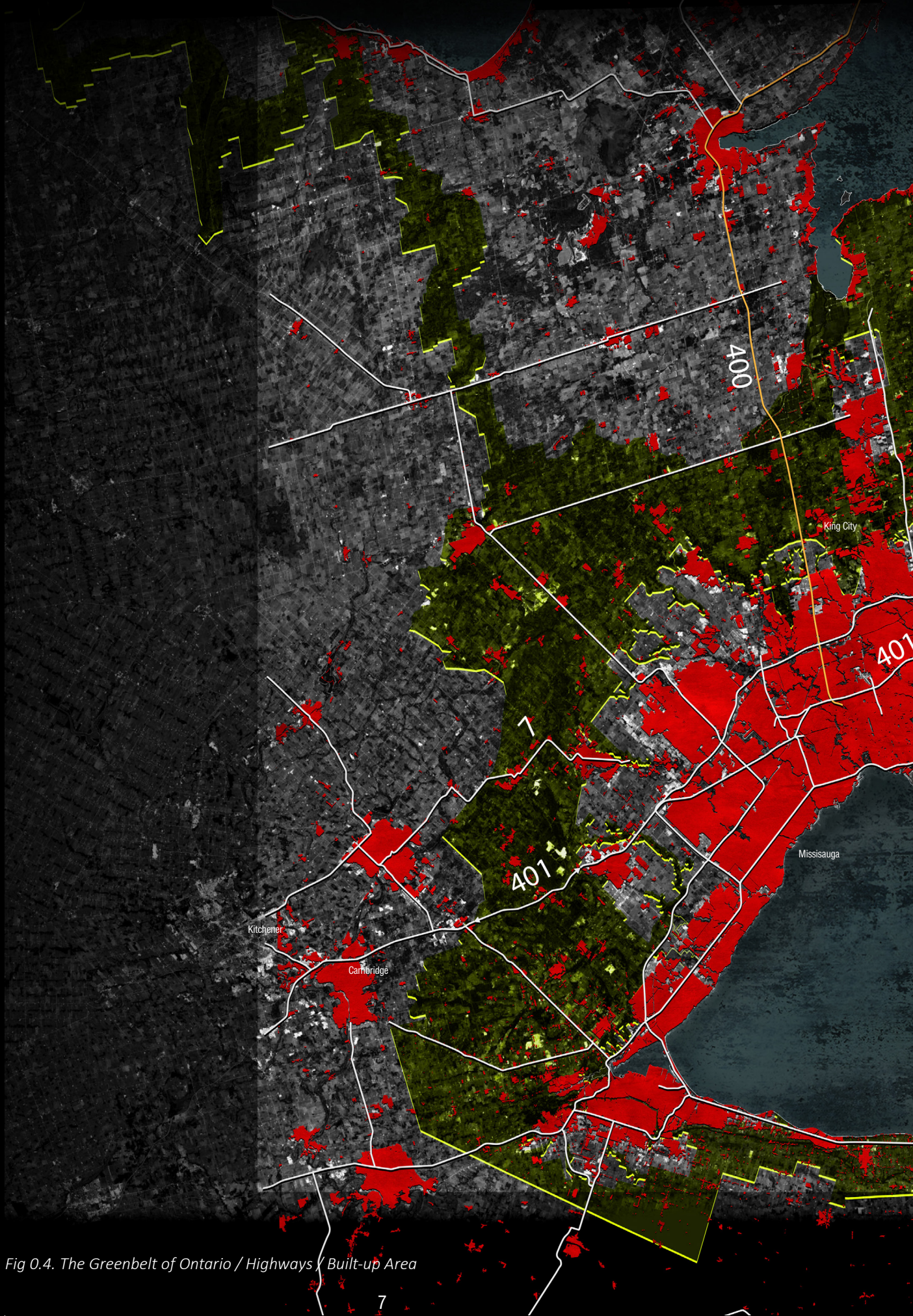


Fig 0.4. The Greenbelt of Ontario / Highways / Built-up Area





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the Niagara Escarpment

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The Greenbelt Act 2005 was the result of a number of initiatives and events that happened in the past fifty years. It started with Len Gertler, a University of Waterloo professor, who for two years travelled through the Niagara escarpment with the intention of working on making protection plans for the Niagara escarpment. The case for recognizing sensitive natural areas was beginning to become an important factor in the planning strategies of cities and regional planners, soon leading to major actions. First, the protection plans were recognized and officialized with the Niagara Escarpment Planning and Development Act of 1973.<sup>8</sup> Second, the Niagara escarpment was recognized as a World Biosphere Reserve by the UNESCO (the United Nations Educational, Scientific and Cultural Organization) in 1990. The Niagara Escarpment Plan has many goals, among which are: the protection of historical and natural habitats area; the reinforcement of all hydrology resources (wet lands, water streams etc.); increase of the touristic potential in the region to connect people from outside the region; to preserve the natural landscape character of the escarpment; but most importantly, to control the development of cities or communities around it by working closely with all municipalities concerned and having an authority on the matter. Another aspect of the Act is to be guarantor of the cultural identity of the Métis and First Nations who are bound to this land.<sup>9</sup>

<sup>8</sup> Burkhard Mausberg, *The Greenbelt: Protecting and Cultivating a Great Ontario Treasure* (Toronto, Barlow Book Publishing, 2017), 14.

<sup>9</sup> Niagara Escarpment Commission & Ontario Ministry of Natural Resources, *Niagara Escarpment Plan* (Ottawa: Queen's Printer for Ontario, 2017) 1, 7.





*Fig 1.00. The Niagara Escarpment*

## the Oak Ridges Moraine

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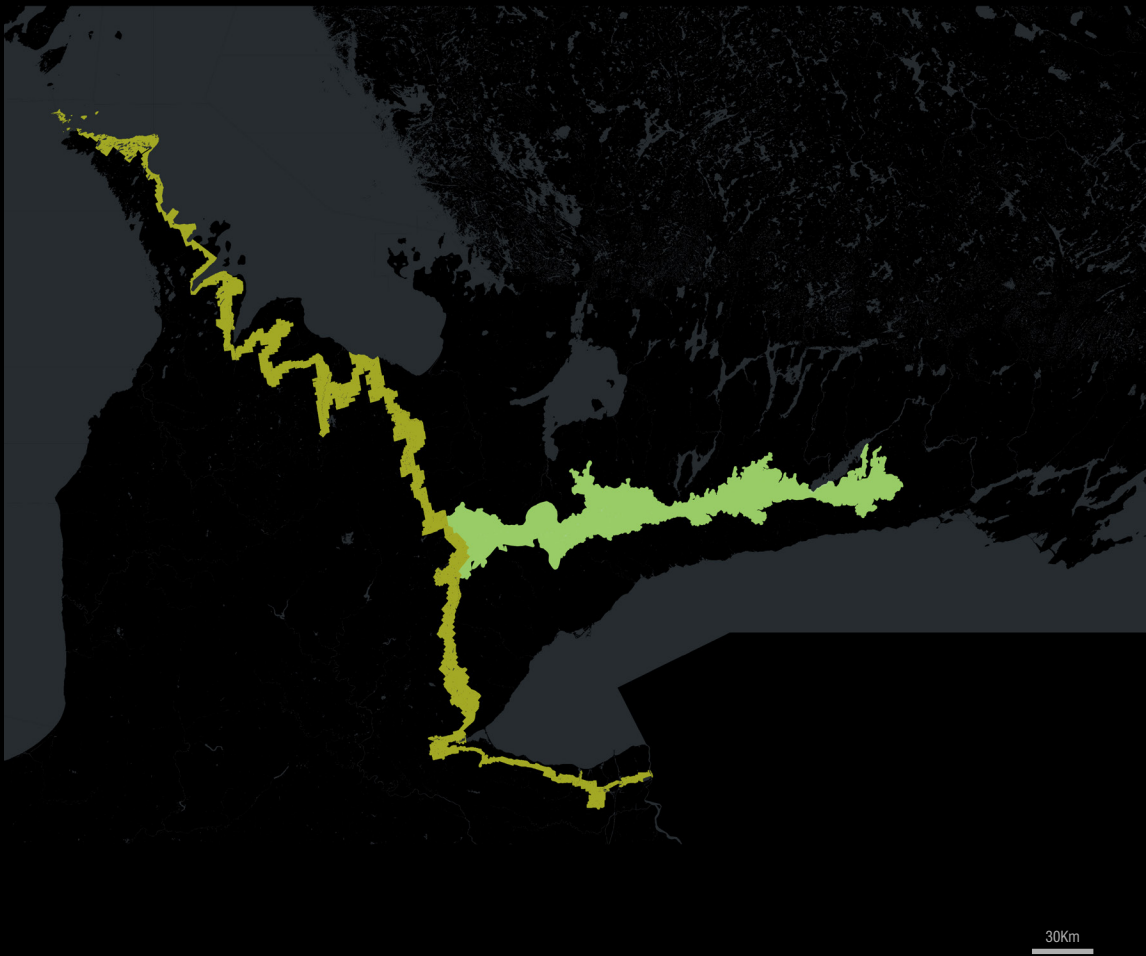
Hydrology is one of the key features of the Oak Ridges Moraine. Called the “Ontario rain barrel,”<sup>10</sup> the Oak Ridges was formed in the ice age, between two ice lobes. When the ice melted, it left behind silt, clay, gravel and sand, which formed the core composition of the ridges. Acting like a sponge to the rainwater, the Oak Ridges Moraine forms an important watershed that distributes water, flowing to the south to Lake Ontario and to Lake Simcoe in the north.<sup>11</sup> The region consists of a massive number of farmlands that depend on the water resources of the Oak Ridges Moraine. It is also home to an incredible variety of wildlife. The first amendment of the Oak Ridges Moraine Conservation Act was put in effect in 2001. The goal was to protect the region and decide where development should be discouraged in the region so as to secure all the sensitive natural places of the Oak Ridges Moraine.<sup>12</sup>

<sup>10</sup> Burkhard Mausberg, *The Greenbelt: Protecting and Cultivating a Great Ontario Treasure* (Toronto, Barlow Book Publishing, 2017), 14.

<sup>11</sup> Oak Ridges Trail Association, *Oak Ridges Moraine*, accessed August 23, 2019, <https://oakridgestrail.org/moraine/>

<sup>12</sup> Ministry of Municipal Affairs, *Oak Ridges Moraine Conservation Plan* (Ottawa: Queen's Printer for Ontario, 2017) 1–2.



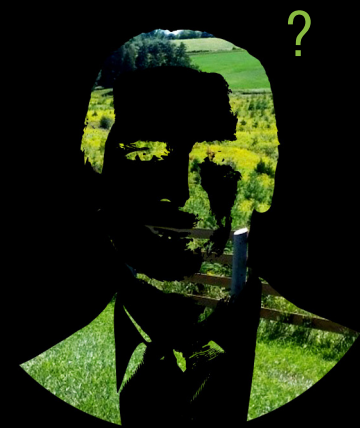


*Fig 1.01. The Oak Ridges Moraine*

**Burkhard:** *There is a rumour that you were shown an early draft of a map of the Greenbelt and your response was “Can’t we make this bigger?”*

**Dalton:** *That’s true. I thought: If we’re going to do something for future generations, we should be ambitious for them.*<sup>13</sup>

The dream of the 2 million acres Greenbelt became real when the former Premier Dalton McGuinty committed to take over this challenge and make it one of the principal goals of his campaign.<sup>14</sup> The vision was to unify the Niagara Escarpment and the Oak Ridges Moraine as well as to add around 4,782 farms to it.<sup>15</sup> This was crucial, since farmland can now be considered a treasure that is as important as natural resources. And of course, while 90% of Ontarians agree that the Greenbelt is a big success story to the region, McGuinty had to nevertheless encounter many obstacles from various stakeholders that harboured interests other than merely the preservation of this important green space. Developers, landowners (mostly farmers) and some municipalities fought hard to abort McGuinty’s efforts, but without success.<sup>16</sup>



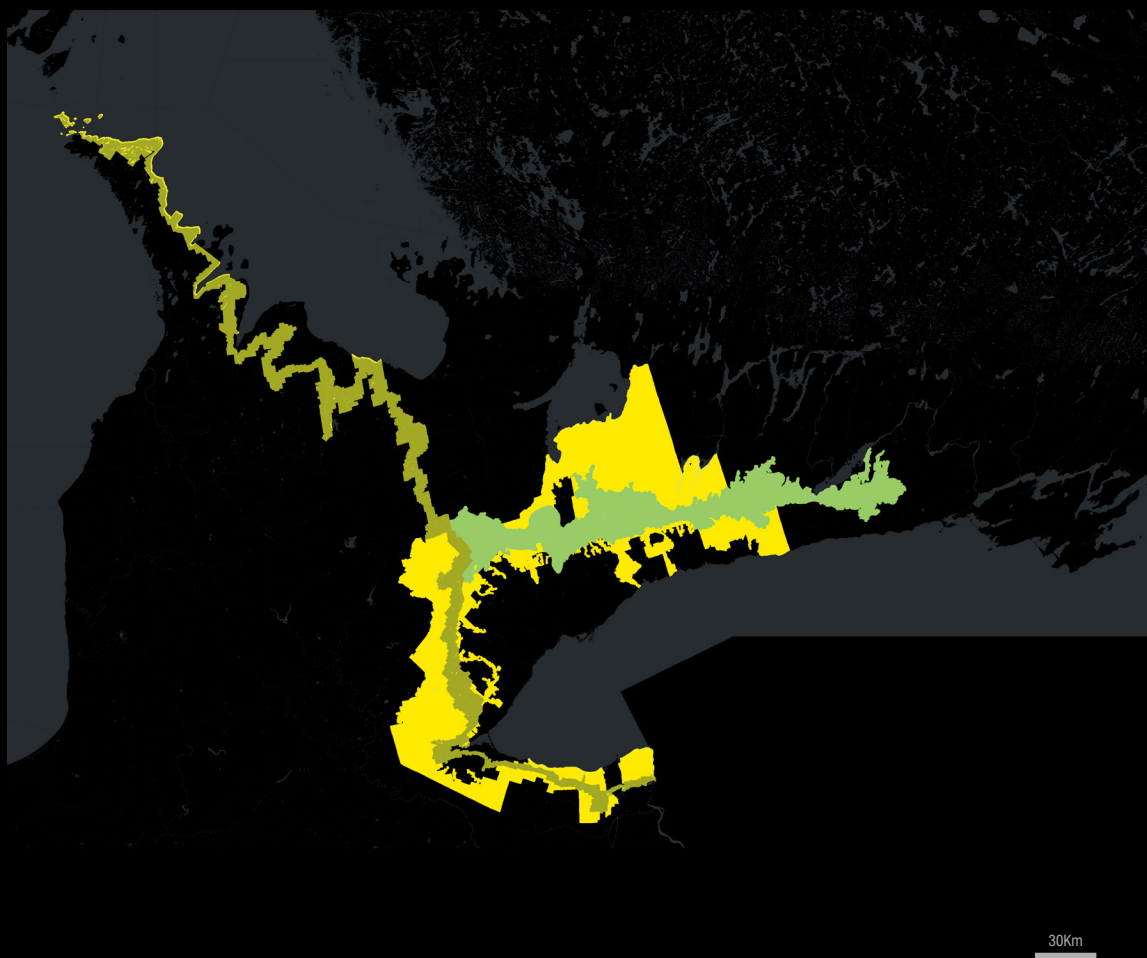
*Fig. 1.02. Premier Dalton McGuinty: The man behind the idea of creation of Greenbelt*

<sup>13</sup> Burkhard Mausberg, *The Greenbelt: Protecting and Cultivating a Great Ontario Treasure* (Toronto, Barlow Book Publishing, 2017), 78.

<sup>14</sup> Burkhard Mausberg, *The Greenbelt: Protecting and Cultivating a Great Ontario Treasure* (Toronto, Barlow Book Publishing, 2017), 77.

<sup>15</sup> Friends of the Greenbelt Foundation, “Learn About the Greenbelt,” accessed August 24, 2019, [https://www.greenbelt.ca/about\\_the\\_greenbelt](https://www.greenbelt.ca/about_the_greenbelt)

<sup>16</sup> Burkhard Mausberg, *The Greenbelt: Protecting and Cultivating a Great Ontario Treasure* (Toronto, Barlow Book Publishing, 2017), 78.



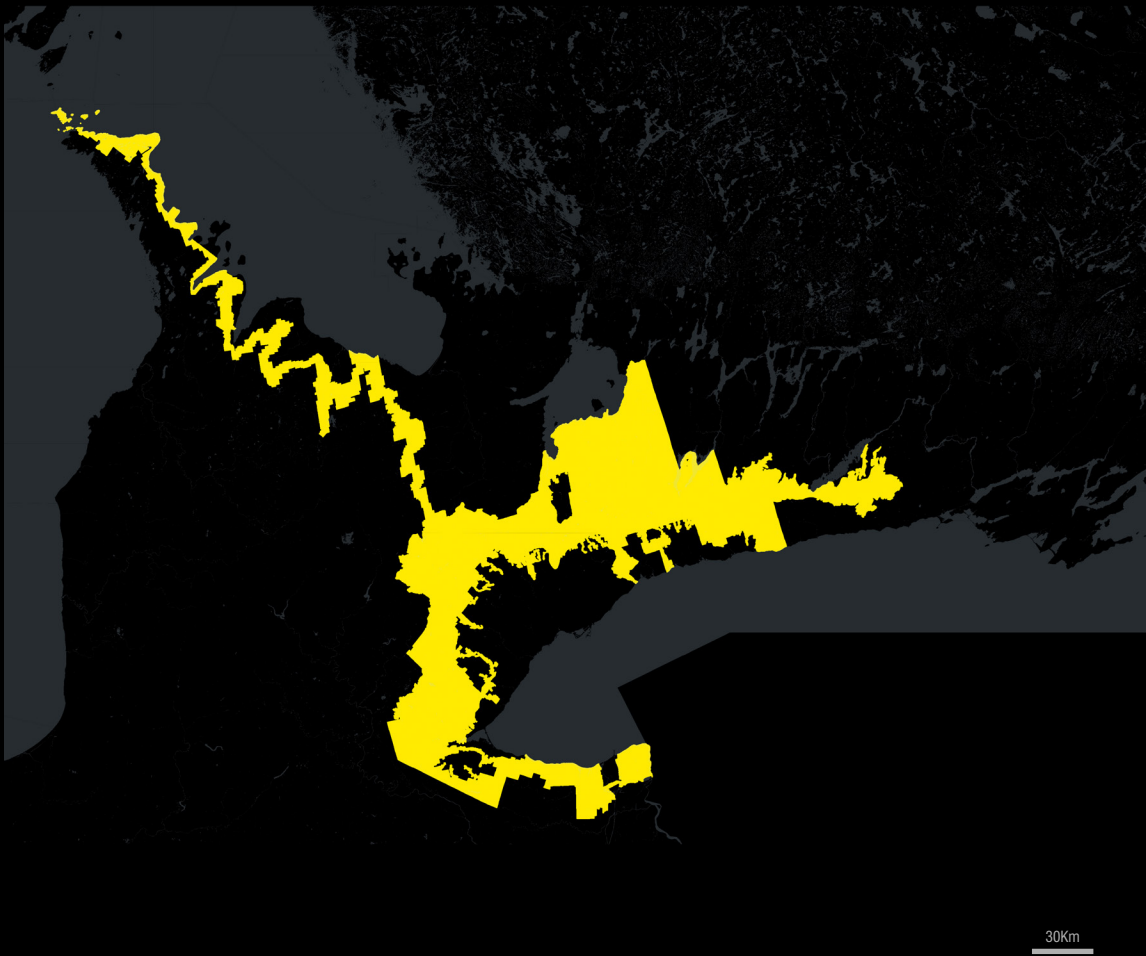
*Fig 1.03. Unification of the Oak Ridges Moraine, the Niagara Escarpment and Farmlands*

## the Greenbelt of Ontario

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In 2005, Dalton McGuinty achieved his goal and was able to sign the first Act that recognized and protected all the farmlands, wetlands, natural habitats and wildlife that comprise the Greenbelt. The Greenbelt of Ontario became the biggest and the most successful greenbelt in the world with an economic outcome of more than \$9.1 billion to Ontario's economy, and 161,000 direct and indirect jobs created.<sup>17</sup> It is a 2 million acres Greenbelt that aims to protect itself against its foremost and strongest enemy: urban sprawl.

<sup>17</sup> Burkhard Mausberg, *The Greenbelt: Protecting and Cultivating a Great Ontario Treasure* (Toronto, Barlow Book Publishing, 2017), 41.



*Fig 1.04. The Greenbelt of Ontario*



*Fig. 1.05. Premier Doug Ford behind breaking the Greenbelt idea*



*“We will open up the Greenbelt; not all of it. We are gonna open a big chunk of it up, and we gonna start building. And making it more affordable ! And putting more houses out there !”<sup>18</sup>*

Doug Ford

## the BILL 66

---

The Progressive Conservative Party of Ontario proposed—during its election campaign and after being elected—the need to open up the Greenbelt for development, through Bill 66. Premier Doug Ford blamed the Greenbelt for causing the problem of unaffordable housing. After many attempts to get Bill 66 approved, the government had to step down and face the reality that Ontarians do not want the Greenbelt to be fragmented by development. Many social and political power-groups persistently fought against this Bill that aimed to attack the Greenbelt.<sup>19</sup>

<sup>18</sup> Bill Kelly, “Bill Kelly: Doug Ford backtracks on Greenbelt promise,” *Global News*, Video File, August 24, [https://globalnews.ca/news/4749633/doug-ford-greenbelt/beta/?utm\\_expid=.kz0UD5JkQOC06yMqxGqECg.1&utm\\_referrer=https%3A%2F%2Fwww.google.com%2F](https://globalnews.ca/news/4749633/doug-ford-greenbelt/beta/?utm_expid=.kz0UD5JkQOC06yMqxGqECg.1&utm_referrer=https%3A%2F%2Fwww.google.com%2F)

<sup>19</sup> Shawn Jeffords, “Ontario Reverses Course on Bill That Could Open Greenbelt to Development,” *CTVNews*, January 23, 2019, <https://www.ctvnews.ca/canada/ontario-reverses-course-on-bill-that-could-open-greenbelt-to-development-1.4266139>

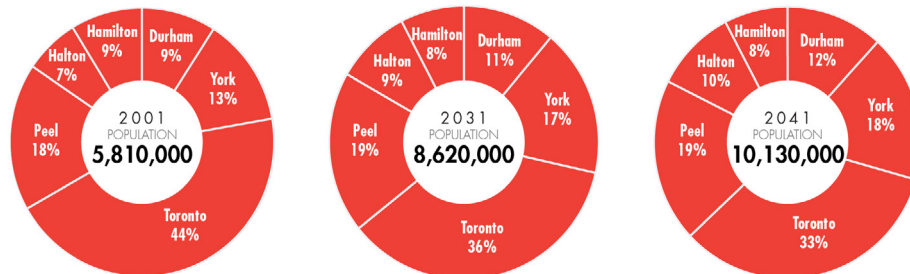
## the threat

### over population

The threat to the Greenbelt is not only political. The reality of unrestrained demographic growth, as projected for 2041, can indeed leave us overwhelmed. The whole region is expecting a population growth of 13.4 million people, exposing two major problems as part of that. First, 75% of the population growth is directed in the area called the inner ring, and does not spread evenly to the outer ring (outside of the Greenbelt). Second, the form of the Greenbelt encloses the inner ring cities entirely and does not leave any way for the growth to avoid the Greenbelt. Only a small amount of free lands, designated as greenfield area, separate the Greenbelt from the sprawl (Greybelt). It is this buffer zone, called the Whitebelt—not protected under the Greenbelt Act and not yet defined for development—that is at risk.<sup>20</sup> Among all locations bordering the Greenbelt, the region of York is most likely the location to be conflicted, due to its demographic projection. More precisely, the city of Vaughan is at some parts 5 km away from the edge of the Greenbelt, and at some parts it is actually in contact with the its boundaries.

The growth plan is a major alternative that the government of Ontario works on in order to strategically control the growth of the region. It identifies some target cities in the inner and outer rings to develop or densify, in order to avoid the sprawl or at least redirect it behind the Greenbelt and bar it from conflicting with the boundaries in the inner part.<sup>21</sup> Economy, employment and transportation are the main tools to activate the cities behind the Greenbelt and absorb the population growth in the inner part (GTA).

Fig 1.06. Population Growth Repartition in the Inner Ring



<sup>20</sup> Neptis, "A note about the "Whitebelt"", Accessed August 23, 2019, <https://www.neptis.org/publications/story-so-far/chapters/note-about-whitebelt>

<sup>21</sup> Ministry of Municipal Affairs and Housing, Ontario, *A Place to Grow Growth Plan for the Greater Golden Horseshoe* (Ottawa: Queen's Printer for Ontario, 2019).

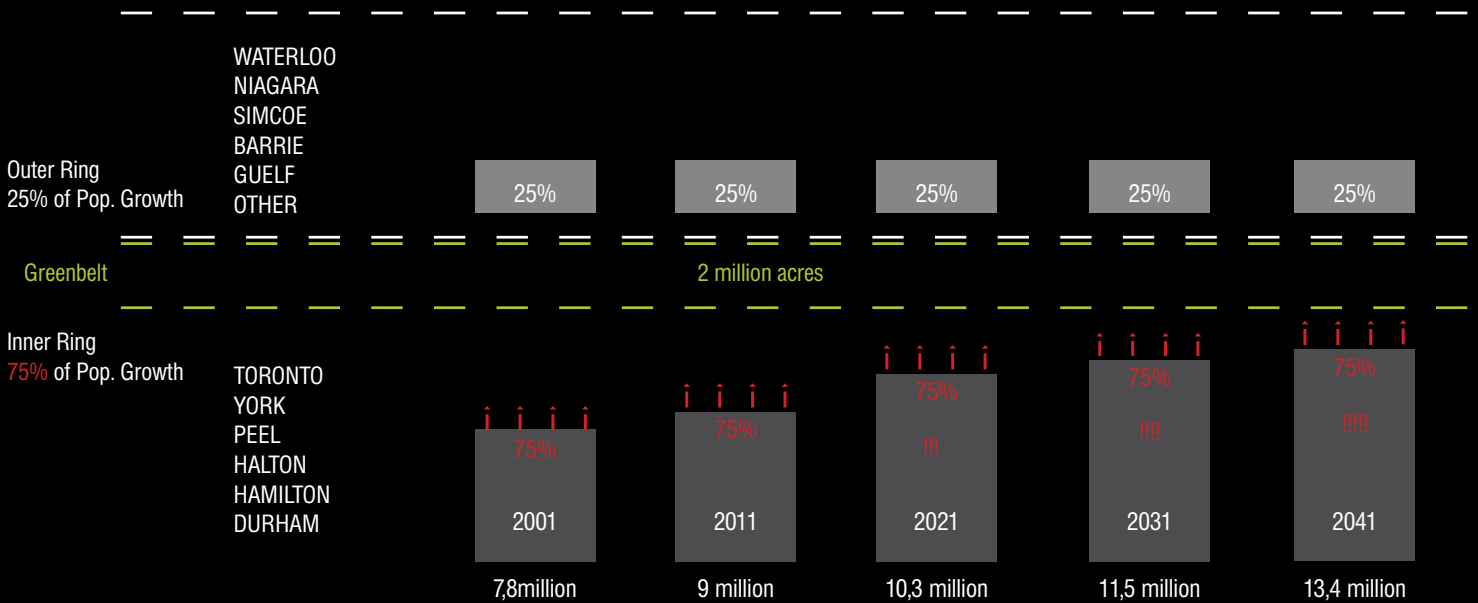


Fig 1.07. The Threat

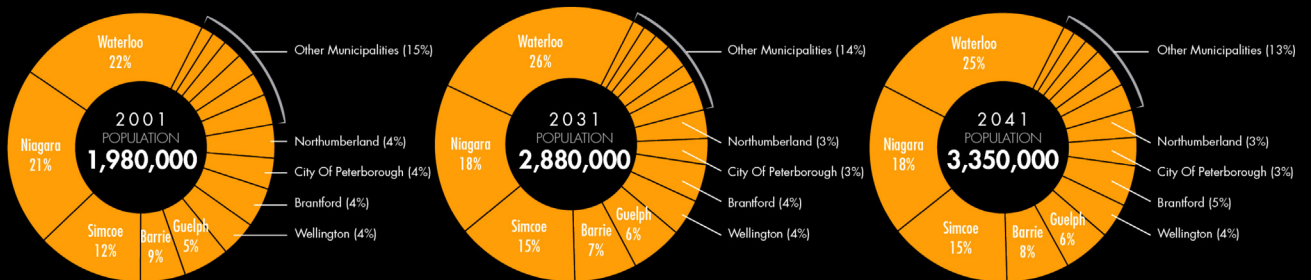
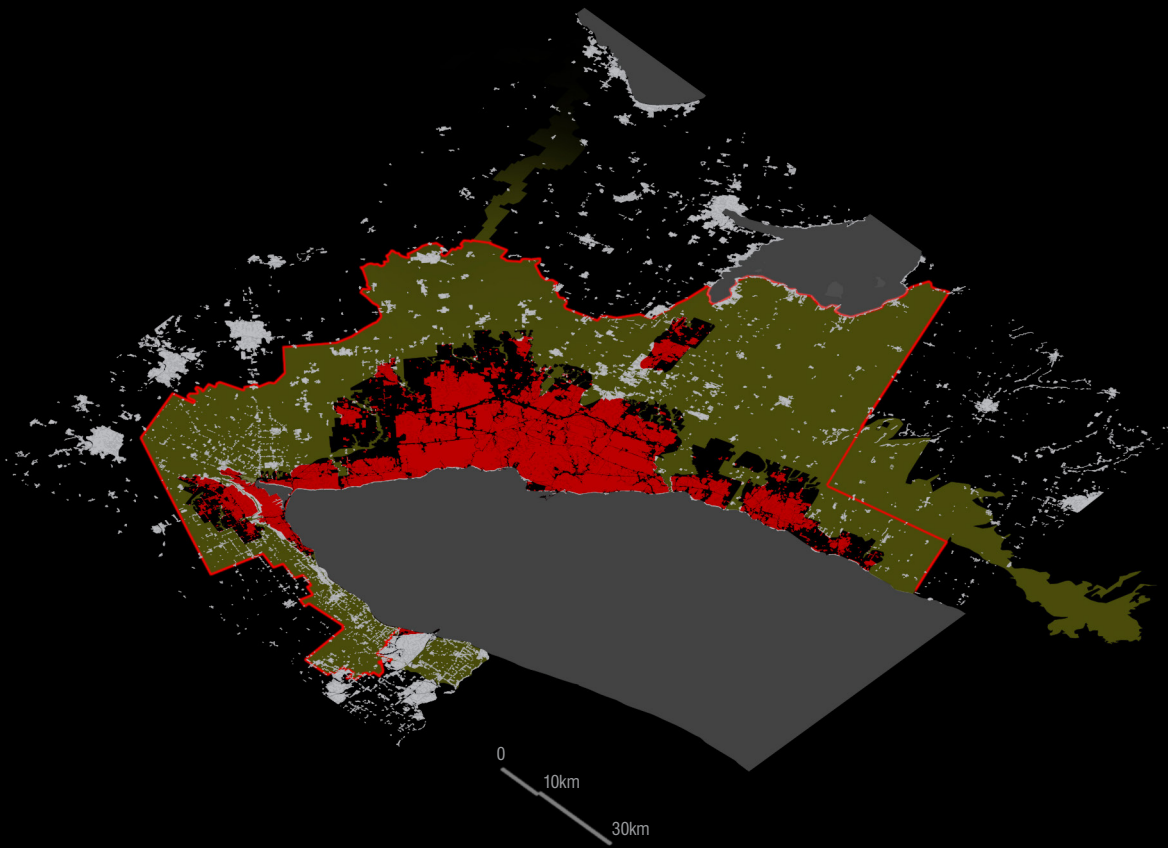


Fig 1.08. Population Growth Repartition in the Outer Ring



*Fig 1.09. The Inner Ring*

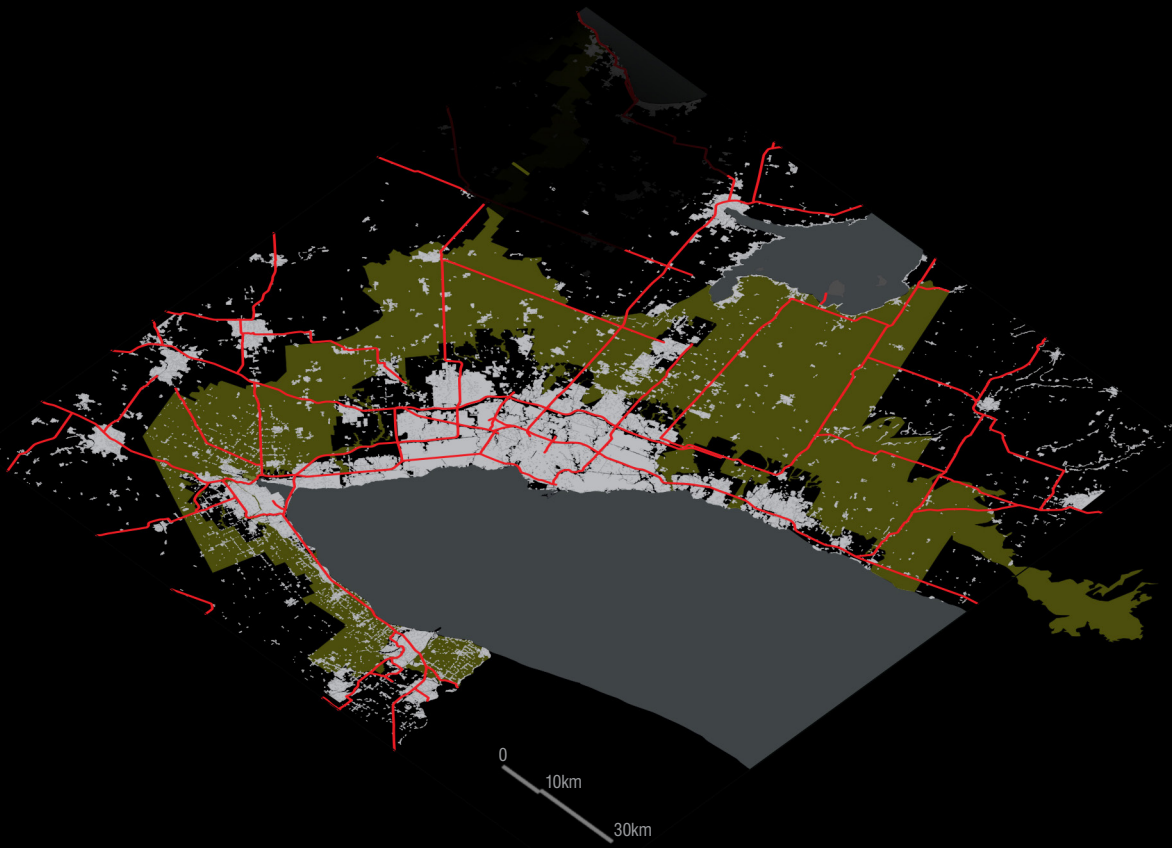


*Fig 1.10. The Whitebelt*



*Fig 1.11. Growth Plan (Development / Densification)*





*Fig 1.12. Highways Network*

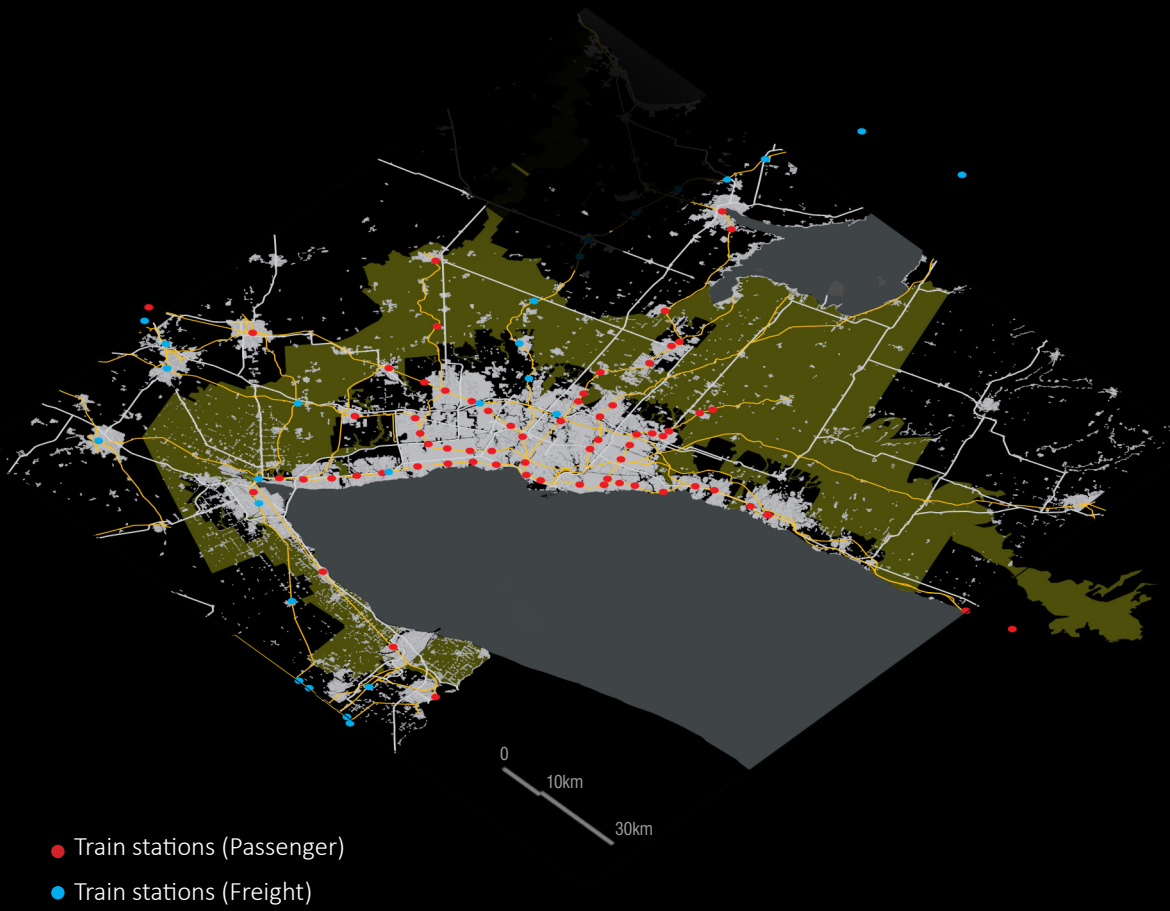


Fig 1.13. Railways Network



Fig 1.14. Context

The Whitebelt condition. Vaughan Photos

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*Fig 1.15. Photo Location: Vaughan Whitebelt*

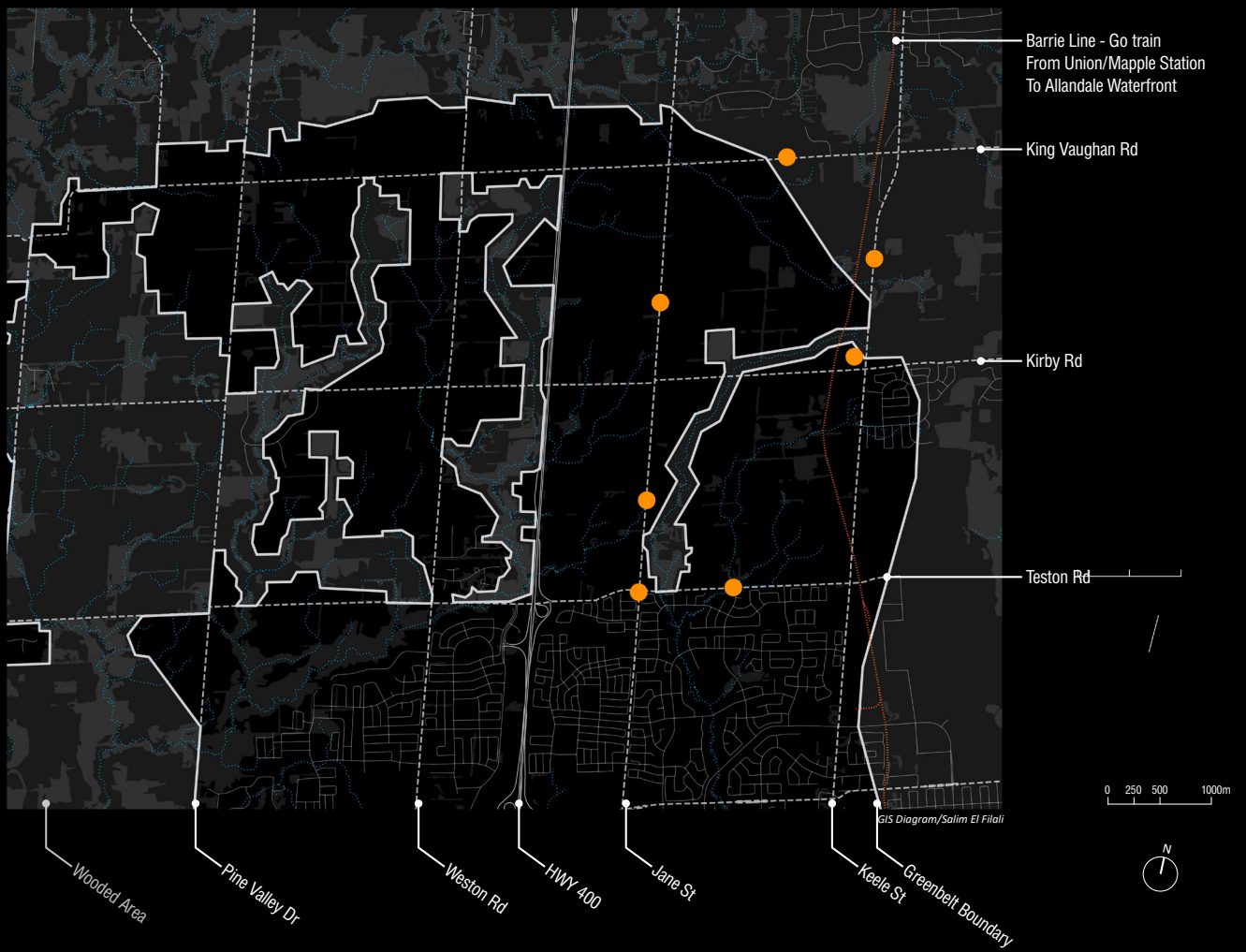


Fig 1.16. Photo Location: Spots Photo

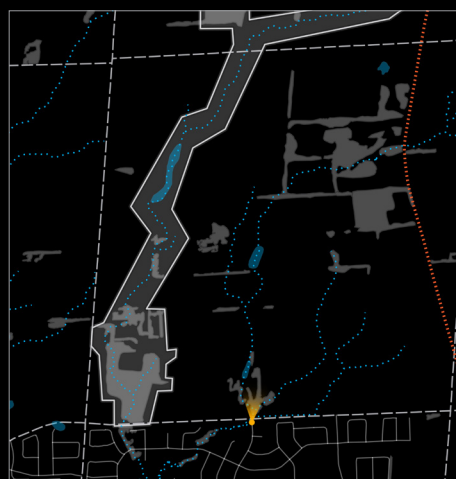
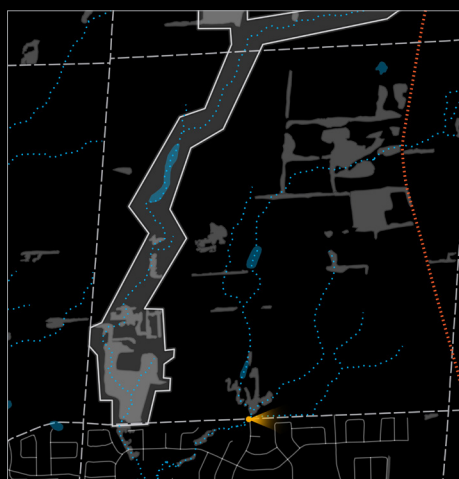
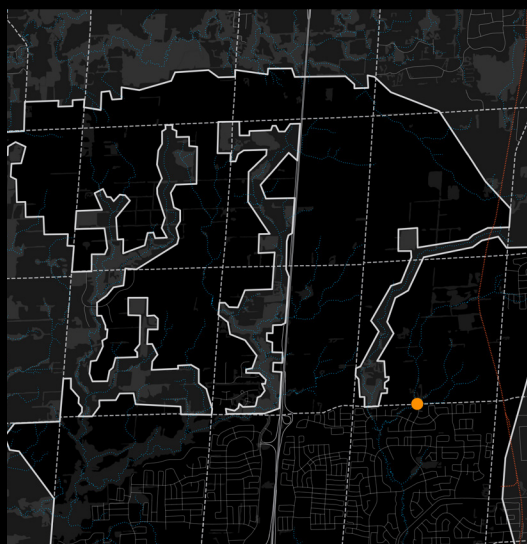


Fig 1.17. Photo Location: Teston Road





*Fig 1.18. Teston Road: Edge of the Sprawl (Winter)*



*Fig 1.19. Teston Road: Edge of the Sprawl (Spring)*





*Fig 1.20. Water Streams*





*Fig 1.21. Open space (Winter)*



*Fig 1.22. Open Space (Spring)*

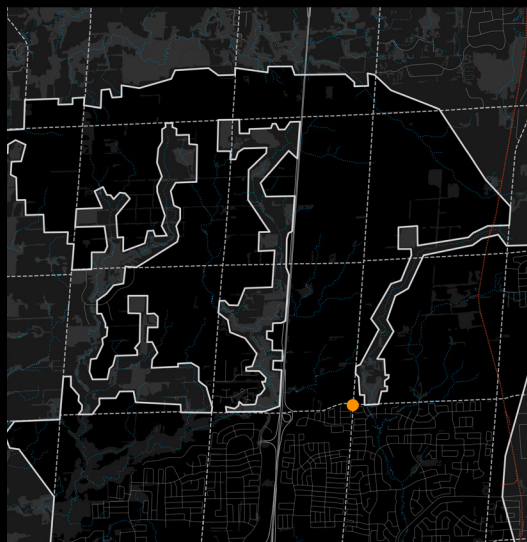


Fig 1.23. Photo Location: Jane Street / Teston Road





*Fig 1.24. Arms of the Greenbelt: Don River (Winter)*





*Fig 1.25. Arms of the Greenbelt: Don River (Winter)*



*Fig 1.26. To the Greenbelt : Jane St (Winter)*





*Fig 1.27. To the Greenbelt : Jane St (Spring)*

**NOTICE: OFFICIAL PLAN AMENDMENT  
AND ZONING BY-LAW AMENDMENT**

AN APPLICATION HAS BEEN SUBMITTED TO THE  
CITY OF VAUGHAN TO DEVELOP THIS SITE FOR:

**AN 11- STOREY RESIDENTIAL DEVELOPMENT CONTAINING  
176 RESIDENTIAL UNITS AND A TOTAL OF 205 PARKING SPACES.**

Owner: Jane and Teston Holdings Inc.

For Information Contact Agent: Weston Consulting (905-738-8080)

For Further Information, Contact the City of Vaughan Development  
Planning Department (905-832-8585) and refer to  
Files # OP.17.002 and Z.17.003  
Date Sign Installed: 04-04-2017

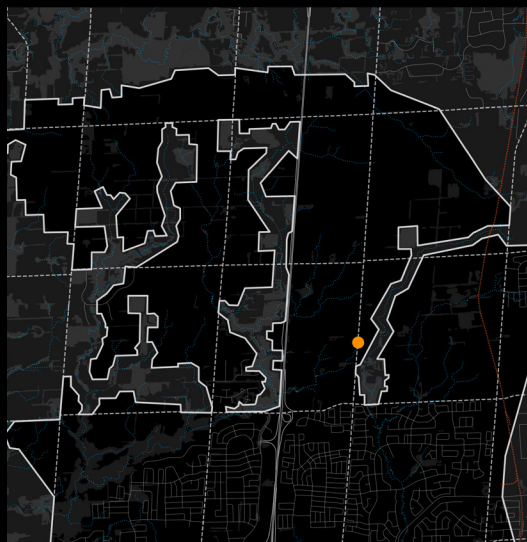
This application is currently under review by the City of Vaughan

VIEW FROM JANE STREET



WEST ELEVATION

*Fig 1.28. Residential Development*



*Fig 1.29. Photo Location: Jane Street*





Fig 1.30. Broken Barn

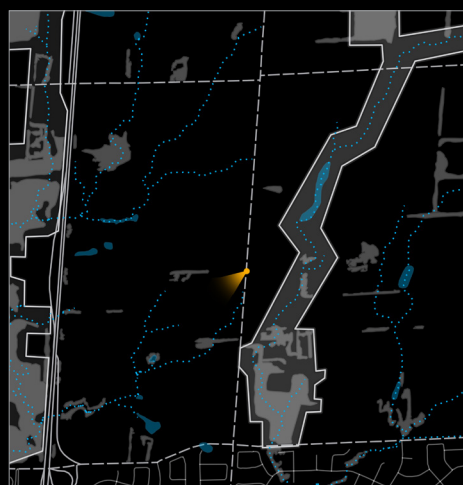
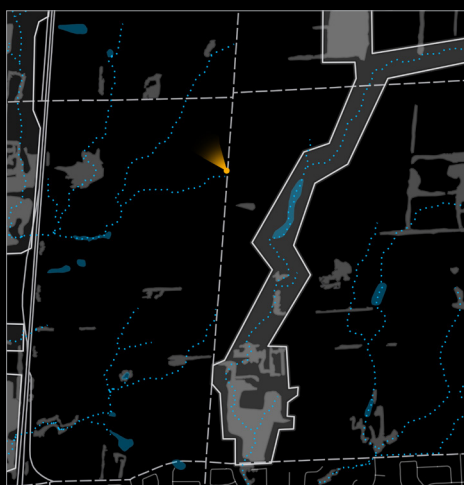
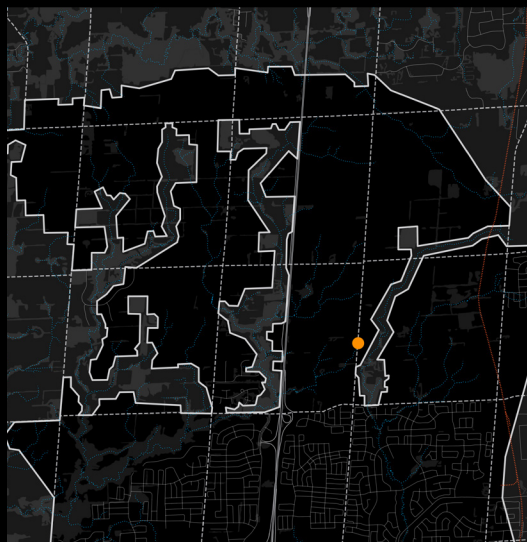


Fig 1.31. Photo Location: Jane Street





*Fig 1.32. Farm (Winter)*

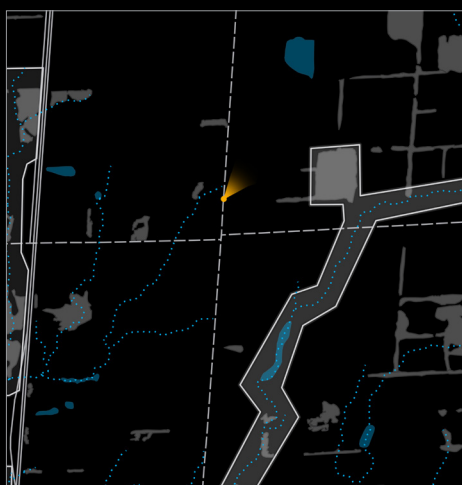
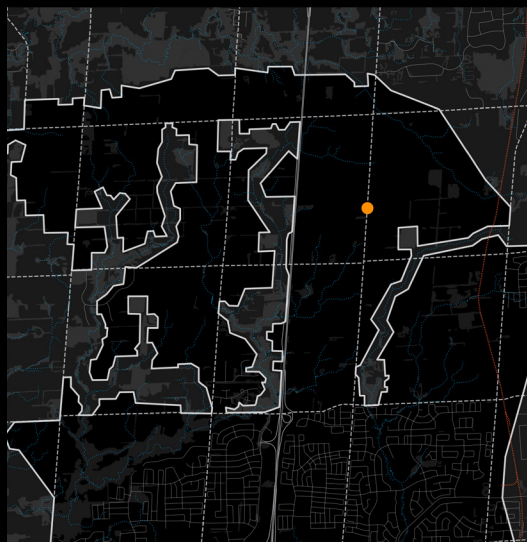


*Fig 1.33. Farm (Spring)*





*Fig 1.34. Farmland*



*Fig 1.35. Photo Location: Jane Street*





*Fig 1.36. Another Broken Barn*

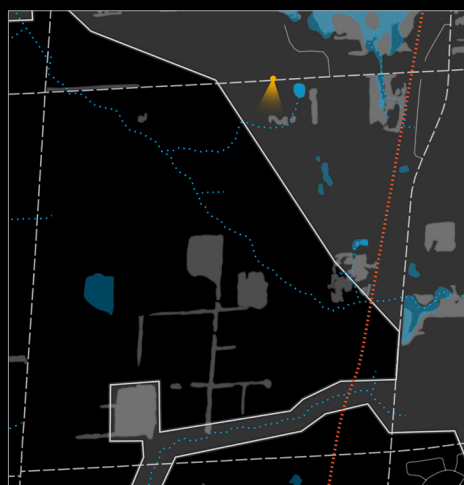
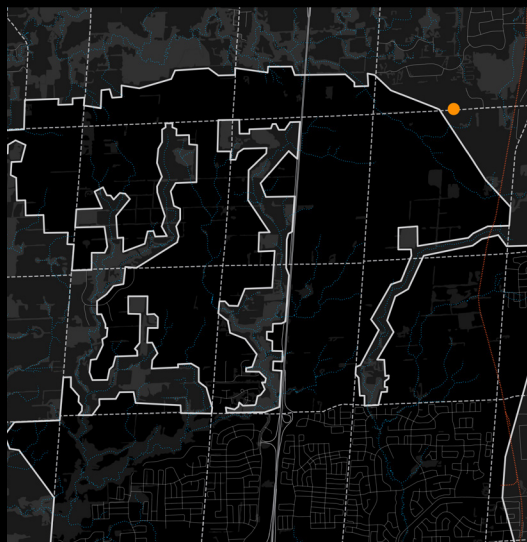


Fig 1.37. Photo Location: King Vaughan Road

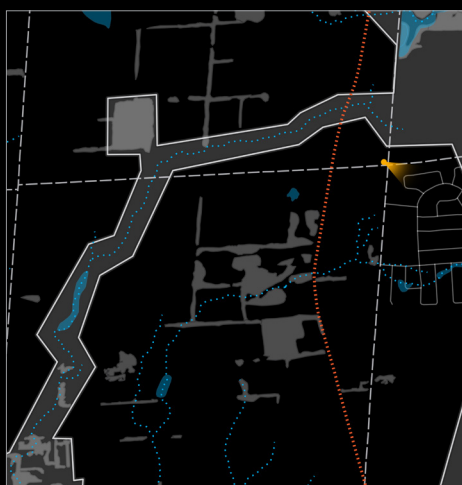
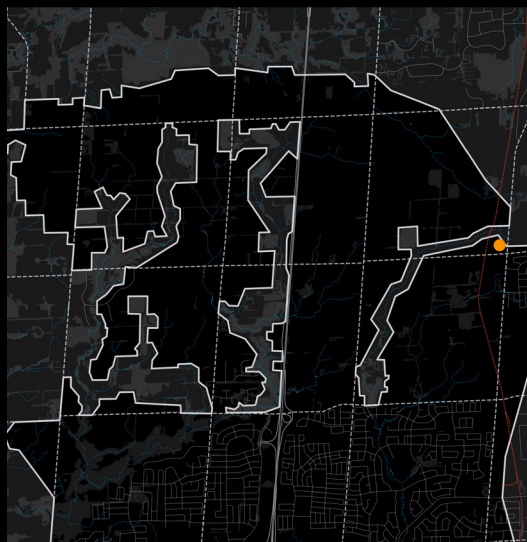




*Fig 1.38. Artifact (Winter)*



*Fig 1.39. Artifact (Spring)*



*Fig 1.40. Photo Location: Kirby Rd / Keele St*





*Fig 1.41. Kirby Rd / Keele St : Edge of the Greenbelt (Winter)*





*Fig 1.42. Kirby Rd / Keele St : Edge of the Greenbelt (Spring)*



Wildlife, Wetlands, Natural habitats Photos

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*Fig 1.43. Beginning of the Don River*





*Fig 1.44. Wildlife*





*Fig 1.45. Wetland*





*Fig 1.46. Farmlands*





*Fig 1.47. Natural Habitat*



*Fig 1.48. The Whitebelt of Vaughan*



## *urban ecology: 1st attempt*

Right or wrong ?

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I must confess that I was initially unsure of including this chapter—considering how far my initial urban design is from the eventual landscape architecture projects—yet I ended up deciding to include this. I think there is no right or wrong on the outcome of the urban design solution if I have chosen to pursue it. My first approach was to accept the fact that the sprawl would somehow get inside the Greenbelt, and therefore to explore the optimal way to develop or urbanize towards the Greenbelt concepts (wild life, farmlands, wetlands, etc.), and not harm but improve it. In other words, building in it or beside it on the Whitebelt before getting to the Greenbelt! This was almost six months of work—work that I do not consider as lost because to be truthful, I would not have ended up with the “13 Gates” idea without it. Wrong or right, it led me to a better design. The principles I have learned in urban ecology or urban landscape, prescribe a way of thinking first, before a way of making.





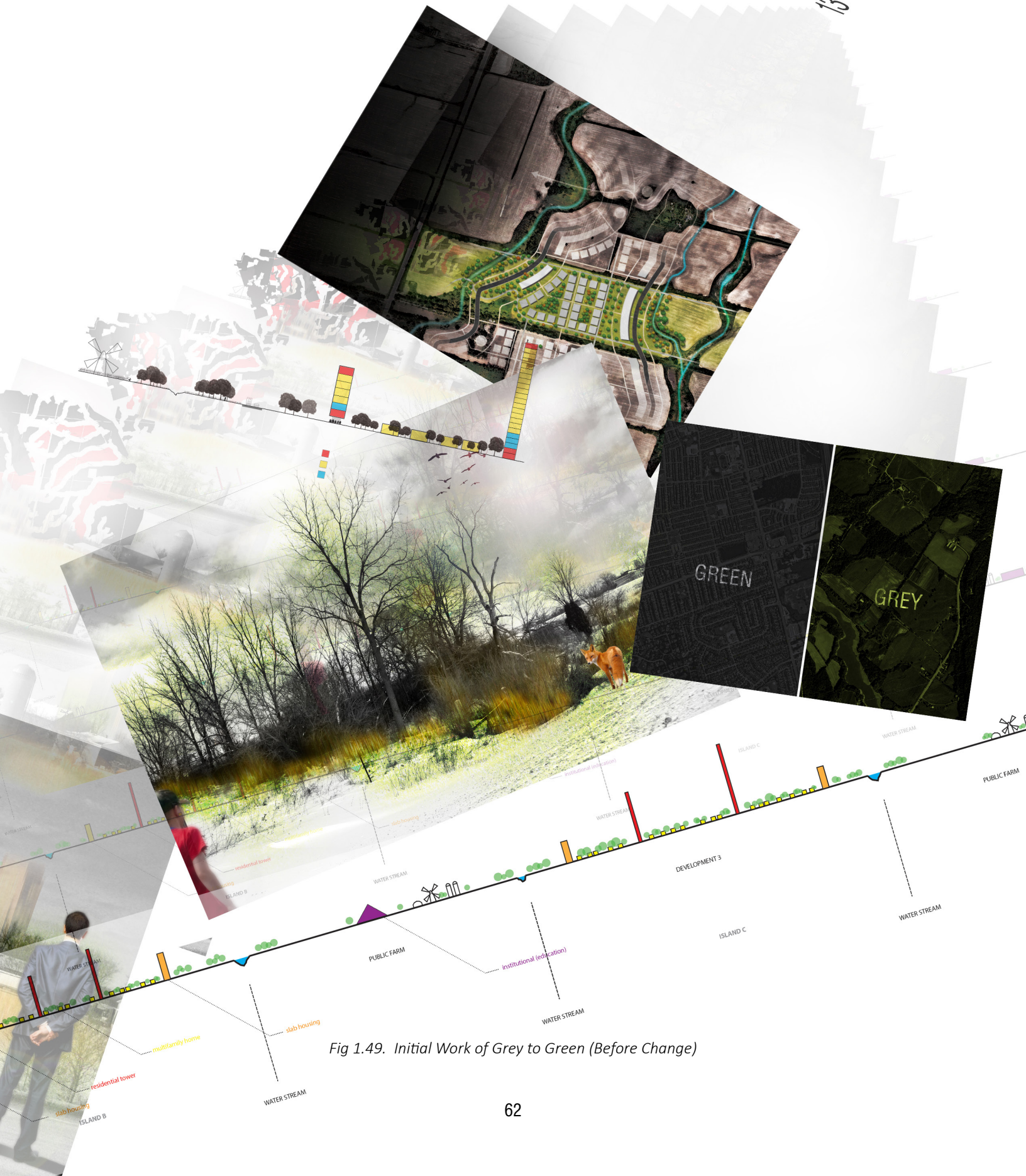


Fig 1.49. Initial Work of Grey to Green (Before Change)

## Resiliency

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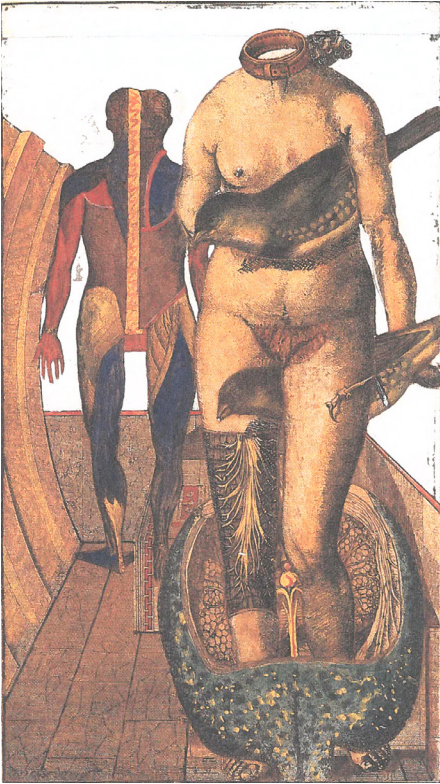


Fig 1.50. *Speech of the ird Woman*  
by Max Ernst

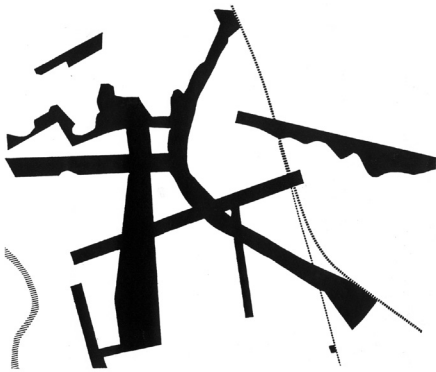


Fig 1.51. *Ville Nouvelle Melun Senart*  
by OMA (Rem Koolhaas), 1987

James Corner, Richard Forman, Ian McHarg, Xaveer De Geyter, Eric Sanderson are some landscape ecologists, landscape architects, and architects who influenced my work in this first attempt. The point where they all stand together is the question of the void, or to use a more technical word, negative space. The void is embodied by the concept of resiliency, essential in biology, ecology, and landscape urbanism. Ian McHarg portrays it with the principle of land value characterized by the degree of importance of each fragment of empty land in natural contexts like hydrology, geology, vegetation, and more. Unfortunately, as he argues, the zoning strategy of planners goes blind folded, motivated by political subdivision, without any care or consideration of what composes a natural context.<sup>22</sup> We can simply witness it when we see urban fabrics today, especially in suburbs. The overlay of an urban and natural pattern should give a much different result, probably less strict and with more synergy between them, most likely a highly fragmented template. Eric Sanderson, a landscape ecologist, worked on a ten-year research project, called *Mannahatta*, very pertinent to the question of fragmentation. In it, Eric explores and gives an optimistic view of New York in the year 2409. It deals with how its development or evolution will occur in order to be extremely compliant with its natural context and let all the ecosystem that was there before to freely evolve. The main scheme gives a New York that will be broken into many fragments of intense pockets of cities liberating a tremendous amount of free natural land between the fragments. He keeps the same characteristics that the city needs, like water, transportation, housing, population, etc., and anticipates an emergent design willing to connect with the natural context of the islands.<sup>23</sup> *Melun Senart* by Rem Koolhaas is an interesting approach of design on the question of the negative space. In his diagrams, Koolhaas focuses on the design of the negative space first (public spaces, greenfields, green spaces) and generates his built layer as a secondary element based on that. It results in a design sensitive to the natural context where the built-up areas are carefully sitting on the natural lands.<sup>24</sup> In terms of experience living in a fragmented design, it mixes nature and city heterogeneously. Be it city or be it nature, we would not know which one the place is about, and that is exactly what we need: this confusion, or as James Corner would assert: “bewilderment.” James Corner makes an interesting parallel in landscape design with the work process of surrealist painters, and characterizes it as such: “In fact, one of the key procedures in Surrealist transformation was ‘the exploitation of the fortuitous meeting of two distant realities on an inappropriate plane...or, to use a

<sup>22</sup> Ian L MacHarg, *Design with Nature* (New York, Natural History Press, 1971), 161

<sup>23</sup> Eric W Sanderson, *Mannahatta: a Natural History of New York City* (New York: Abrams, 2009), 237

<sup>24</sup> Rem Koolhaas, O.M.A. at MoMA : Rem Koolhaas and the place of public architecture : November 3, 1994-January 31, 1995, the Museum of Modern Art, 1994, retrieved from [https://www.moma.org/documents/moma\\_catalogue\\_440\\_300293616.pdf](https://www.moma.org/documents/moma_catalogue_440_300293616.pdf)





*Fig 1.52. Manhattan Today*  
*Eric Sanderson*



*Fig 1.53. Manahatta 2409*  
*Eric Sanderson*

shorter term, the cultivation of a systematic bewildering.”<sup>25</sup> This is a principle that was very useful in my final design.

The fragment of Whitebelt standing between the city of Vaughan, in York, and the Greenbelt was my area of interest in this initial design. I chose York as it is a municipality with one of the highest projected population growth, and highly at risk of conflict with the Greenbelt. This first attempt was shaped by the principles of fragmentation, resiliency and compliance with the context: in the case of Vaughan it was the abundance of natural hydro network with a lot of water streams emerging from the Oak Ridges Moraine. It was the point of beginning for the design.

The first step was to intensify the water streams by extending and connecting them, in order to define clearly the fragments or islands between the streams. The next was to define these streams and the zones, marking them as protected as the Greenbelt. The negative space that comes out of it leaves us with multiple fragments of different forms, and of course, as resiliency and fragmentation were the main framework, I was not going to build on all these fragments. Therefore, I was left with some fragments that could be developed and others that had to be retained with any one of the greenbelt characteristics: farmlands, either natural habitats or wetlands, with forestry patches that are untouchable.

The next step was to think about all the main elements that a development needs, like: road network, transportation system, programs (residential, commercial, institutional etc.). I ended up with a result quite uncommon and ambiguous at the same time, leading to “bewilderment.” I think the goal was twofold: to enhance the feeling of living in nature for residents and to believe that the development is not to function as a parasite to its surroundings. The approach to the thesis was becoming more theoretical than pragmatic, which was not the way I wanted it. This was one of the reflections that made me starting to doubt the landscape urbanism approach. Was I solving the Greenbelt problem at all?

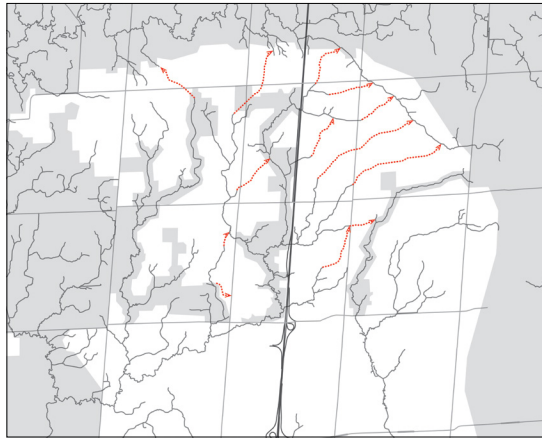
Fig 1.54.  
Nature or City? Fragmentation



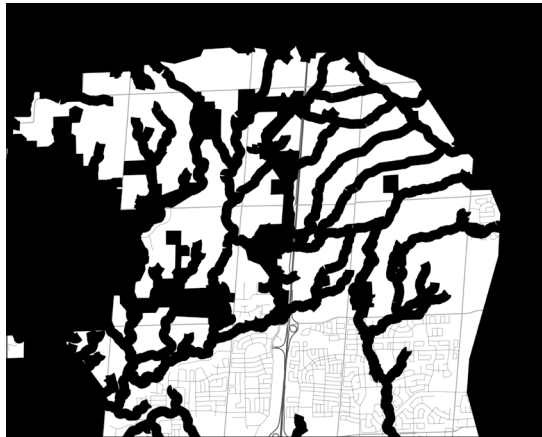
<sup>25</sup> James Corner and Alison Hirsch, *The Landscape Imagination: The Collected Essays of James Corner, 1990–2010* (New York: Princeton Architectural Press, 2014), 275



Water streams extension + connection



Water streams protection under Greenbelt Act



Negative: Fragments



Fragments for developments



Fig 1.55. Urban Design Strategy



Fig 1.56. Peter Senge Conference:  
“Systems Thinking for a Better World”

## a change of mind

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My doubts intensified when I realized that critiques from guest critics were all targeting certain aspects of the problem of the design. It was hard to put a hierarchy of priority on what matters first or most. Transportation, zoning, public spaces, building typologies, densification were all areas that could be important elements in design. The truth is that they were all equally important, and I realized that it is a web in which it was crucial to explore all elements, in order to be sure that the design is consistent enough to be accepted in the Greenbelt. In addition, it is a challenge that had to be taken beyond the limits of my context, because the problem concerns the entire system of development we are living in, which is very rigid and not that resilient to change.

I discovered the world of Peter Senge during this period, which triggered my decision to find a better path to face the Greenbelt problem. Senge is a MIT lecturer engaged in the field of systems. During a conference called “Systems Thinking for a Better World” in the Aalto Systems Forum 2014, Peter presented his work that focused on problems with complex systems involving different actors or variables: the kind of big scale problems where the solution is not obvious. He presented, in his lecture, the success story of a clam fishery located in a small community of La Paz, in Mexico. Most of the fisheries of the region lost almost 75% to 85% of their fishing capacity, which made the fishermen “fight for the last fish.” The point of this example is the coherence between the scale of the clam dilemma and the solution that an NGO called *Nor-Este Sustentabilidad (NOS)*, made of scientists, brought to solve it: A soccer field.<sup>26</sup> That was the first intervention they had delivered to bring back almost 3 million clams to the coastal area where there was almost no fish left. The second intervention was to create organic food farming with a micro-economy. The

<sup>26</sup> Peter Senge, *Systems Thinking for a Better World*, Filmed [November 2014], YouTube video, 1:00:14. Posted [Dec 2014], <https://www.youtube.com/watch?v=0QtQqZ6Q5-o&t=2525s>

soccer field made the scientific community and the NGO gain the heart of the fishermen to cooperate on their initiatives, and the organic farming was an alternative economy to temporarily stop fishing. The clams got back to its initial number quicker than expected, and the problem was solved.<sup>27</sup>

I have learned from Senge's example, that the scale of a problem does not necessarily need a solution at an equal scale. In my case, I started questioning if I could find a smaller but better solution than urbanism, which can save the two million acres of the Greenbelt with a simple architectural or landscape intervention. A solution that is more feasible and engaging. So I convinced myself to go with something different and more importantly, to not allow anything to be built on the Greenbelt, treating it like a naturally unbuildable space, such as a lake.



*Fig 1.57. The Greenbelt: Unbuildable like a Lake*

<sup>27</sup> Peter Senge, Systems Thinking for a Better World, Filmed [November 2014], YouTube video, 1:00:14. Posted [Dec 2014], <https://www.youtube.com/watch?v=0QtQqZ6Q5-o&t=2525s>



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Change of scale

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To make a small design with big impact, I needed to focus on a detail that is challenging in the Greenbelt. The most obvious one is the Greenbelt boundaries, which are political, and mostly invisible, and at times not immediately distinguishable from the natural topographies that they overpass. Consequently, the “Grey to Green” moved from urbanism intervention to edge condition. After all, the primary aim of this thesis is to find a way to keep these lines where they are. Since the sprawl is threatening the one towards the inner ring, that is specifically the focus of this thesis. The most triggering aspect of these edges is their ‘lack’ of visibility, leading one to the question: how to engage people or communities in the defense of the Greenbelt lines if they know only the concept of it but do not ‘see’ it, or do not experience it. The aspect of visibility is important, particularly in psychology, when it comes to perception of a danger or a threat and ways of reacting to it—which in certain ways, applies also to the Greenbelt problem.



*Fig 2.00. Edge Conditions in the Inner Ring*

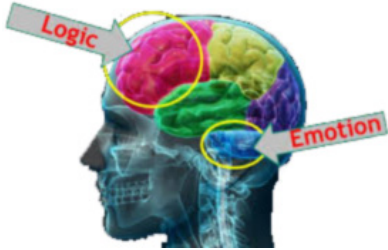


Fig 2.01. The Emotional Brain



Fig 2.02. Discernible Edges

An interesting parallel can be found in the issue of climate change. Marie-Ève Cotton, a psychiatrist practicing in Quebec, addresses an intriguing factor in the global warming issue to explain why it is underestimated, even though people really seem to care about it. She explains that in this case, we are victims of how our brain processes information and of the precedence of the rational brain over the emotional brain in interpreting this problem. The issue of global warming tends to be interpreted more rationally than emotionally; in other words we do not experience it physically or get obsessed by the problem. The emotional brain will process information that is more imminent, visible—like threats— something that provokes an immediate or impulsive reaction. It is a part of our brain we use substantially—an instinctive use inherited from our ancestors—to fight frequent dangers in the wild: being chased by a bear for instance. Marie-Ève adds that the information on climate change is interpreted by different cognitive bias, like the availability bias, which again, prioritizes imminent information. She mentions an example of a survey conducted by sociologists in New Hampshire, which showed that 70% of the respondents were more aware about climate change if they were asked the questions in summer, on a hot day, versus 40% who were aware of it during winter, on a cold day. People have to be physically or visually responding to circumstances in order to react.<sup>28</sup> From this, I concluded that if the Greenbelt was to lose ground in a slow, not-immediately-perceptible process like global warming, people will not engage to defend it, especially because its blurry edges contributes to it not being immediately ‘available’ to sight or experience. The brain prioritizes actual events that will happen in a short time range rather than something that will occur over a longer time, like global warming, which seems too distant to be a concern for us.

Therefore, humans react to what is perceptible or likely to confront them in near future in their lives, or something that affects them every day. I believe this is precisely the problem of the Greenbelt: we do not see it. The natural context outside of the belt is very similar to what is inside, and without demarcation, it is undistinguishable. I knew with certainty that this was exactly the issue where the design of “Grey to Green” will have to be challenged. The solution lies in making the Greenbelt ‘visible,’ like a natural or constructed space with discernible edges.

<sup>28</sup> Marie-Ève Cotton, “L’être humain n’est pas fait pour réagir aux changements climatiques,” Radio podcast, Médium large, December 2018, accessed August 28, 2019, <https://ici.radio-canada.ca/premiere/emissions/medium-large/segments/chronique/99350/etre-humain-pas-fait-pour-reagir-changements-climatiques-cotton>





*Fig 2.03. Make the Greenbelt Visible*

## 13 Gates

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I began by investigating the main elements that represent the Greenbelt or embody the identity of it; in other words: its ambassadors. The most obvious one is the headquarters of the Friends of the Greenbelt Foundation, where a team of hardworking people try to keep this Greenbelt alive and thriving. I have to admit that in the initial stages of my research, I was expecting—or rather imagining—the headquarters to be housed in a beautiful rustic barn on a nice hill within the Greenbelt area, a dream office tucked in nature. Far from what I imagined, it happened to be in a building on top of a post office and a Tim Hortons on Yonge Street, in downtown Toronto. This was the first of the critiques I had in mind. The headquarters needs to embody the essence of the Greenbelt by reflecting what this Greenbelt is about and by expressing its fundamental concepts. While the Friends of the Greenbelt already performs a commendable job communicating with stakeholders and general public and disseminating information, a relocation would reinforce its message. The headquarters is what represents the Greenbelt identity, and therefore needs to be located right at the heart of the action: in the Greenbelt itself.



Fig 2.04. 661 Yonge St: Friends of the Greenbelt Foundation Headquarters

*“Along with their function as billboards carrying messages, the triumphal arches in the Roman Forum were spatial markers channeling processional paths within a complex urban landscape. On route 66 the billboards, set in series at a constant angle toward the oncoming traffic, with a standard distance between themselves and from the roadside, perform a formal-spatial function. Often the brightest, cleanest, and best-maintained elements in industrial sprawl, the billboards both cover and beautify that landscape.”<sup>29</sup>*

Robert Venturi

The second thing that attracted my attention—and probably the most important—was the highway traffic board: “Entering the Greenbelt.” Not to push this thesis into questioning the science and aesthetics of designing billboards, but it seems that the only element that brings people’s attention to enter the most successful Greenbelt of the world has the same kind of non-distinguishing design as telling motorists that Montréal was 500 km away. I realized that the relationship spot between the highway and the Greenbelt appears to be quite underestimated, especially when I investigated the traffic average of the 13 highways that cross the Greenbelt of Ontario: 668,400 vehicles each day.<sup>30</sup> I realized the potential of the scale of the audiences the Greenbelt can get: families, individual commuters, carpoolers, truck drivers, bus passengers. I wondered if it could be made to appear more spectacular for them, and if the headquarters could be a part of it. This reminded me of the triumphal arch I saw in Volubilis when I was young, when I thought the Roman Emperor (Caracalla) must be a divine being if people have built such a magnificent structure for him! Confident about the validity of my rationale, I chose these meeting points to be the context of the design in this thesis. To the initial title “Grey to Green,” I now added “13 Gates to the Greenbelt.” I am certain that if the design that tributes the Greenbelt is compelling, it can have a significant impact on its future. The intervention will become a ritual for people who cross it regularly, and then from ritual to a tradition, and maybe from tradition to a cultural reference point.

<sup>29</sup> Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge, Mass: MIT Press, 1972) 83.

<sup>30</sup> Ministry of Transportation, Ontario Provincial Highways Traffic Volumes 1988-2016, <http://www.raqsa.mto.gov.on.ca/techpubs/TrafficVolumes.nsf/>



*"We have described in the Las Vegas study the victory of symbols-in-space over forms-in-space in the brutal automobile landscape of great distances and high speed, where the subtleties of pure architectural space can no longer be savored."<sup>30</sup>*

Robert Venturi



Fig 2.05. "Entering the Greenbelt" Sign

<sup>30</sup> Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas*. Cambridge (Mass: MIT Press, 1972) 83.

As a part of my plan, I undertook an investigation of the 13 highways that cross the Greenbelt from the inner ring to the outer one. Evidently, the urban growth of the old “Metropolitan Toronto” has been intricately related to the transportation infrastructure, including highways, especially since the post World-War II era. All along, the development of the region has owed probably more to the road network for its expansion, than to the myth of “development following the pipe” (water supply and sewage).<sup>31</sup> The irony is that highways were the very agents that favoured the urban growth towards the Greenbelt, a fact that in certain ways makes them responsible for the current problem. However, the design presented here aims to reverse their role and proposes to use them to save the Greenbelt instead.

In the investigation of the 13 highways, I found out that there are several characteristics that distinguish them, enabling them to be grouped in various ways. In one of them, the Greenbelt line is defined by a bridge going over it, like HWY 403 or HWY 401 W. The most common case is the line abruptly intersecting the highway, apparently out of nowhere (QEW, 6N, 400, 404, 401E). The roads are different in terms of scale, like the number of lanes—for instance HWY 48 and HWY 12 with two lanes—and obviously, traffic load. In highways 10 and 6S, the Greenbelt crosses in the middle of a street

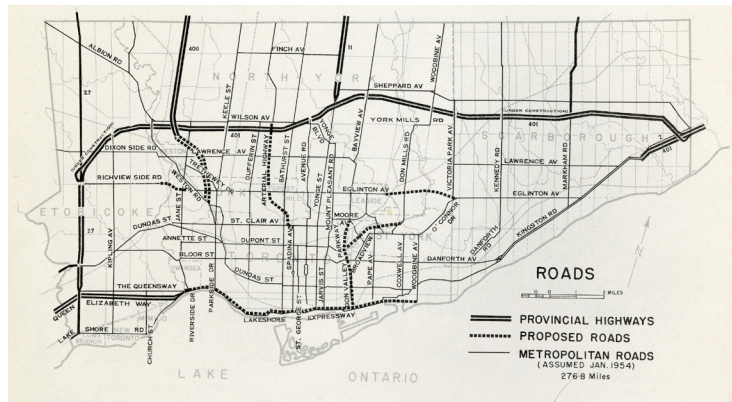
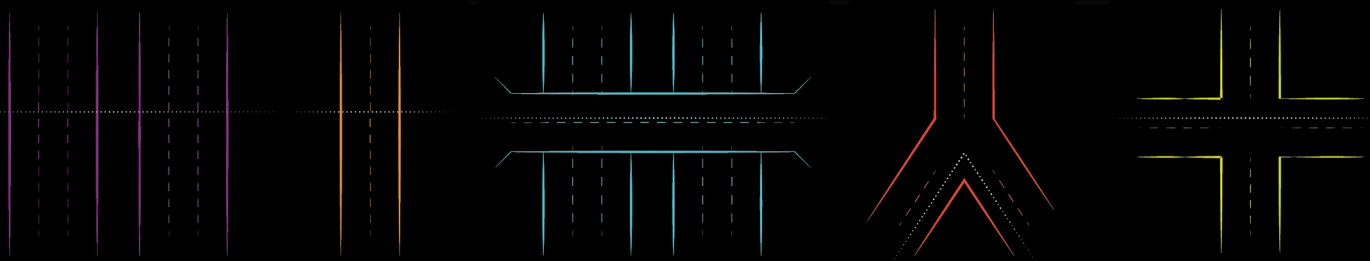
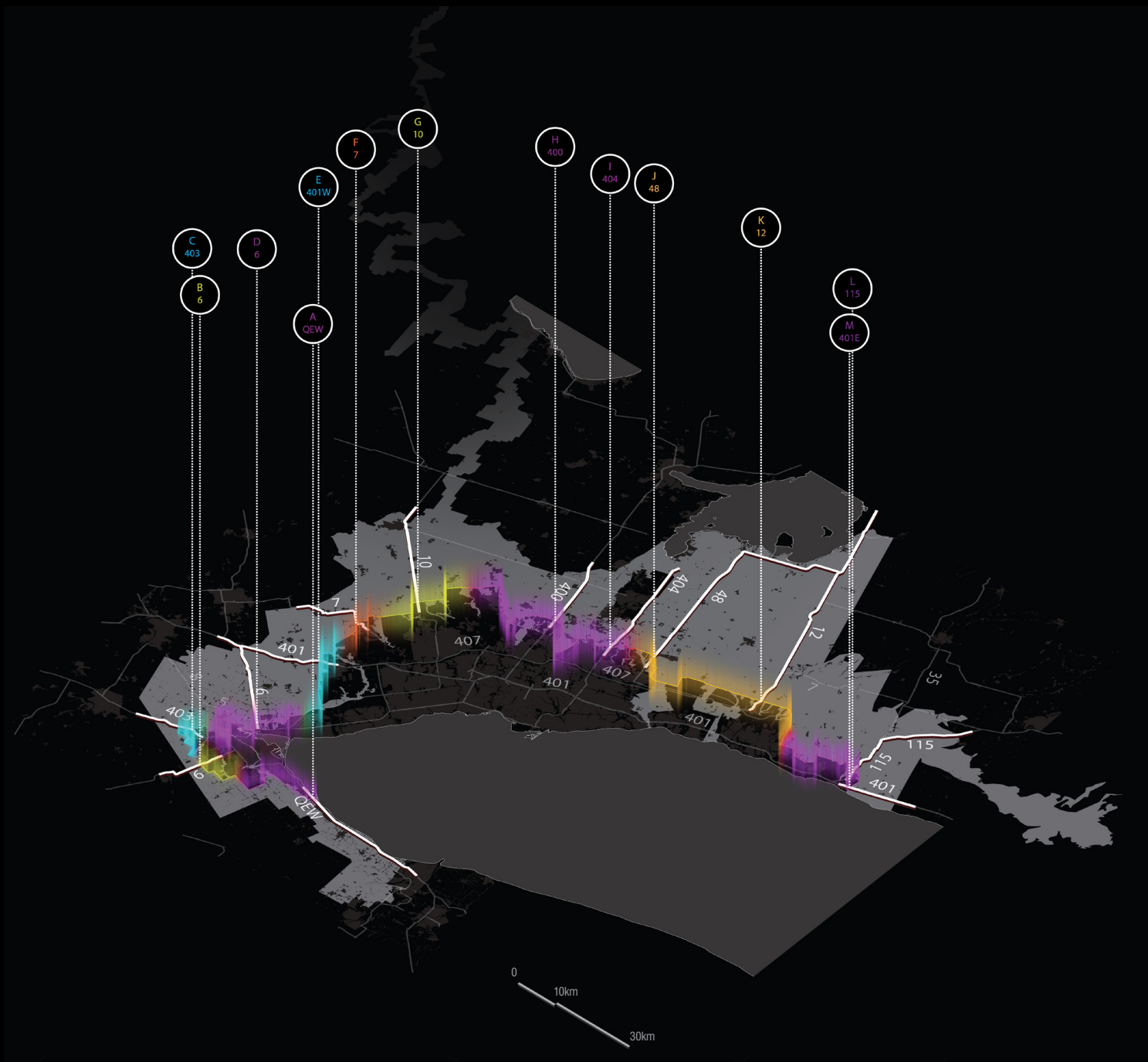


Fig 2.06. Highways and Urban Growth of Metropolitan Toronto

<sup>31</sup> Richard White, *Urban Infrastructure and Urban Growth in the Toronto Region, 1950s to the 1990s* (Toronto: Neptis Foundation, 2003).



QEW  
 6N  
 400  
 404  
 115  
 401E

48  
 12

403  
 401W

403  
 401W

403  
 401W

Fig 2.07. 13 Highways that Cross the Greenbelt / 5 Conditions

intersection. As previously mentioned, the 13 highways carry approximately 668,400 cars, at the exact meeting points between the highways and the Greenbelt, each day. The top three of the highest traffic loads, based on data obtained from the annual report of average daily traffic,<sup>32</sup> are the 401 W with 113, 000 cars, followed by the 400 with 101, 600 cars and the QEW with 112, 300 cars.

*“We have described in the Las Vegas study the victory of symbols-in-space over forms-in-space in the brutal automobile landscape of great distances and high speed, where the subtleties of pure architectural space can no longer be savored.”<sup>33</sup>*

Robert Venturi

<sup>32</sup> Ministry of Transportation, Ontario Provincial Highways Traffic Volumes 1988-2016, <http://www.raqsa.mto.gov.on.ca/techpubs/TrafficVolumes.nsf/>

<sup>33</sup> Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge, Mass: MIT Press, 1972), 83.



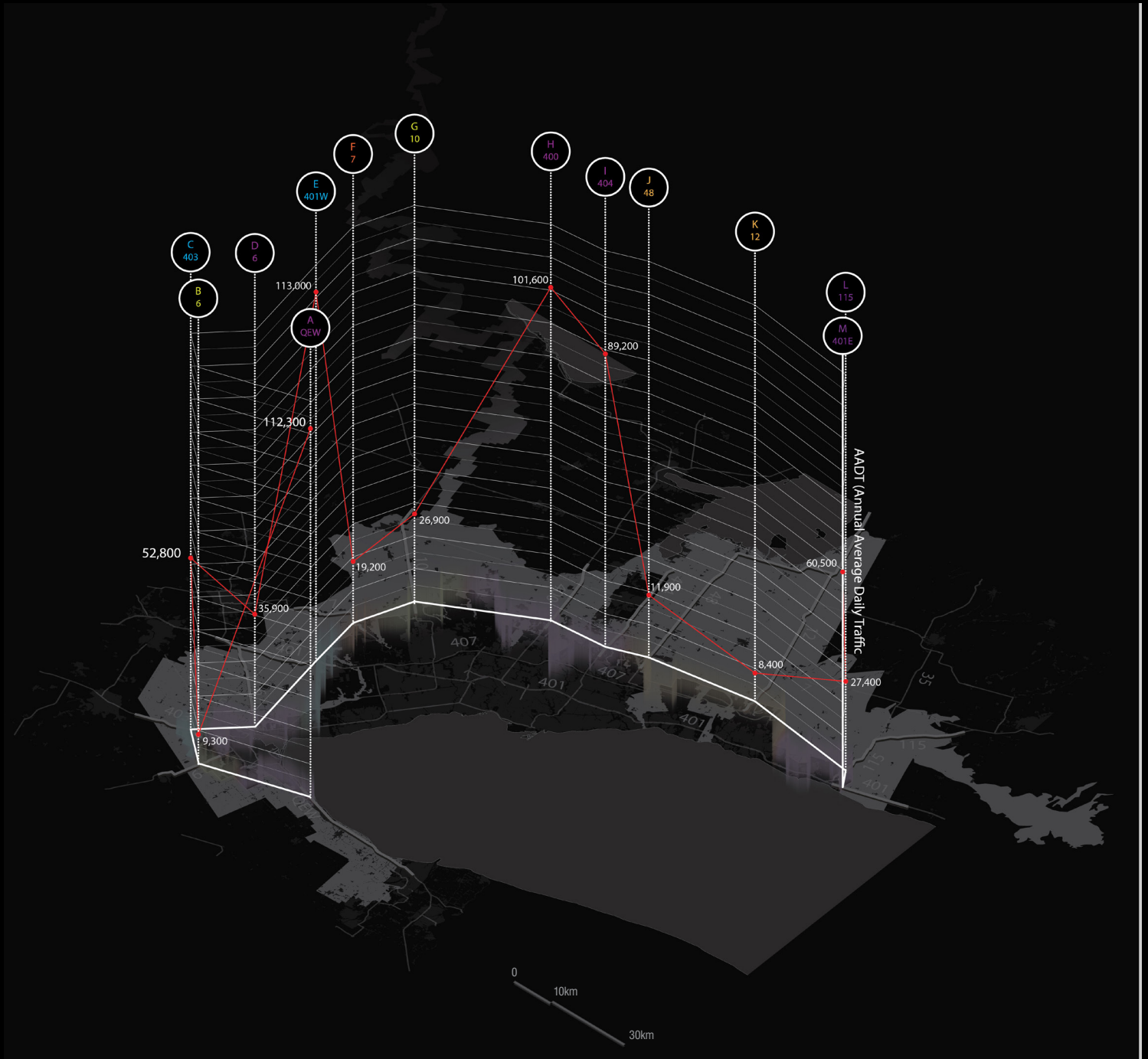


Fig 2.08. 13 Highways: Annual Average Daily Traffic

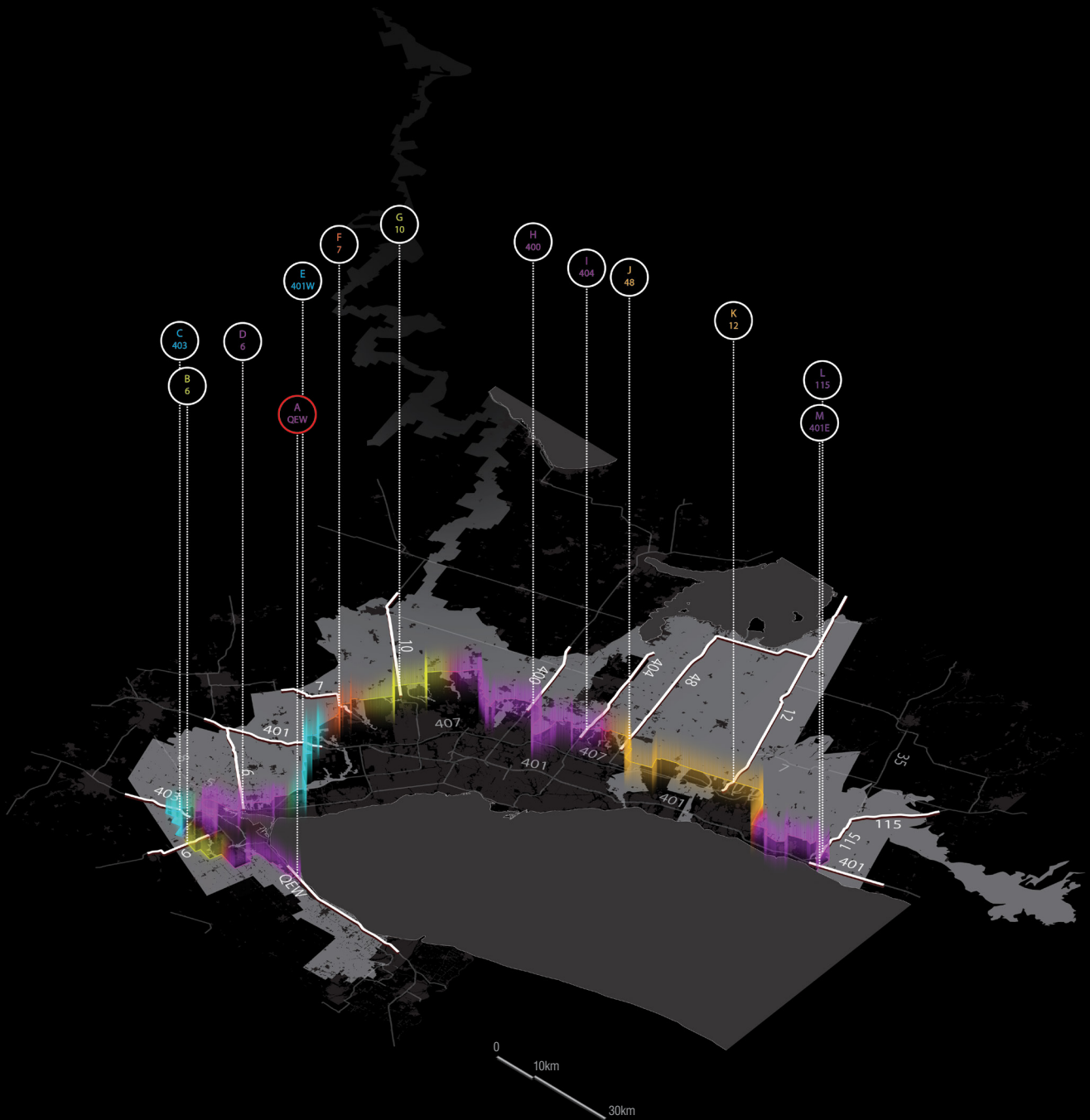
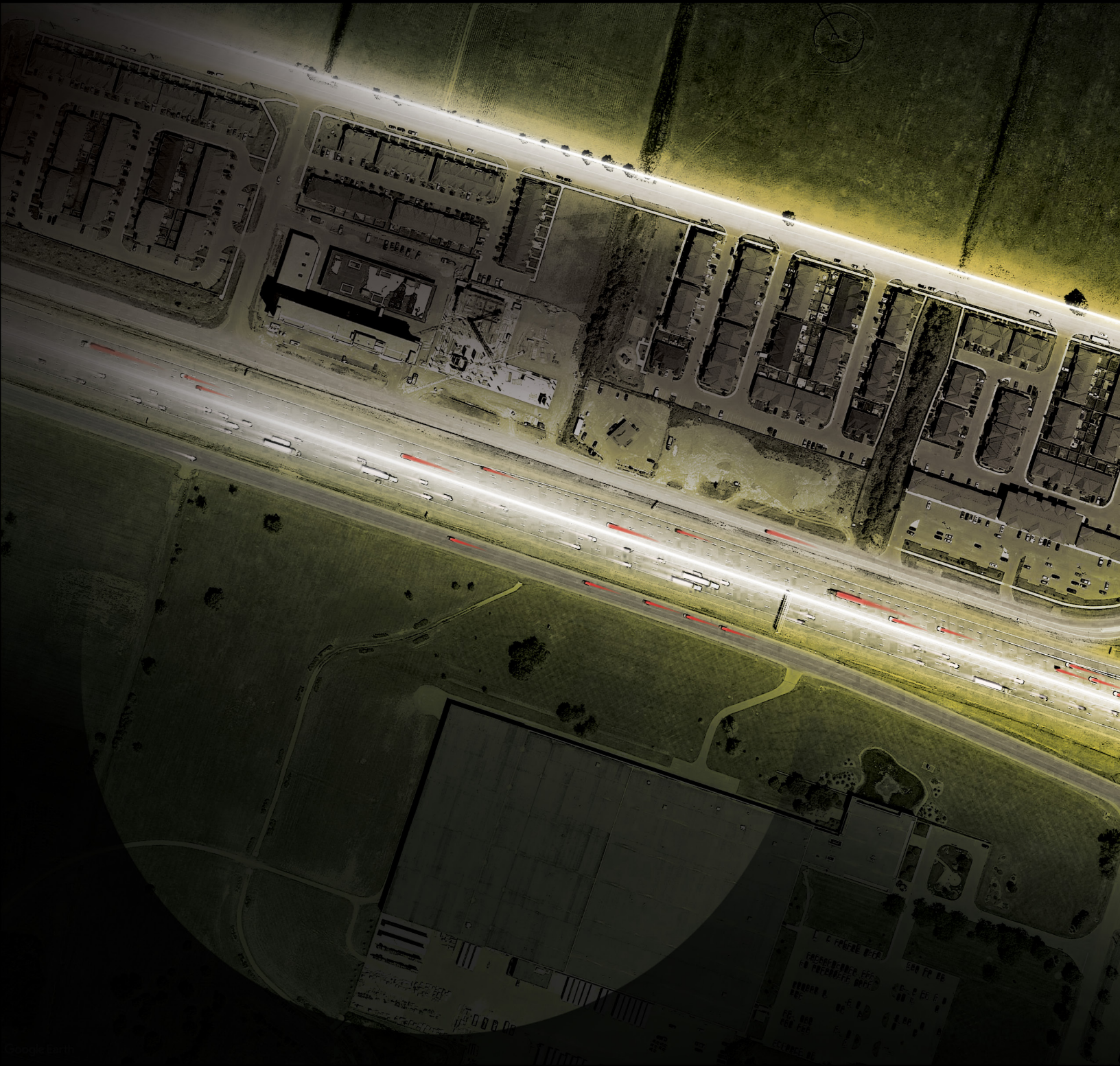


Fig 2.09. A: Highway QE W



*Fig 2.10. Crossing the Greenbelt Line in the QEW*







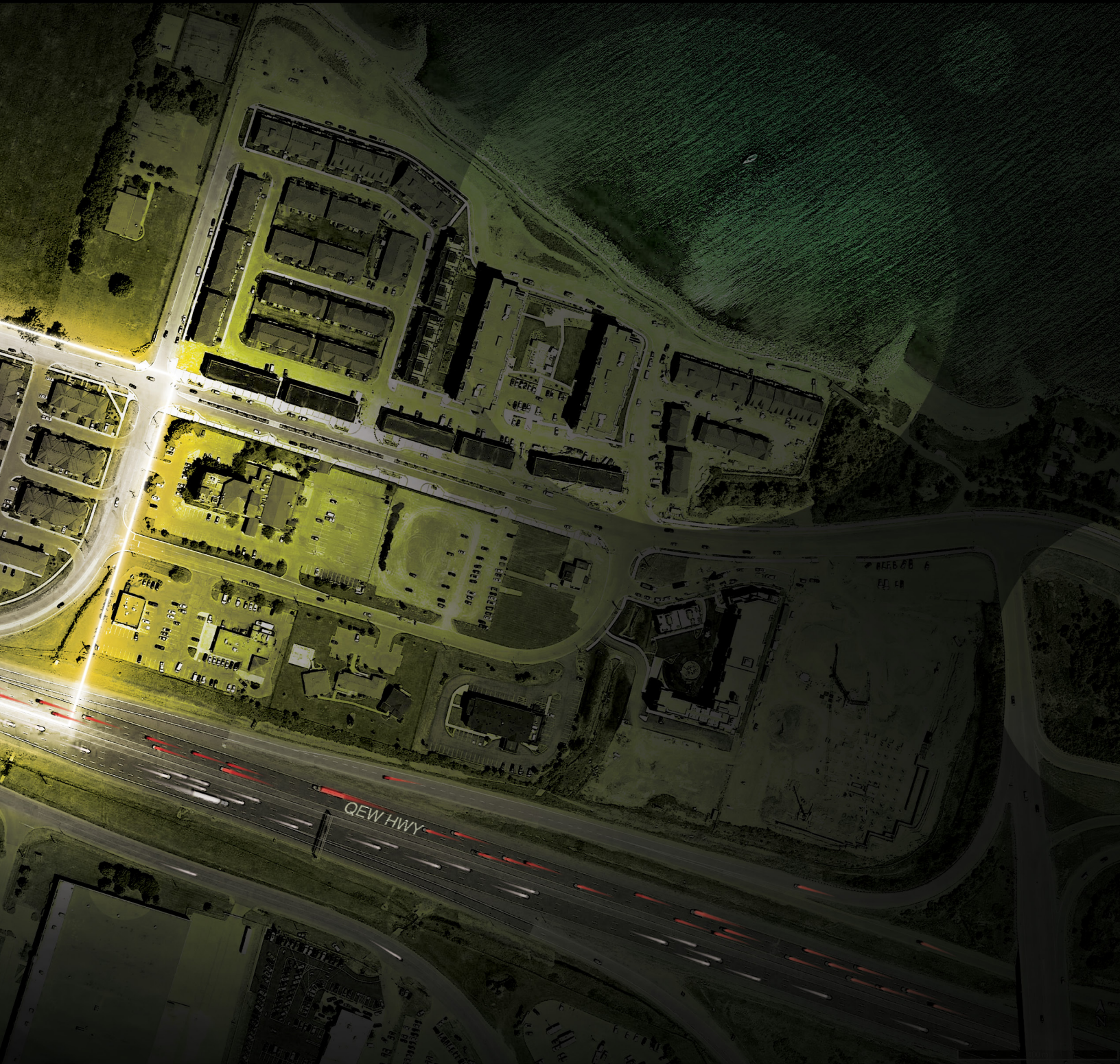


Fig 2.11. QEW vs Greenbelt Frontier



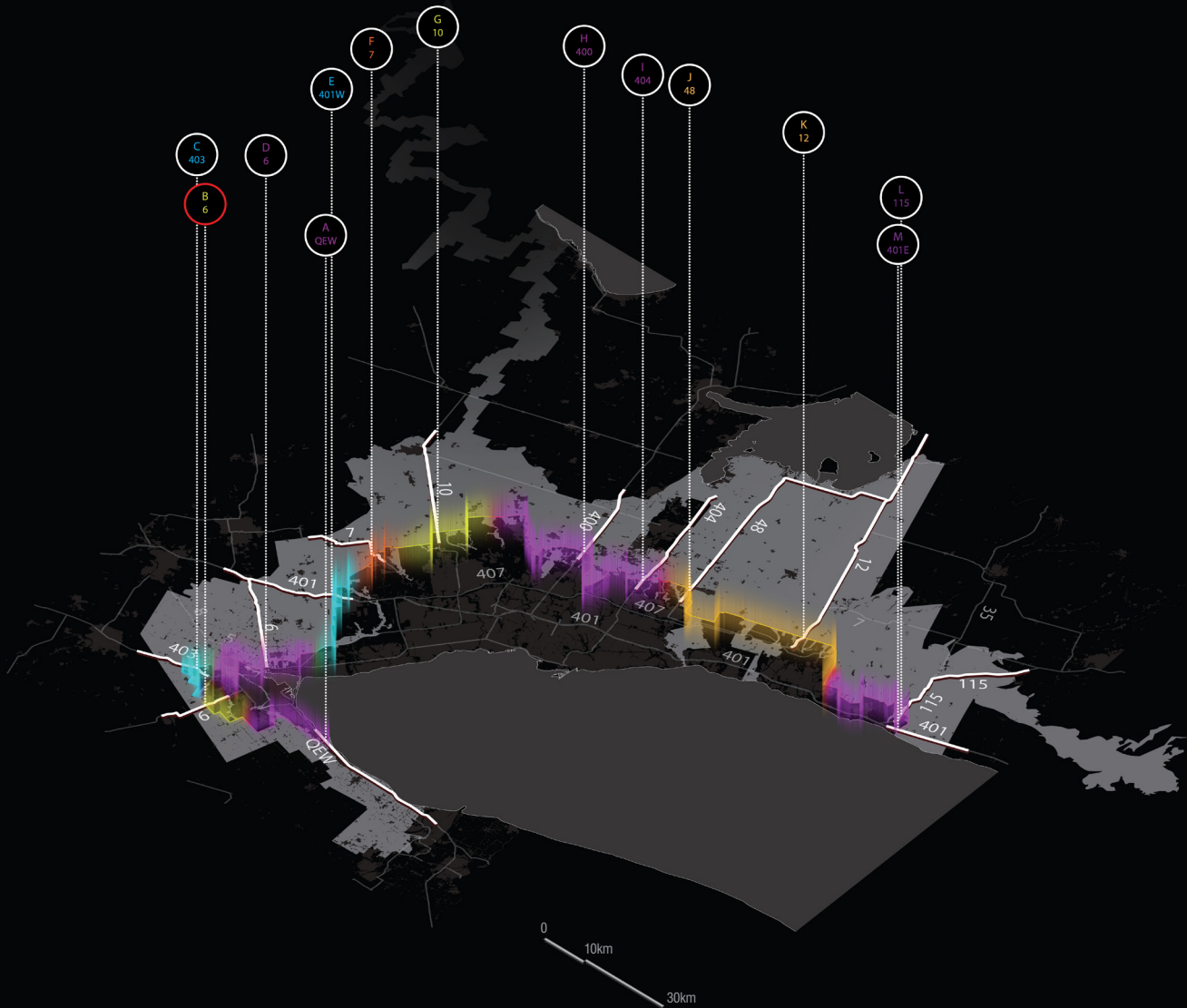
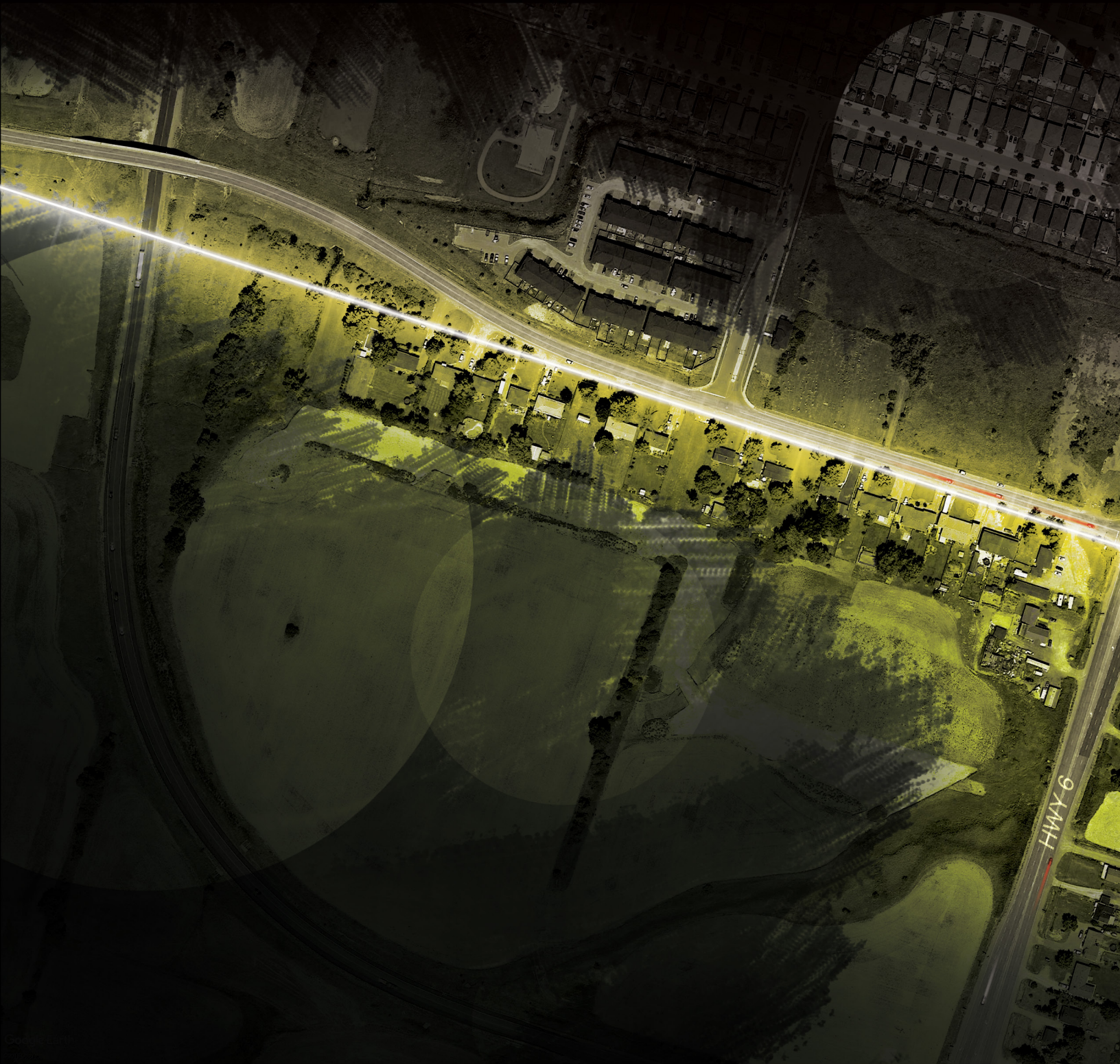


Fig 2.12. B: Highway 6 (South)



*Fig 2.13. Crossing the Greenbelt Line in Highway 6 (South)*







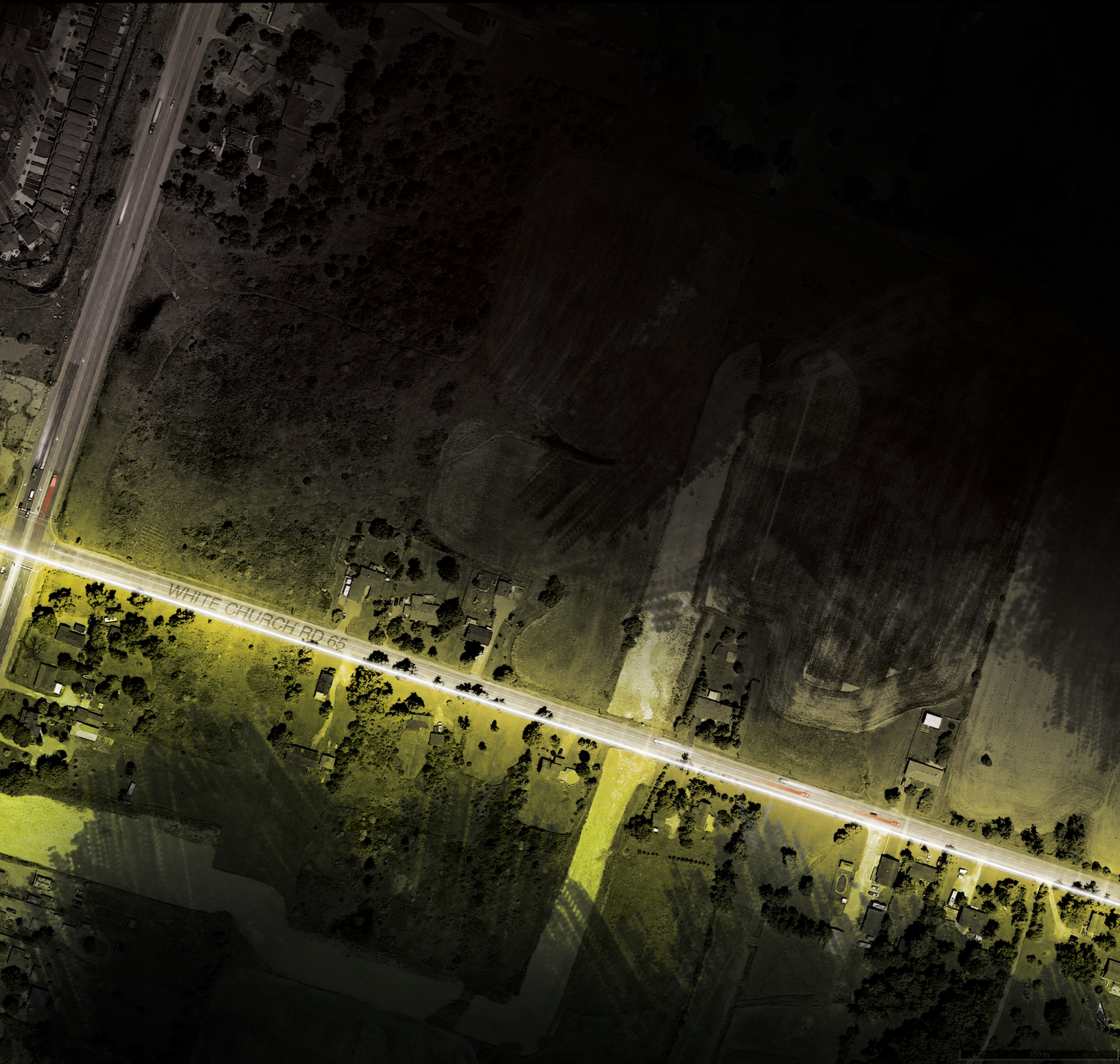


Fig 2.14. Highway 6 (South) vs Greenbelt Frontier



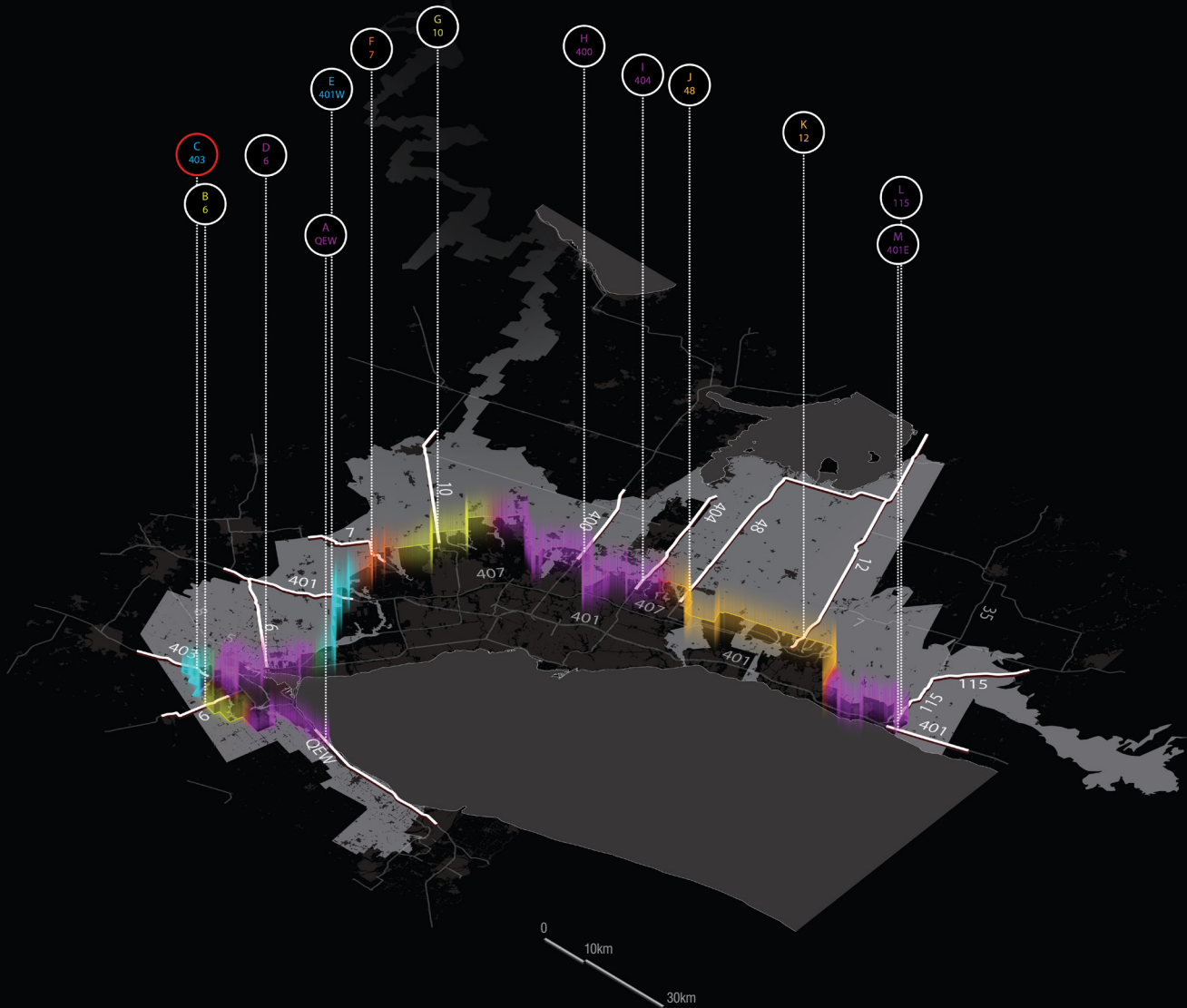
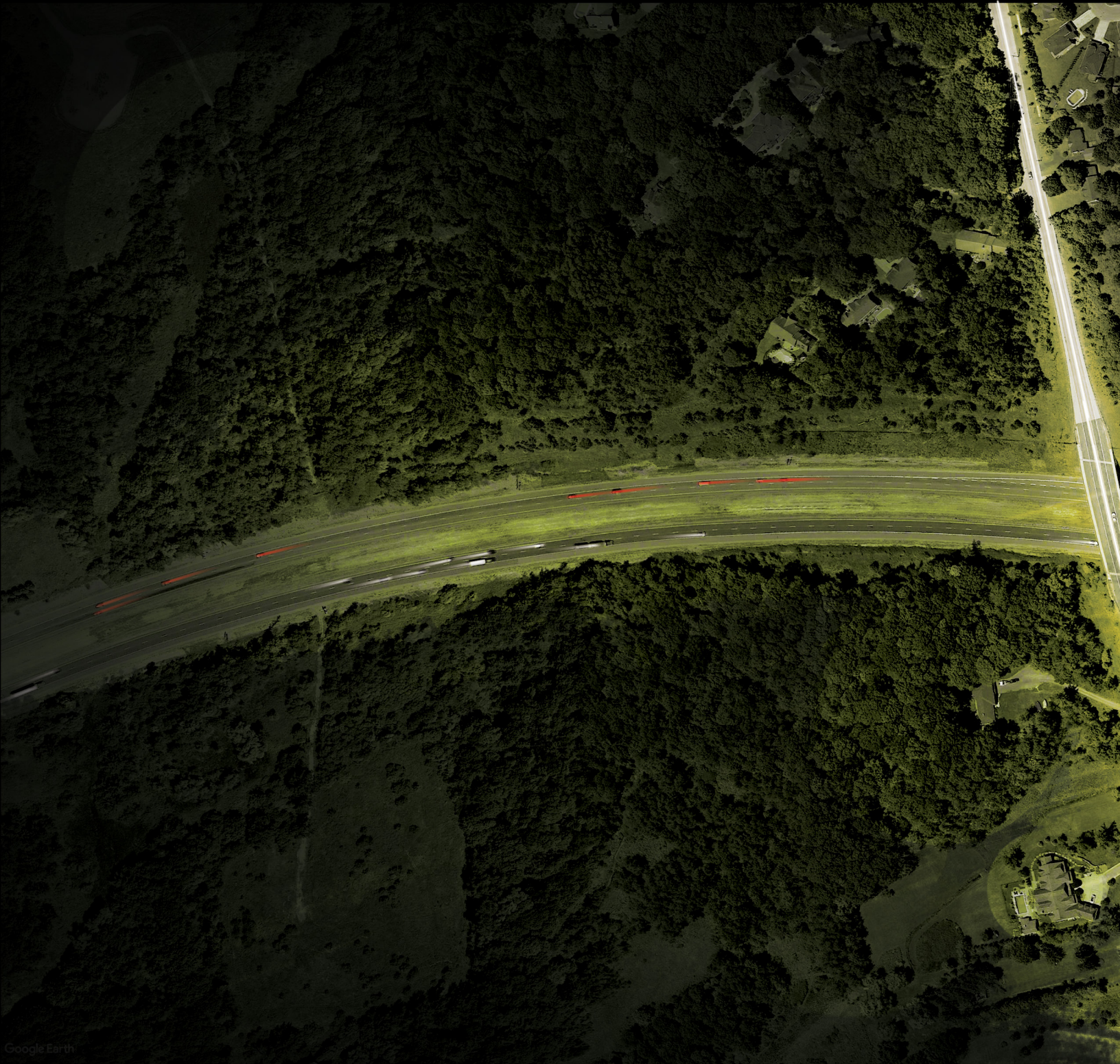


Fig 2.15. C: Highway 403



*Fig 2.16. Crossing the Greenbelt Line in the 403*





Google Earth



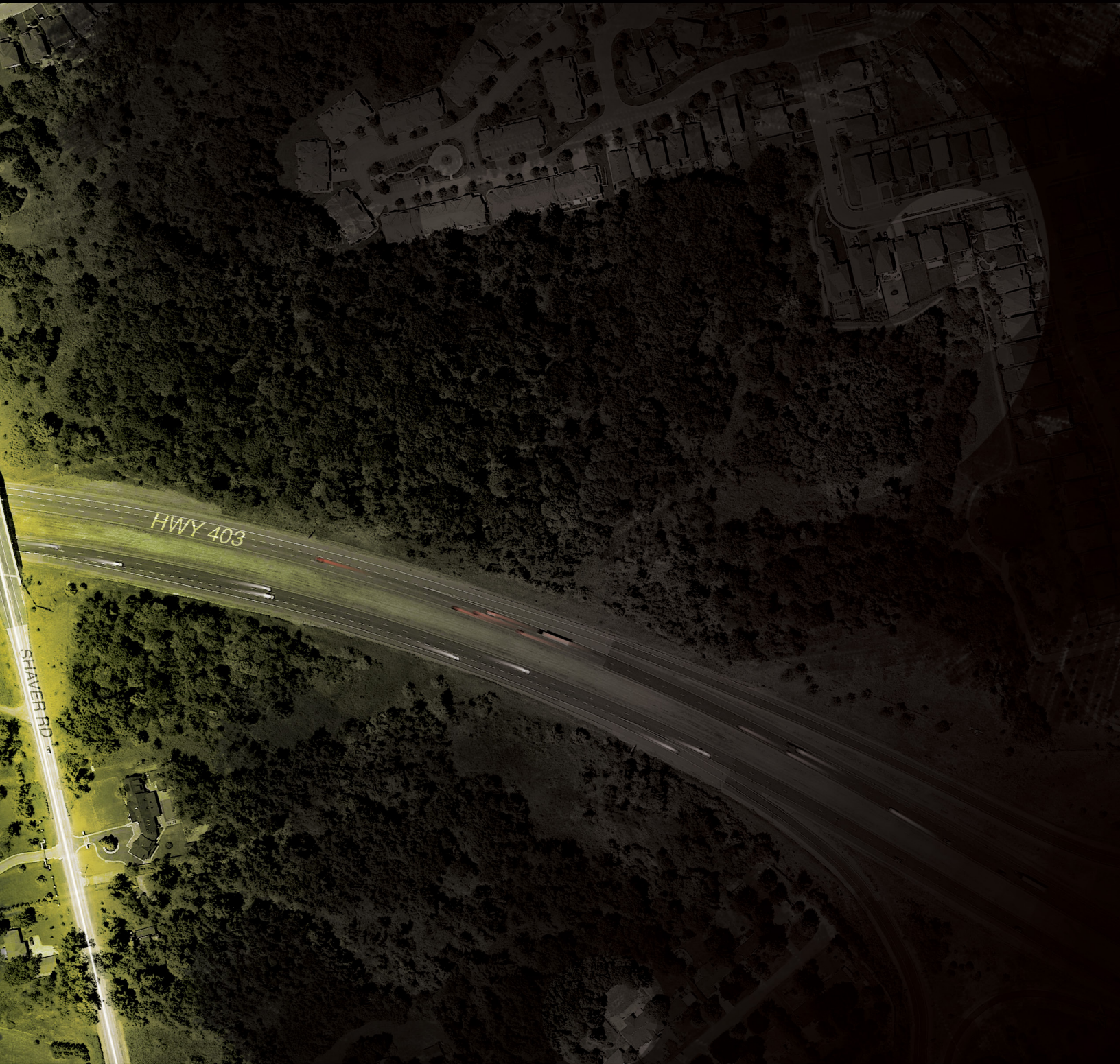


Fig 2.17. 403 vs Greenbelt Frontier



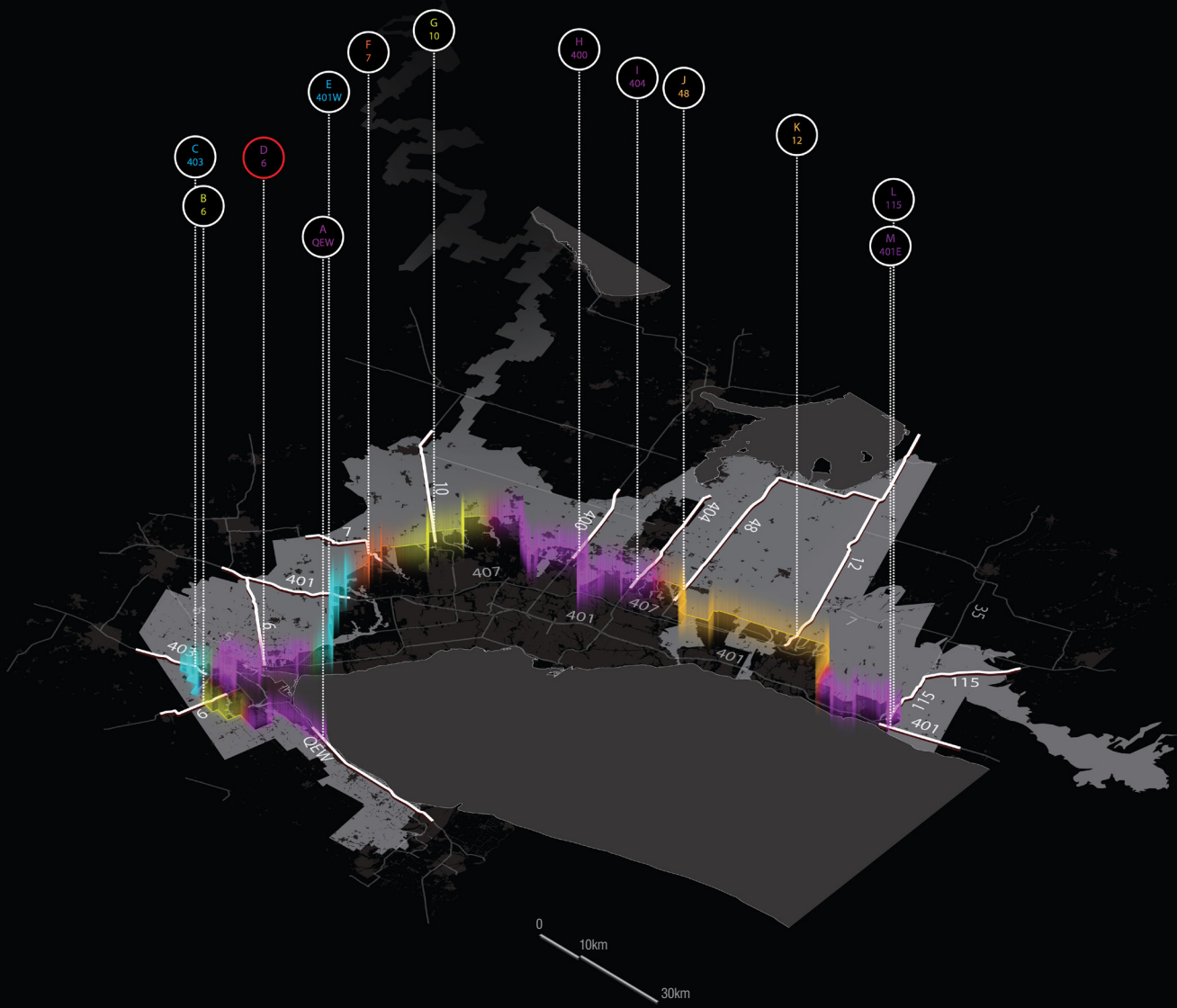
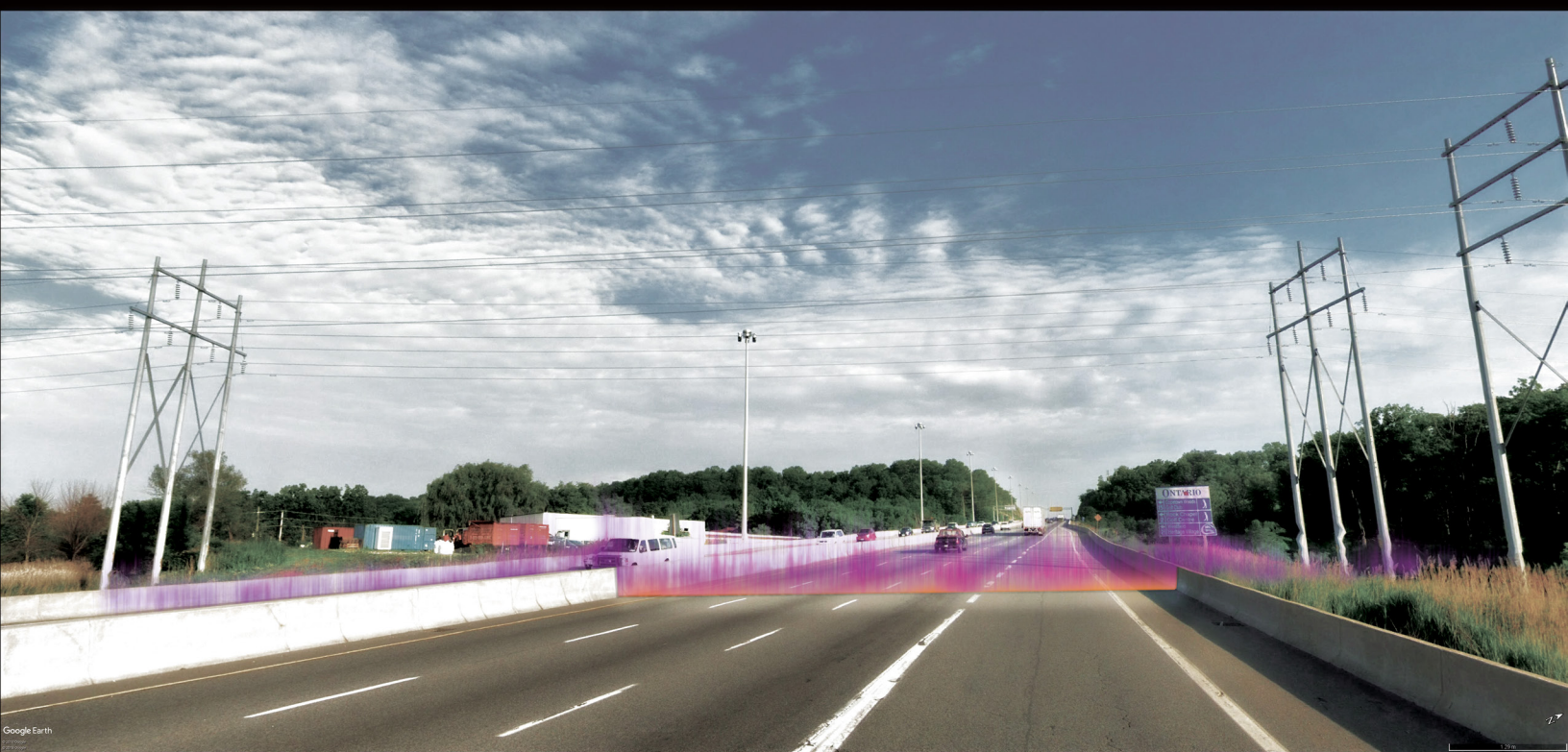


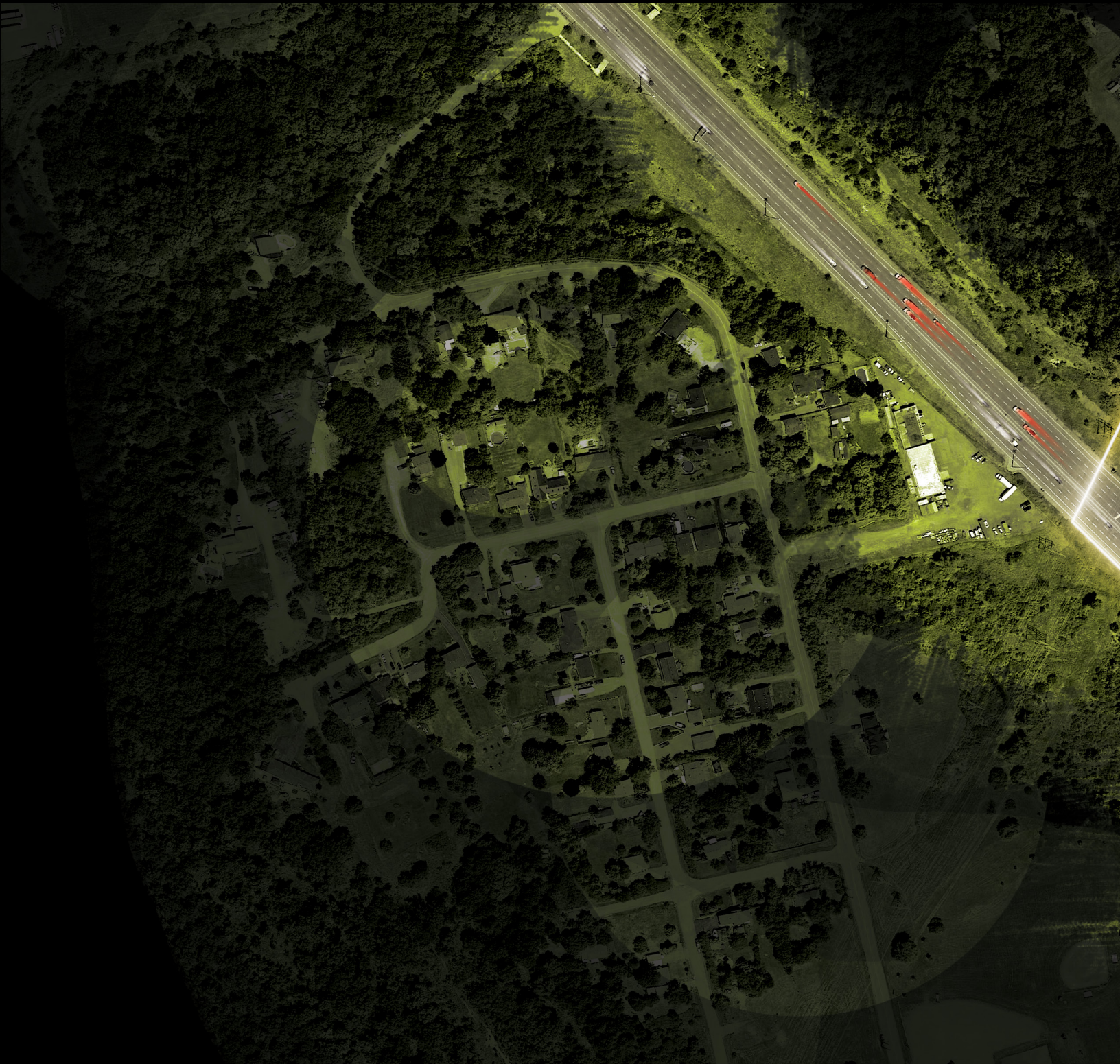
Fig 2.18. D: Highway 6





*Fig 2.19. Crossing the Greenbelt Line in Highway 6*







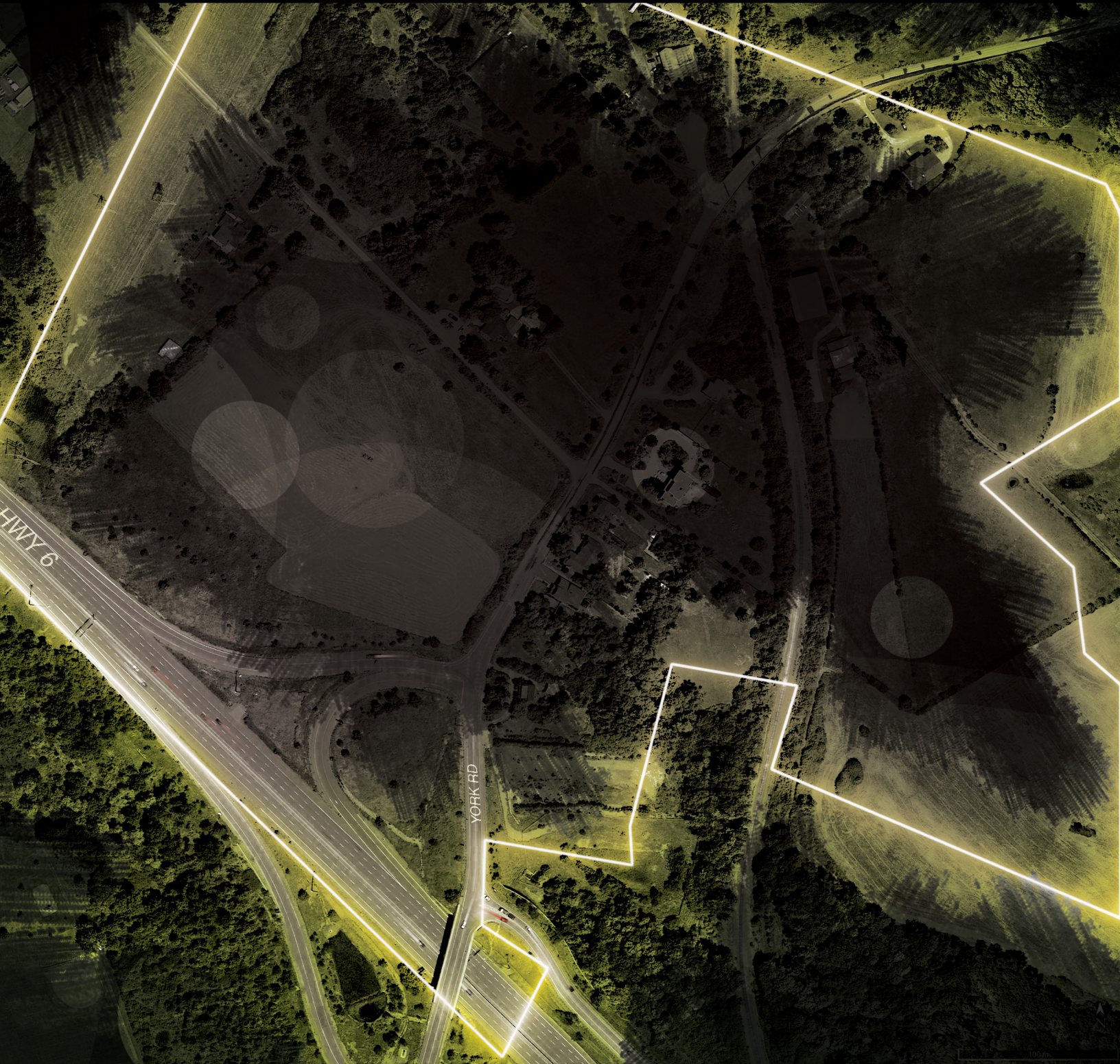


Fig 2.20. Highway 6 vs Greenbelt Frontier



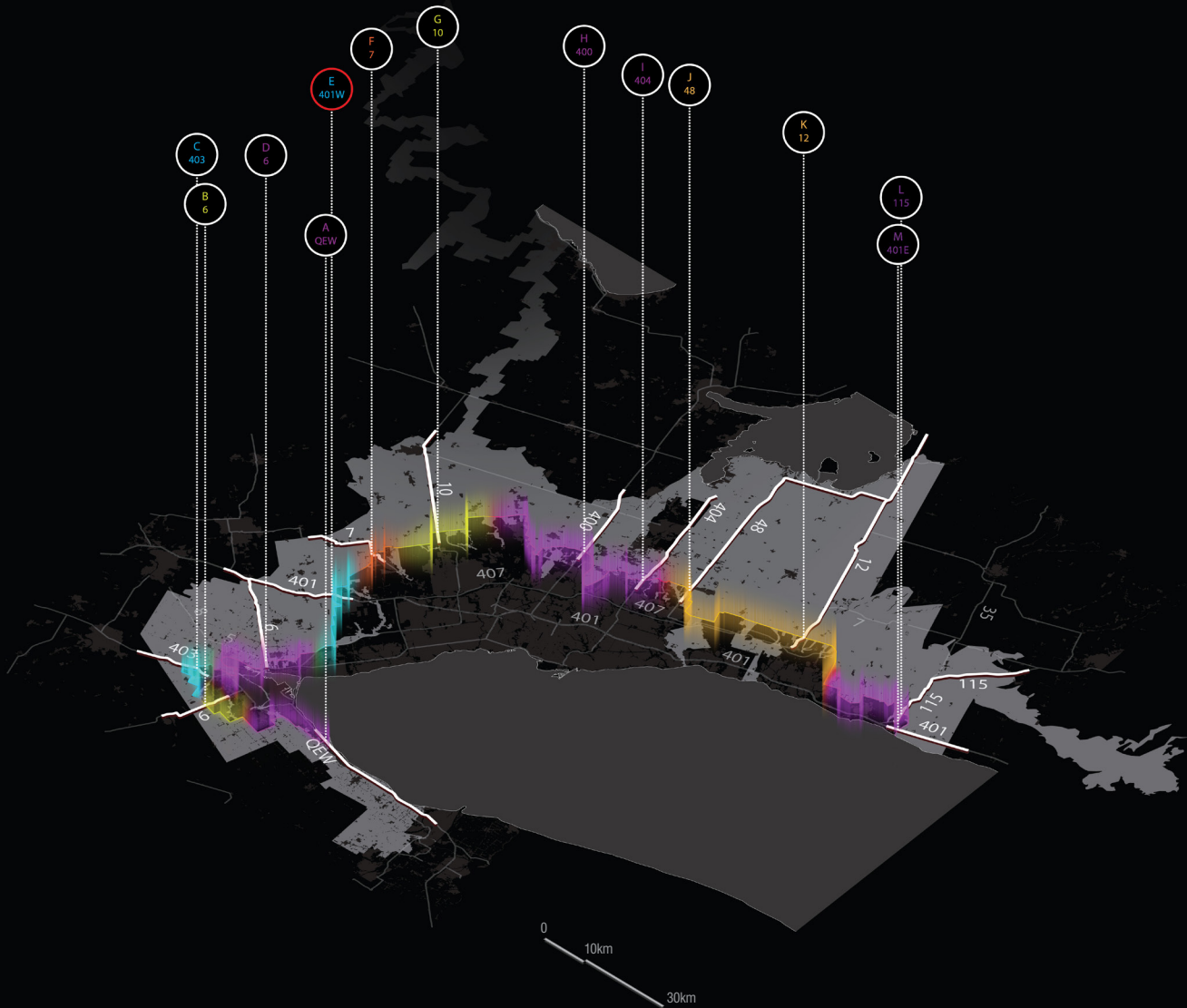
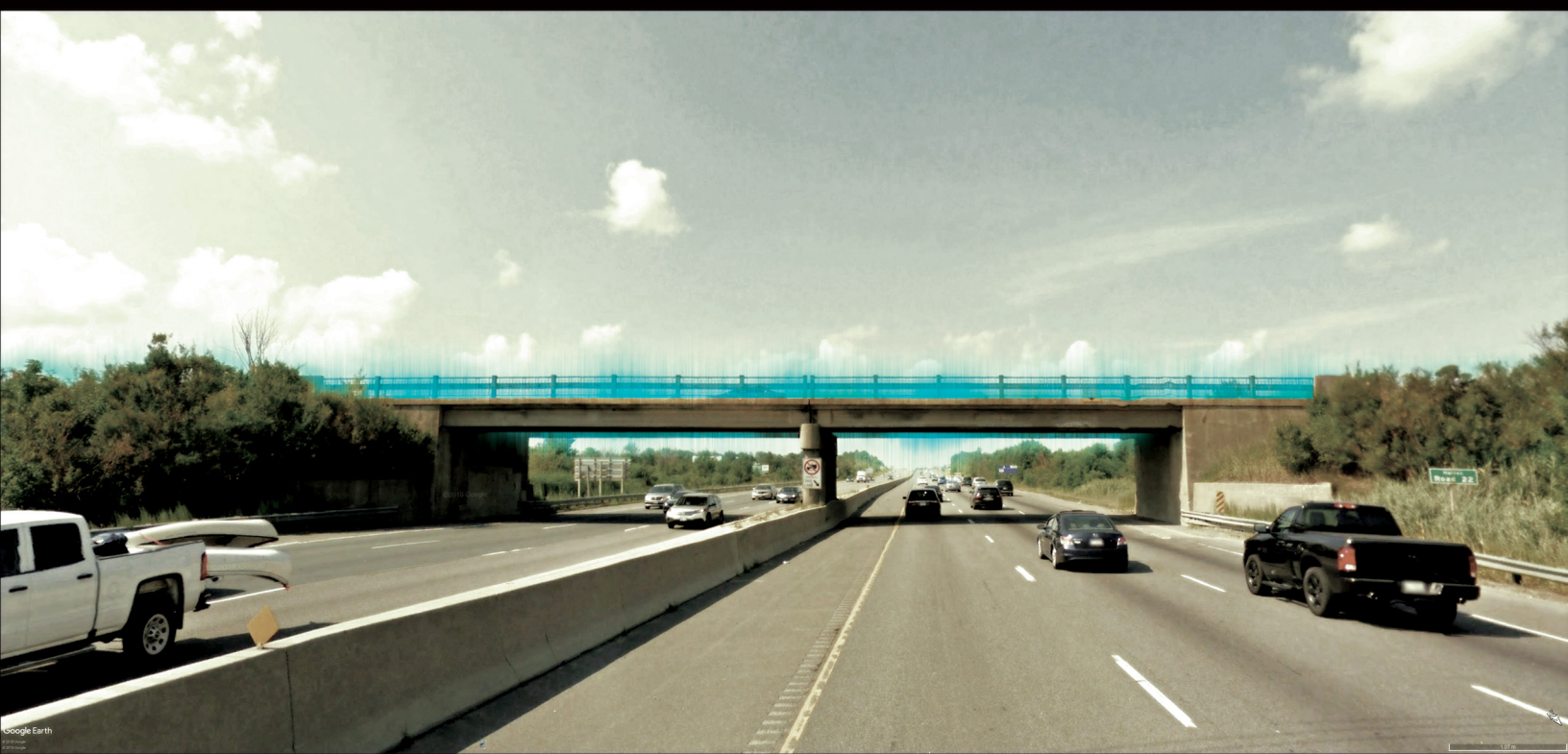
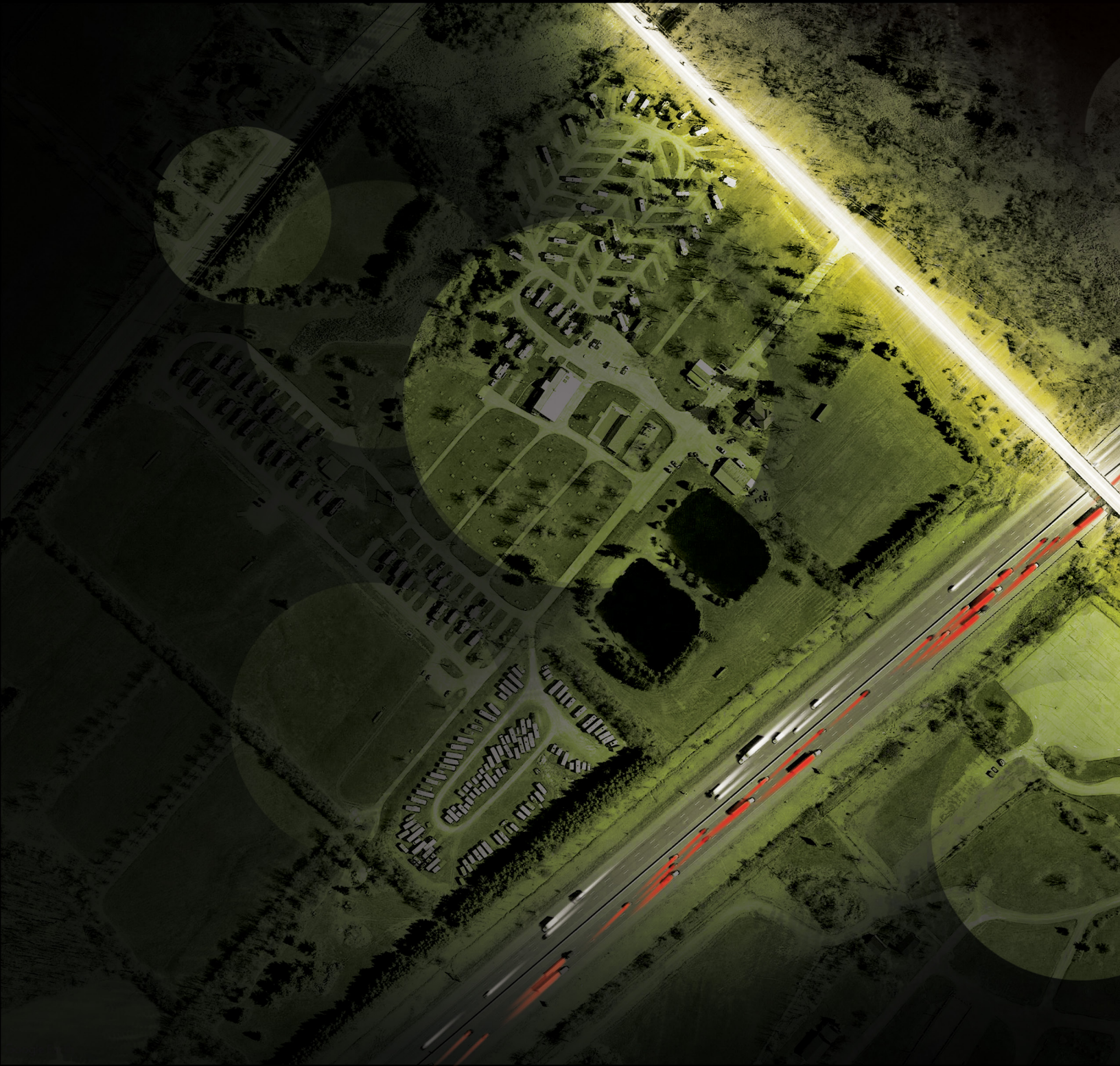


Fig 2.21. E: Highway 401 (West)



*Fig 2.22. Crossing the Greenbelt Line in 401 (West)*







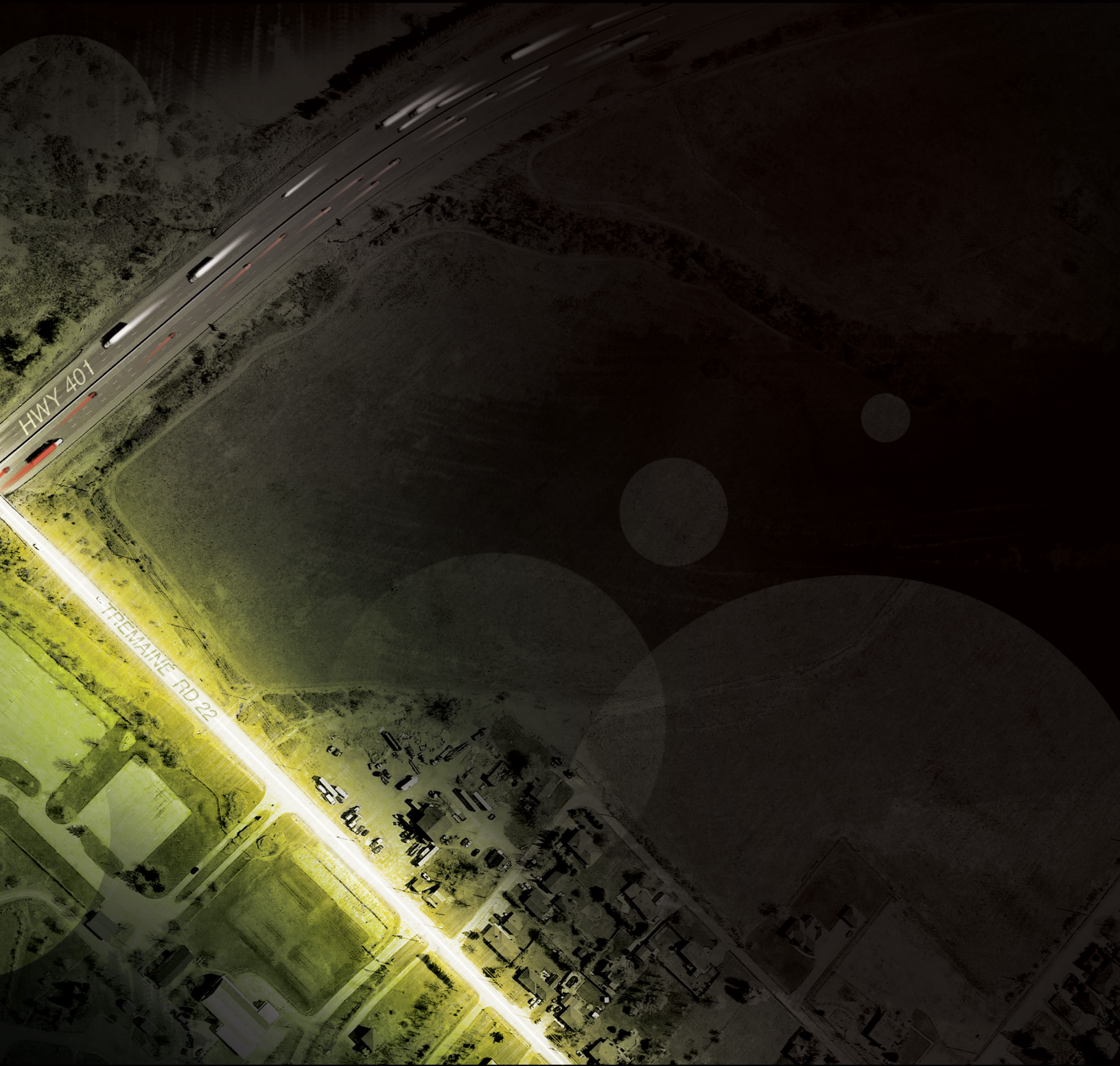


Fig 2.23. 401 (West) vs Greenbelt Frontier

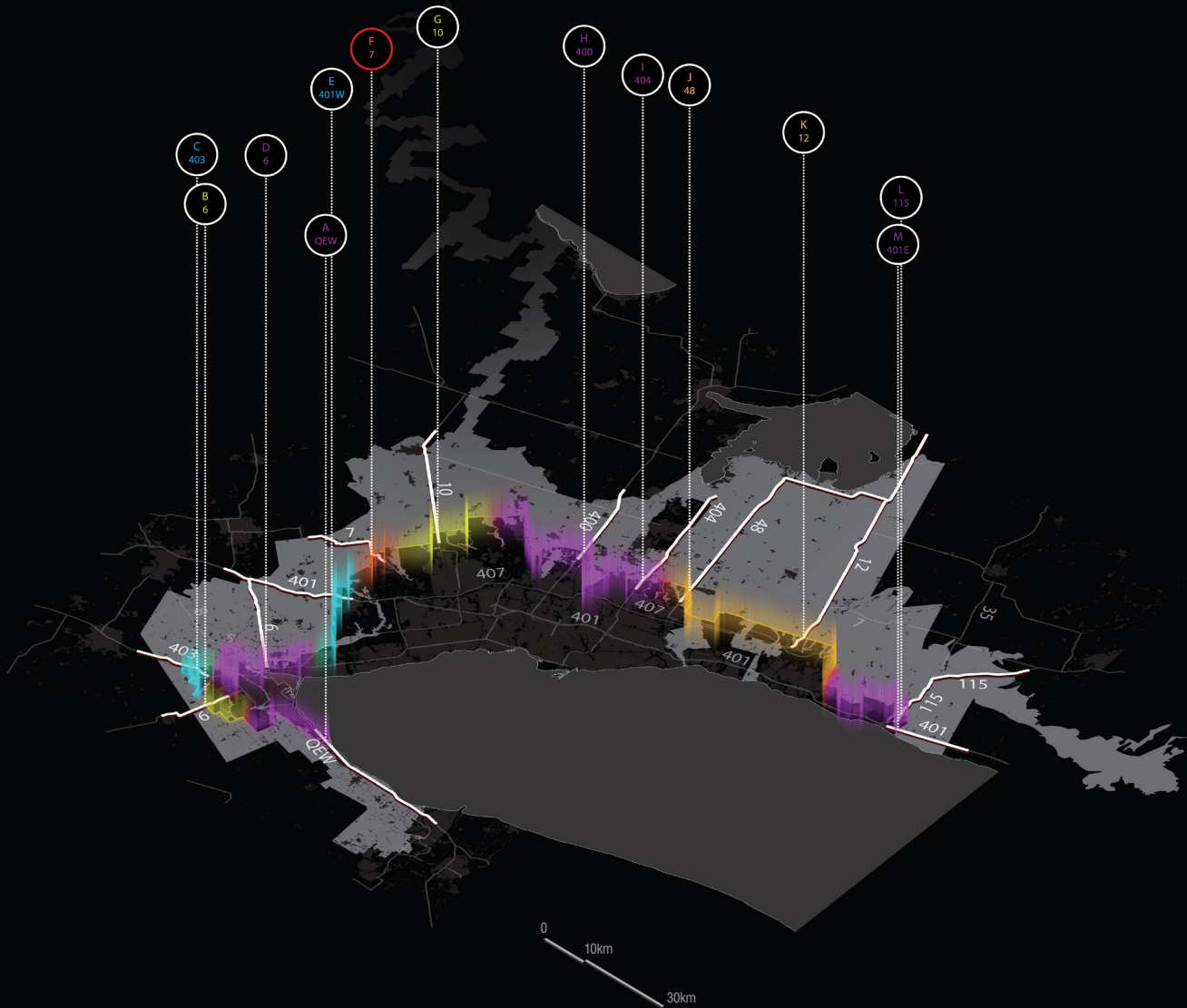


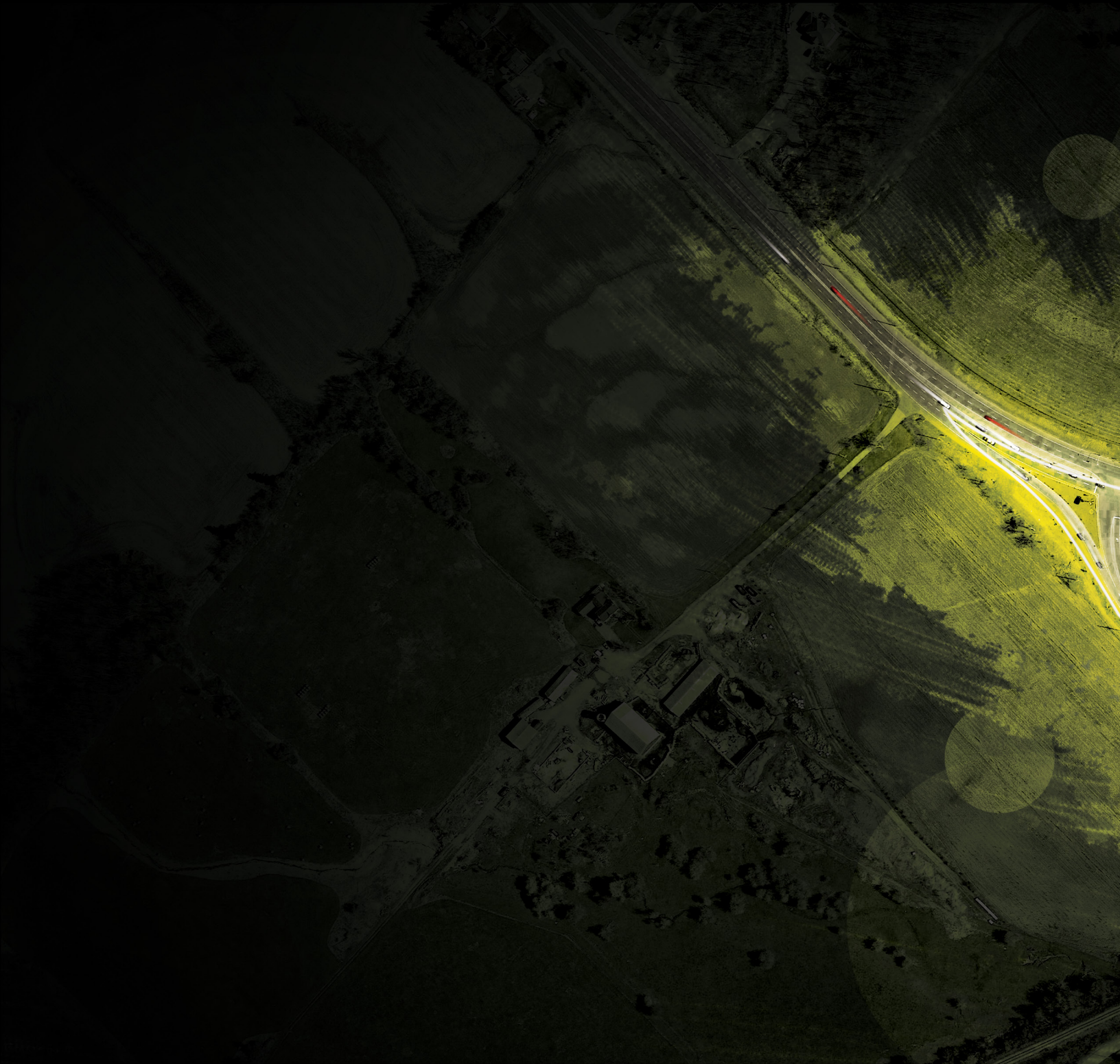
Fig 2.24. F: Highway 7





*Fig 2.25. Crossing the Greenbelt Line in Highway 7*







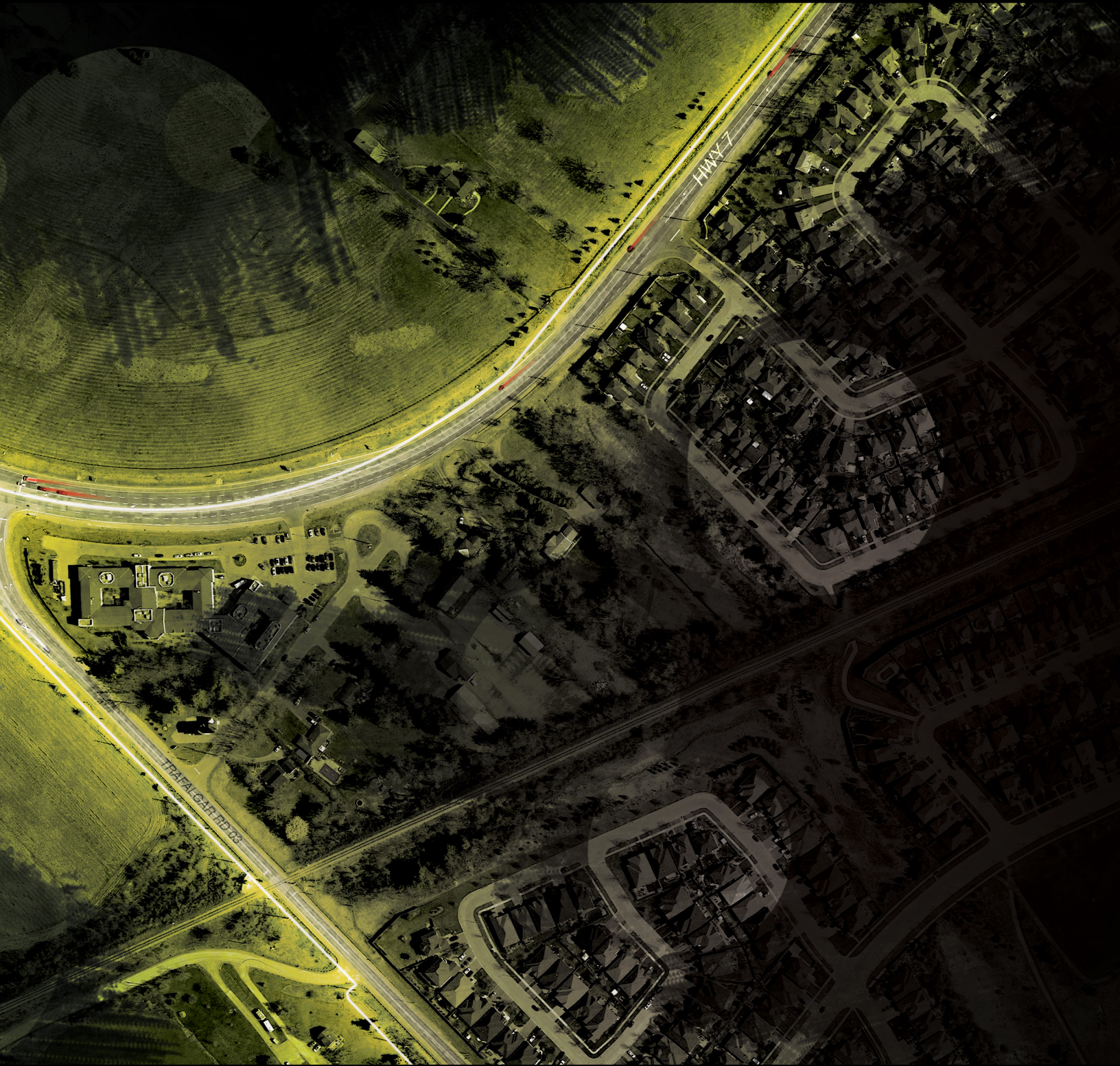


Fig 2.26. Highway 7 vs Greenbelt Frontier



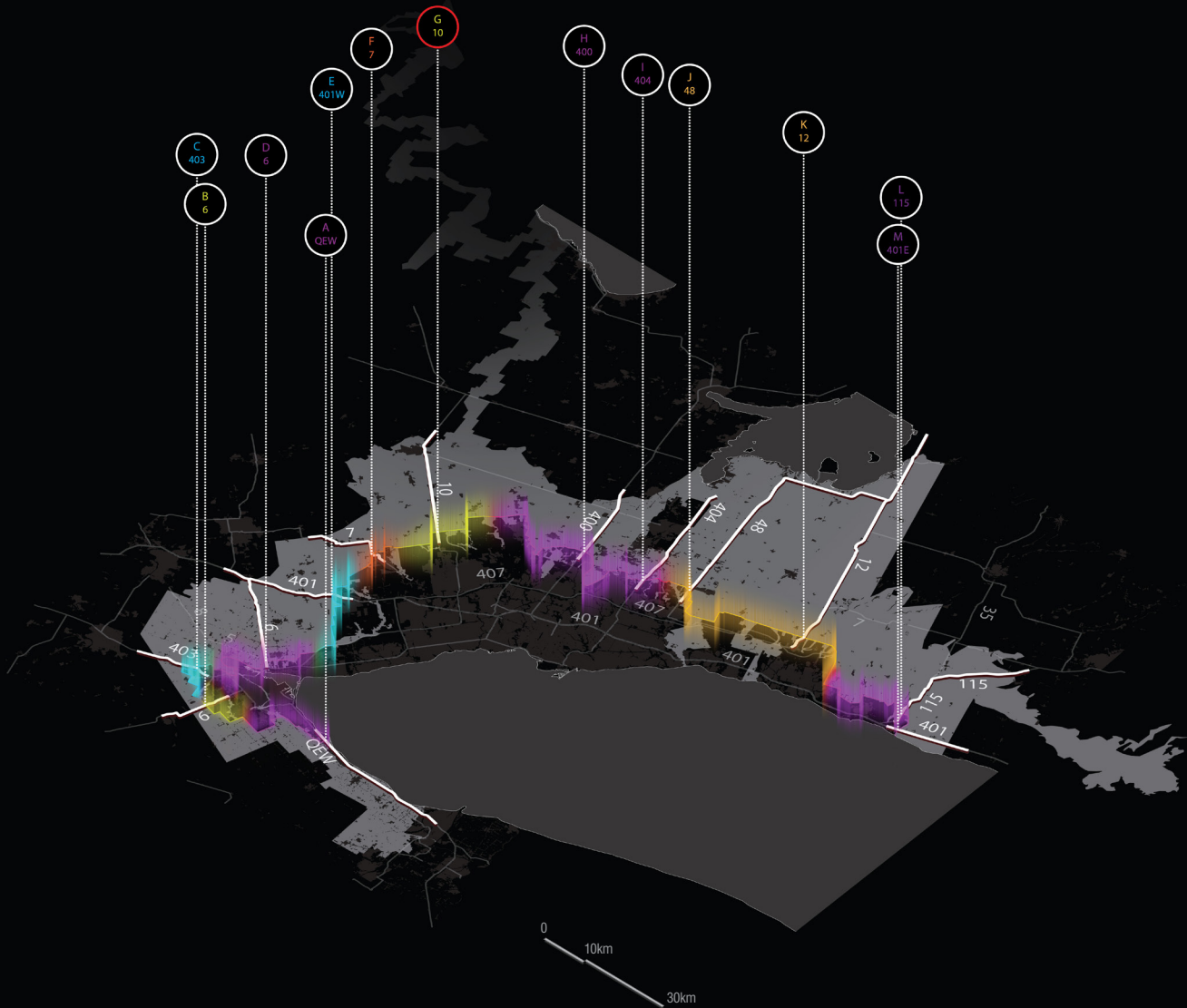


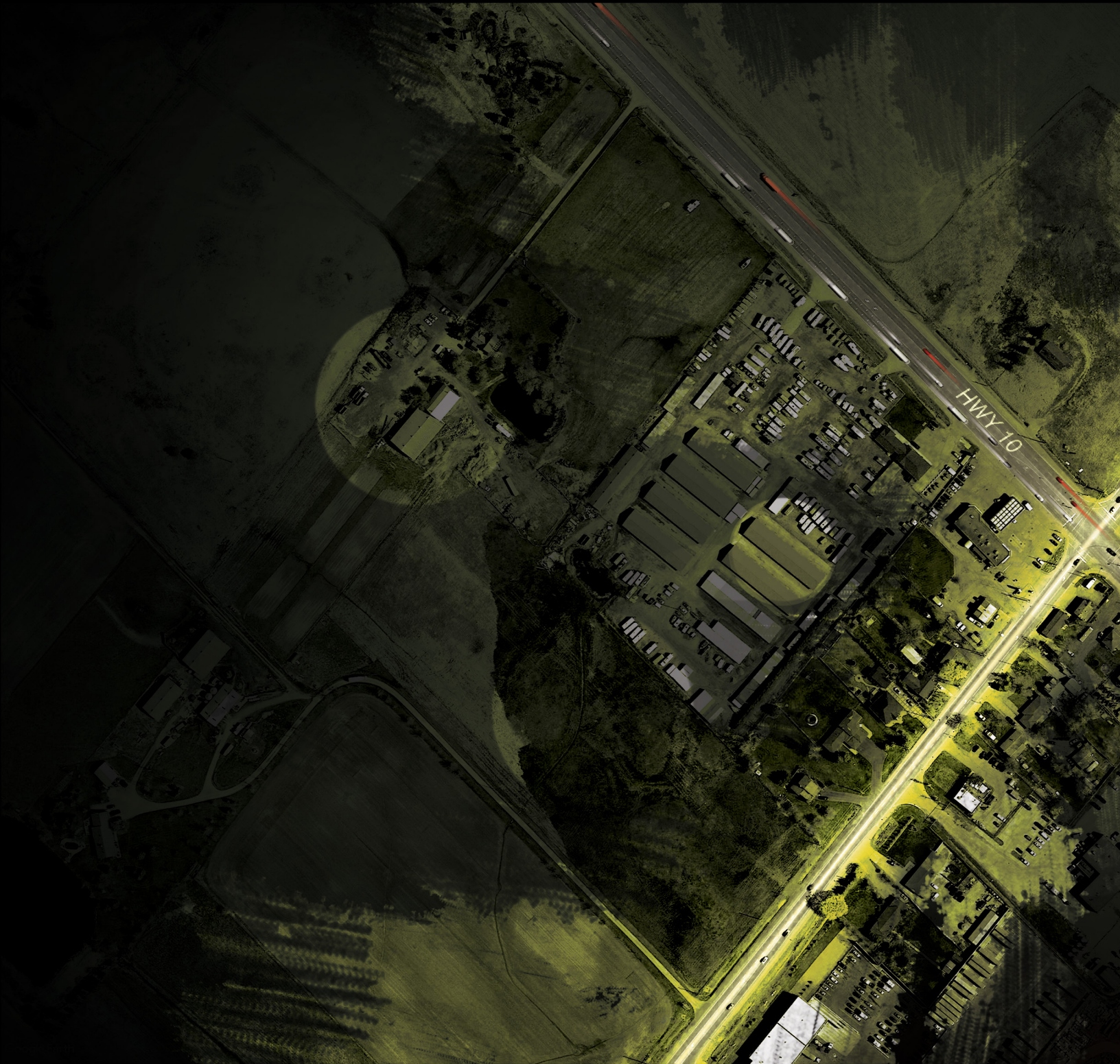
Fig 2.27. G: Highway 10



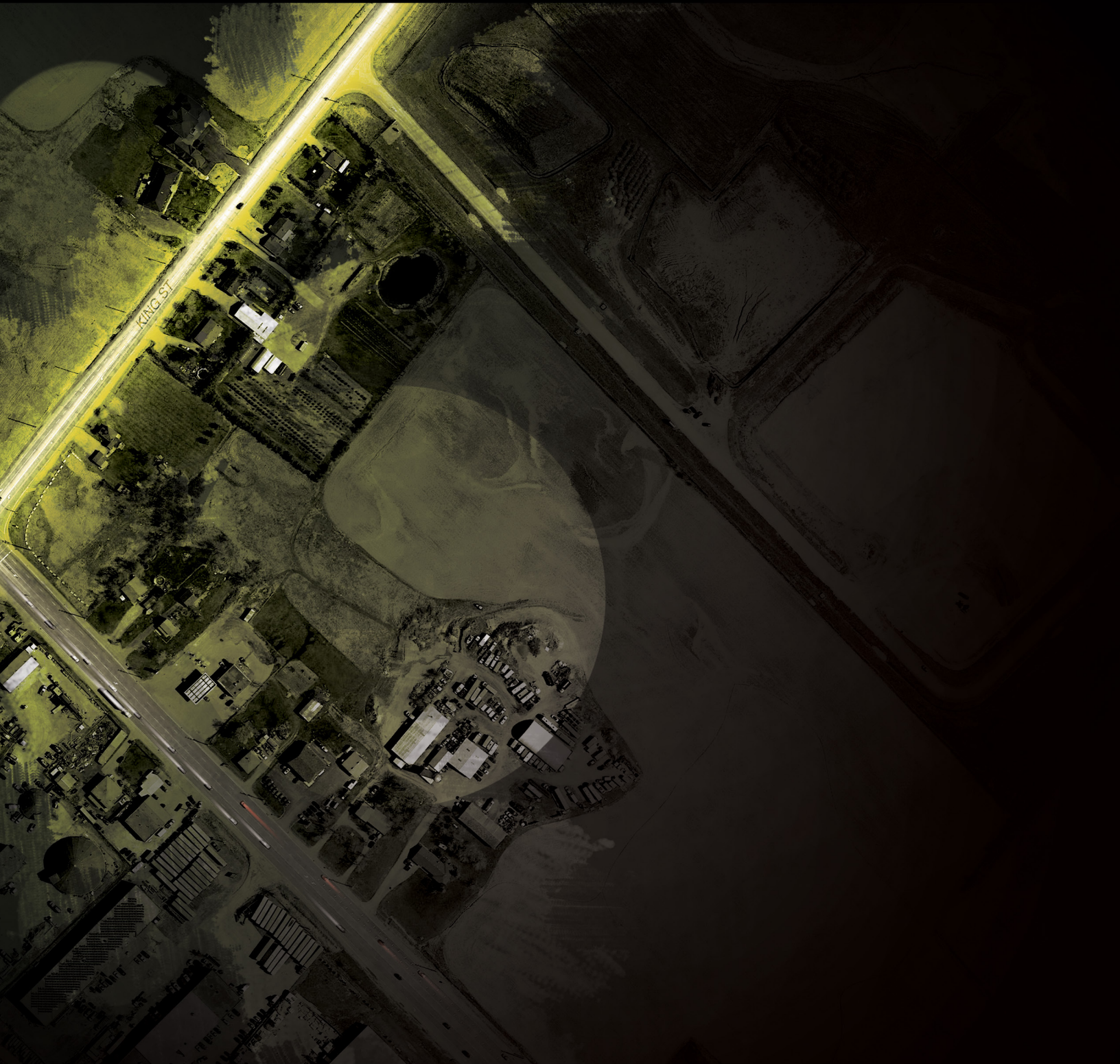


*Fig 2.28. Crossing the Greenbelt Line in Highway 10*









*Fig 2.29. Highway 10 vs Greenbelt Frontier*



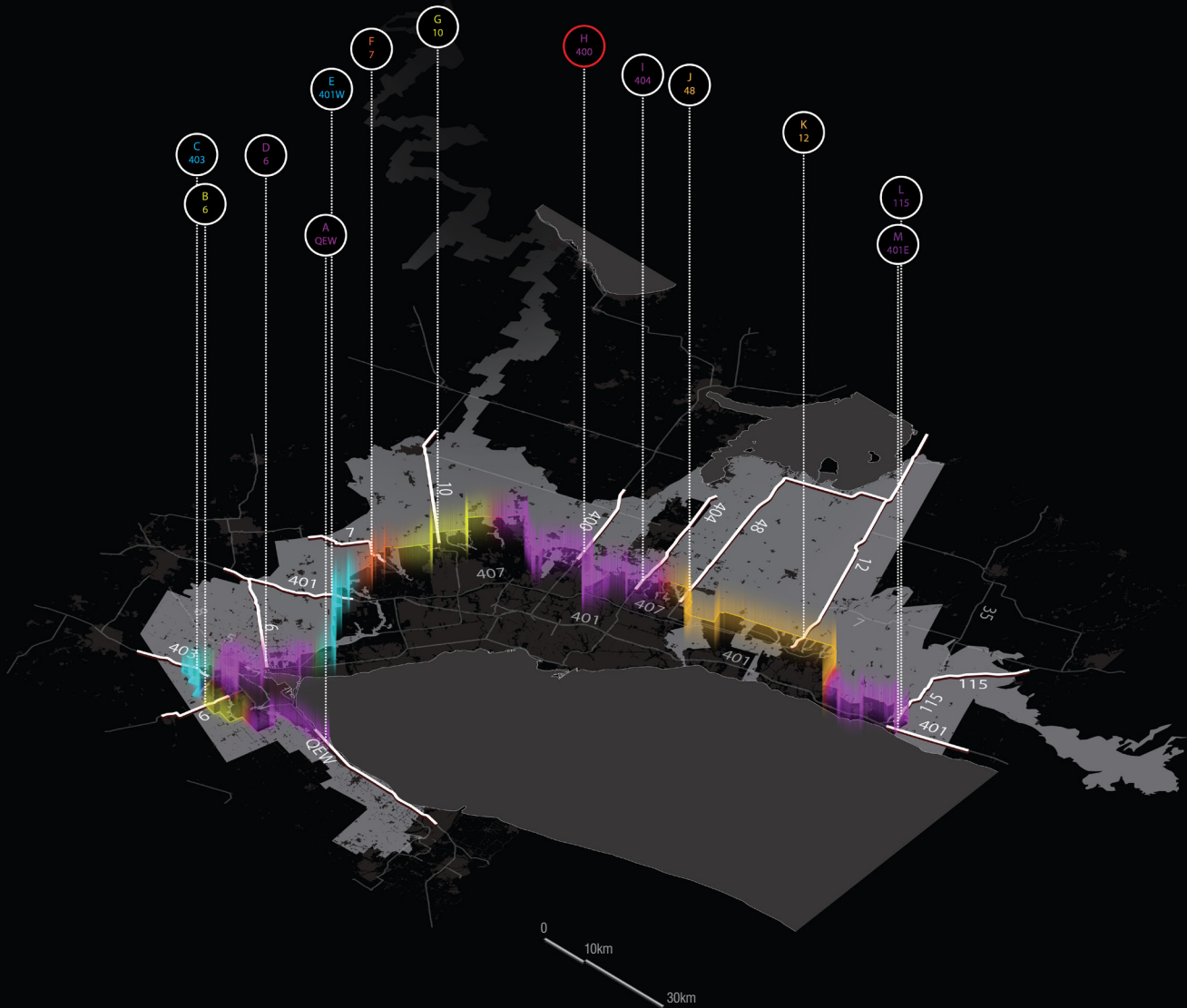
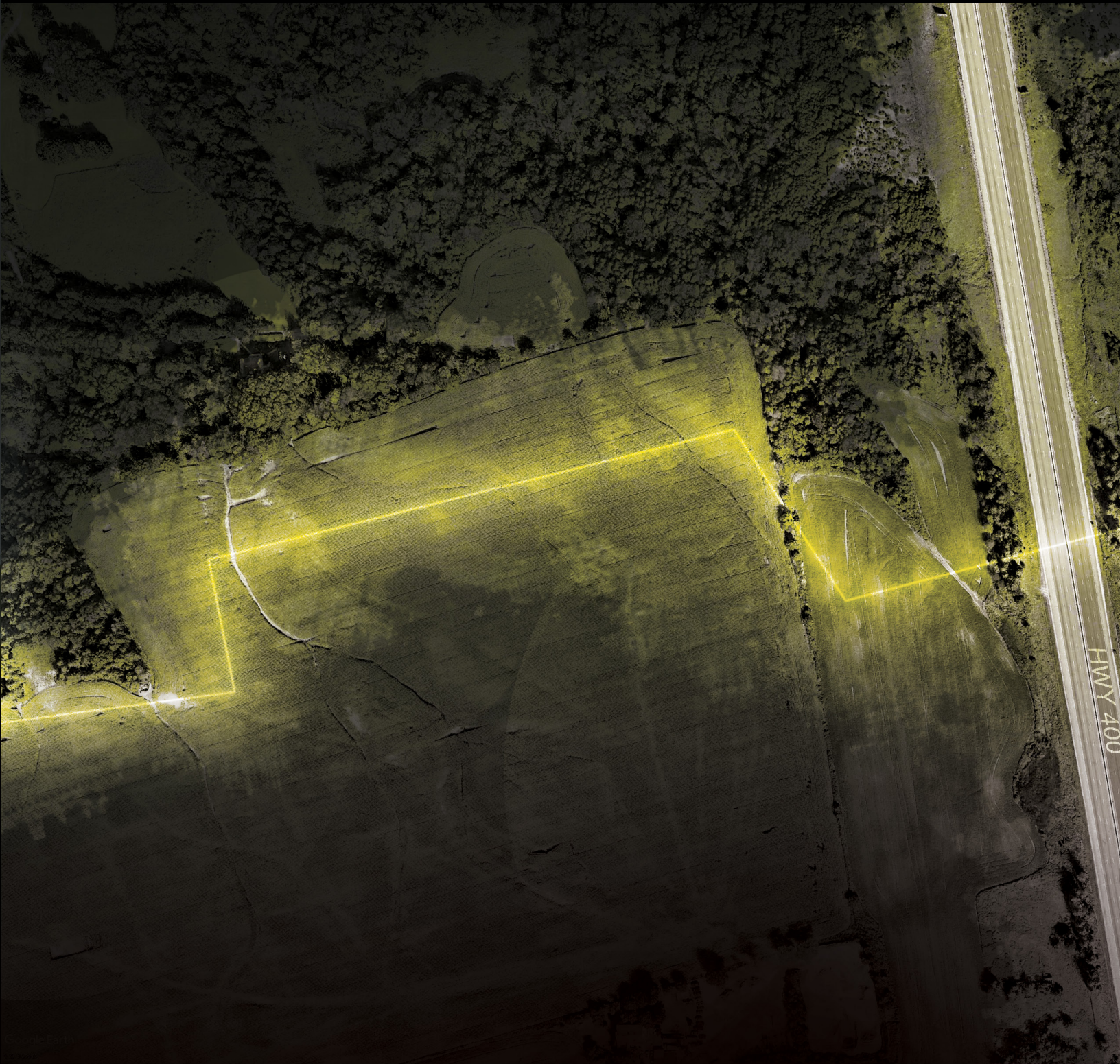


Fig 2.30. H: Highway 400

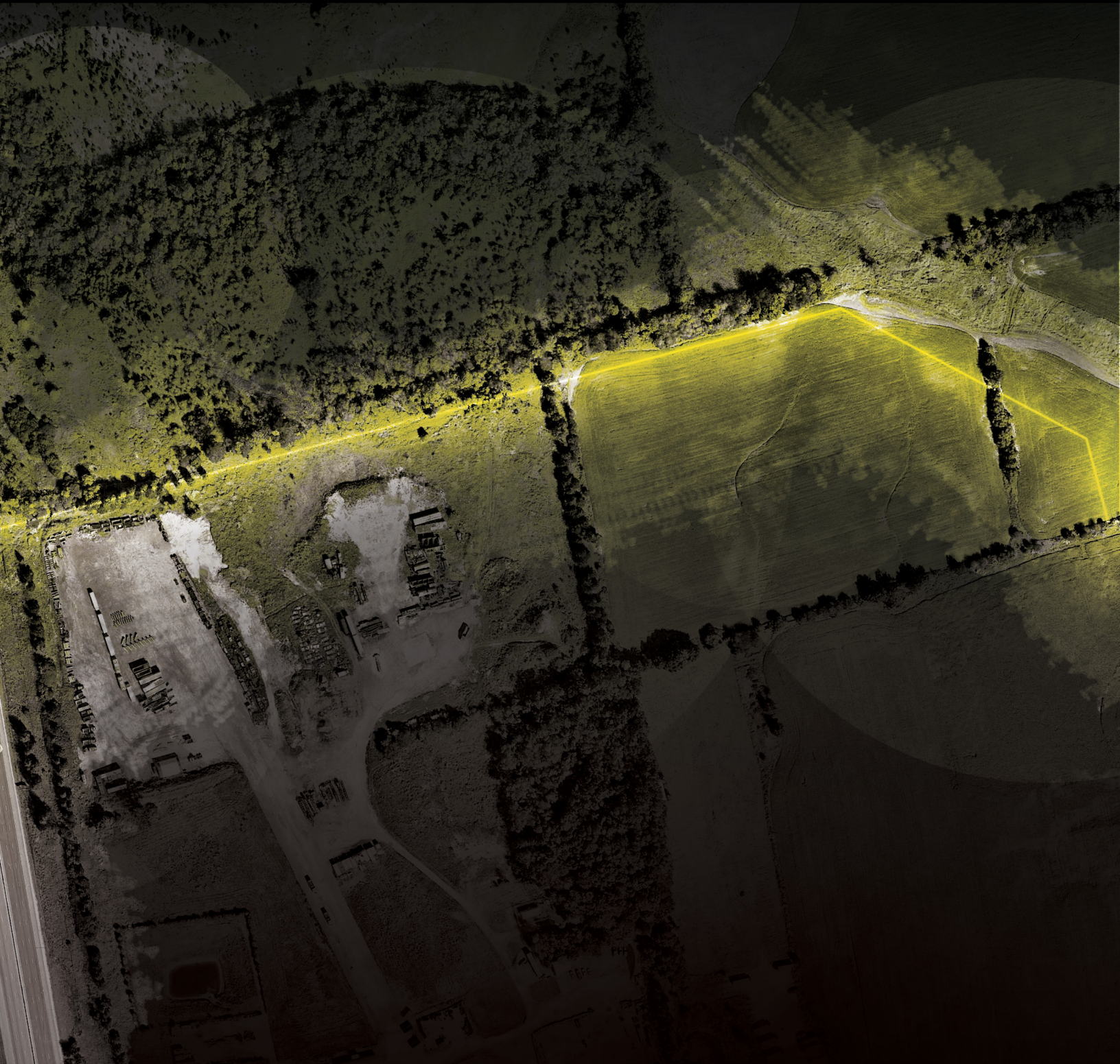


*Fig 2.31. Crossing the Greenbelt Line in the 400*









*Fig 2.32. 400 vs Greenbelt Frontier*



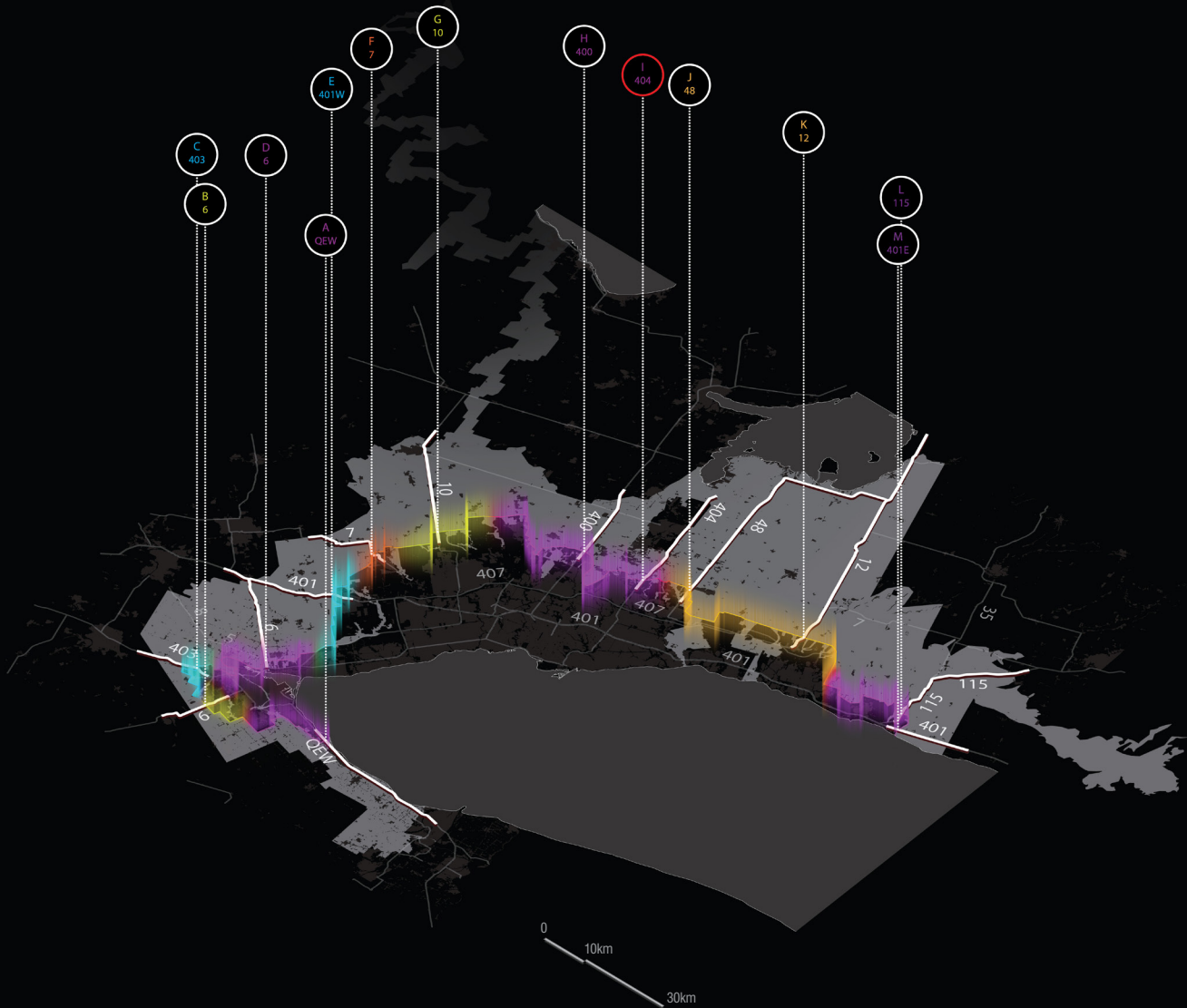


Fig 2.33. I: Highway 404



Fig 2.34. Crossing the Greenbelt Line in the 404









Fig 2.35. 404 vs Greenbelt Frontier

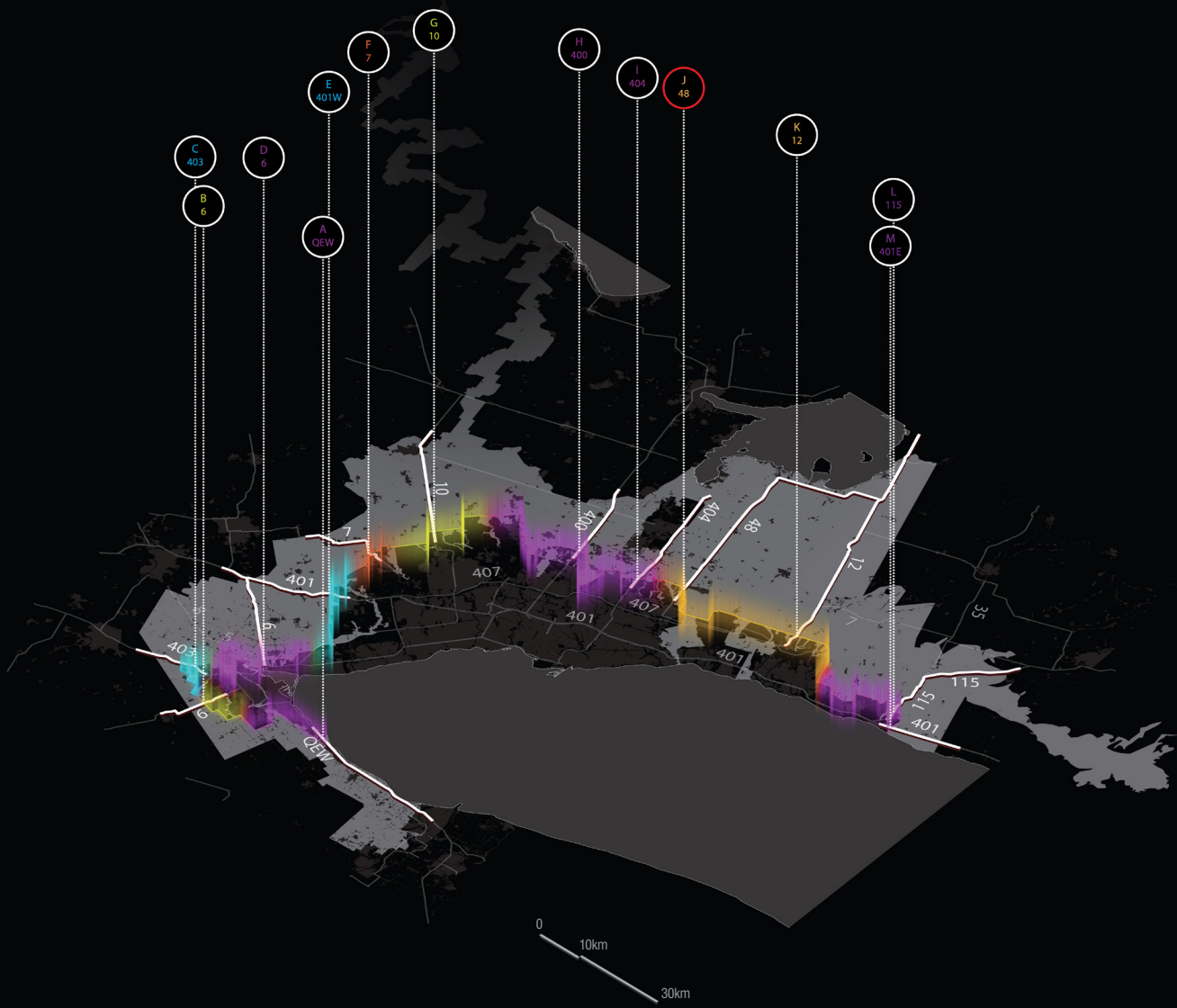


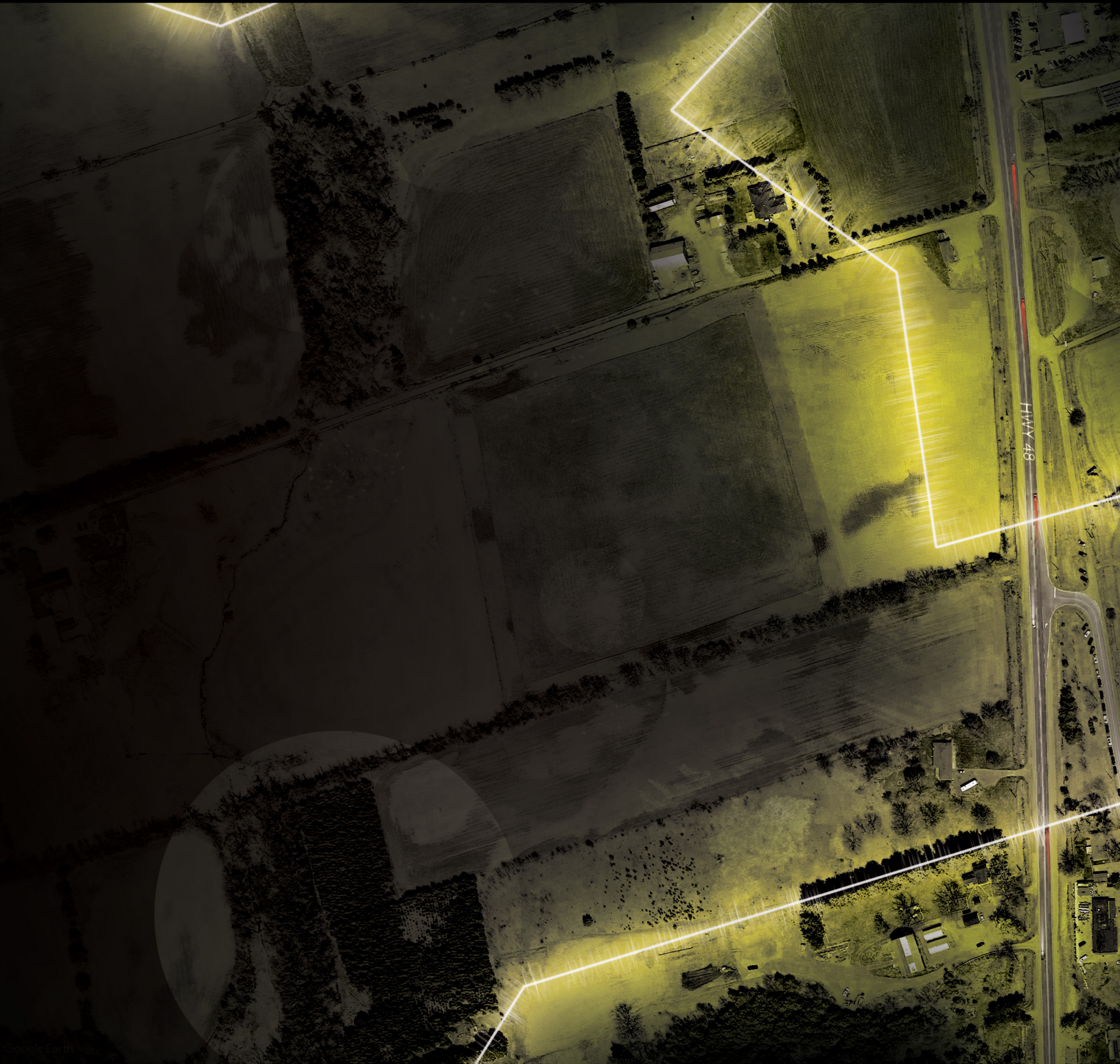
Fig 2.36. J: Highway 48



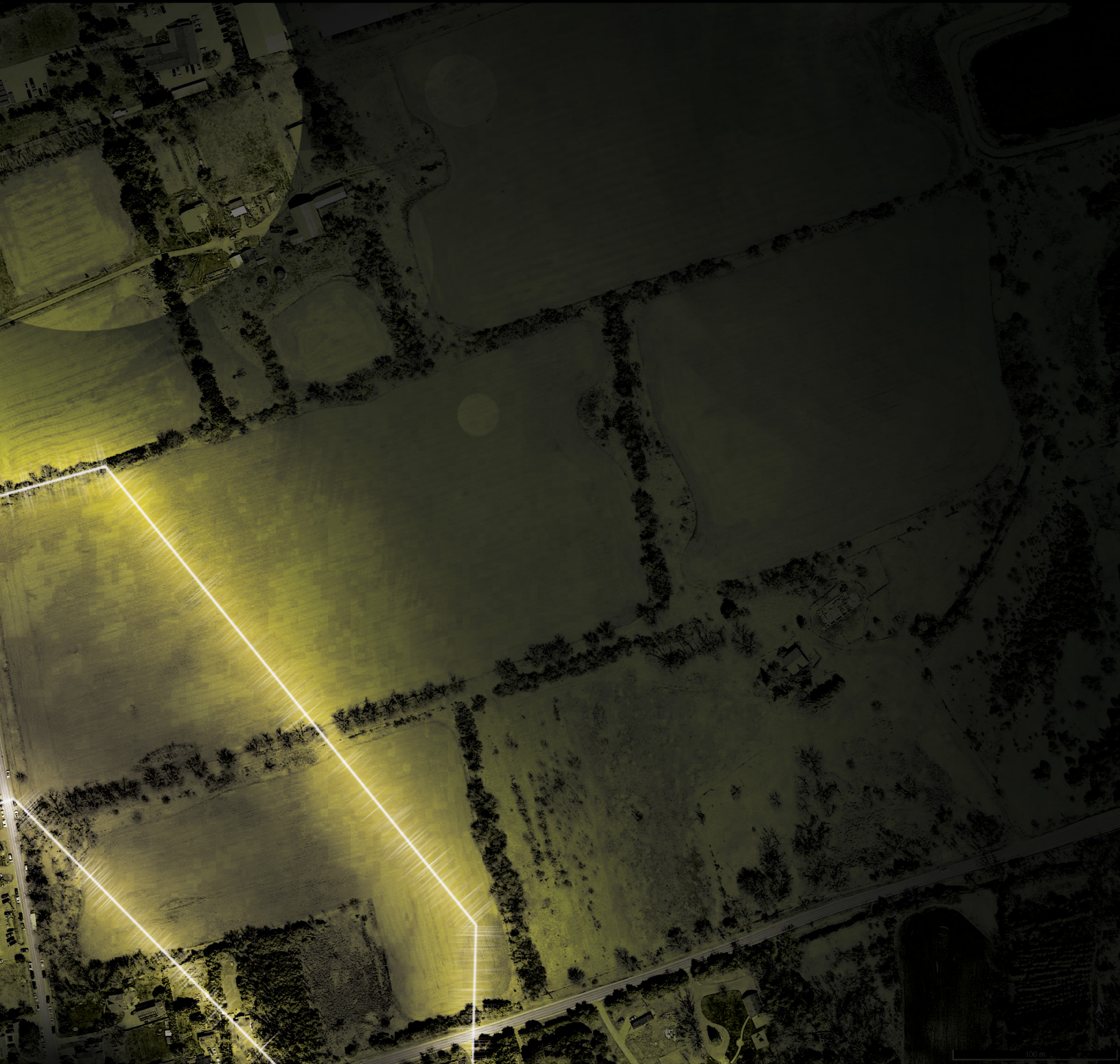


*Fig 2.37. Crossing the Greenbelt Line in Highway 48*









*Fig 2.38. Highway 48 vs Greenbelt Frontier*



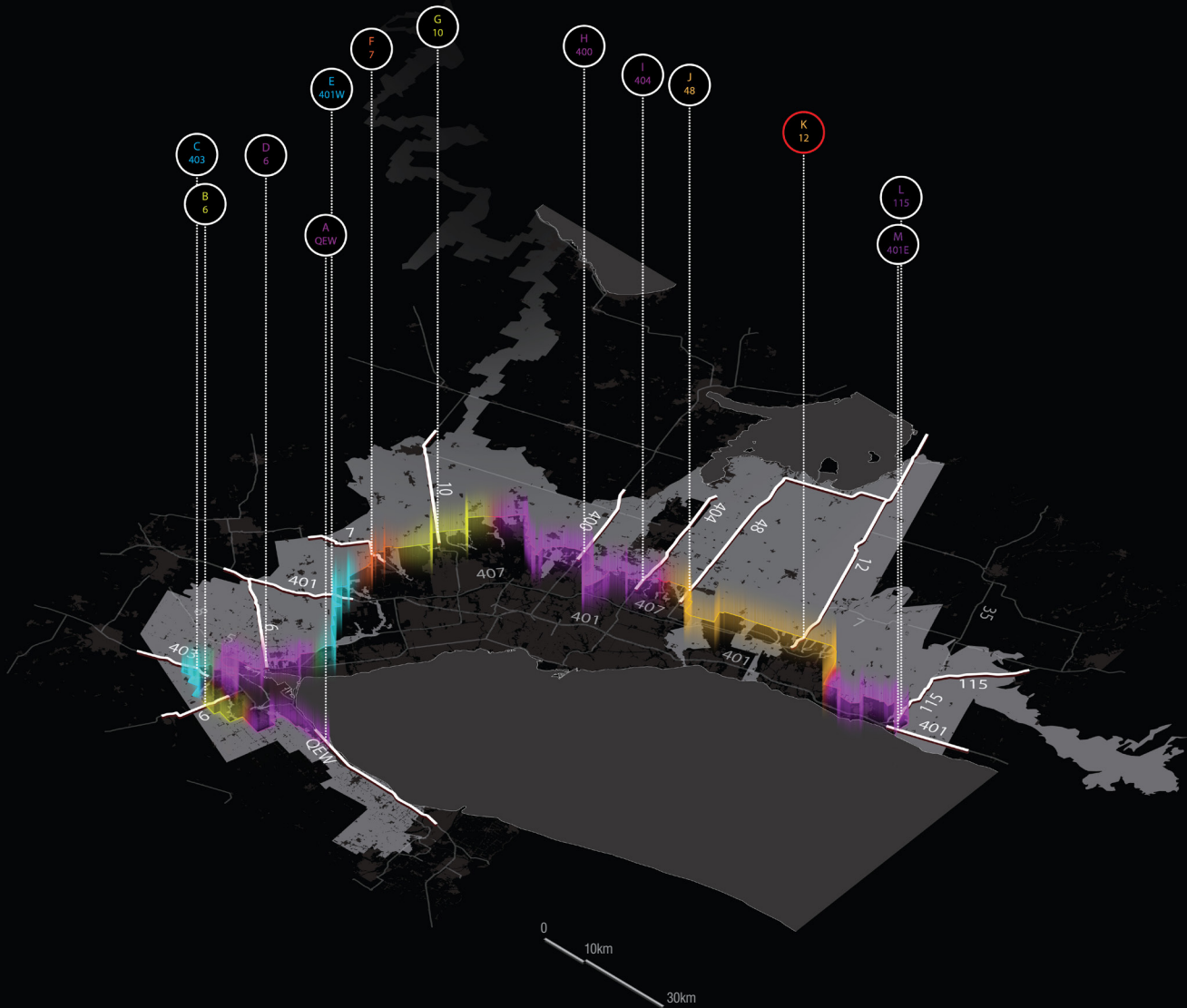
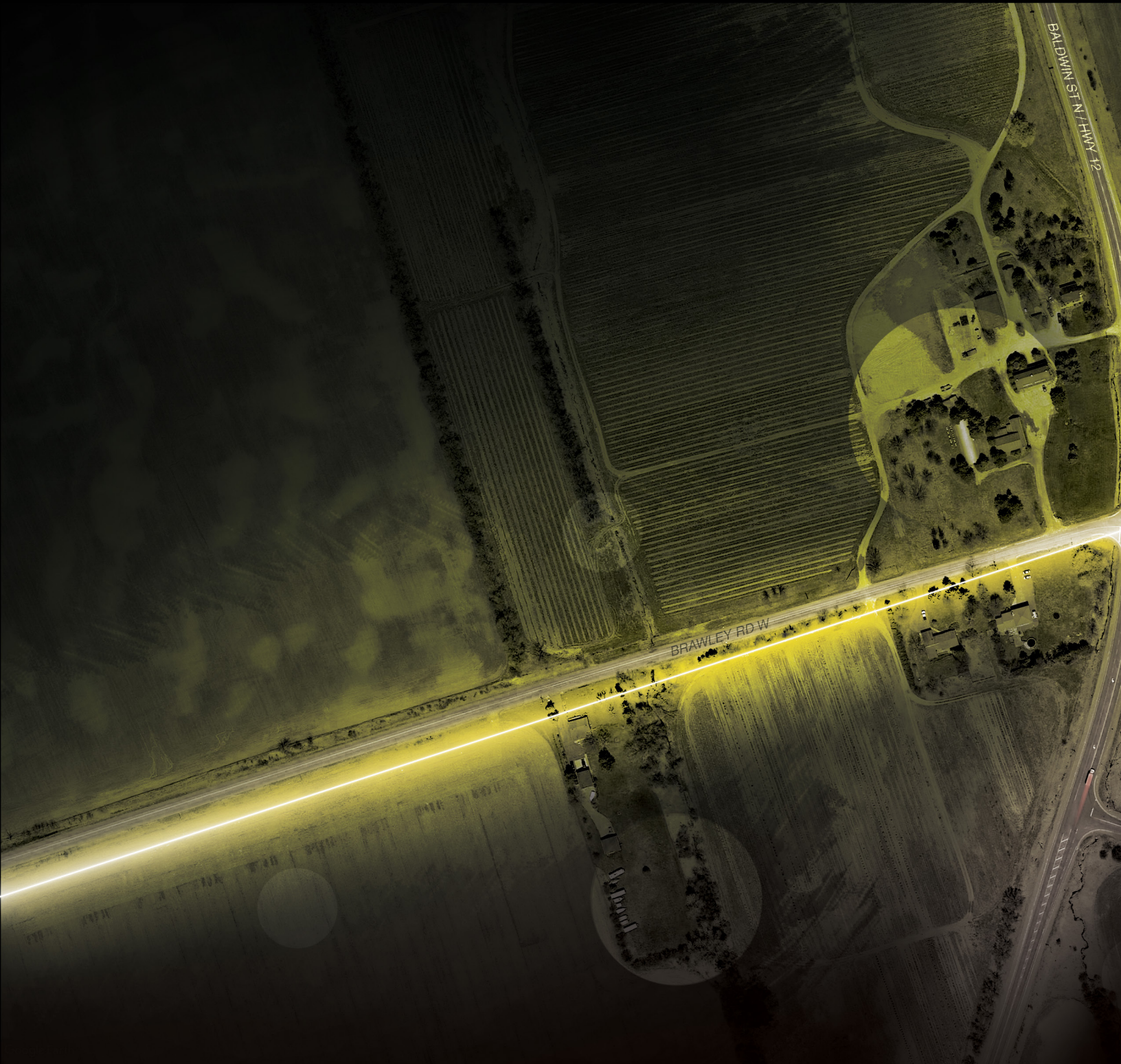


Fig 2.39. K: Highway 12

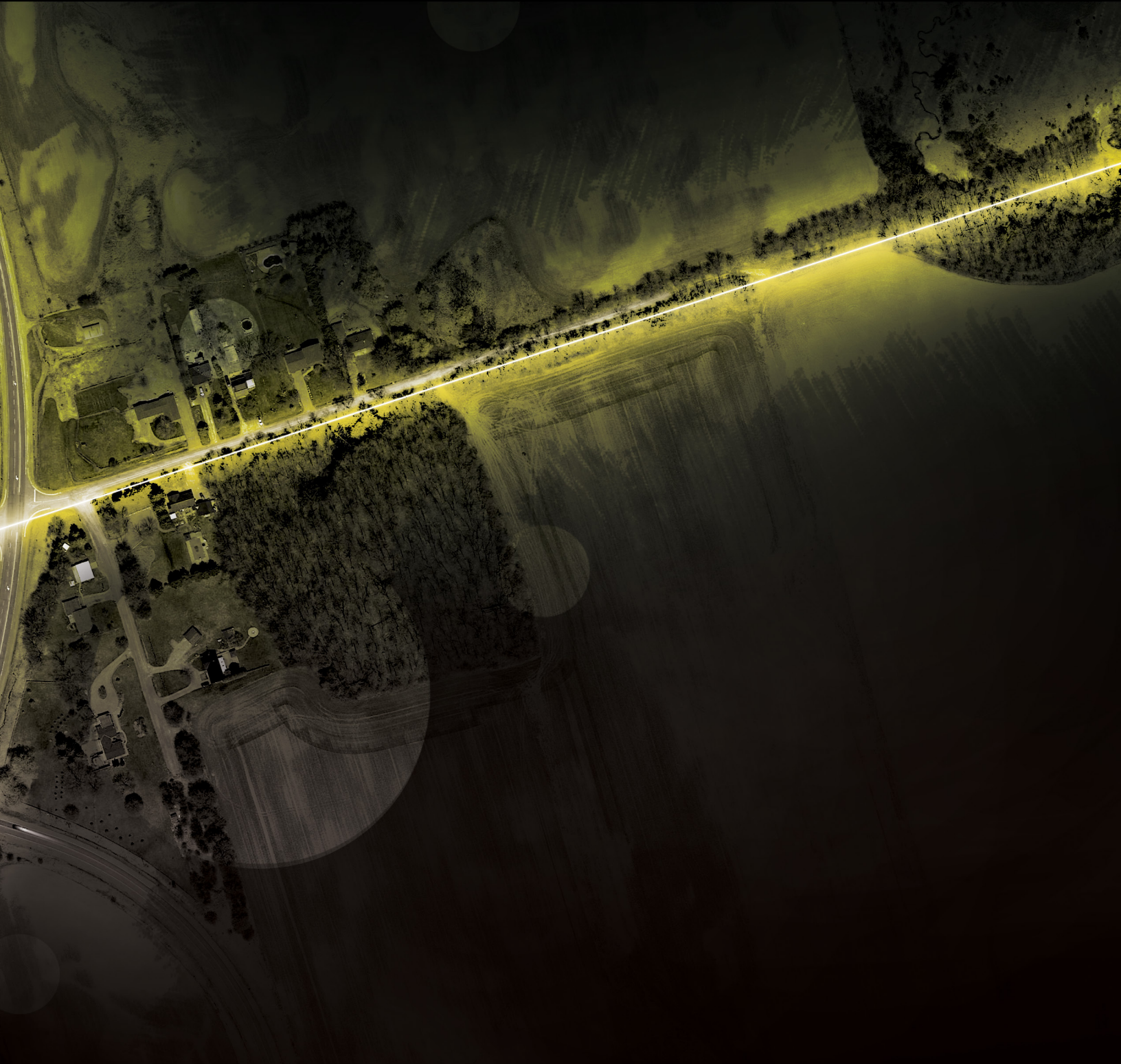


*Fig 2.40. Crossing the Greenbelt Line in Highway 12*









*Fig 2.41. Highway 12 vs Greenbelt Frontier*

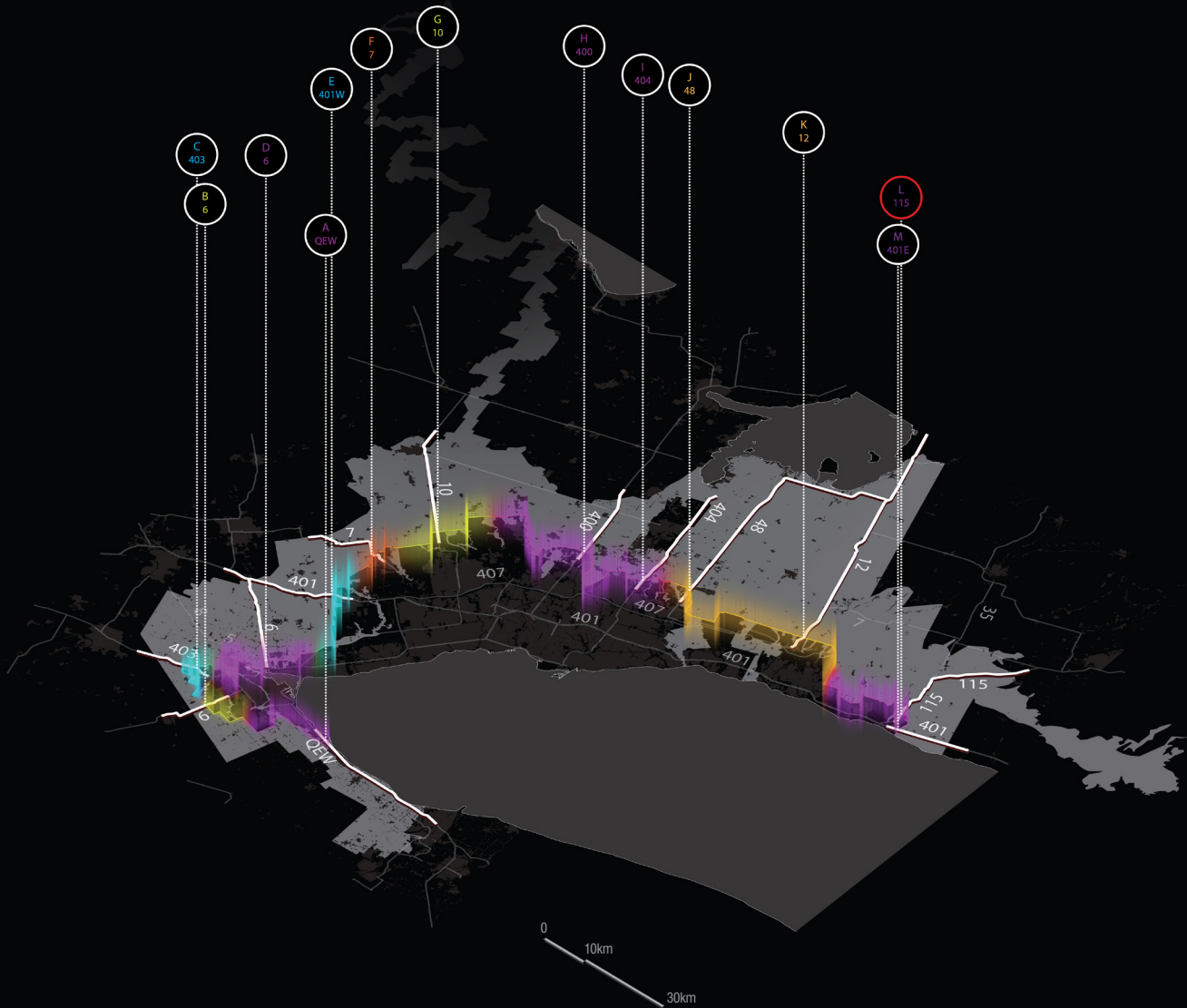


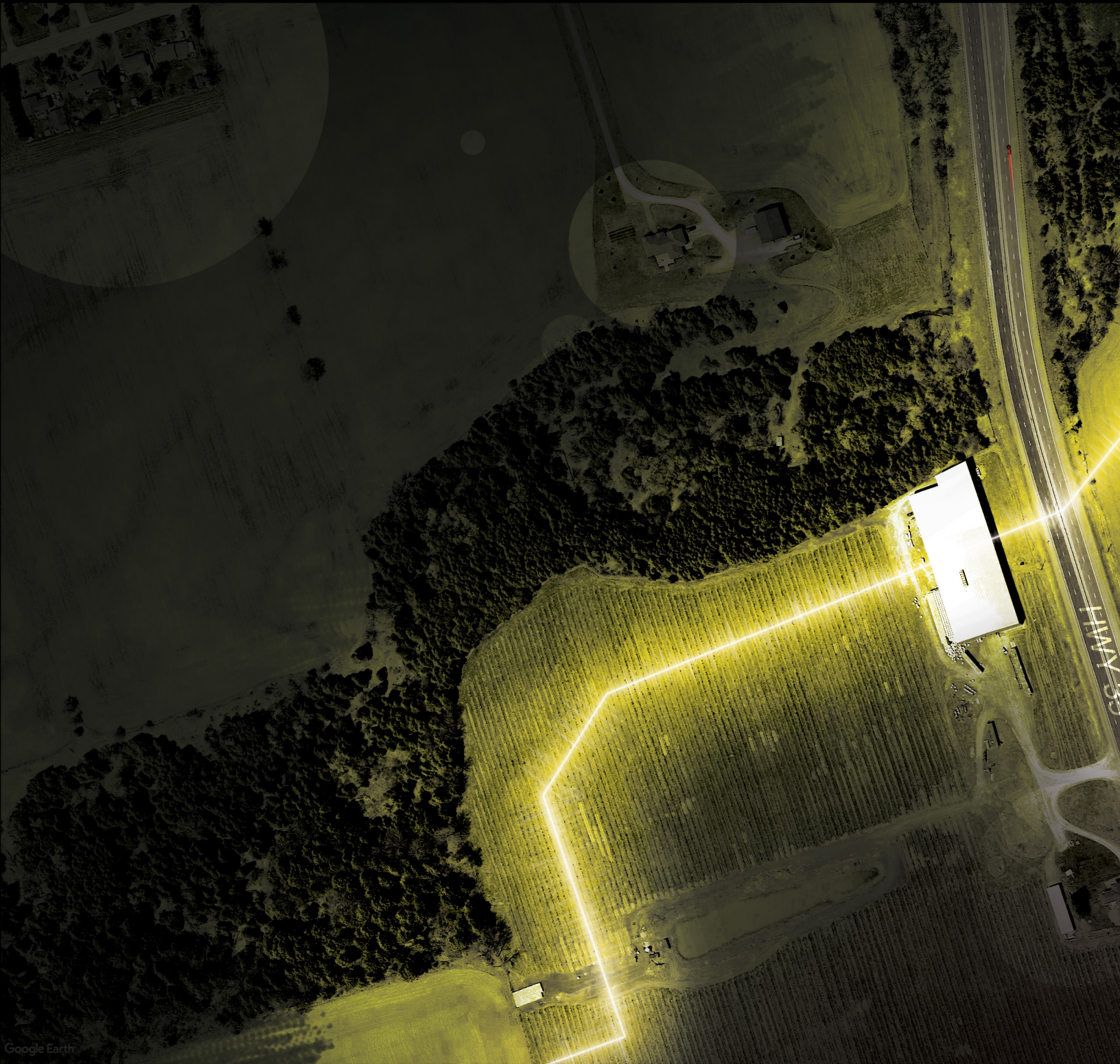
Fig 2.42. L: Highway 115





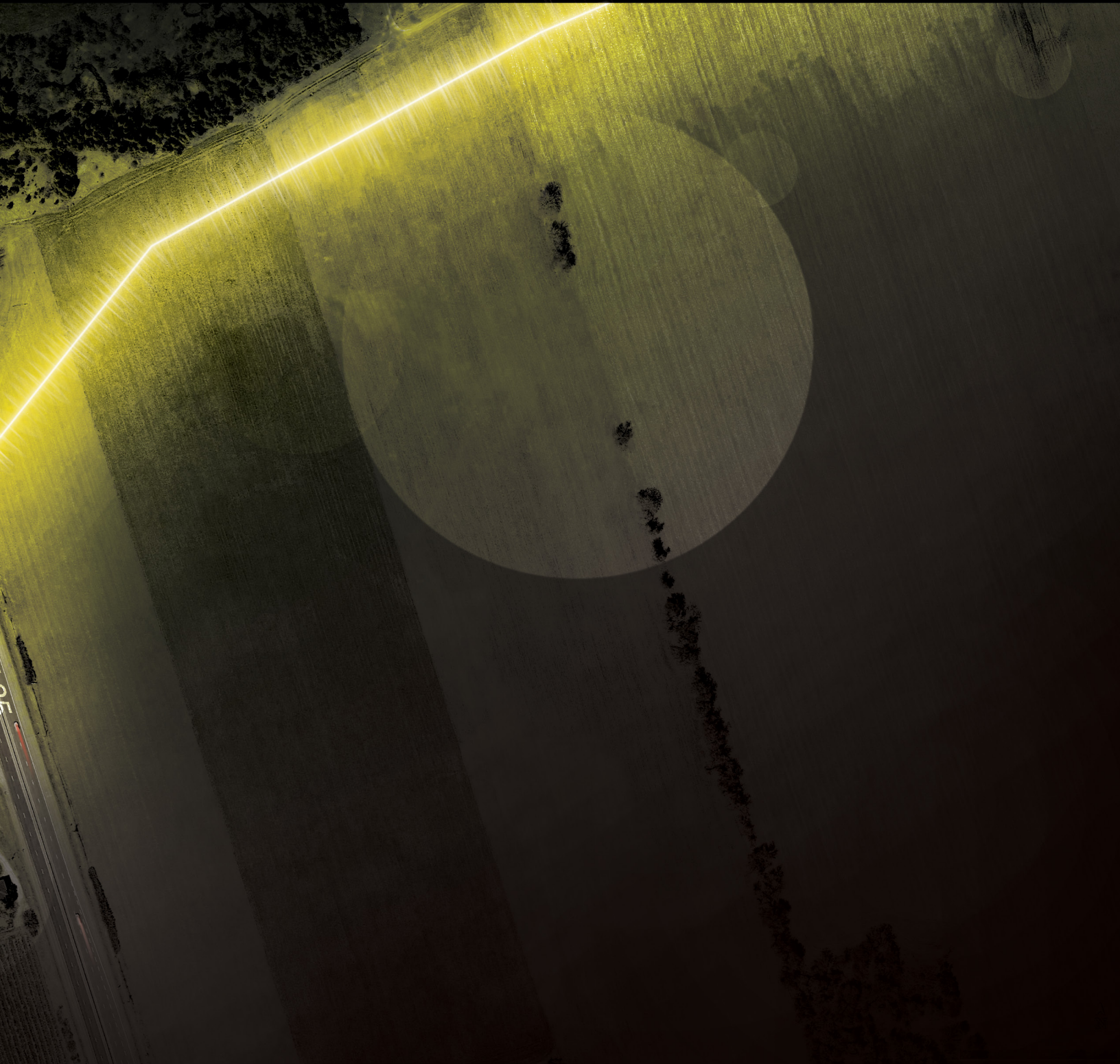
*Fig 2.43. Crossing the Greenbelt Line in the 115*





Google Earth





*Fig 2.44. 115 vs Greenbelt Frontier*

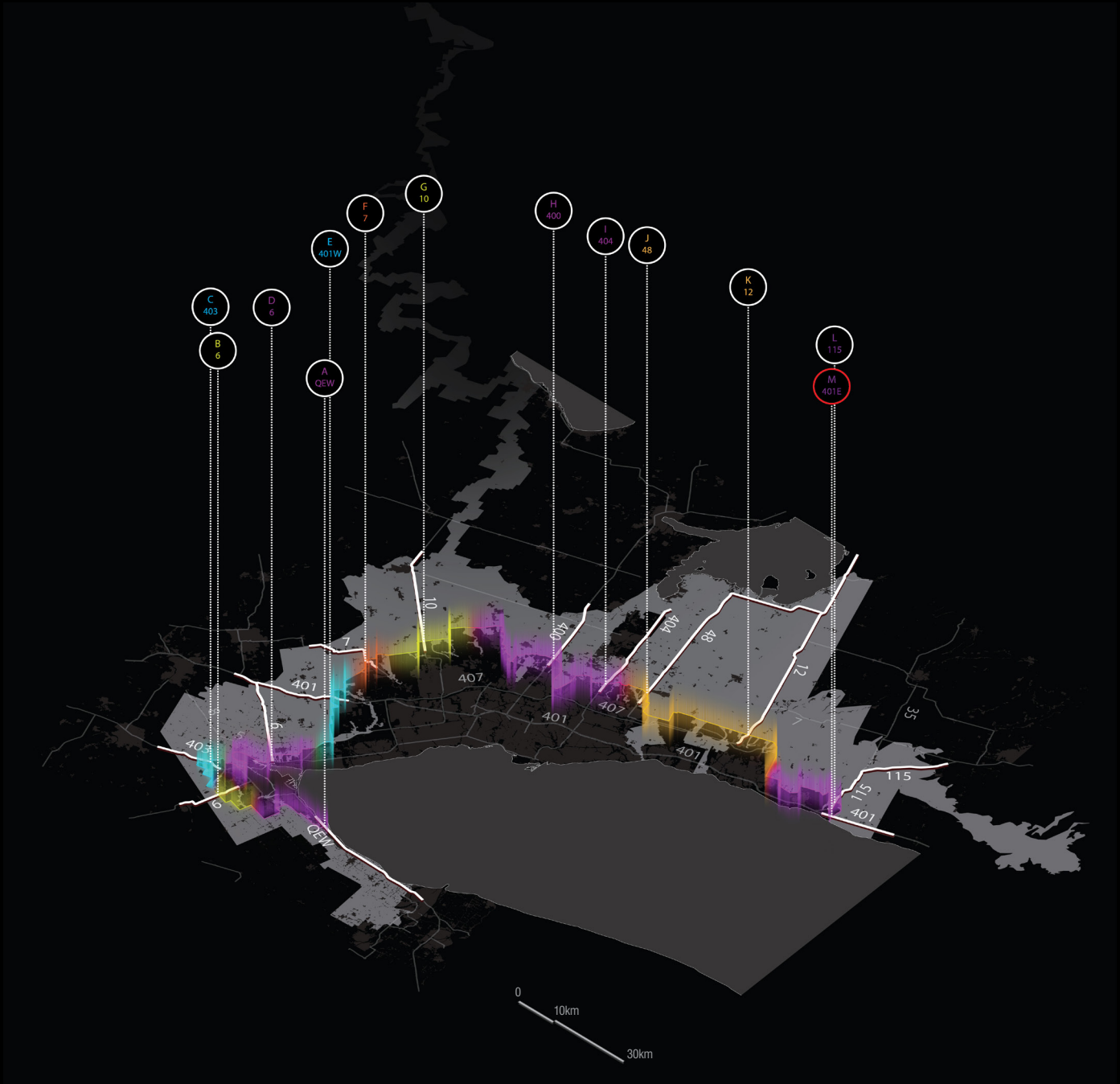


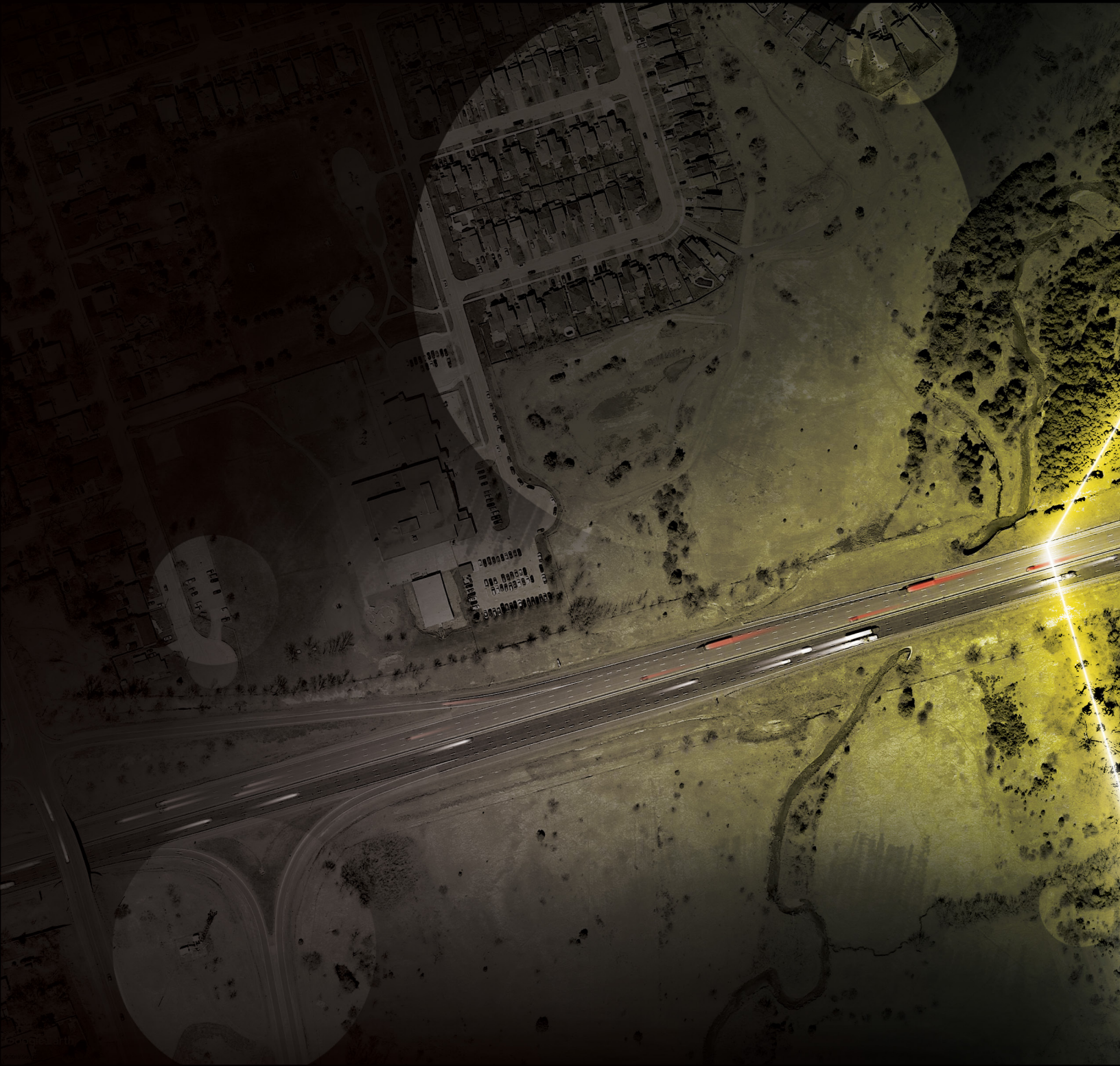
Fig 2.45. A: Highway 401 (East)





*Fig 2.46. Crossing the Greenbelt Line in the 401 (East)*







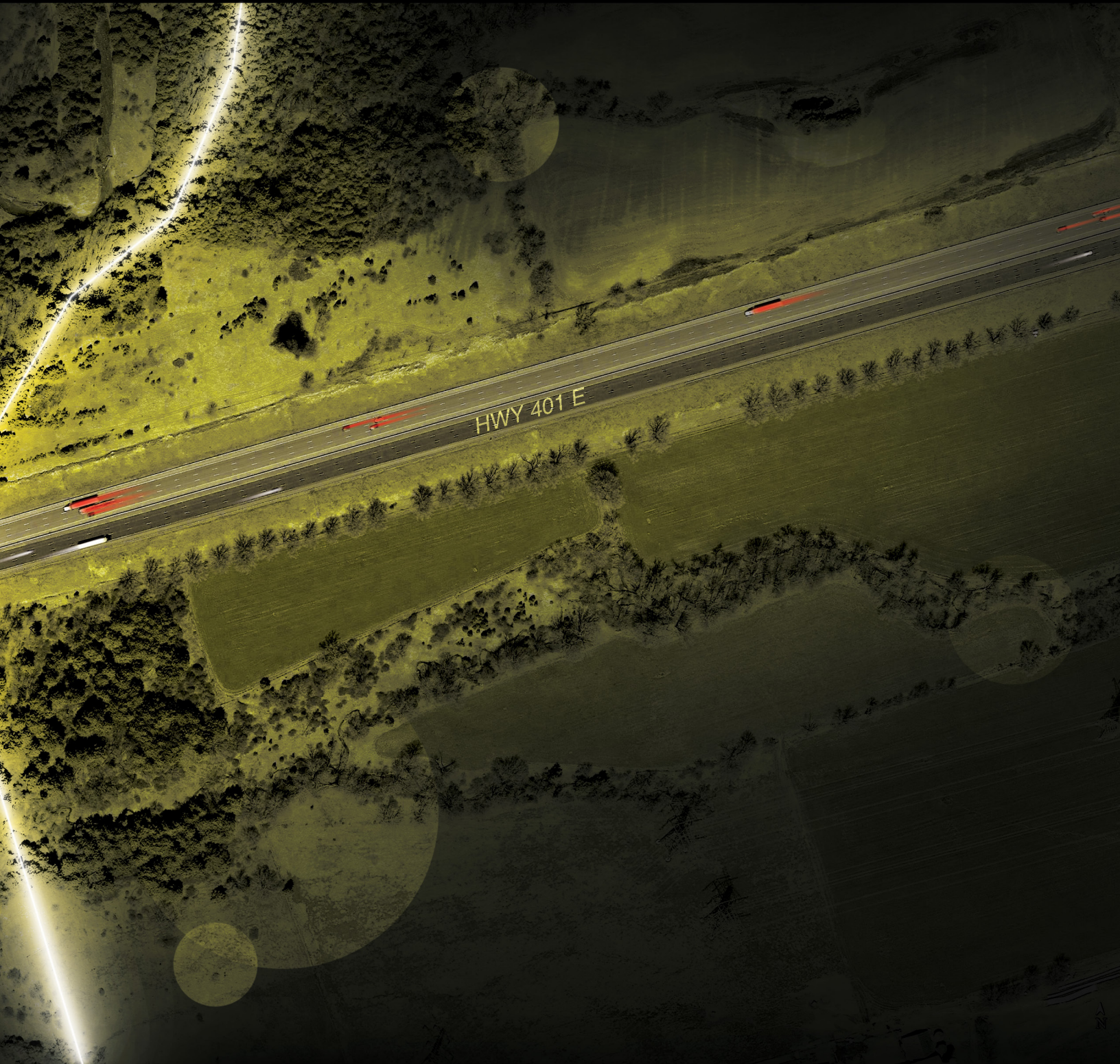


Fig 2.47. 401 (East) vs Greenbelt frontier



## *edge condition: 2nd attempt*

### Context Choice

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Much as I wish that this thesis could investigate and present the design intervention for all the 13 gates, that is not possible because constraints of time and scope. I believe that one intervention can be just as persuasive as thirteen, though the challenge of the scale of the road—the context—is important to explore. Consequently, I have chosen highway 48 with its daily average of 11, 900 cars and highway 400 with 101, 600: one very small, and one big.

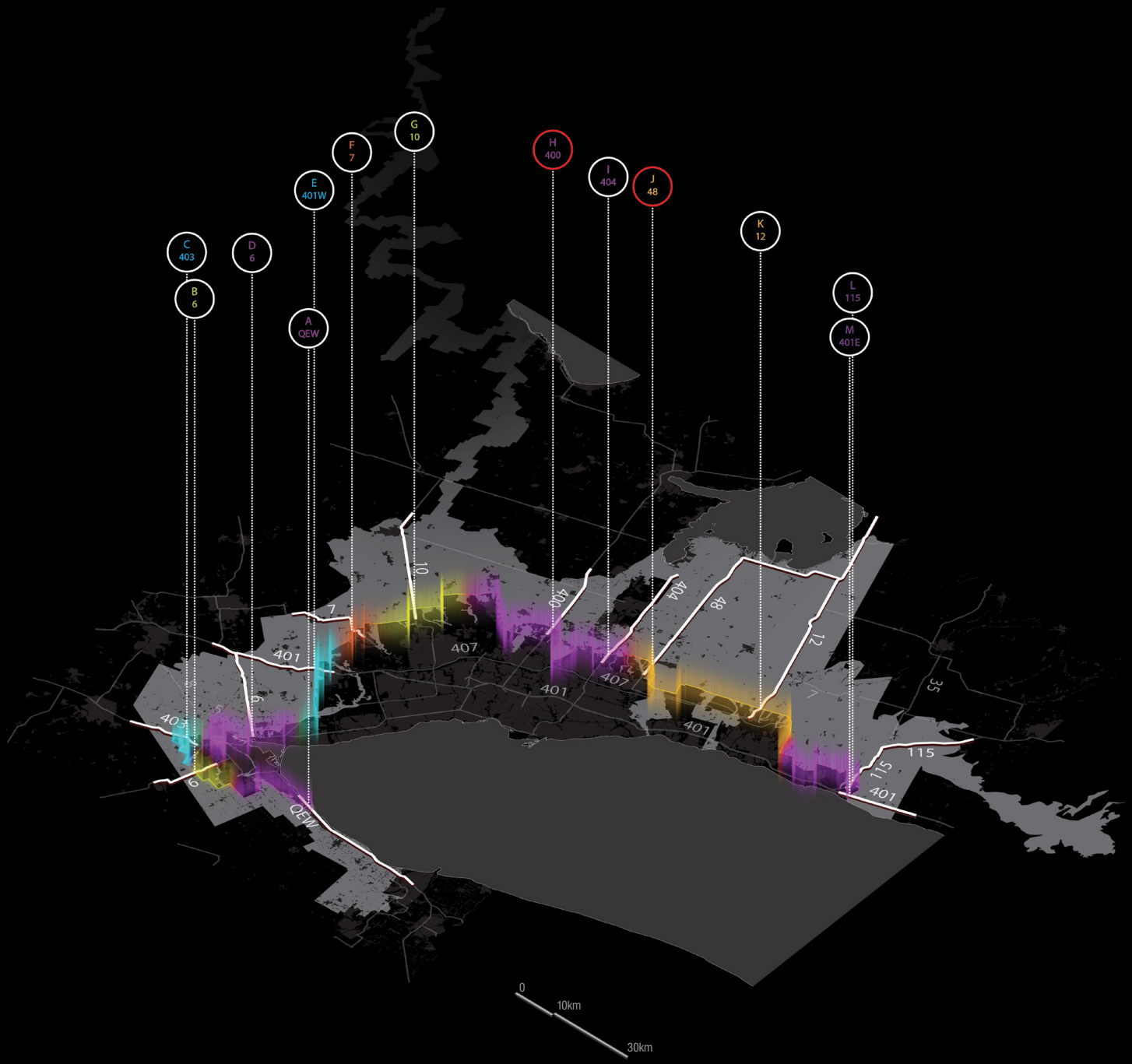
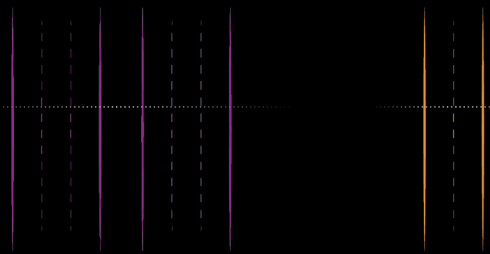


Fig 2.48. Context Choice: Highway 48 & 400



- QEW
  - 6N
  - 400
  - 404
  - 115
  - 401E
- 48
  - 12



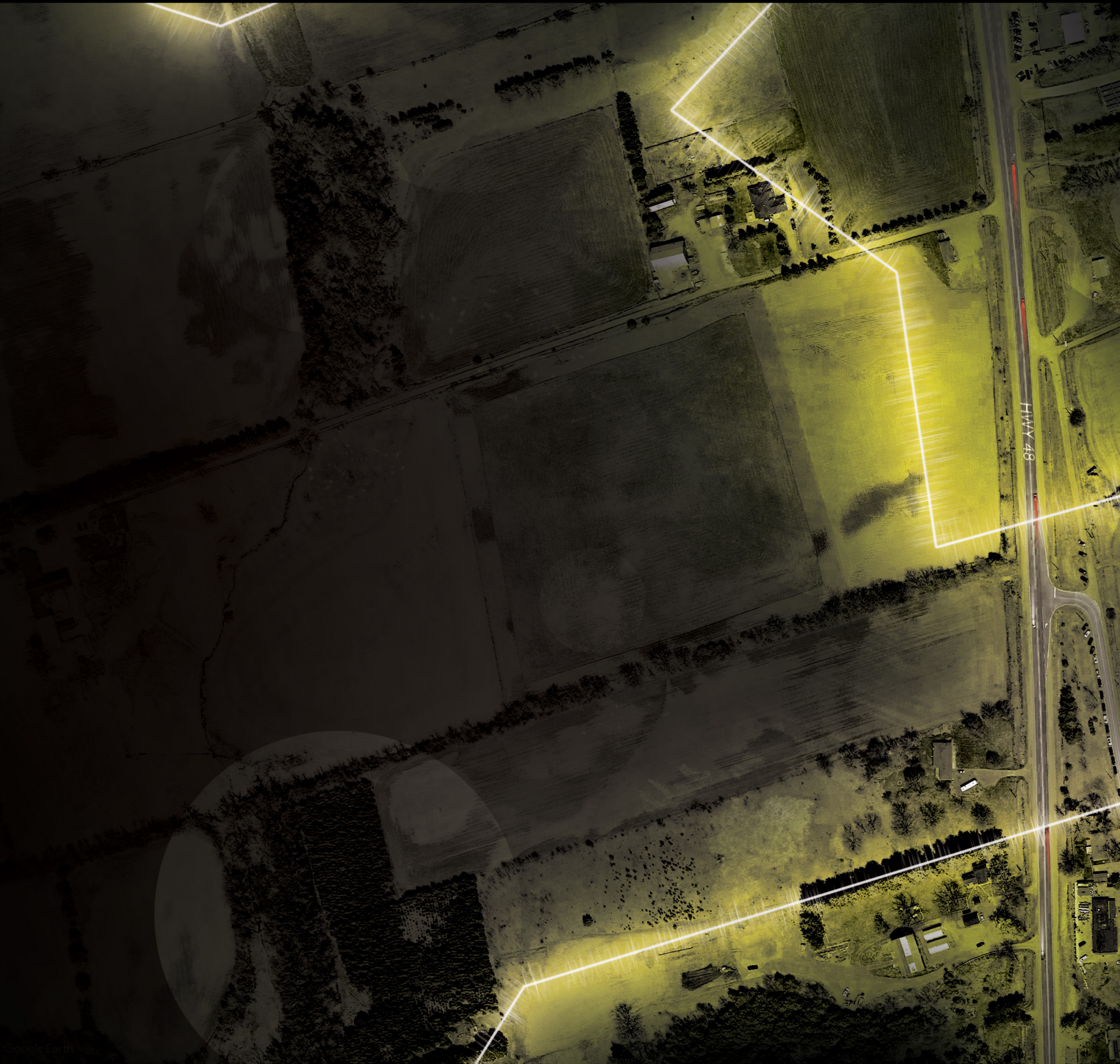


*Fig 2.49. Edge Condition in Highway 48*

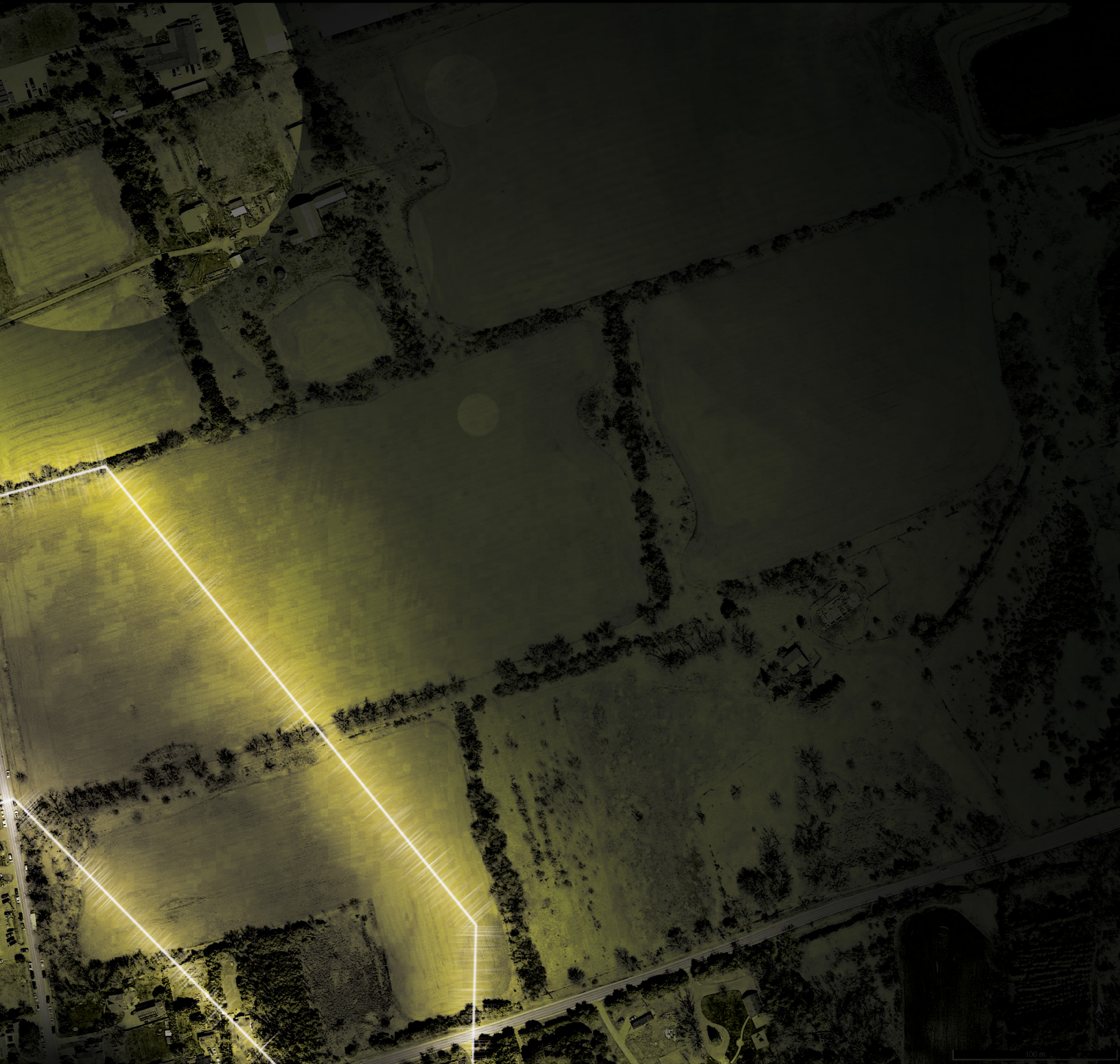


*Fig 2.50. Edge Condition in Highway 400*



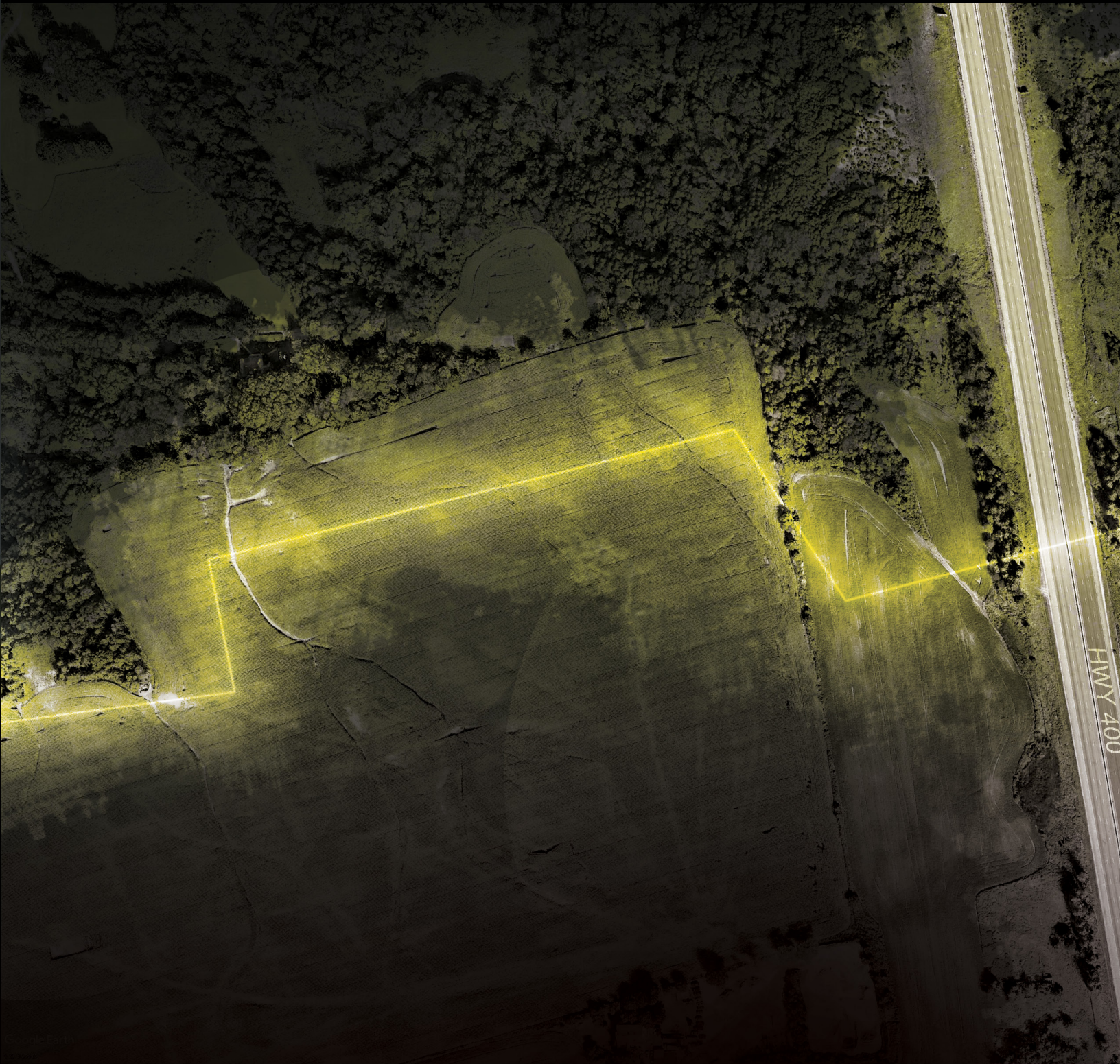




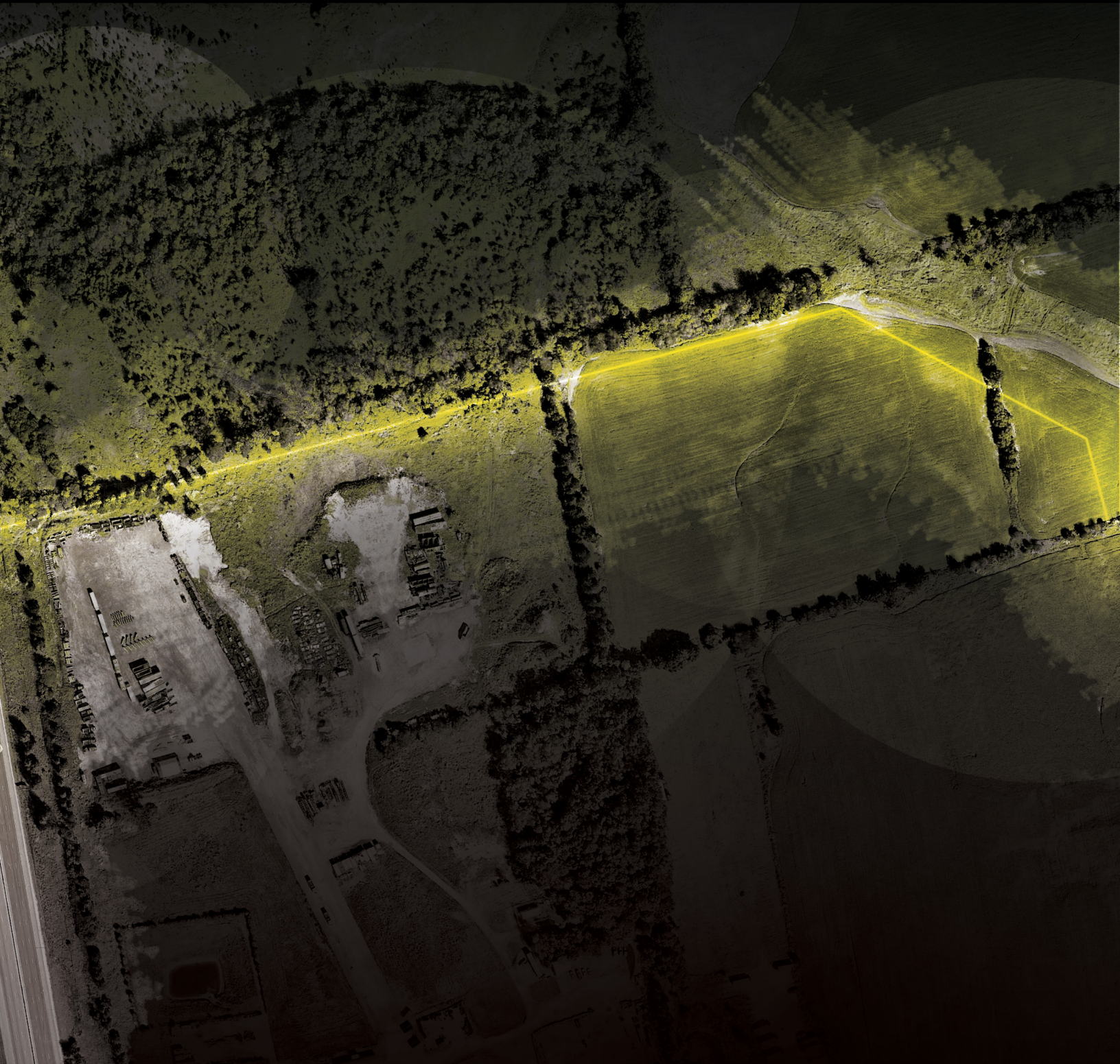


*Fig 2.51. Context of Highway 48 and the Greenbelt*









*Fig 2.52. Context of Highway 400 and the Greenbelt*



## 48HWY: a base design for “13 Gates”

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I purposely chose to begin my design with the smaller scale highway 48. At this stage, I had three options that I could consider. One was to think that each gate should have its proper design specific to it. In this option, the problem is that it undermines the aspect of wholeness of the Greenbelt: one Greenbelt, one fence. The second, in contrast to the first, was to think of one intervention that would be reproduced in all the 13 gates. The issue with this is that each gate has its own natural landscape or contextual character, and therefore the intervention may not fairly communicate with the site, leading it back into the “Entering the Greenbelt” billboard problem. A mix of these two options was the most obvious design challenge to take up, in this case. How to design an intervention that has some similarity with the others while remaining distinct? Can it be actualized through difference in architecture but similarity in material? Through difference in landscape intervention? Through same architectural landscape but different program? All these questions emerged in my mind, when preparing to begin designing.

In planning something, I prefer progressing through quick experiments or design tests to arrive at a conclusive idea. Rather than developing a concept or parti right away, which I might later step back from, it helps me to first narrow down on what my goals are in the design. I prefer arriving on an idea of what I should do, based on first enumerating what I do not want to do. It takes patience to arrive to this focus, because as a part of the process, I inevitably have to give up some ideas, accept when something does not work and more importantly, have to constantly refine my answer to ‘why’?



*Fig 2.53. Existing Conditions in Highway 48*



1st attempt of the 2nd:  
the *Mad Man* effect (cancelled)

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This design, that I eventually abandoned, was a crucial experience for me because it helped in resolving the challenge of designing something that really connects with people. I knew that if people connect with the intervention and what is embodied, specifically the Greenbelt edge, it will be difficult to tear it down. The community and the social sphere are the only entities who can face any threat against the Greenbelt, at any scale.

Books like *Learning from Las Vegas*, made me very interested in the 60s 70s, a period before I was born. I wonder if members of the millennial generation feel this as well, but it became obvious that for me, emotions that triggered memories had to be explored and somehow embodied. I understand that for thinking about a design, details had to be gathered in the scale of the human body: how do we see it? How does it feel to cross it? How do we remember it? Venturi raised the power of signs in dominating architecture and the context in his book on urban context, due to its monumental scale.<sup>34</sup> For this first attempt, I wanted to test making a parti through a realistic perspective that would be seen or projected as if it were a movie. The colors, the shot, the weather, the filters were all elements that manipulated my ideas to find what monument I can put to highlight the meeting point between the Greenbelt line and HWY 48. The idea of using a 50 metres high old wind turbine rotor blade flashed through my mind when my cousin Hicham, an engineer who works on wind turbines, was passionately telling me about them and how the end-of-life rotor blades were wasted.

Two factors influenced my decision. First, I noticed that people were always fascinated by the power of architects to reuse industrial artifacts and transform them into architectural or sculptural elements. One of the common examples is the containers. We all have a friend, astonished, coming to show us the work of an

<sup>34</sup> Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge, Mass: MIT Press, 1972), 12.



*Fig 2.54. Two Experimental Designs: The Rotor Blade Wind Turbine (Day)*





Fig 2.55. *Twenty Mule Team Parkway*  
by Robert Venturi

architect reusing a container to give it a second life: a home. I know that this example does not impress us anymore (we are used to seeing containers retrofitted), but people are fascinated by our ability to give a totally different function to objects of our daily lives. If people are too familiar with these objects, what happens to their relationship when their state gets altered? I think people are still able to retain this connection, but this time with increased amazement at how ‘the functional’ becomes ‘the beautiful.’ Since they are familiar with the functions of the objects of everyday life, whether they use or not, these can no longer be distant from the reality in which they live. Therefore, the redesigned sculpture or architecture, even at a megalomaniac scale, cannot really intimidate but impress and please.

The architecture of the signage of the Twenty Mule Team Parkway of Venturi struck me with how regular it appeared, yet simple, colorful and grounded in the cliché of the American road trip experience. If I were driving past, it would likely be etched like a picture post card in my memory. It is an interesting example of creating landmark and at the same time disrupting the monotony of the Californian desert, using sculptural roses as an emblematic approach to the city of California. Some ethical aspects in the design of Twenty Mule was to avoid falling in the billboard category, considered as unattractive. Despite the commercial purpose, the design was meant to produce a noncommercial artifact while each claiming a commercial pavilion in it.<sup>35</sup>

Like the Greenbelt, the wind turbine was for me the expression of the clean, the silent, the green. It was meant to be a landmark that can be seen from a distance, and visible even at night. One option was to make it opaque—as a cut in the imaginary wall of the Greenbelt, and the other option was to make it reflective—expressing paradoxically the invisibility and the presence of the Greenbelt, both at the same time.

<sup>35</sup> Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge, Mass: MIT Press, 1972), 181.



*Fig 2.56. Two Experimental Designs: The Rotor Blade Wind Turbine (Afternoon)*



I did not go further with this attempt; I knew it was not feasible even before starting it. It was only three days of work, but I got two consequential lessons from it. The first lesson I learned is that the retrofit aspect of the artifact was important (from wind turbine blade to a landmark sculpture) and key in creating a relationship between the drivers and the intervention. The second, the lesson that made me not choose this idea, was the singular aspect of the design—of it being confined to a point. Even if the rotor blade would pay fair tribute to the meeting point (road/Greenbelt), this thesis posits a resolution to the problem of the boundary, and therefore it tackles the *lines* of the Greenbelt, not a particular *spot*. It was a matter of designing a frontier, or in other words: a fence but not a point.

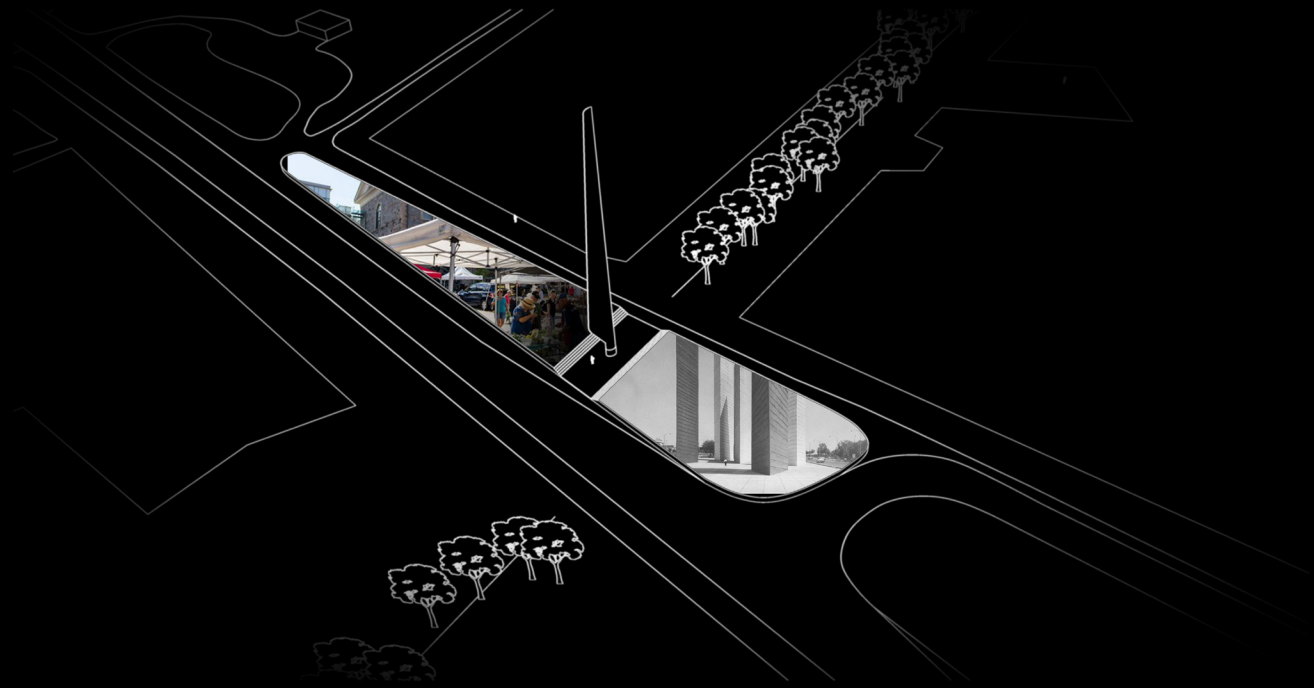


Fig 2.57. Landmark of the 48 vs the Greenbelt



*Fig 2.58. Two Experimental designs: The Rotor Blade Wind Turbine (Night)*



## Final Design Concept

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Hydro poles. This was the big idea that finally moved my thesis towards a resolution. My thesis design for the 13 Gates to the Greenbelt is to place staggered hydro poles, with some elements that would vary from gate to gate. I confess that the concept of hydro pole occurred to me when viewing the photo of the gates for HWY 6 S. The highways 10 and 6 S was making me really anxious for one reason: the built-up area they were located in. With a Greenbelt line crossing an intersection, few metres away from the traffic lights, how would I be able to put anything there?

I knew I needed to find an existing artifact that has the potential of hosting a linear design for the Greenbelt line. Hydro poles are perfect for that, since they are aligned in a regular rhythm that animate and guide the line. Therefore, for highway 48, I concluded that the goal will be to design a gate with a narrative articulated around hydro poles.



*Fig 2.59. Highway 7 vs the Greenbelt Passing an Intersection*



## Parti: Model

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Throughout my life in architecture, I admit that model making has never been an area that I enjoyed in general. I usually prefer to explore through collages of sections, scenes, plans or details. However, it happened that at school or work—like in Japan at Shigeru Ban Architects, an office that is based essentially on model making, avoiding technology (laser, 3D print)—people found me skilled in making models. I knew that I would not survive in a place like the Japanese firm I mentioned earlier for more than a week if I did not have the dexterity needed, especially after discovering that the first project to be worked on, is a special gift: a model for Prince Albert II of Monaco. After two weeks of completing it, Ban San (Shigeru Ban) saw the model, had a discreet smile on his lips, and he thanked my team and me for the highly crafted model. My relationship with model making is complex and personal, because I believe that I am too enthusiastic, even impulsive sometimes. Making models requires patience and maturity.

Deviating from what is usual for me, I forced myself to explore the hydro poles idea through a model for the design of the gate for HWY 48. This time, I felt that I really needed to ‘see’ it with my eyes to comprehend it. Therefore, I took a bunch of wooden rods, cut them, arranged them, and plugged them to an MDF board as a base. I added few trees to see if they would get along, and exhausted with my attempt, I retired for the day. The next morning, I thought of stopping by my east facing studio on my way to get coffee. I opened the door and saw the model that lay on a desk beside the window. The rising sun was illuminating the model like a halo, as if to tell me: this is the big idea. If I were into believing in omens and signs, I would probably have gone crazy at the sight. It was a touching and inspiring moment indeed: I could instinctively feel the melancholy and hope of the Greenbelt. The wooden rods (hydro poles) were a perfect artificial representation of the trees. With each a different height, they were standing as if a symphony was playing in the sky with the shadows in the ground, surging out of the Greenbelt line.



*Fig 2.60. Shadow of the Big Idea*



*“The big idea is part lens, because it influences what we see, and part door, because we go through it to arrive at the completed work. It is part fire, because it illuminates. It helps us to know where we are going but it never limits us. It offers us a sense of knowing and control, even though the process of design often seems slightly outside our knowing and control. Whenever we face design uncertainties during the development of the project, we can return to the big idea for direction, guidance and deeper investigation.”<sup>36</sup>*

Andrew Levitt



*Fig 2.61. Parti model*

<sup>36</sup> Andrew Levitt, *Listening to Design: a Guide to the Creative Process* (London, UK: Reaktion Books, 2018), 83.

## Narrative

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I was next confronted with the question of sizing of the hydro poles. I felt it was important for the line of the Greenbelt to look formidable. Therefore, I chose to use class 1 hydro poles that allowed me to have them with a diameter of 500 mm (61 inch circumference). They are very thick and can sometimes come with a length of over 100 ft. They are not commonly used in cities, but I wanted to give a special treatment to my intervention by using them nevertheless.<sup>37</sup> In addition, I have a cantilevered walkway—that I will describe later—in the poles, which requires a significant structure.

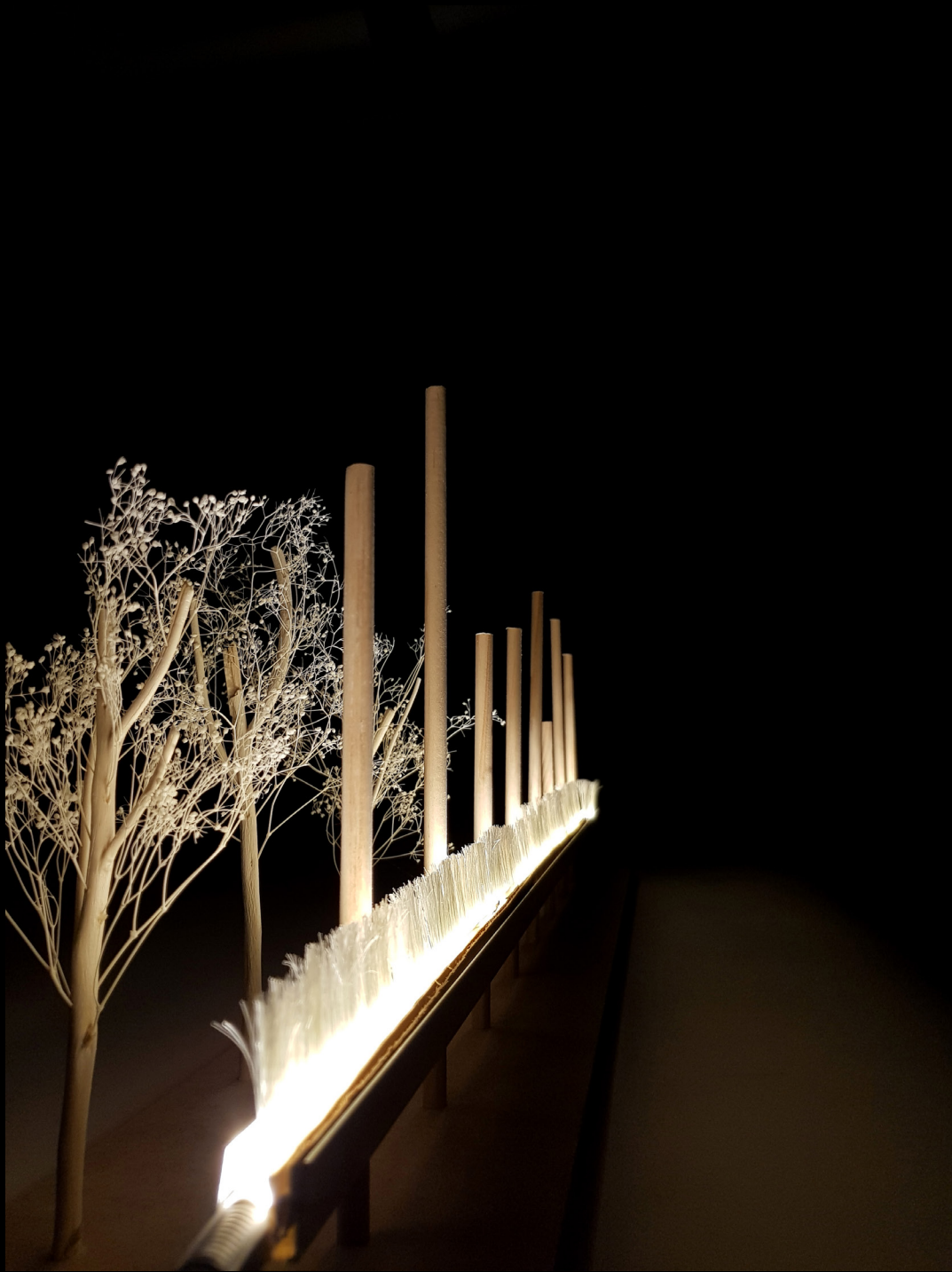
After the hydro poles, a secondary question was raised: how to express the continuity of the Greenbelt line? I needed something that is continuous through the hydro poles. One relevant aspect of the 13 gates is the characteristic of the context they are located in. For instance, in gate HWY 48, it is found to be surrounded by several cornfields and farmlands. This gave me the idea of highlighting the cornfield as the proud identity of this gate. I metaphorically raised a fragment of these cornfields, expressing it through a linear planting box of corns that connects the hydro poles. At night, the planting box gets illuminated with an important LED light dispositive. We can appreciate the spectacular visual of the darkness of the farmlands with the Greenbelt line being the only element that can be seen from kilometers away, with a closer view showing corns swaying in the breeze.

<sup>37</sup> Nelson Bingel, National Wood Pole Standards (Nelson Research), 43  
[https://woodpoles.org/portals/2/documents/WoodPoleCode\\_Overview.pdf](https://woodpoles.org/portals/2/documents/WoodPoleCode_Overview.pdf)





*Fig 2.62. The Greenbelt Line, a Strip of the Context: Cornfields*



*Fig 2.63. The Greenbelt Line and the Corns During the Night*





*Fig 2.64. The Trees, the Hydro Poles, the Planting Box, the Frontier*



*Fig 2.65. A Wooded Strip Line and a Greenbelt Line*



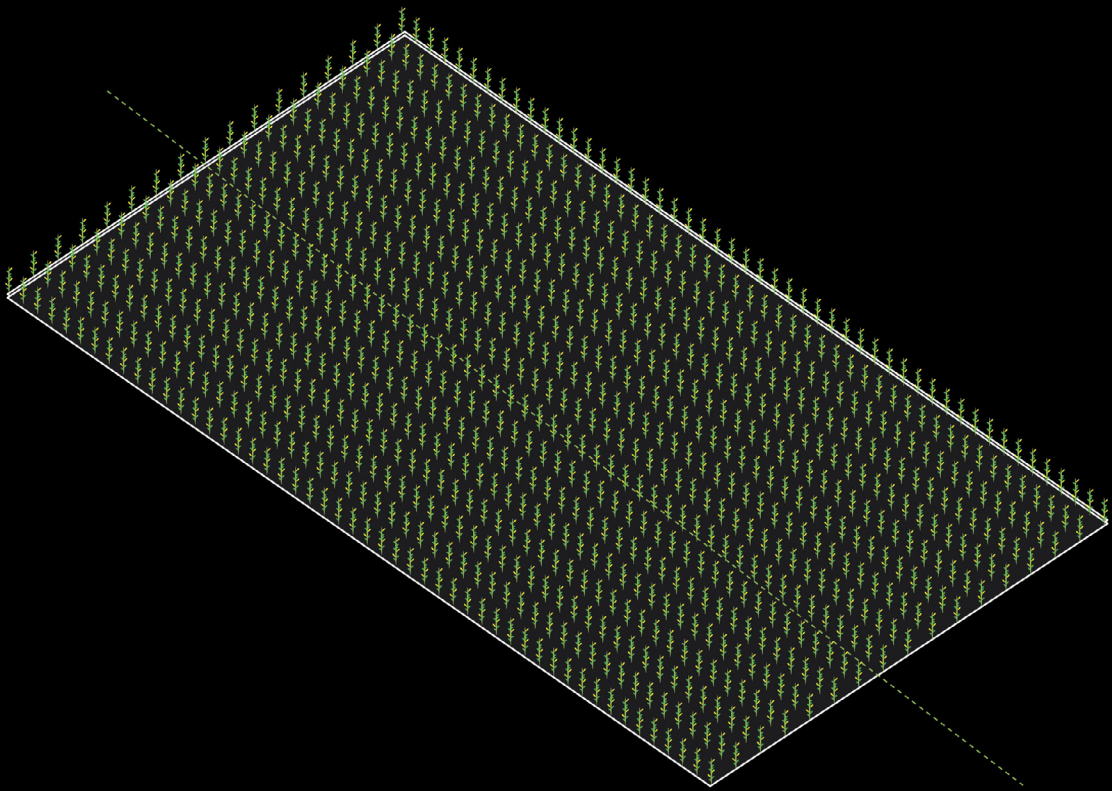


*Fig 2.66. Closer and Brighter: A visible Greenbelt Line*

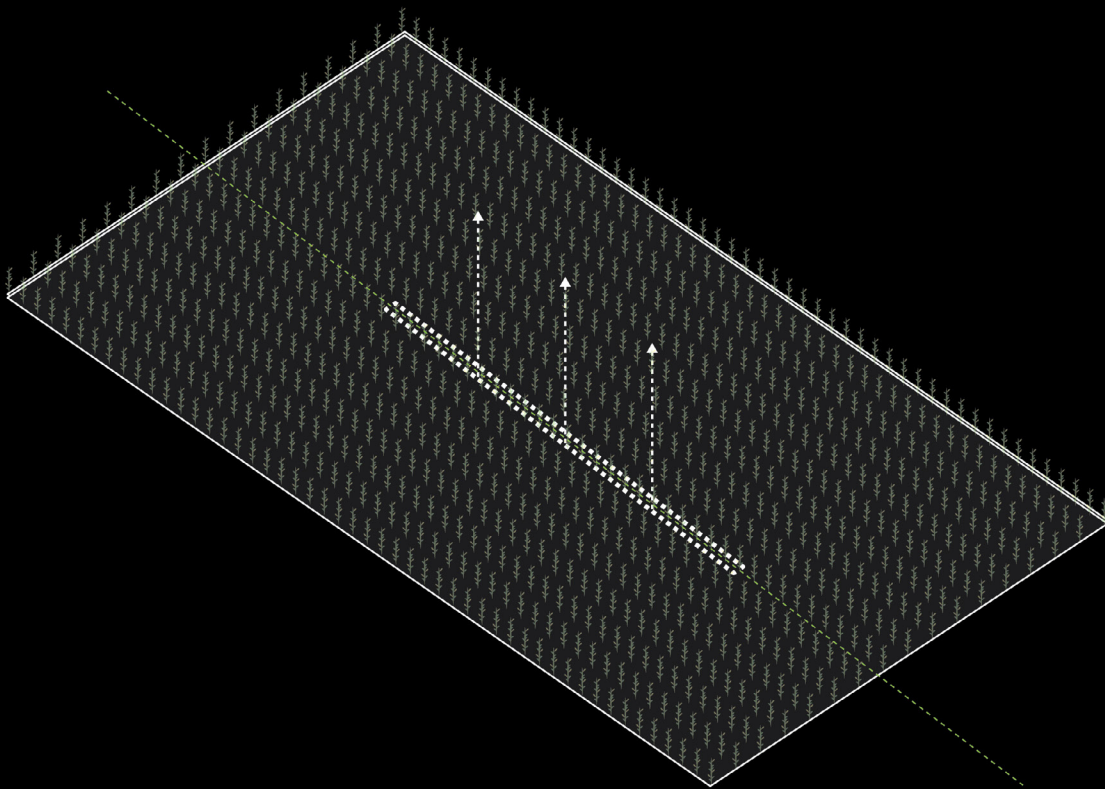


*Fig 2.67. The Shadows of the Corn Gate*





*Fig 2.68. All About the Context: Cornfields*



*Fig 2.69. A: The Big Idea: Extracting the Greenbelt Line from the Context (of the region)*



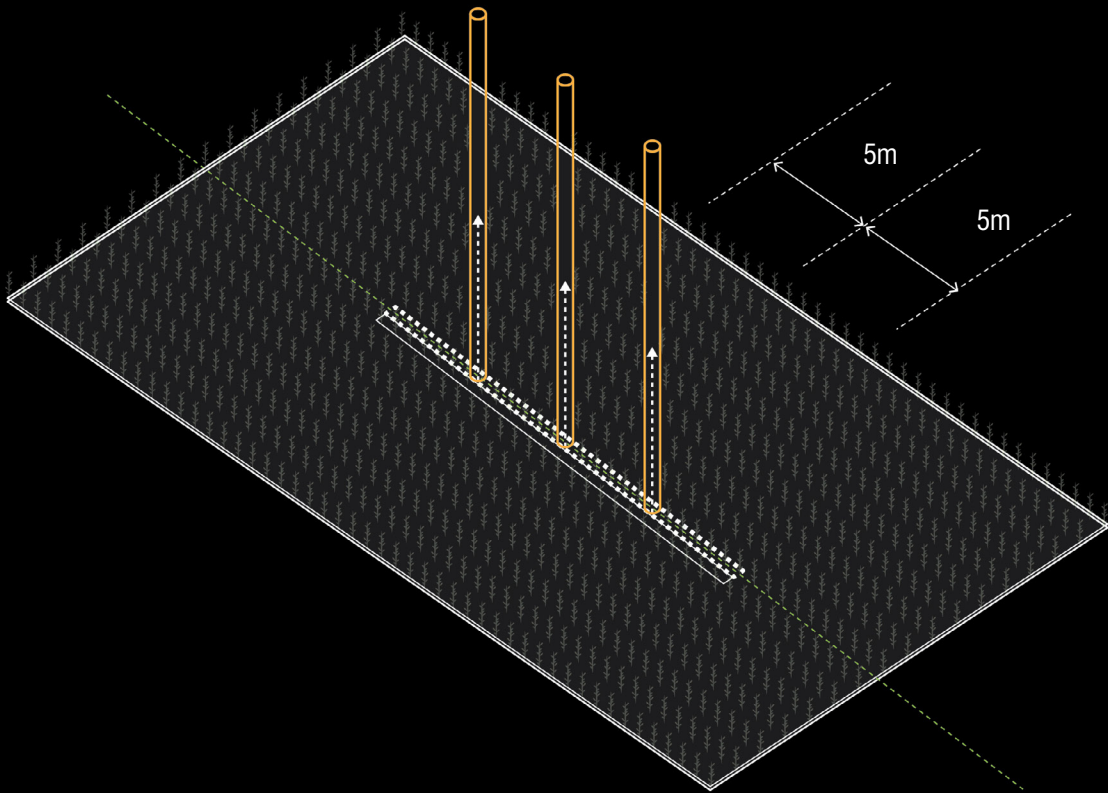


Fig 2.70. B: The Hydro Poles as a Support and as a Permeable Fence

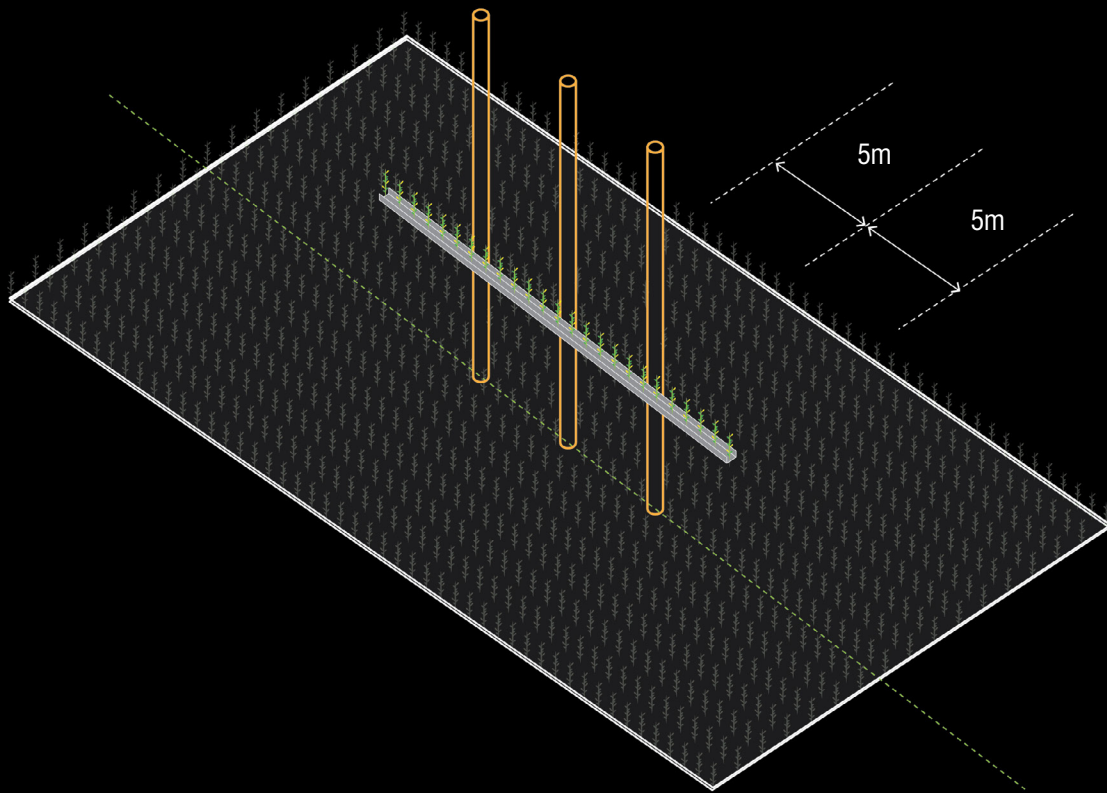


Fig 2.71. C: Planting Box of Corns / Hydro Poles: The Greenbelt Frontier at the 48

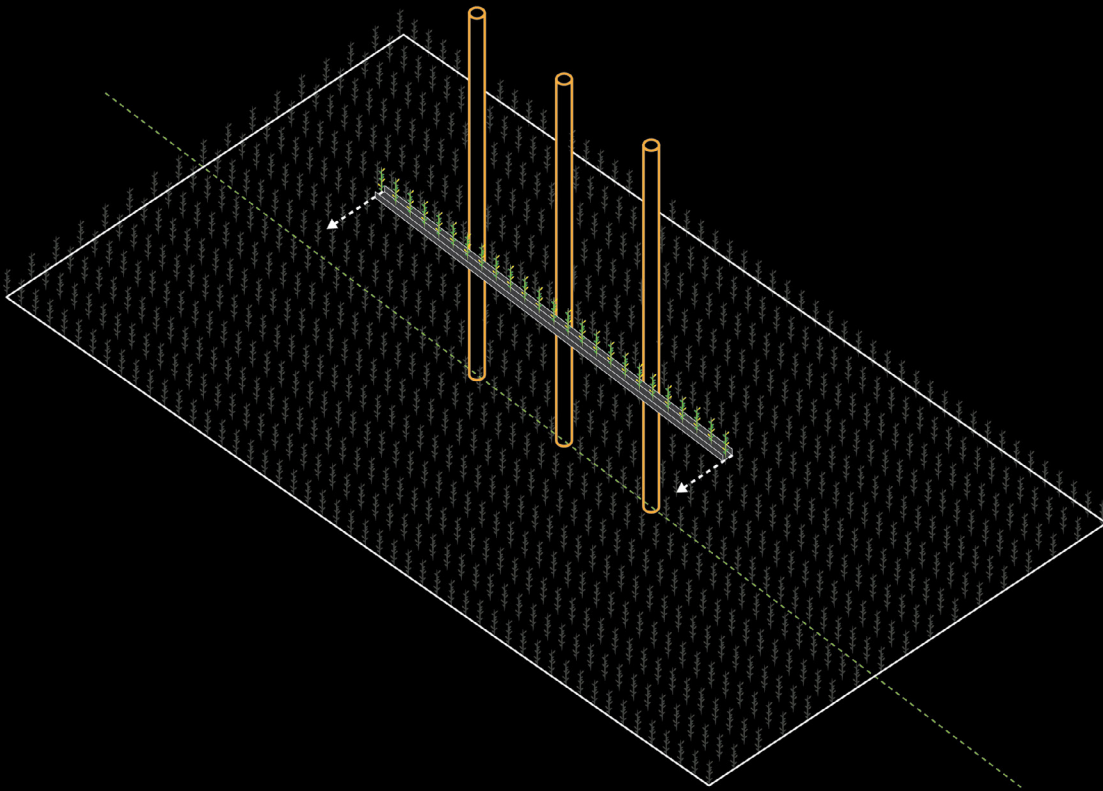
## The Corn Gate

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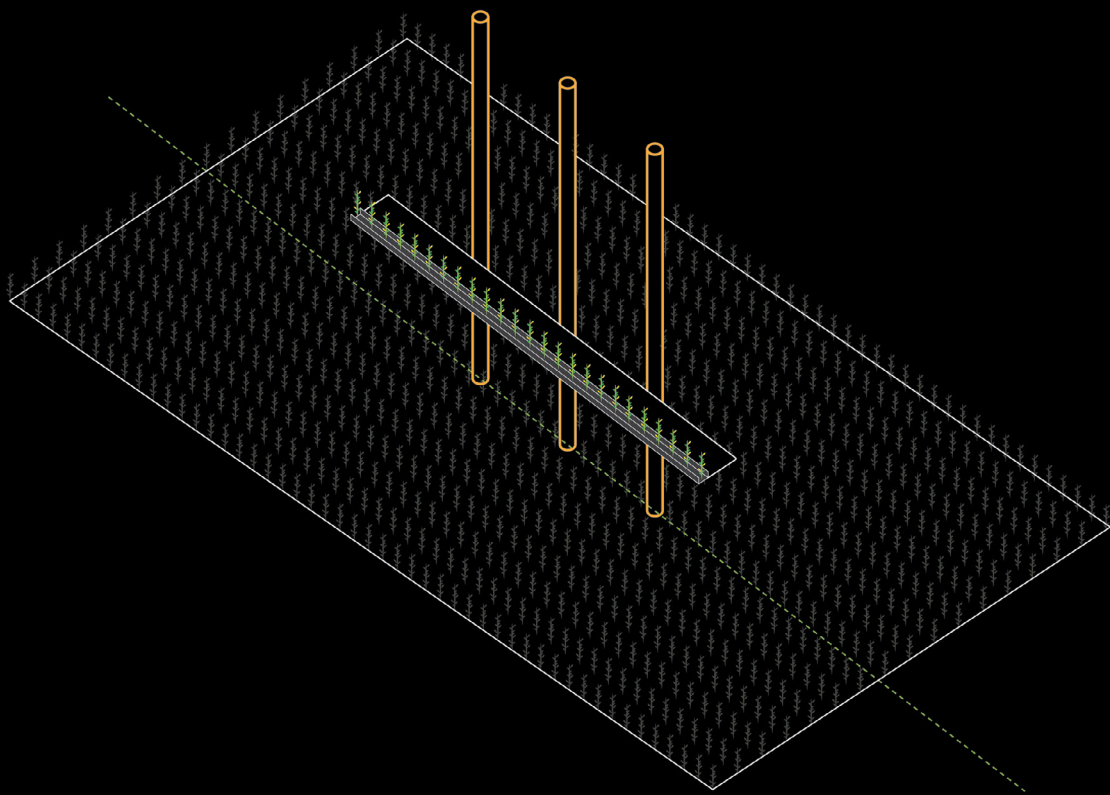
Once the parti developed clearly, centralized from the driver's point of view, a new question was raised: how about the people, or more precisely, pedestrians? I thought that having an intervention that was only meant to be 'seen' was getting a bit too selfish, falling again into the concept of signage. Therefore, I wanted to incorporate a path that allows people to walk beside the planting boxes on the Greenbelt line, where they can even touch the corns. The people walking on the edge become a component of the Greenbelt frontier.

After that, it was a matter of bringing the concept to a comprehensive scale. The railings, the structure, assemblies, water system and the light were all elements that I thought of exploring in details. Chalking up details is one of my favourite things to do, and I like to do them usually at an early stage of the design, so as to be able to progress on the design with it.





*Fig 2.72.D: Walking on the Greenbelt Frontier*



*Fig 2.73. A Physical and Accessible Frontier: The Big Idea*

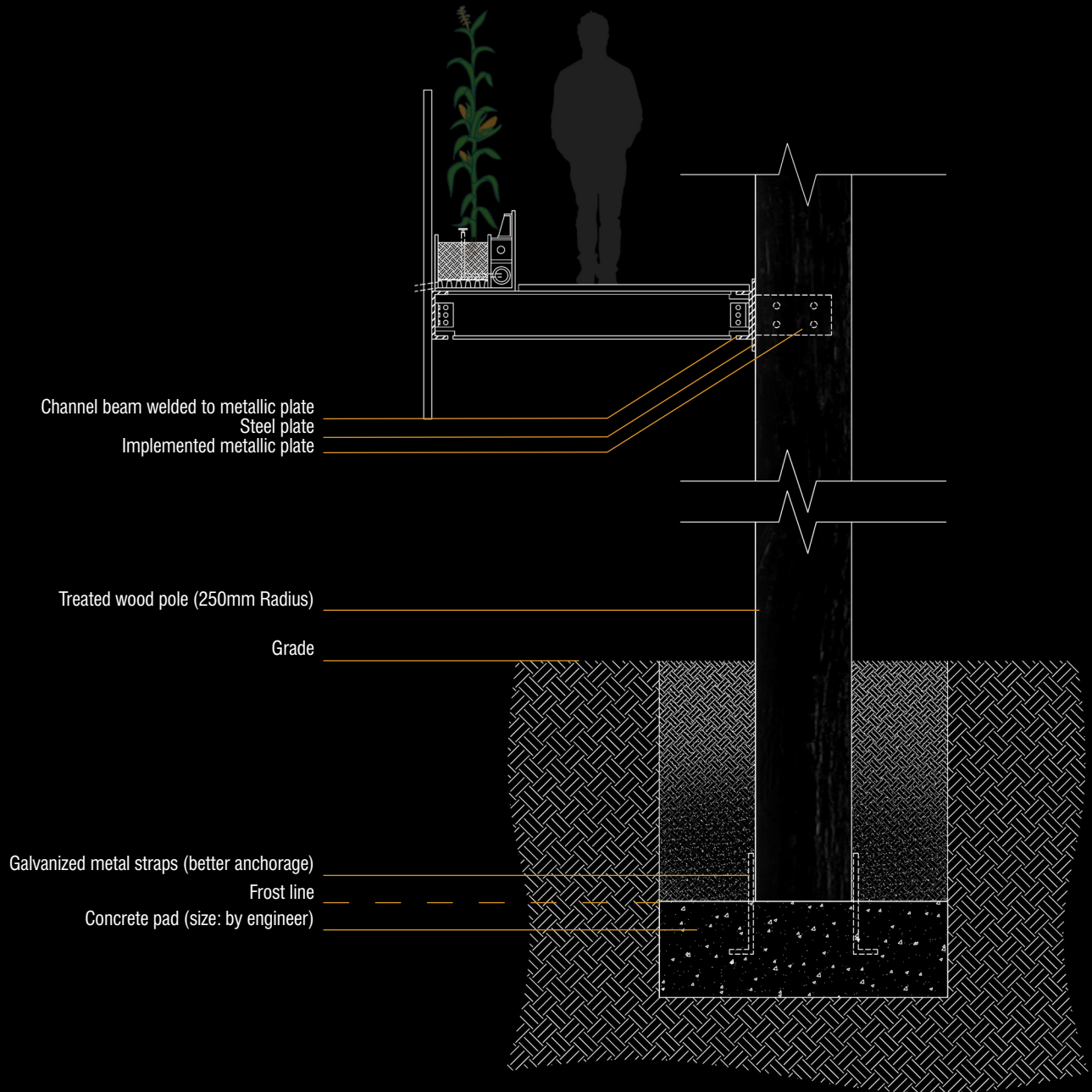
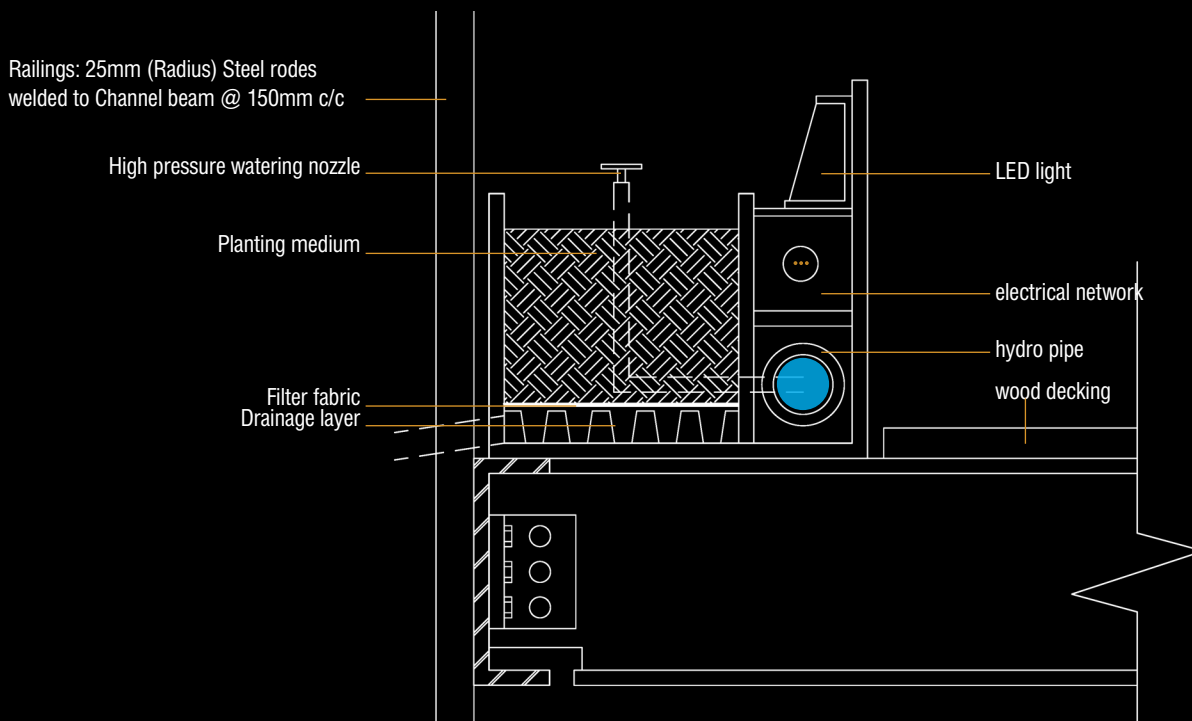


Fig 2.74. Assembly Detail: The Poles, the Walkway, the Planting Box





*Fig 2.75. Assembly Detail: The Planting Box of Corns*



*Fig 2.76. The Corn Gate*

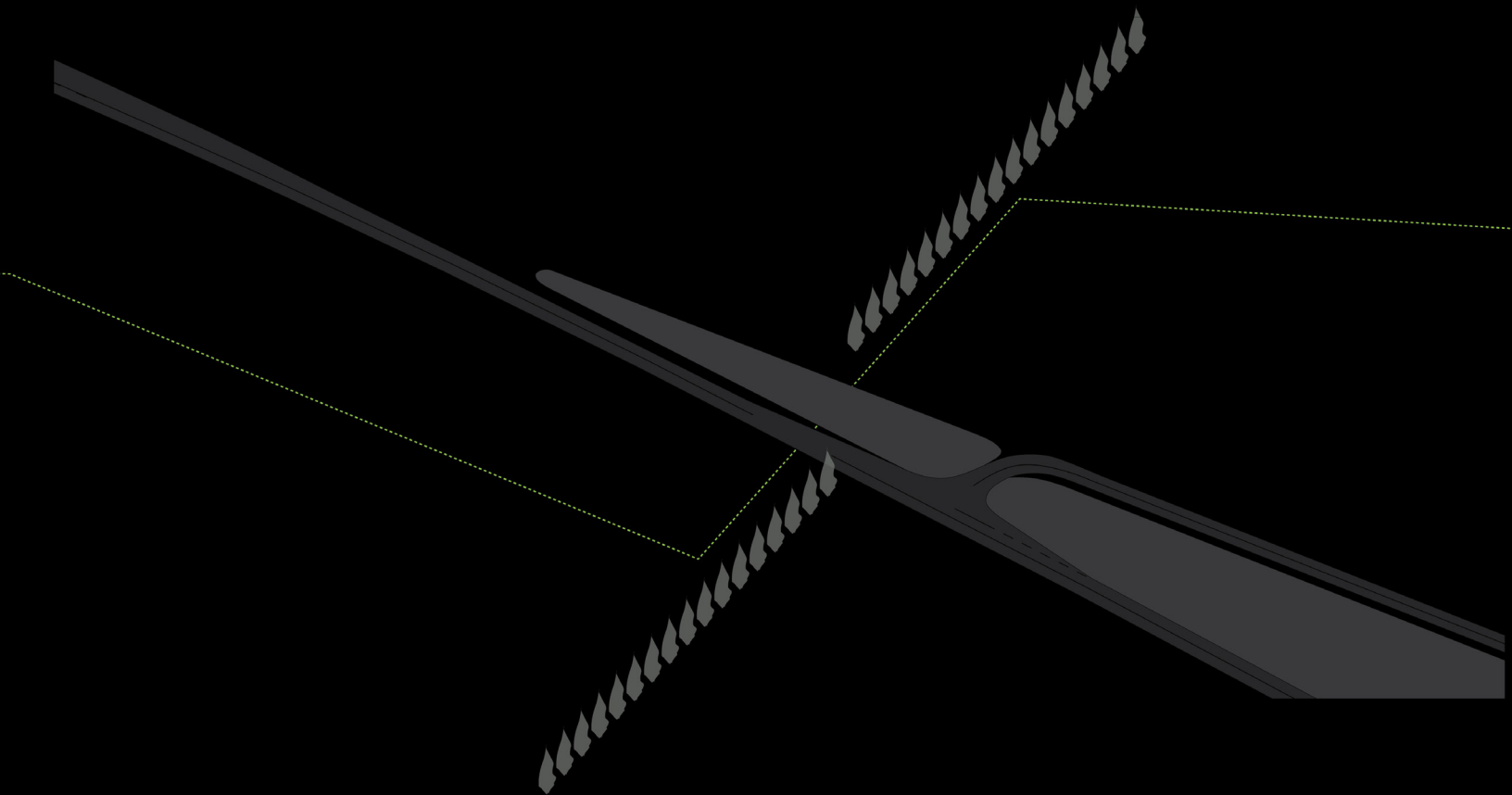
part III

*Gate 48 : The Corn Gate*

Gate 48

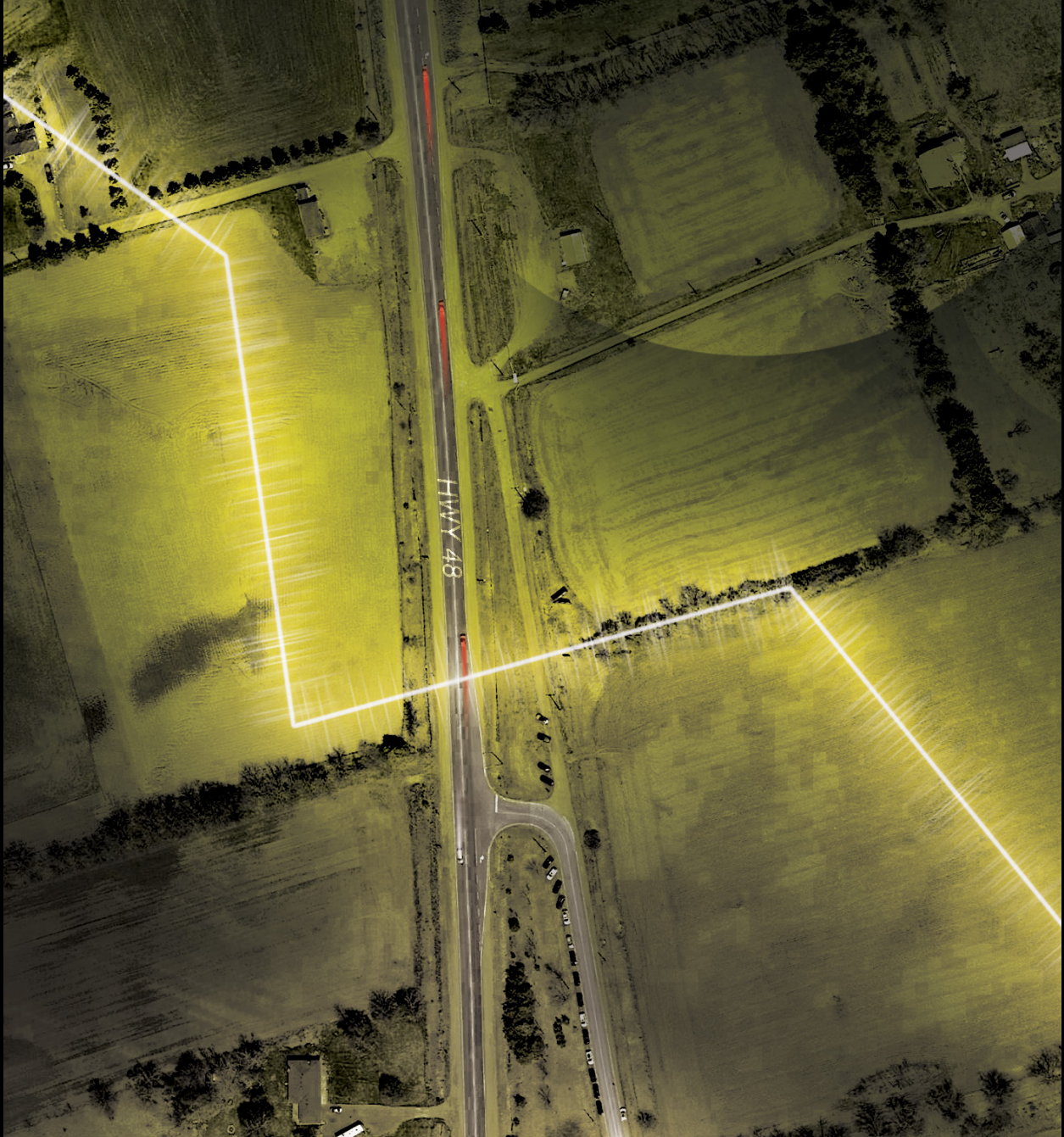
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A countryside road (HWY 48), 11, 900 cars a day, an additional road that folds back to the 48, corn fields, farmlands, two wooded strips almost perpendicular to the road and one that reveals the Greenbelt line. These are the main elements of the natural context that I modeled my parti on, to get to a final design, which evolved through five phases.



*Fig 3.00. Context Diagram*





*Fig 3.01. Context of the HWY48 vs the Greenbelt*





Fig 3.02. Context, Bird View



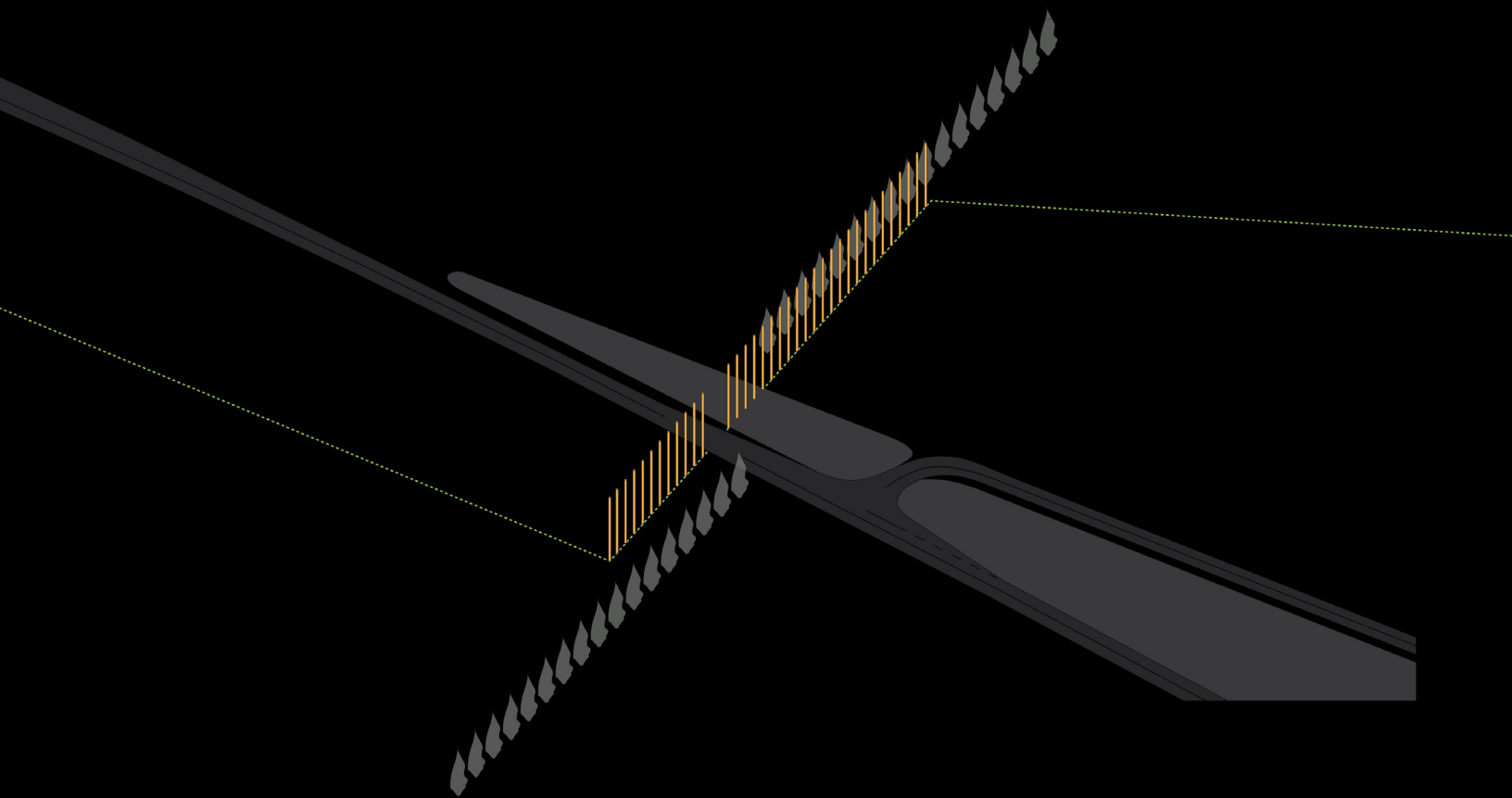
Fig 3.03. The Wood Strip is the Line



## 1. The Edge

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Almost perpendicular to the road, the Greenbelt edge stands parallel between two wooded strips, almost overlapping on one of them. In this first phase, the border crossing idea was brought with the hydro poles in the simplest and most literal way to begin with: one road, one edge, both perpendicular, with the 48 blindly cutting the five-metre, spaced, hydro poles fence.



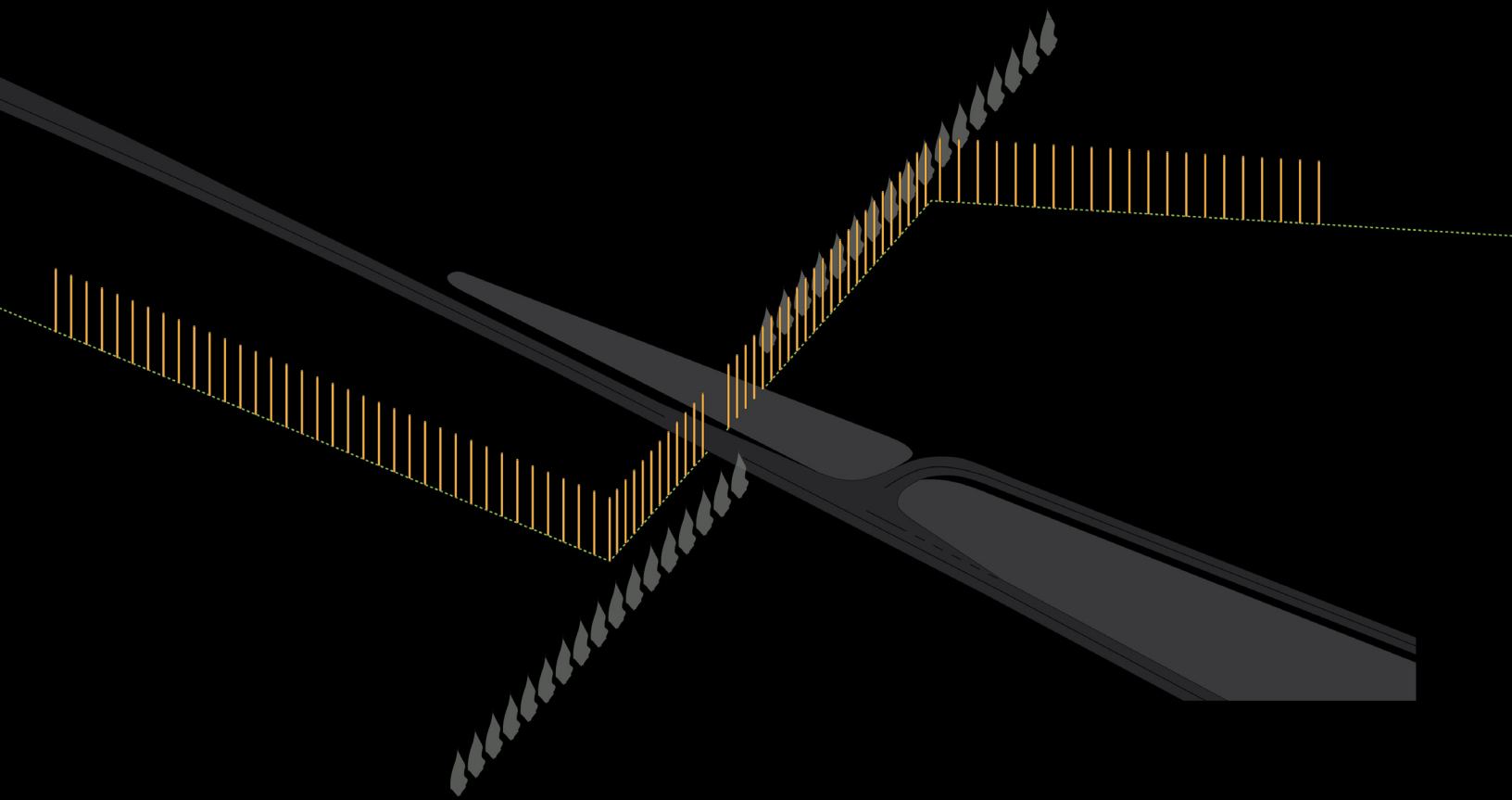
*Fig 3.04. The Hydro Poles in the Perpendicular Edge*

## 2. A political frontier

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One of the salient aspects of the Greenbelt boundaries is that they define themselves, when possible, with existing contextual or natural elements (roads, wooded strips, bridges, property lines etc.). However, the boundaries can suddenly change direction, pointing to a highly politicized or negotiated frontier. To me, it was obvious that it had to be expressed with the hydro poles as well, especially as the deviations were not far from the road. Moreover, running almost parallel to the entrance, they even have the potential for guiding for direction.



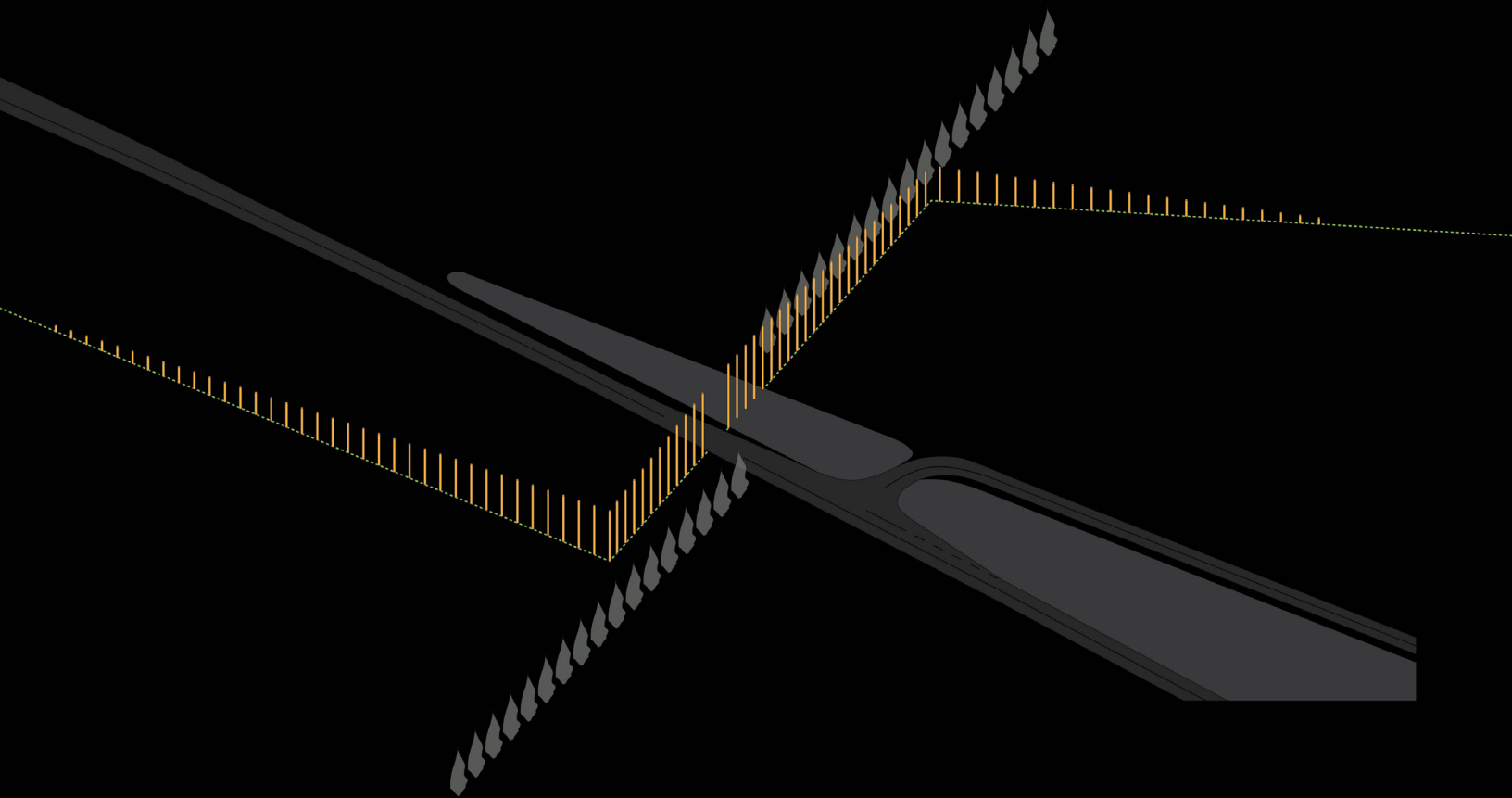


*Fig 3.05. Expression of a Political Frontier*

### 3. A 13 Gates edge

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At this step, I wanted to try and establish some connection of this gate with the other 12 gates. In essence, with the parti, it is already achieved by the fact that they (the 13 gates) have the hydro poles concept in common. However, to push it forward, I decided to give a slope in the height of all the poles, from 1m height for the shortest to 15m for the highest. By doing this, the fence of 93 hydro poles can disappear gently into the ground, expressing metaphorically its supposed reappearance in the other gates. In addition, it creates a false depth of view, as if the poles were going far to hide behind the corns in the horizon.



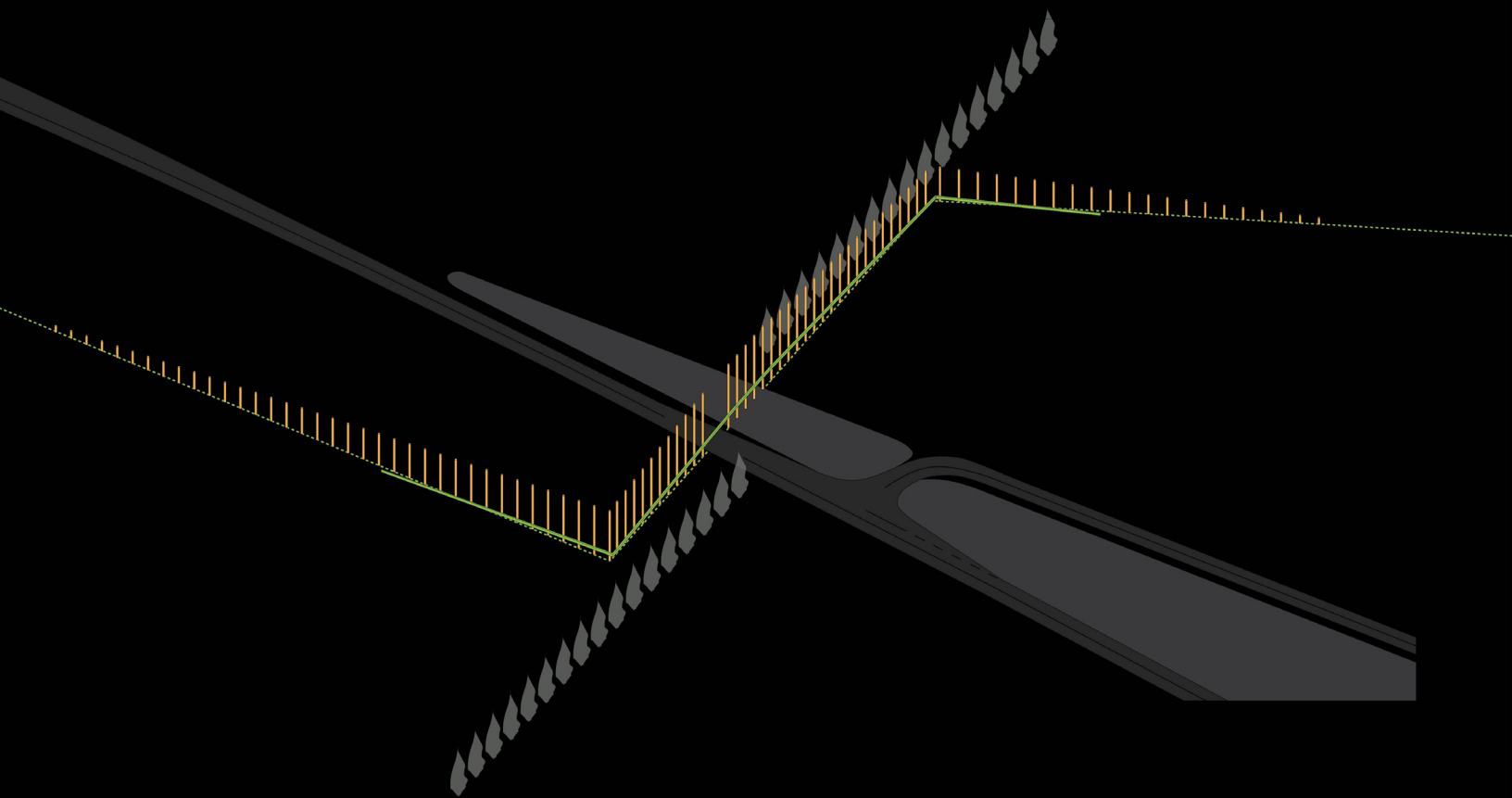
*Fig 3.06. The Infinite Line*



#### 4. The Corn line

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I planned to express the edge, perpendicular to the road, in a literal way. The linear planting box of corns is a small recall of the Z shape formed by the 93 poles. I did not want it to go all the way to the last pole, in the extremity, so we can distinguish easily the different layers that form the design (the poles vs the planting boxes). Proudly raising the corns in the air, the planting boxes follow a different slope and disappear into the ground as well. At night, it all gets lit up with a LED line of light, distinguishing itself in the whole landscape in the dark.



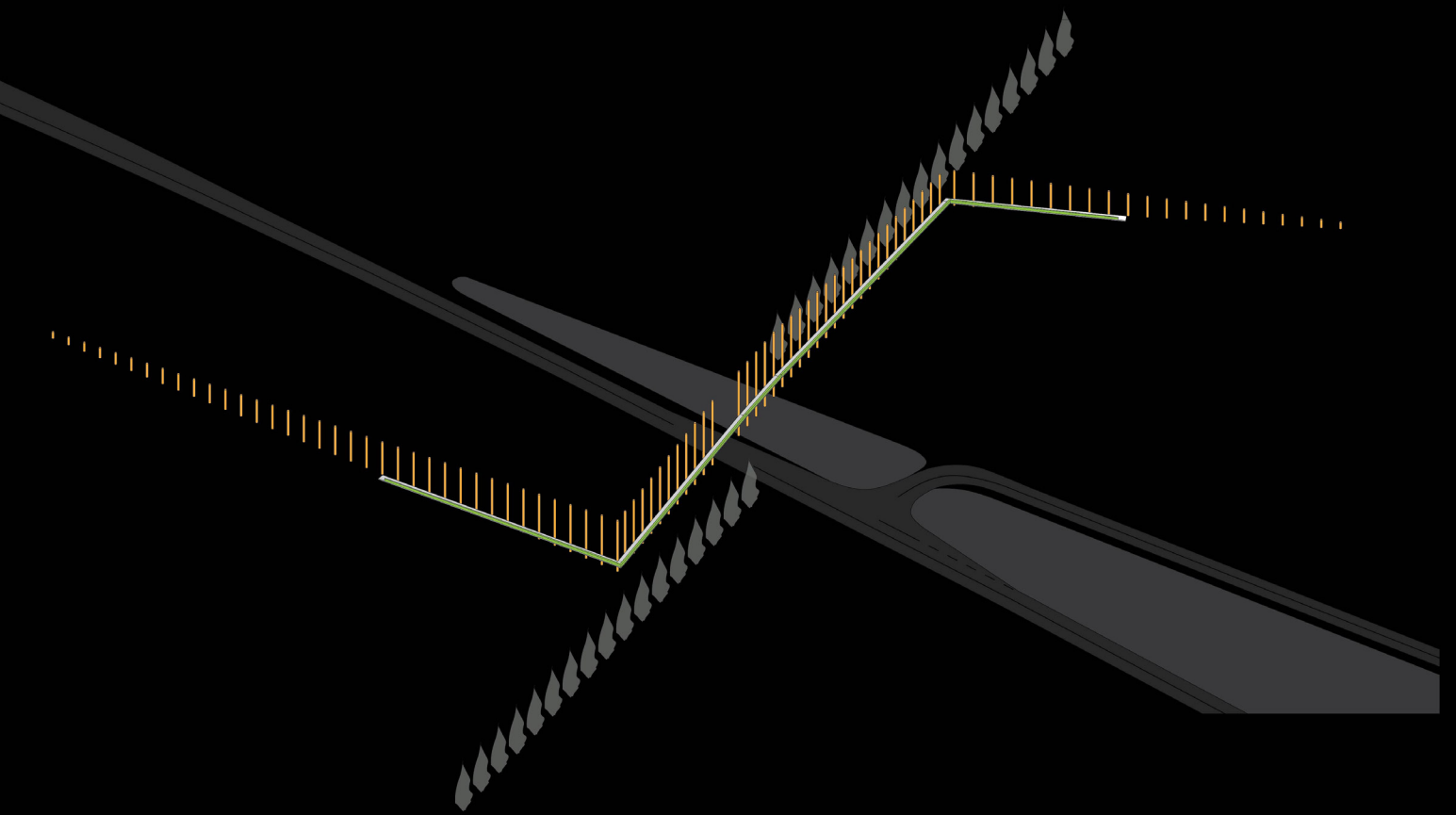
*Fig 3.07. The Corn Planting Box*

## 5. Corn picking

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A wooden decking walkway is cantilevered between the poles and the planting boxes. To me, it has a clear potential to create an immediate interaction between the border and the people —more precisely, the pedestrian. After all, should the experience of the gate 48 limit itself only to the driver's point of view? Two options were available for accessing pedestrian walkway: one is to walk beside the cornfields, under the structure, immersed in the ambiance of Ontario's farmlands. The second is to extend a trail for hikers, coming from south-west Whitechurch, beside Yorkleigh Cir St, and bring them through this project. Gate 48 is one of those points of the hike where we would enjoy stopping. People can pick corns on their way or admire the view from the height of 5.5 metres at the highest part of the walkway. It is an intervention that tackles most of our senses: vision, touch, taste, smell. By having people walking on the line, it is a frontier that becomes alive.





*Fig 3.08. Between Hydro Poles and the Corn Line: A Walkway*

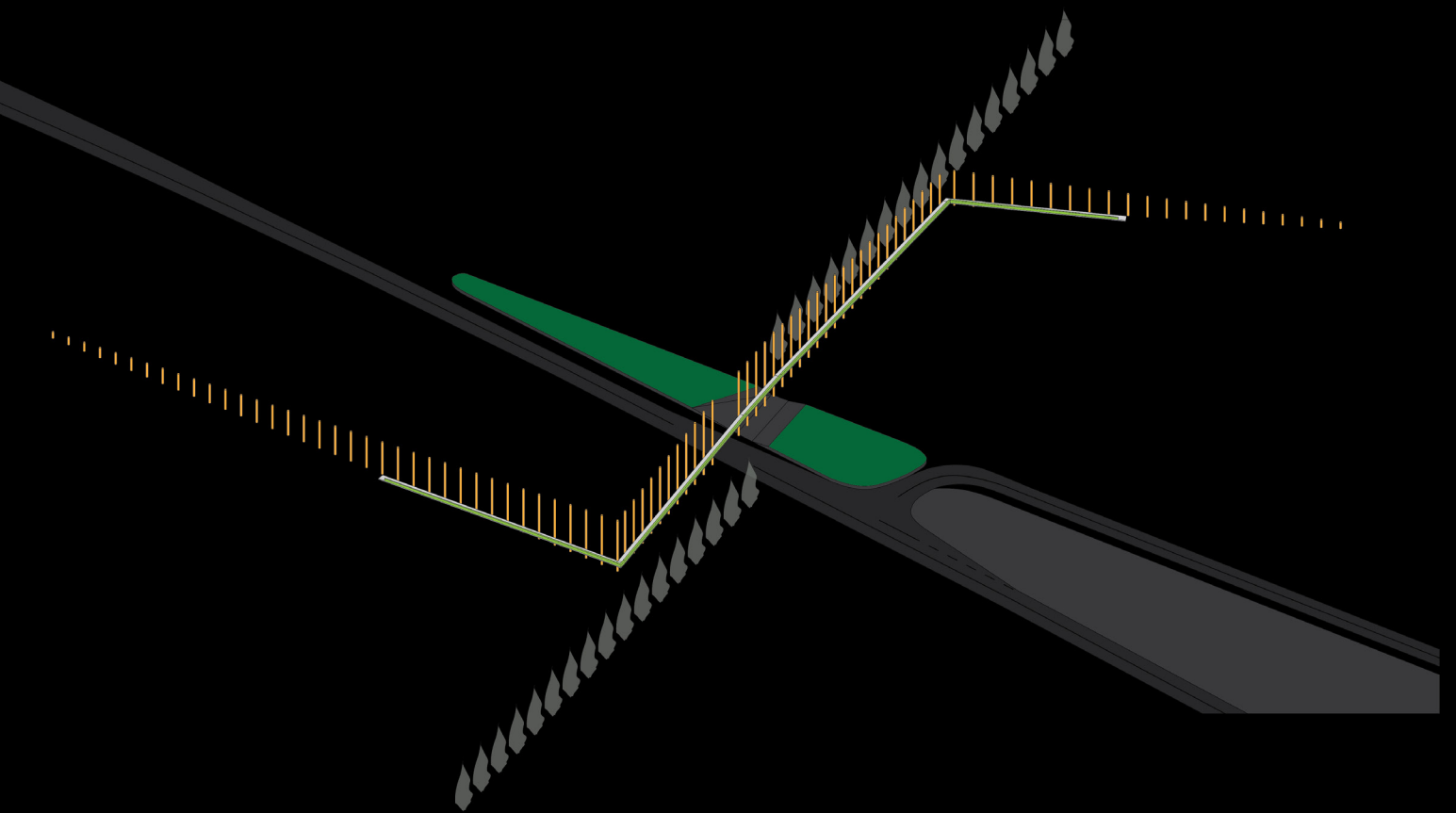
## 6. A defined space

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I was lucky to find, beside HWY 48, a fragment of land with a defined shape, crossed by the Greenbelt line.

The stretched and narrowed form of it was complementary with the idea of speed and border crossing towards the Greenbelt. Located at the centre of the project area, it is a perfect fit for hosting a public space and a program.

The 13 Gates project is rooted in the idea of border crossing with cars. One problem that was raised was whether the project experience should be limited necessarily to the drivers in their cars? To me, it was an architectural or landscape intervention too significant for a two-lane road to be only seen and not be accessible. In other words, it would become a megalomaniac billboard. Therefore, a program needed to be integrated with coherence to the concept (engaging drivers on the 48) as well as to the Greenbelt concept.



*Fig 3.09. A Fragment of Interest*



## 7. A classic stop in the road trip

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I wanted to bring in a classic piece that defines today's conventional road trip experience. To me, it is the iconic gas station stop with a restaurant or café break that comes with it. This type of program can engage symbolically in claiming the importance of the Greenbelt, if the stop becomes a ritual for travelers. It starts with reinterpretation of these road trip cliché toward the Greenbelt concept. Not a gas station but a charging station, not a Tim Hortons but a café in a corn field, challenging the conventional typologies in terms of form, materials, and experiences. It is a gate that we can cross one day and might stop at on another day. While charging the car, we can walk along the gate, pick some corns, go to the little café and get a drink in the terrace facing the cornfields with the monumental wooden colonnade of Gate 48 disappearing into the ground.

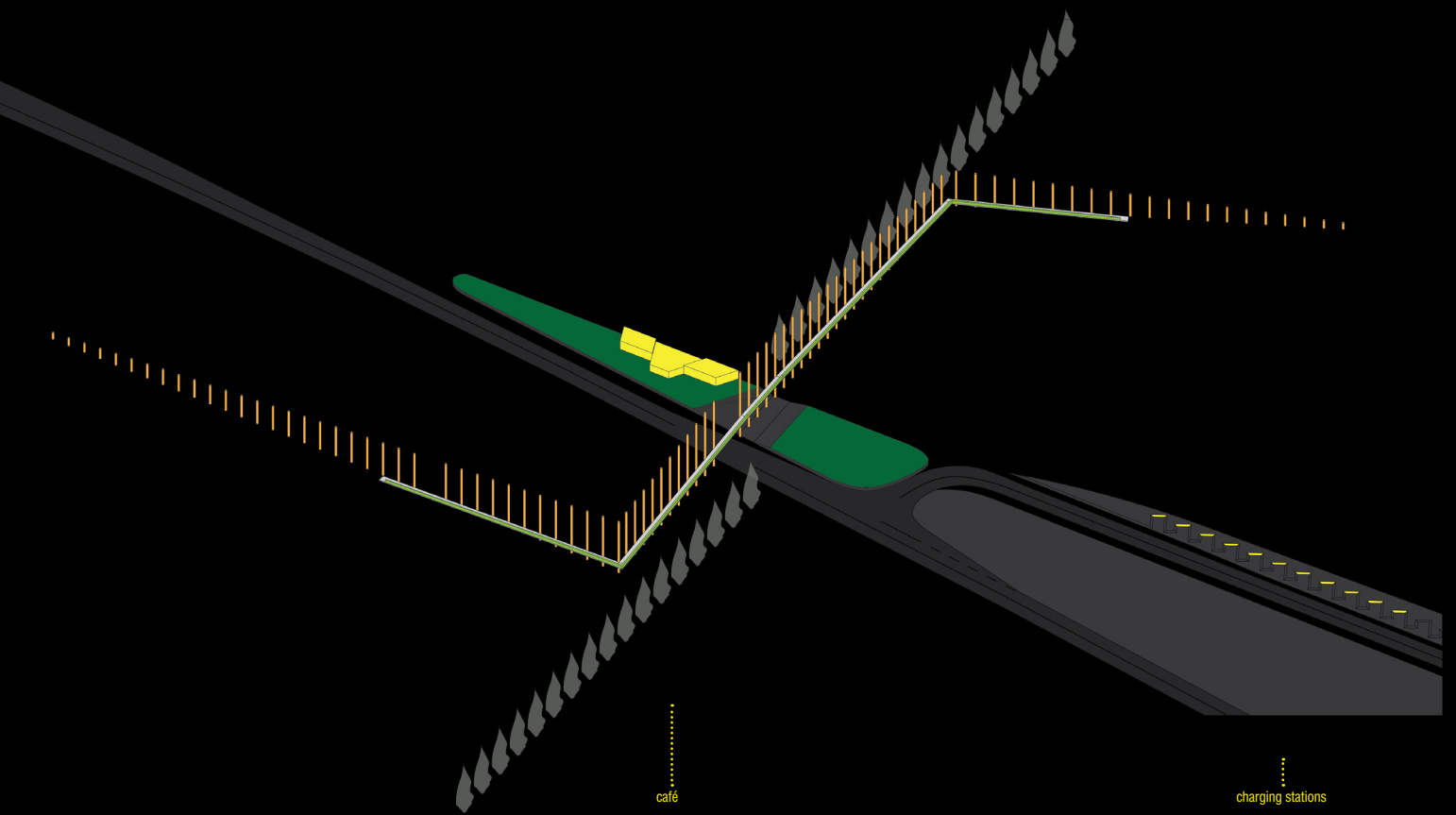


Fig 3.10. 11 Charging Stations and a Café









Fig 3.11. HWY 48 Road Trip Map of the Greenbelt

## 1. The Greenbelt line

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At nights, the border crossing experience becomes dynamic. It was clear to me that this intervention had a big potential, at night, to bring a fantastic or magic entry experience to the Greenbelt in the 48, with basic, affordable, lighting technology that we can easily access today (LED light).

The challenge of adding the layer of lighting installation was to make it permanent and yet create an ephemeral expression at the same time. It is an installation that has five different lighting designs, to address cars that are crossing it or public that may be seeing it. Each of them has a significance in highlighting Gate 48, from simple to almost extraordinary (like the purple cloud, the 5th one). However, to stand tall through a length of time and not “be dated,” some of them need to occur occasionally.

The simple and first one is the line light. It will be a multitude of aligned LED light on the planting box, visible from the cars, brightening the perpendicular edge of corns over the 48. It is the most present event, spanning from sunset to sunrise.

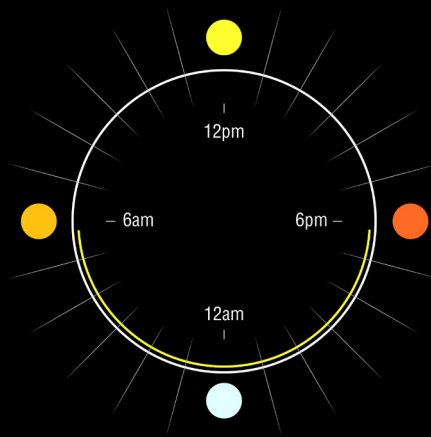
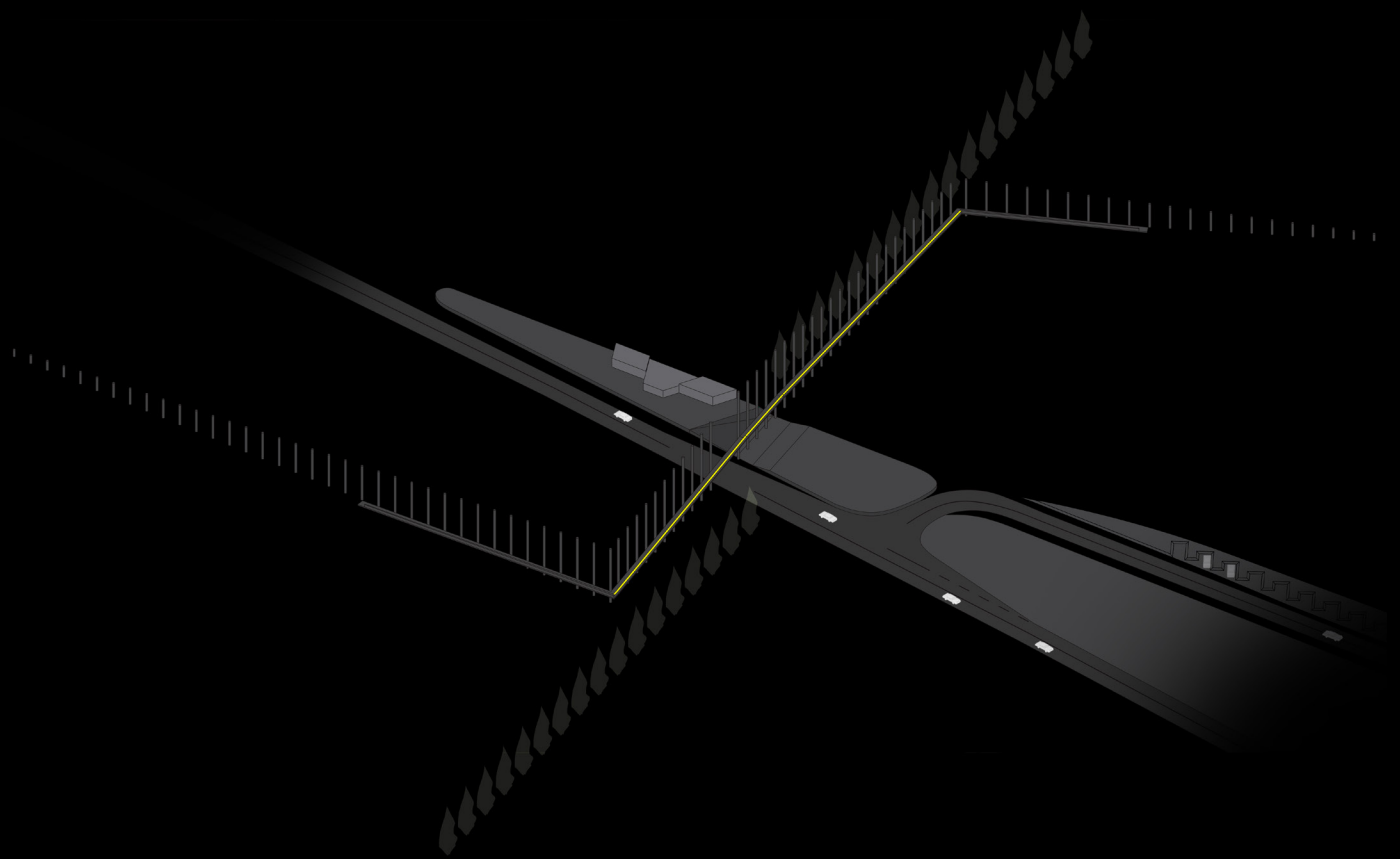


Fig 3.12. The Line Light Schedule Diagram (24h)



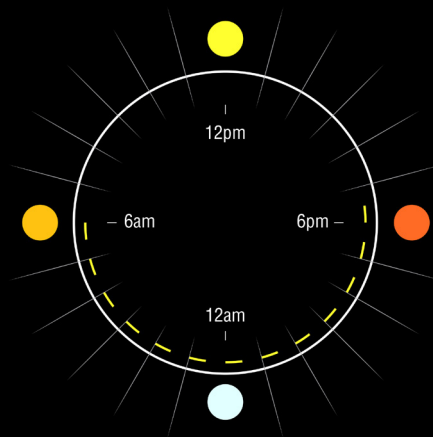
*Fig 3.13. Line Light*



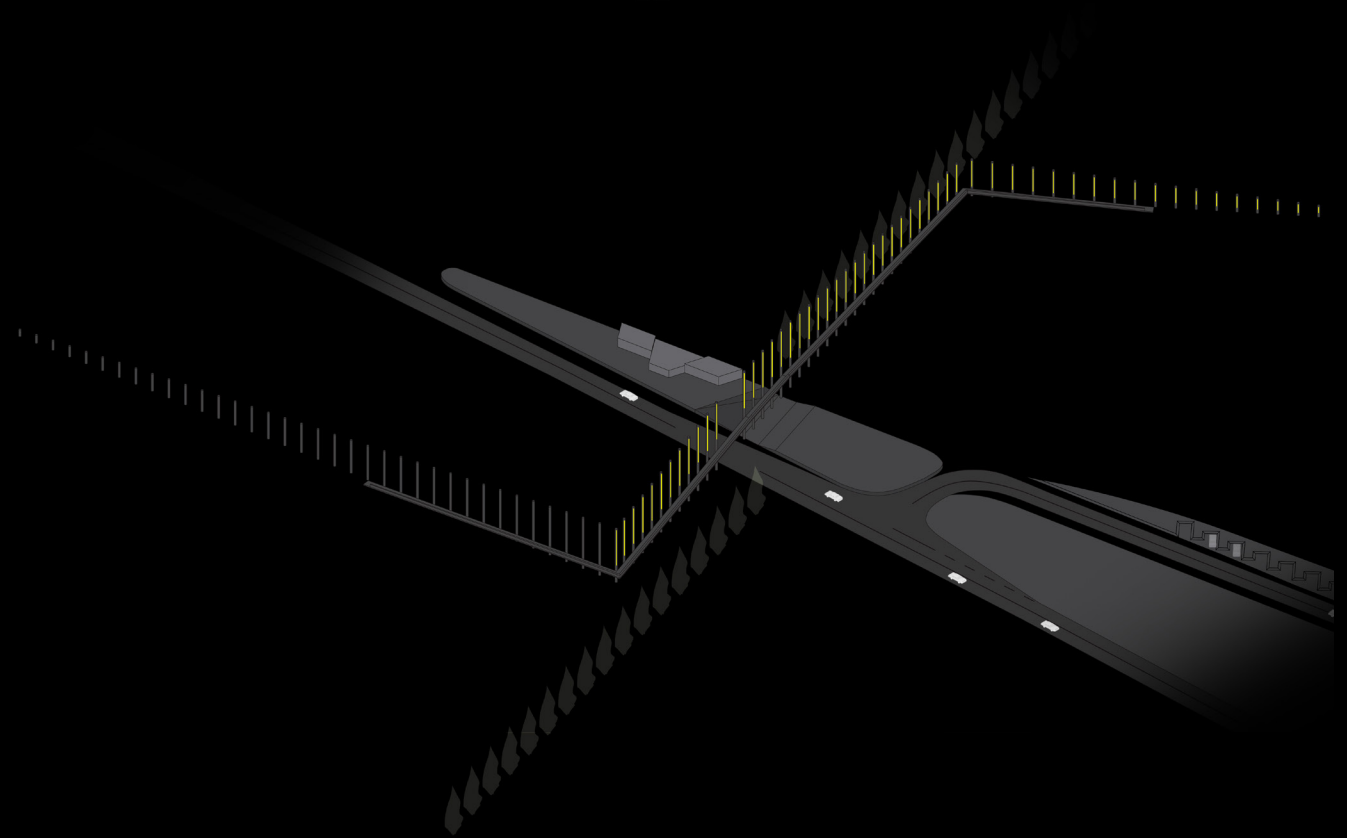
## 2. 93 Light Poles

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For 30 minutes per hour, 93 thin vertical LED lights, installed on the hydro poles, will bring alive the entire intervention. At night, they are one of the only visible elements from far. They enhance the rhythm of the 93 hydro poles, smoothly disappearing far in the ground and in the dark.



*Fig 3.14. Light Poles Schedule (24h)*



*Fig 3.15. Light Poles*

### 3. Light Motion sensor

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To celebrate the car border crossing event, 12 sensors placed on the 48 close to the gate, activates when a car passes beside each one, symmetrically two vertical (poles) LED lights. As the car gets closer to the gate, the LED lights are respectively turned on. It is an ambiance that happens at two different times during the night. One is late at night with a calm traffic, from 9 pm to 12 am, to keep the drivers awake and animate their trip. The other happens during sunrise, when the morning travelers are still sluggish from the fresh night of sleep, in order to help keep their attention on the road and give them a good start for the day.

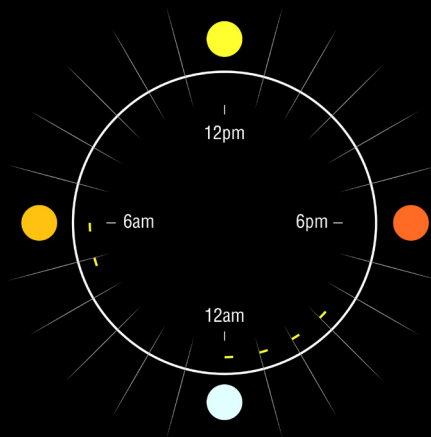
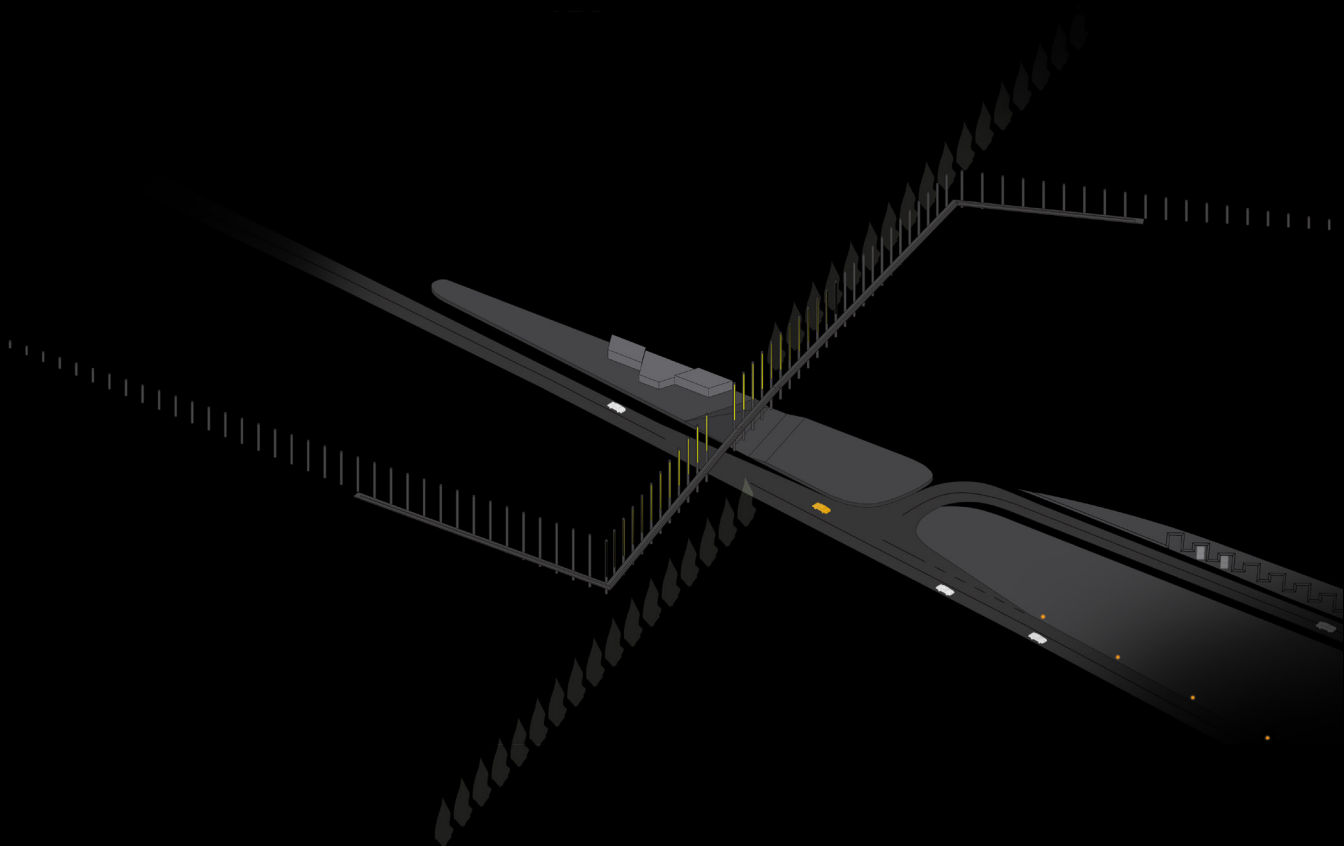


Fig 3.16. Light Motion Sensor Schedule (24h)





*Fig 3.17. Light Motion Sensor*

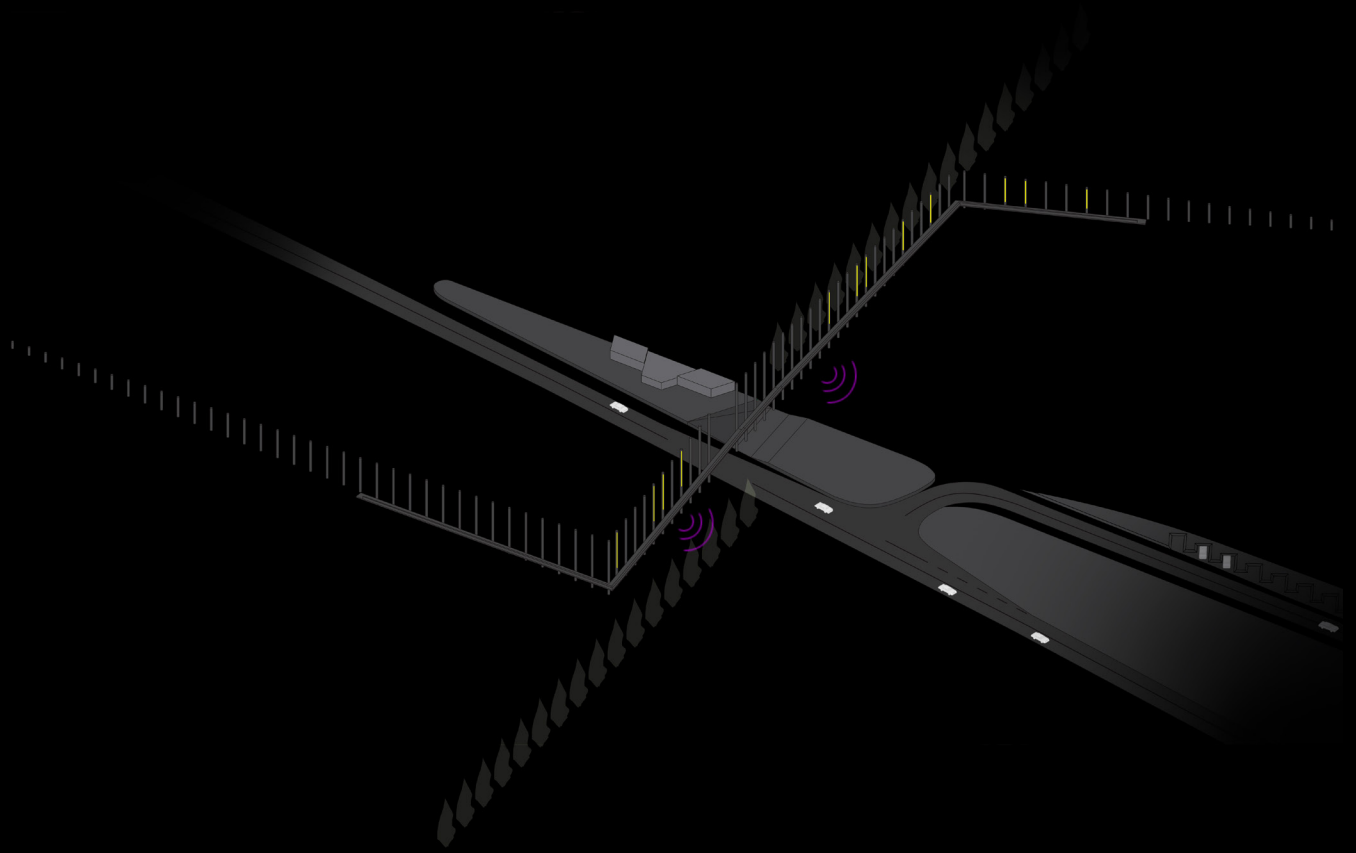
#### 4. Music Synchronization: The Greenbelt whistle

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The light experience does not limit itself just to the driver. Whoever is charging their car, or simply getting a coffee at night or in the morning, can witness a very relaxing and inspiring moment. A quite symphony starts playing apparently from nowhere (hidden speakers under the walkway) and overlays the beauty of the natural landscape made of trees, cornfields, the fog, the wildlife, and the 93 poles. With 93 LED light synchronizing each note of an instrumental music, the poles become the conductor of this natural orchestra.



*Fig 3.18. Music Synchronization Schedule (24h)*



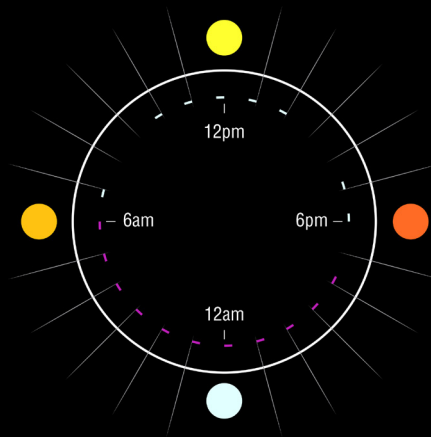
*Fig 3.19. Music Synchronization*



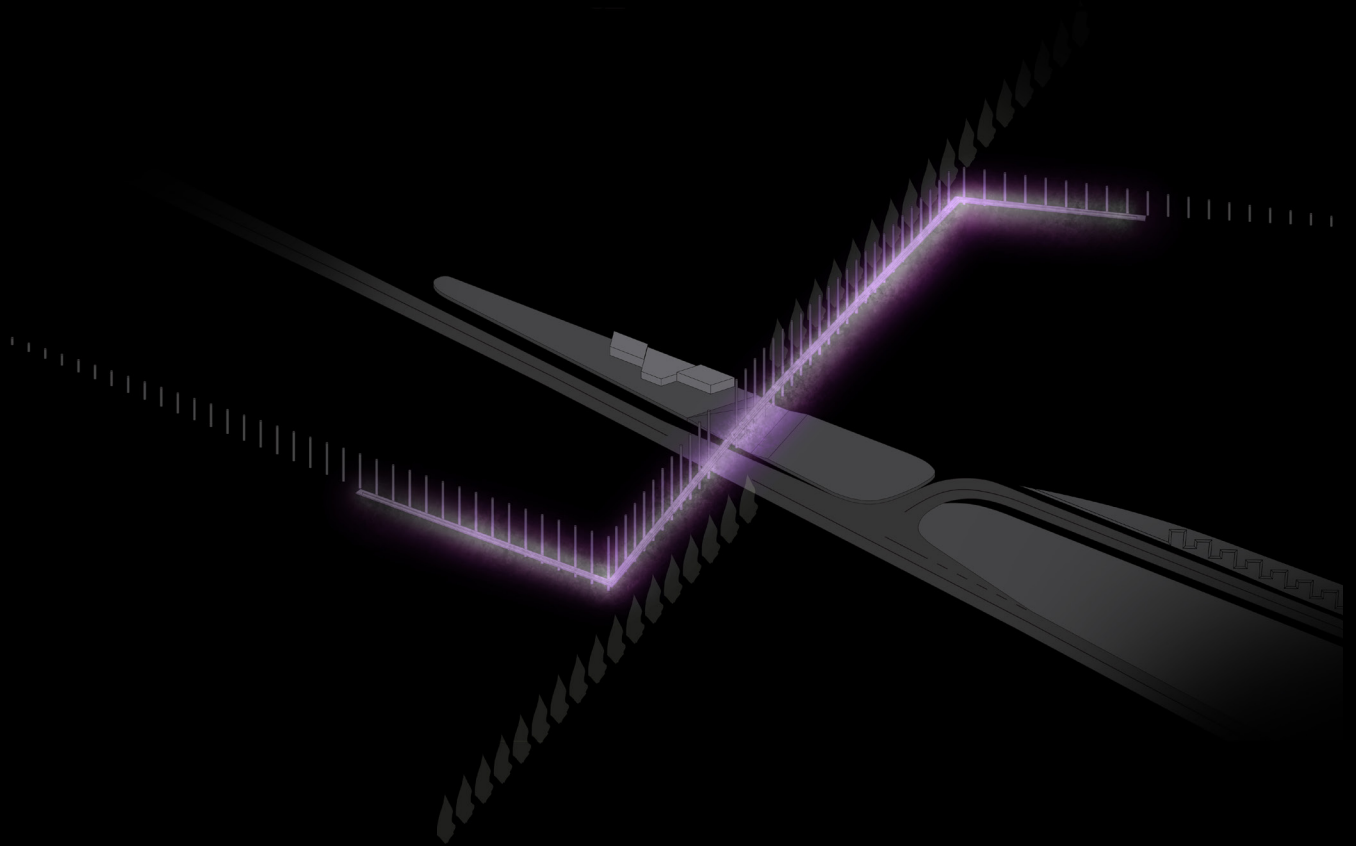
## 5. Purple cloud

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On holidays, like Canada Day, the fantastic view of a giant purple fog emerges from the planting box of the plants. The artificial fog is lit up by hidden purple spots of light. It is a fog that comes from the high-pressure watering nozzle of the planting box. The corns need a lot of water, therefore during the day, they get watered everyday through this pressured water, refreshing, in a hot day, the pedestrian or the hikers. At night, the phenomenon happens only on holidays.



*Fig 3.20. Purple Cloud Schedule (24h) (Holidays/Year)*



*Fig 3.21. Purple Cloud*



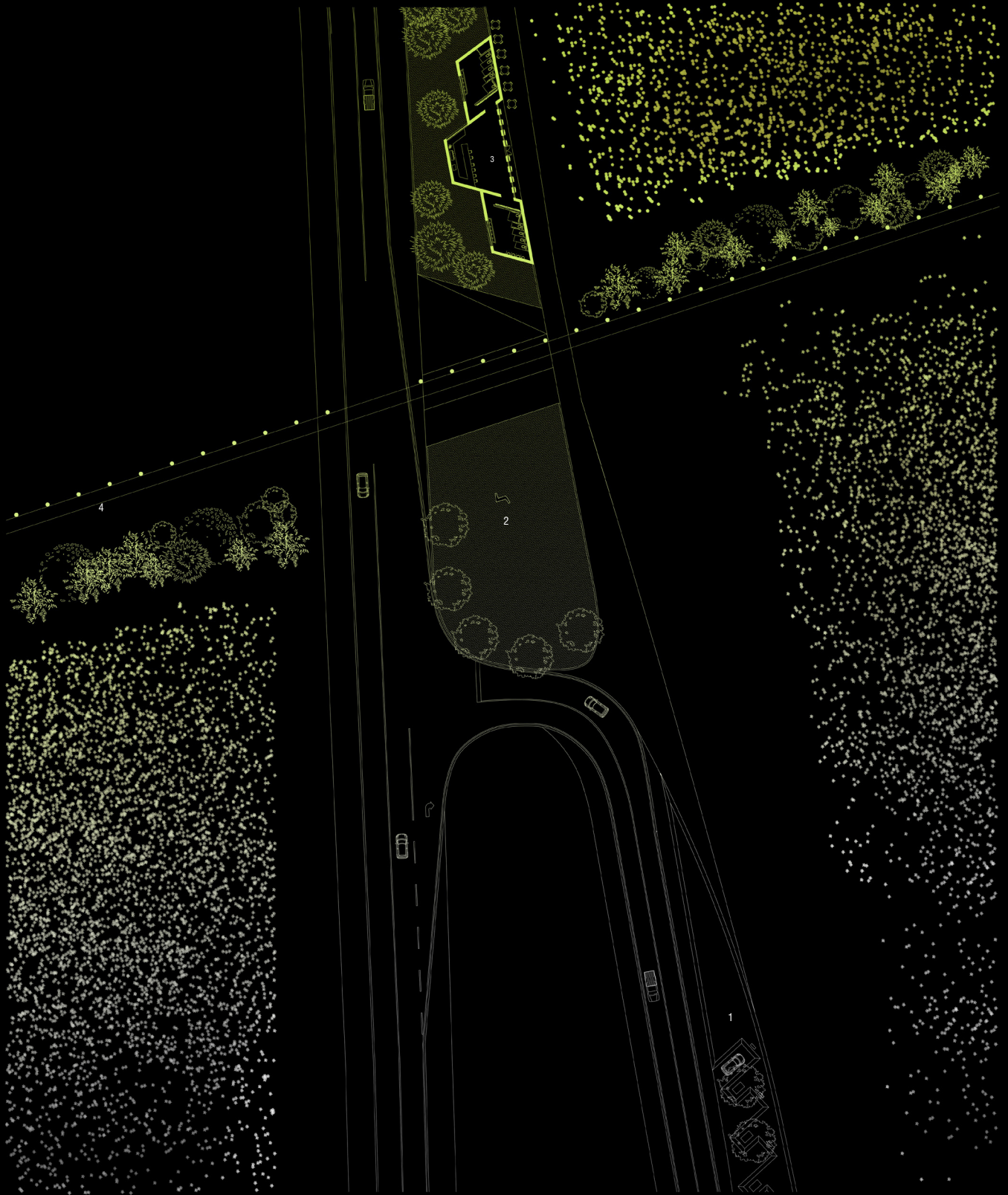
*Fig 3.22. Gate 48: The Corn Gate*





Fig 3.23. The Corn Gate , Site plan



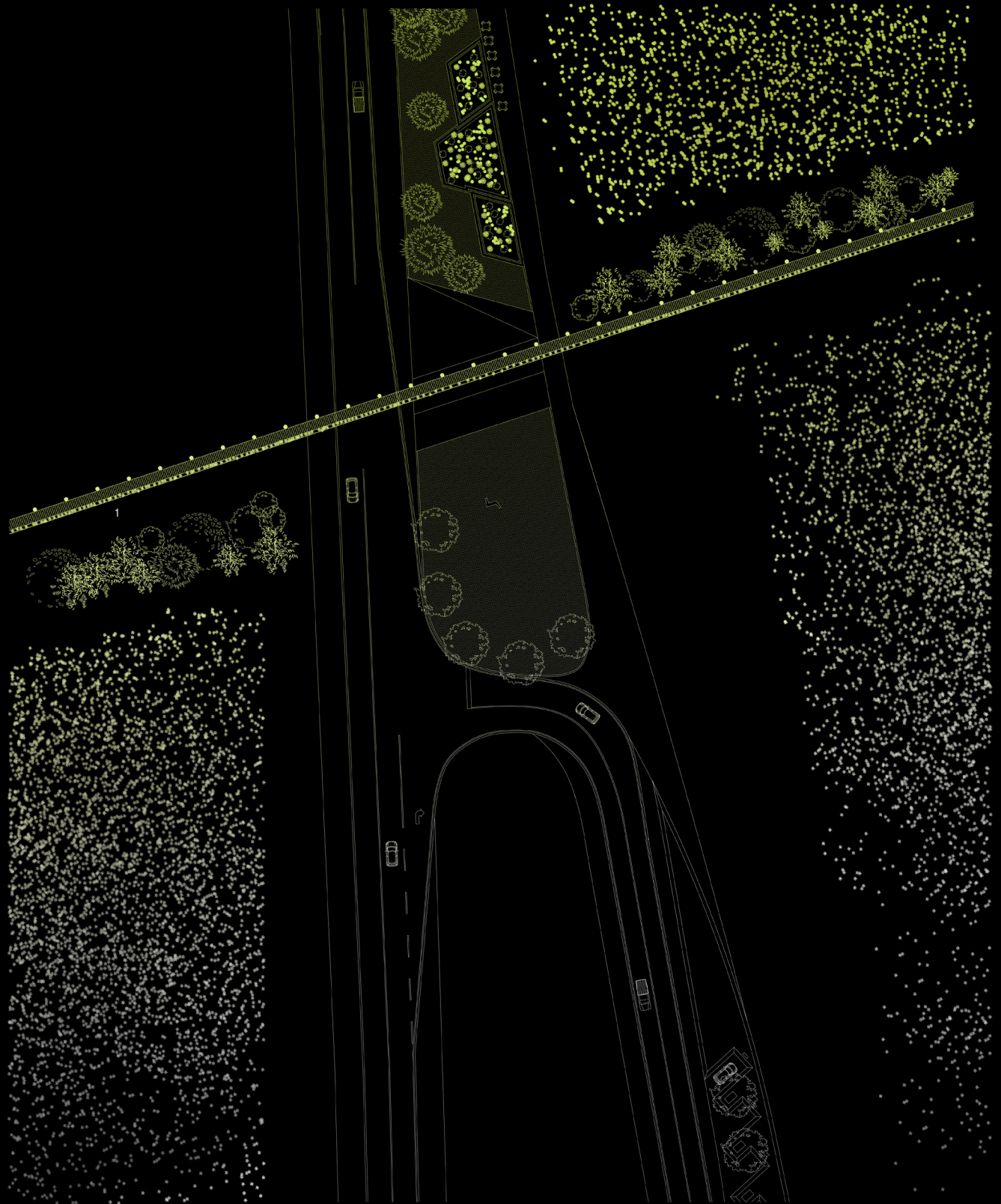


GROUND FLOOR

- 1. CHARGING STATION
- 2. SMALL MONUMENT OF GB GATE 48
- 3. CAFÉ + WC
- 4. TRAIL (GREENBELT LINE)

Fig 3.24. Ground Floor Plan

HWY 48  
THE CORN GATE



TOP VIEW

1. WOODEN WALKWAY (GREENBELT LINE)

Fig 3.25. Top View



0m 10m 30m (1:400)



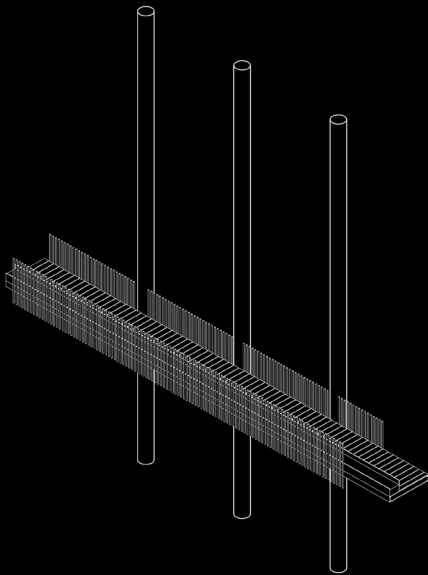
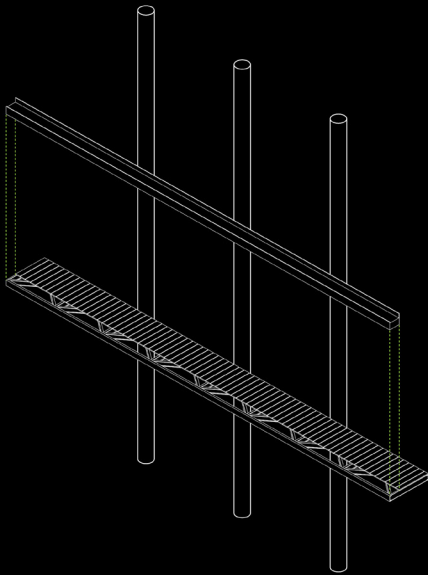
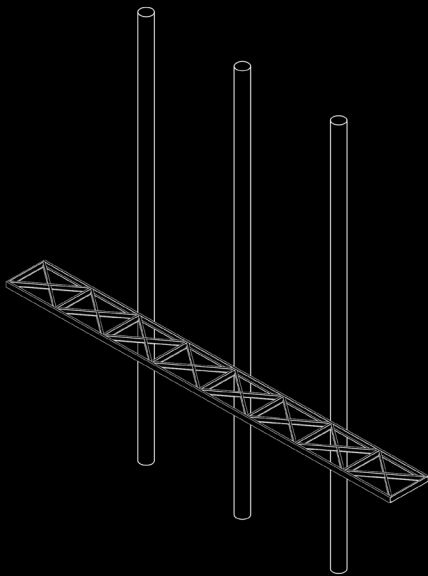


Fig 3.26. Structure Assembly

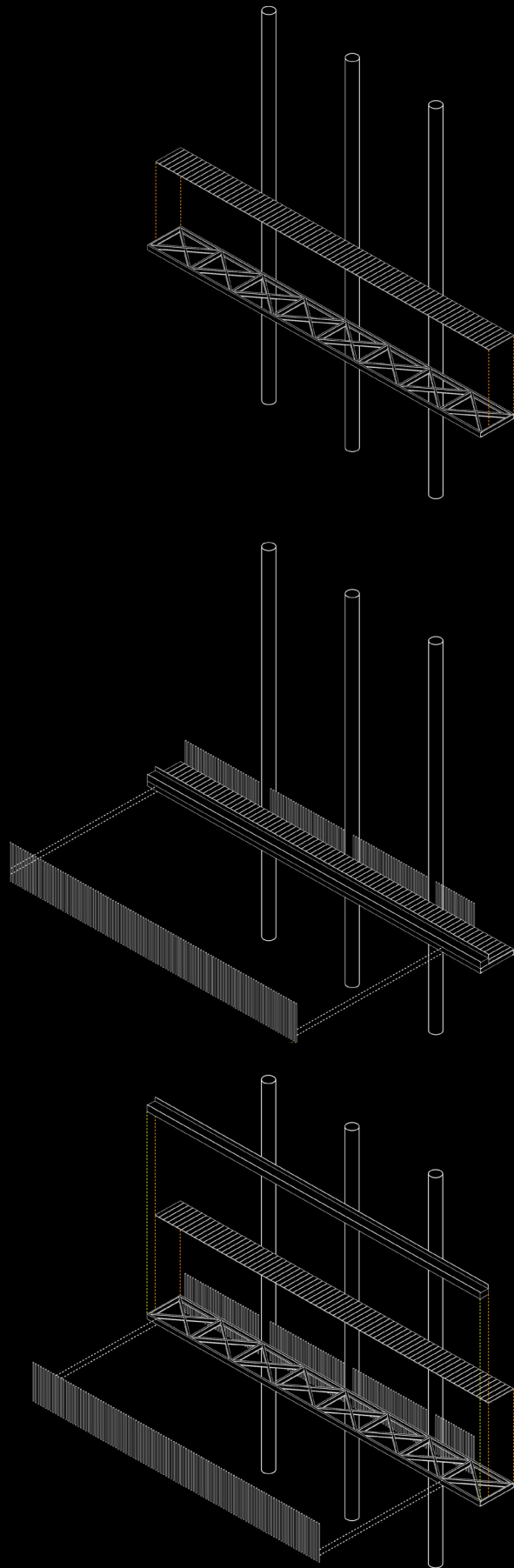


Fig 3.27. Structure Assembly



*Fig 3.28. The Greenbelt Frontier*



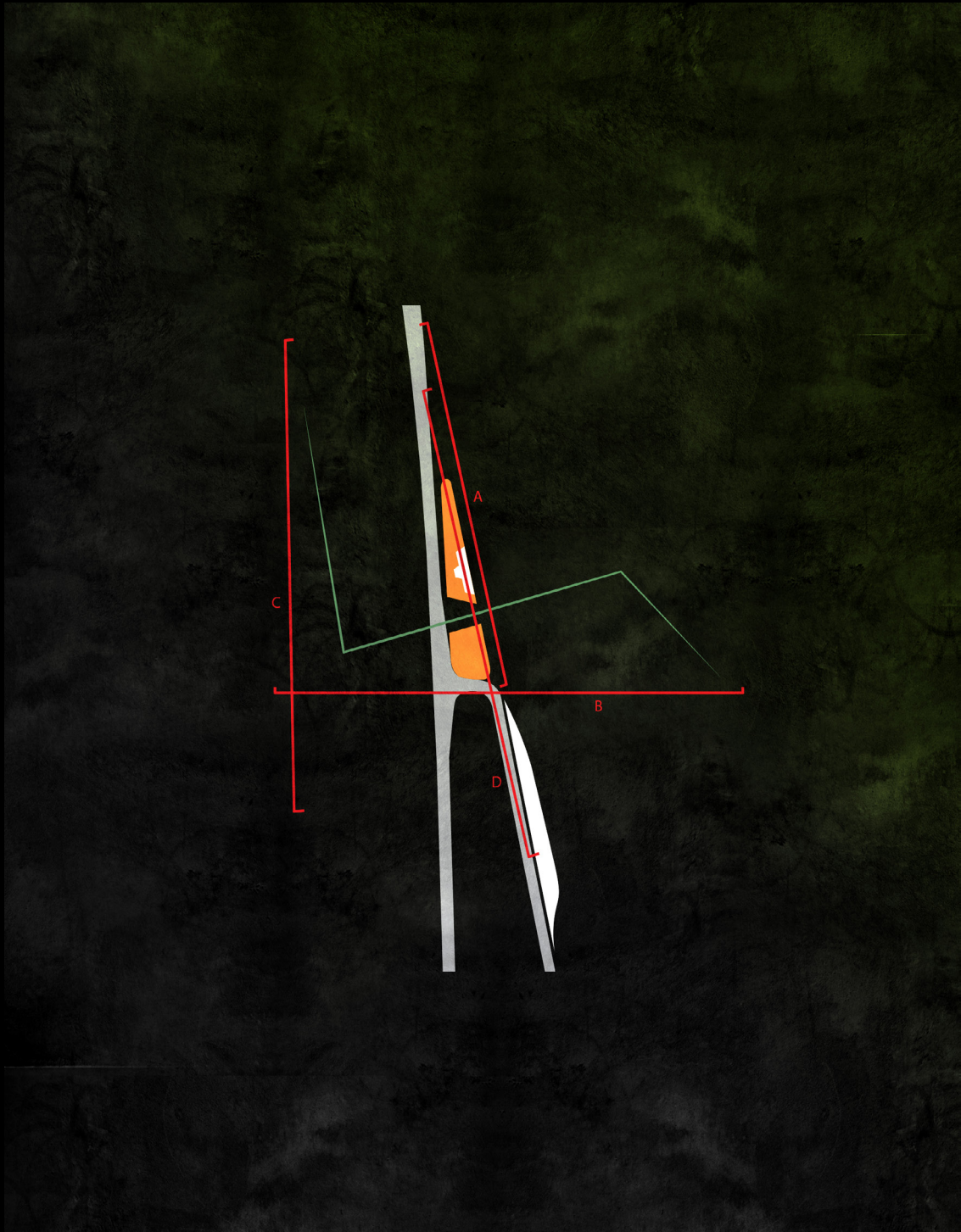
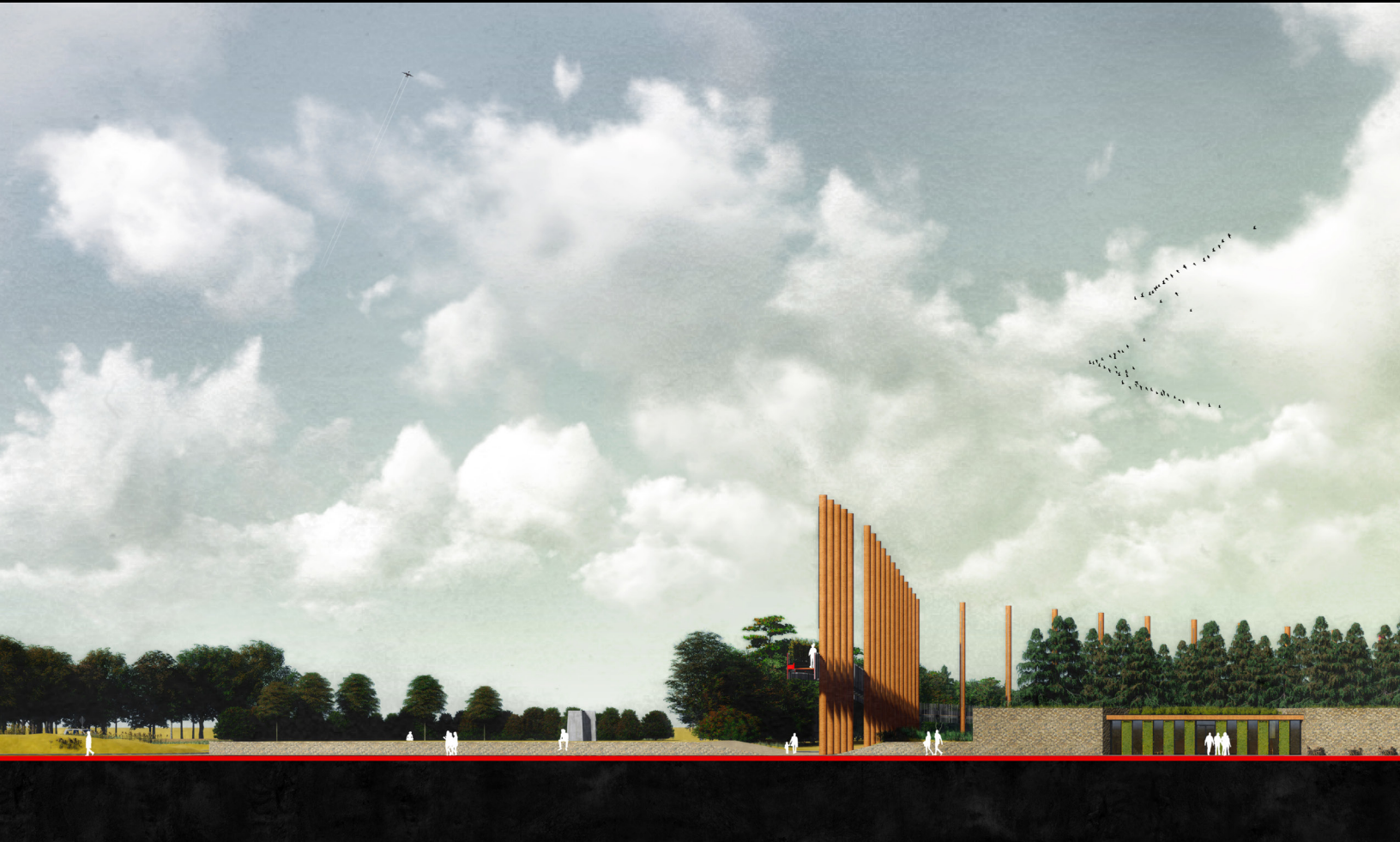


Fig 3.29. Sections Location Map



*Fig 3.30. A-A East*





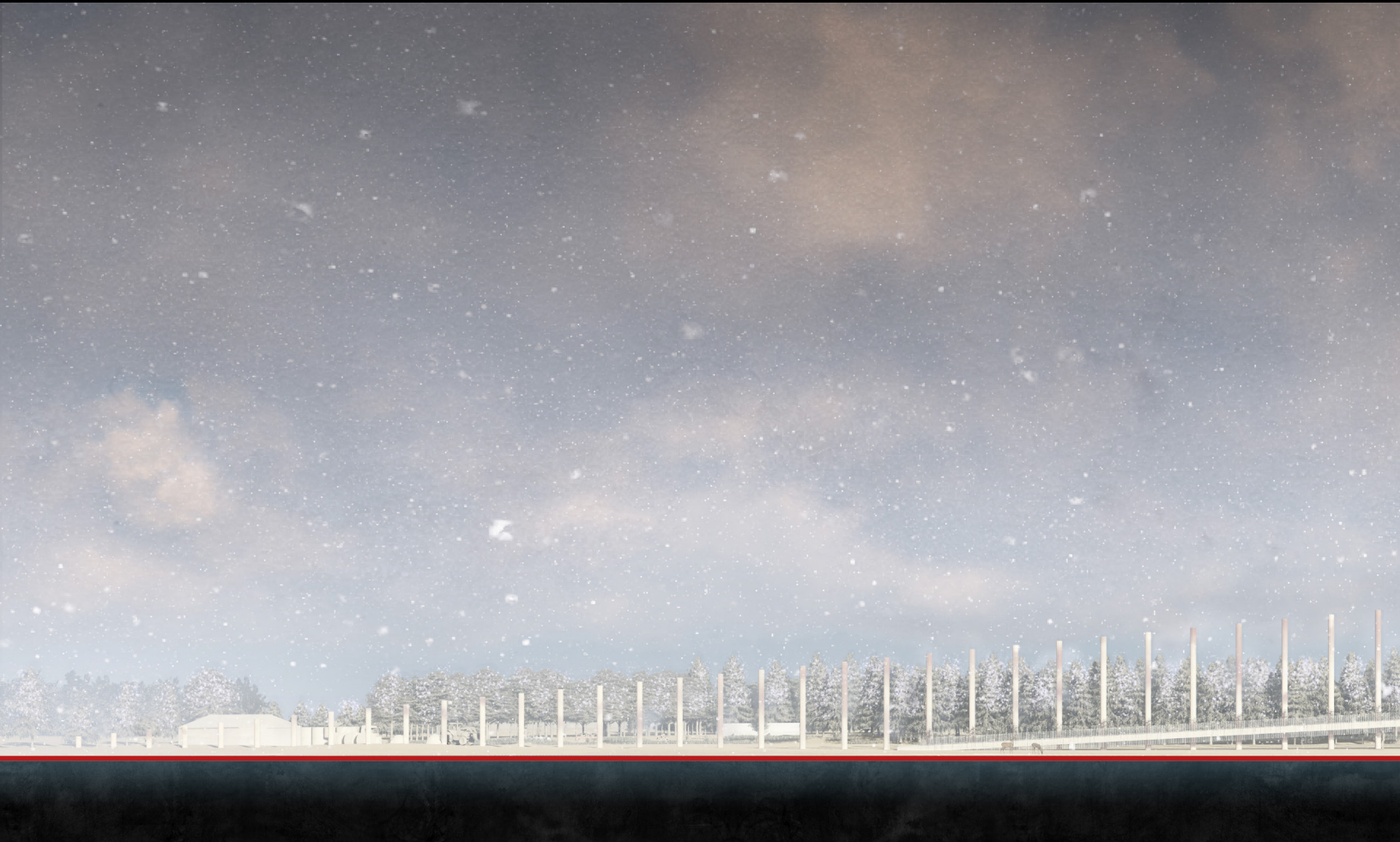




*Fig 3.31. B-B South*







*Fig 3.32. C-C West*







*Fig 3.33. D-D West*







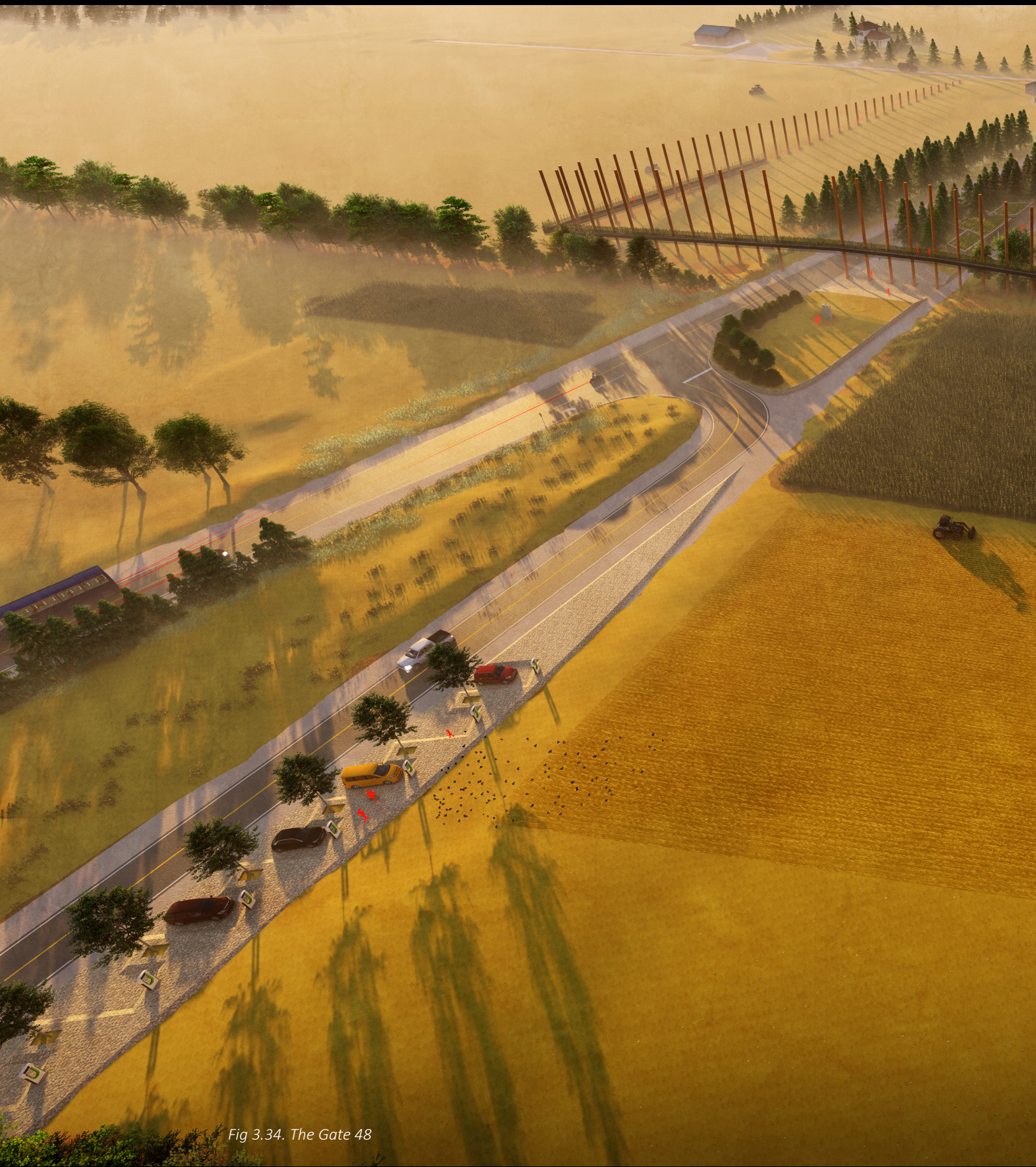


Fig 3.34. The Gate 48









*Fig 3.35. "Entering the Greenbelt"*

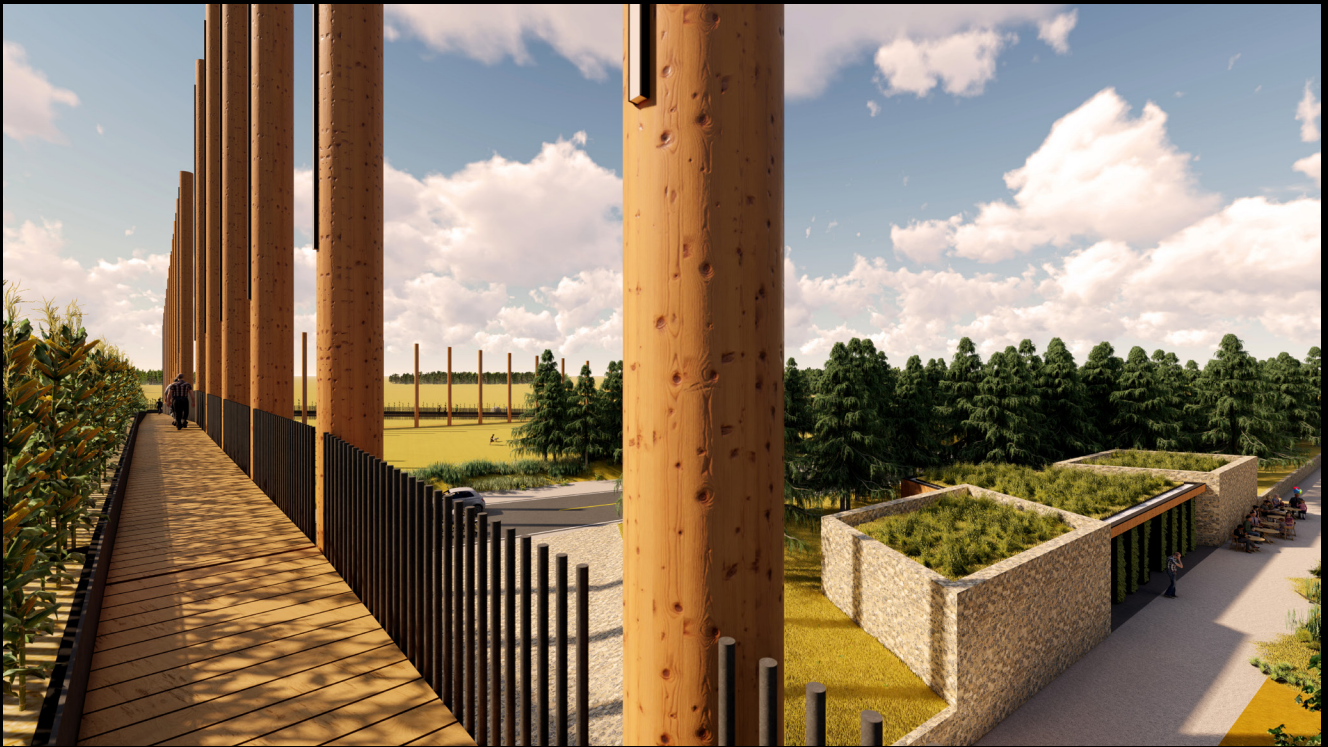




*Fig 3.36. Artificial Cloud (Watering the Corns)*



*Fig 3.37. Part of the Road-tripper's Ritual*



*Fig 3.38. The Walkway and the Café*





*Fig 3.39. Inside the 48 Café*



*Fig 3.40. W.C*



*Fig 3.41. The 48 Café*





*Fig 3.42. On the Way of the Hike*



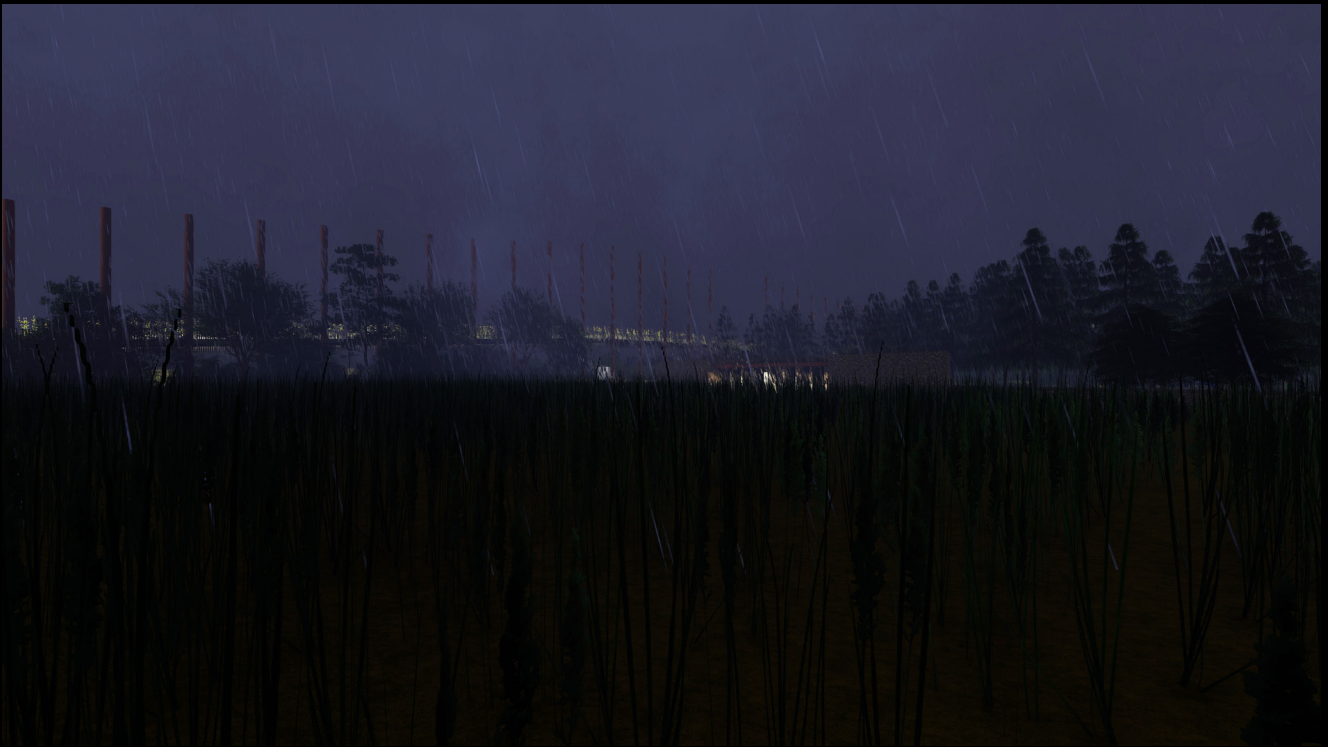


*Fig 3.43. A Canadian Heritage*

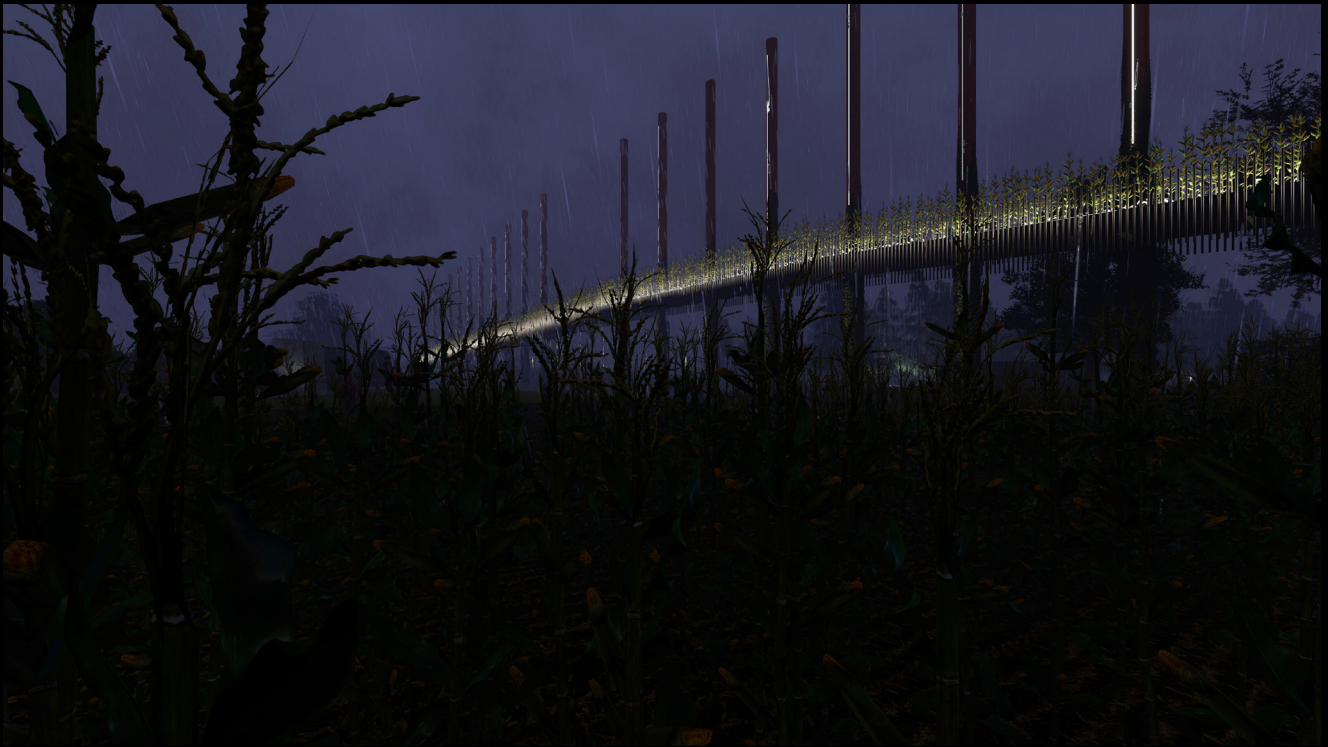








*Fig 3.44. A Gate in the Wild*



*Fig 3.45. A Visible Line*



Fig 3.46. "Entering the Greenbelt" (Night)





*Fig 3.47. Line Light*

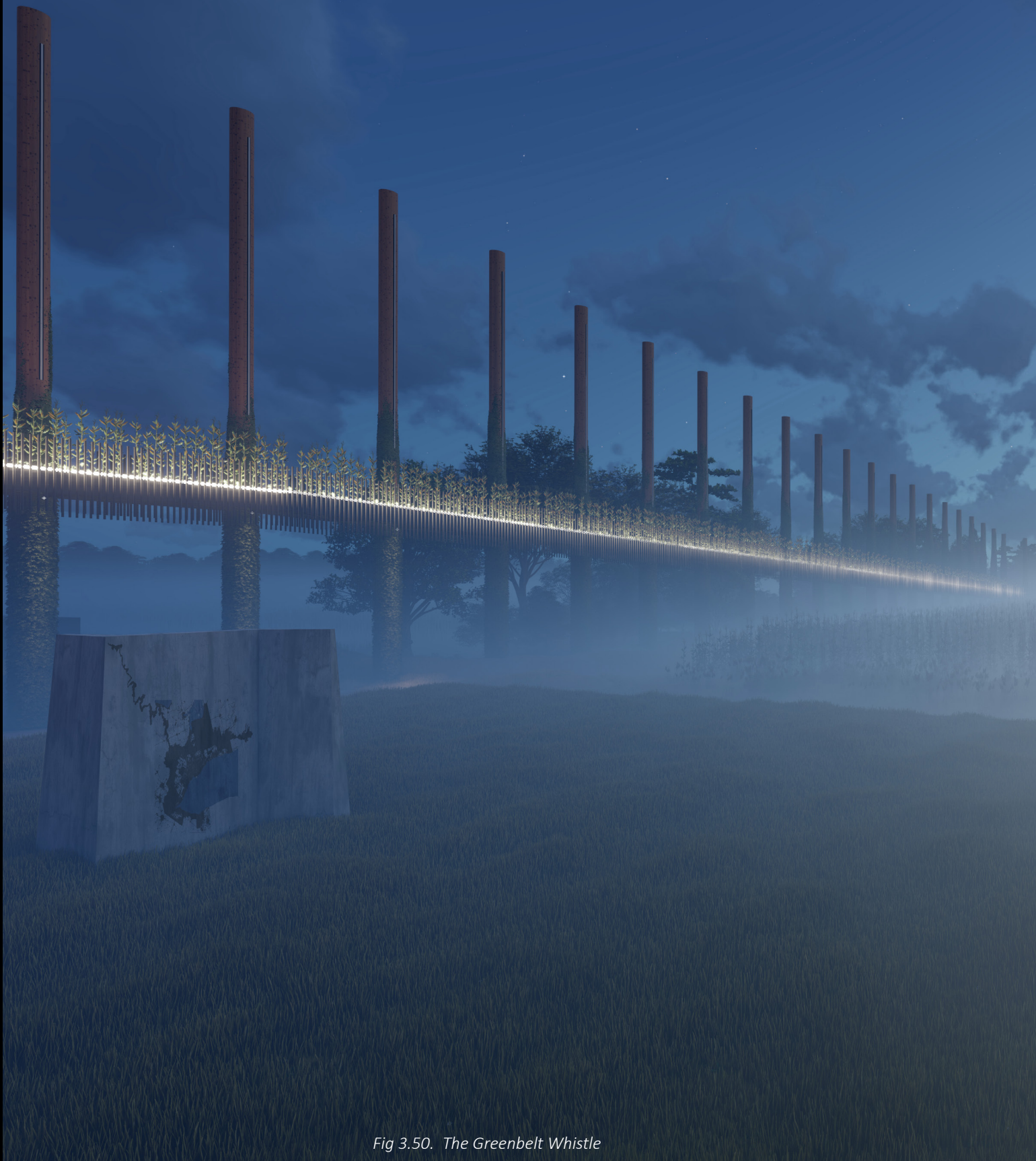


*Fig 3.48. Purple Cloud*



*Fig 3.49. Purple cloud (Beside café)*





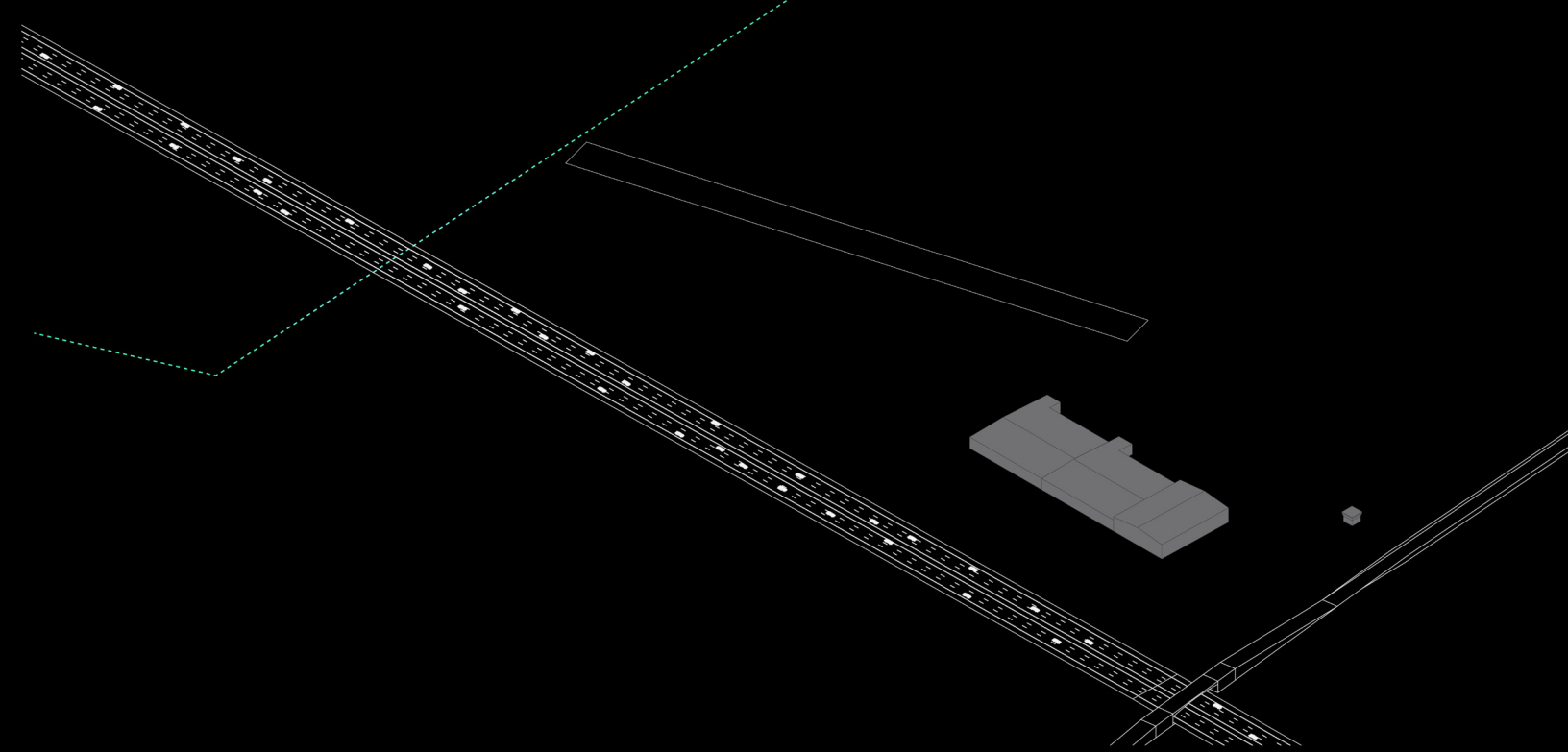
*Fig 3.50. The Greenbelt Whistle*



Gate 400

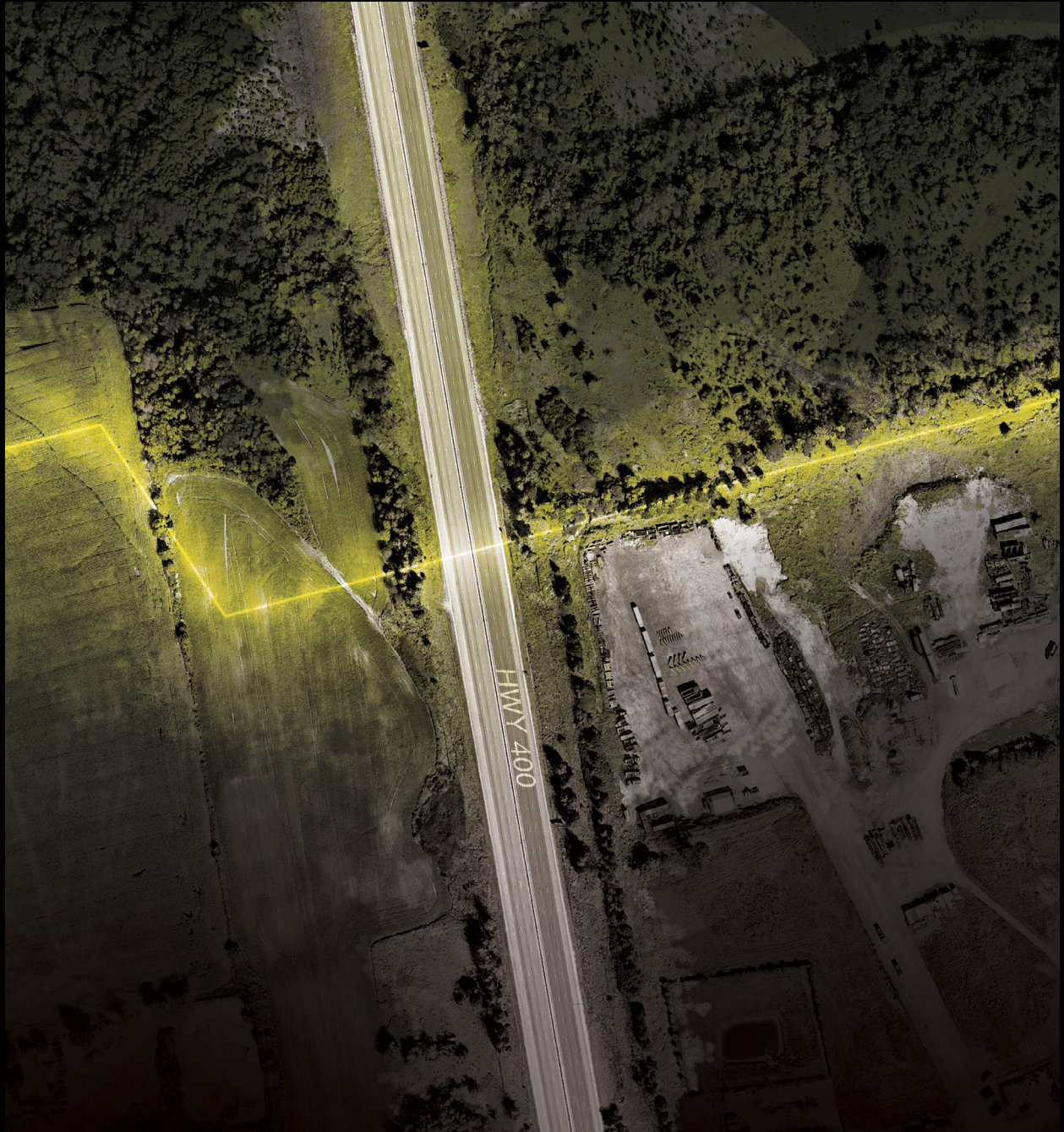
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Gate 400 attains its importance from the daily traffic load it supports. 101, 600 cars cross the Greenbelt line in the 400 everyday. It bears one of the highest traffic among the 13 highways. It is a special gate, because of what is located in the meeting point between HWY 400 and the Greenbelt: the old King City airport. The Greenbelt passes right through the northern edge of the airport before crossing highway 400. Presently, even though the Beamish Construction Group had taken over the airport to store their materials, we can still notice the remains of the old runway and a few old hangars—all still in good state.



*Fig 4.00. Context Diagram*





*Fig 4.01. Context of HWY 400 vs the Greenbelt*





Fig 4.02. Context: Bird View



*Fig 4.03. The Remains of the Old King City Airport*



## 1. Retrofit: the Flower Gate

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To me, it felt inevitable that the airport will play an important role for this gate. The challenge of the 400 is that in contrast to the 48, it is a high-speed experience of border crossing. The proposed program of the retrofit is the only element that can bring people physically in contact with the border. Therefore, I decided that the success of this gate should owe in big parts to the airport. Gate 400 will be symbolized by what the old airport can offer. Based on surveys of the King city Municipality,<sup>38</sup> what I concluded to be the most appropriate option to the city and the Greenbelt was a nursery garden.

The architectural or landscape strategy of the project was thought to focus on the arrival to the Greenbelt border. Because the cars are globally driving at a speed of 100 km/h, the question was to figure out how to avoid an intervention that appeared brief or sudden. My intentions were mostly based on enhancing the approach experience to the moment of crossing the Greenbelt border. An approach designed around the drivers' point of view in the highway, and the users in the nursery garden who would like to get to the Greenbelt line. An intervention very similar to the 48 with, again, the five-metred spaced hydro poles that slopes gently to the ground, revealing another shape of the political line of the Greenbelt, this time in the case of 400.

The first step of the design was to define and locate the important elements of the program. First and foremost, came the idea of a greenhouse: the first element to be seen when the cars pass the bridge. Next, in the three existing hangars that I kept, the first was suitable for storing some plants and trees for sale, with the greenhouse right beside it. Coming back to the idea of the Greenbelt headquarters, I thought about moving it inside the first hangar and adding a coffee place. In this open space, Friends of the Greenbelt Foundation will be less isolated and more in touch with the public, sharing their knowledge of the Greenbelt. The old runway is retrofitted into a splendid flowered field corridor, inviting people toward the Greenbelt border intervention. By then, the idea of Flower Gate was born.

<sup>38</sup> Shop King, Township of King, Resident Survey Results (Clear Impact, 2016), 4, Accessed August 13, 2019 <http://www.king.ca/Business/StartorExpandaBusiness/Documents/>

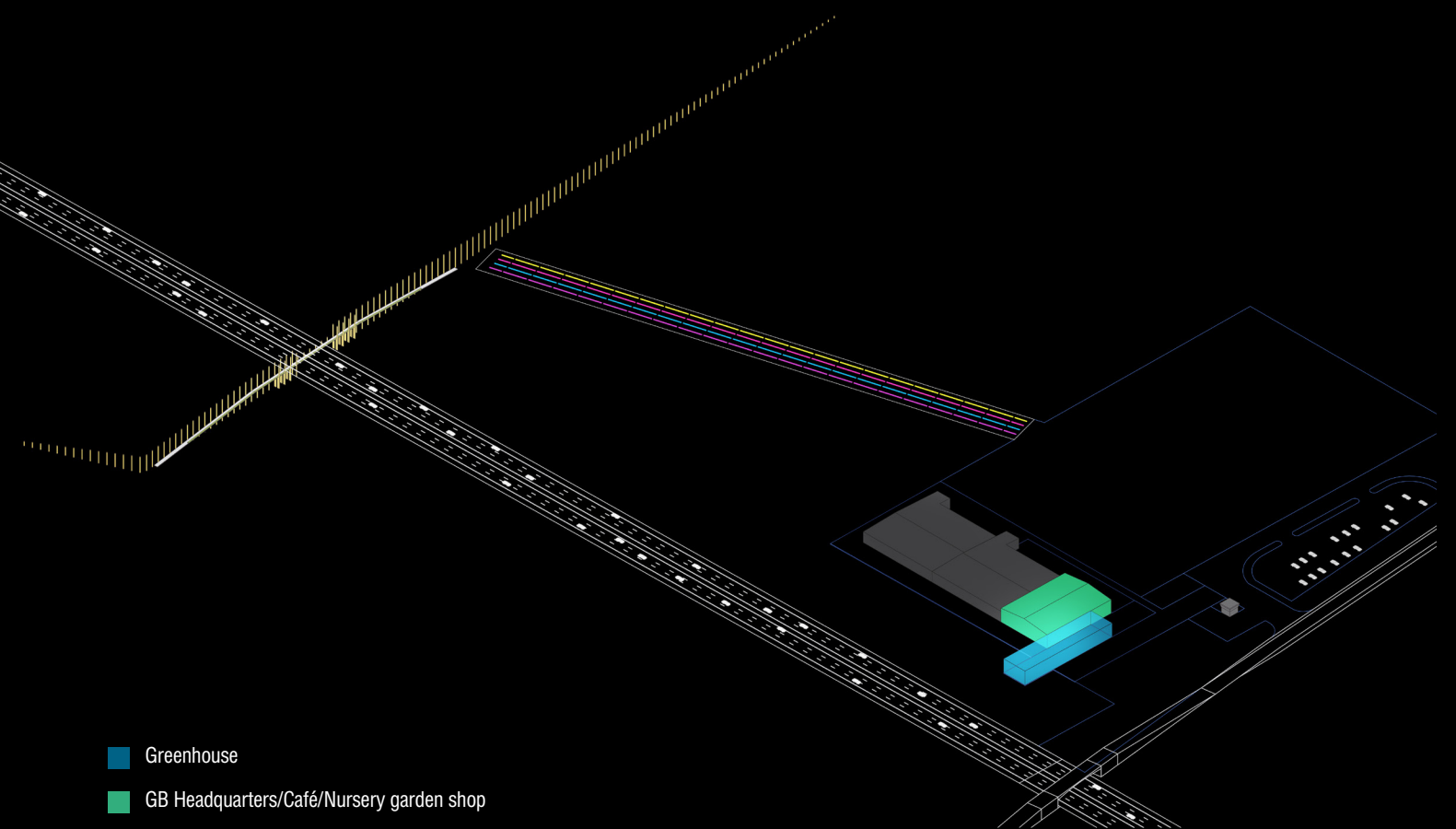


Fig 4.04. The Greenhouse, the Nursery Garden, the Greenbelt Headquarters, the Old Runway: Retrofit

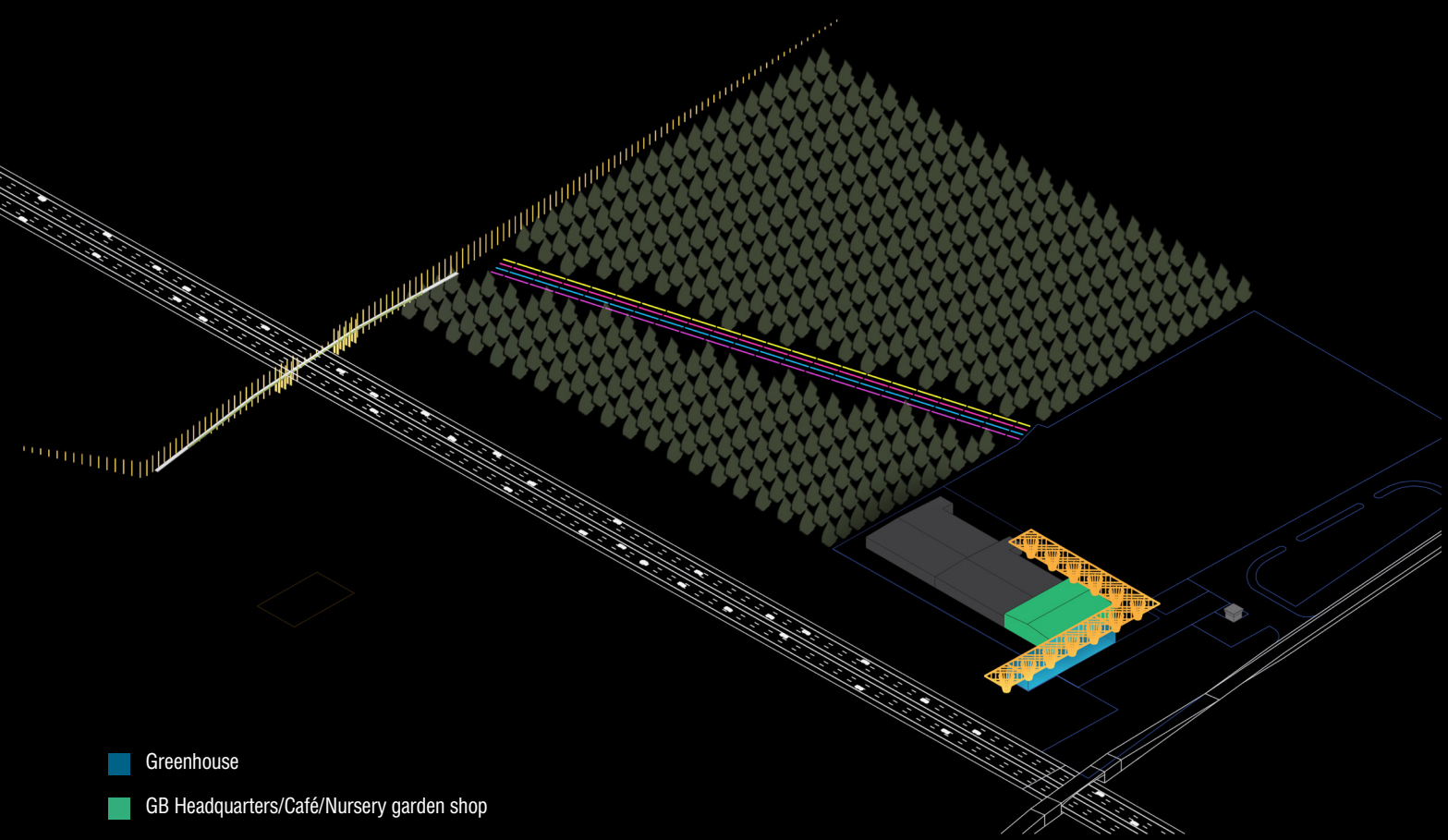
## 2. Landscape / Architecture

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The first element announcing the border to the drivers is the greenhouse. Because the high speed flux of cars on the 400, an extravagant architectural language or landmark that promptly raises the attention of the driver on their arrival to the Greenbelt edge was needed. A wooden structure, metaphorically miming the natural form of the trees, supports the glass box of the greenhouse, accessible from the first hangar. The wooden pattern structure that circles few hangars, in L shape, creates an outdoor canopy of suspended plants and animate the poor facades of the existing hangars. More than just a sign of the Greenbelt proximity, the greenhouse is located to the south to enjoy an optimal solar gain in the winter.

For the flower field, on the old runway, I felt that it needed a legitimacy and independency. It is an important fragment of the project, directing towards the Greenbelt line. That is why, a significant tree planting operation is added around it. The trees nicely emphasize this flower corridor, pushing the focus on the beautiful view of the sunset and the hydro poles in front of it. It is a project that finds itself in a design based on framed view at the scale of the user. The West edge of this new forest parallel to the highway 400 escorts the cars to border and creates a curtain, hiding what is happening in the old King City airport, keeping the surprise alive for those who would like to explore it.





- Greenhouse
- GB Headquarters/Café/Nursery garden shop

Fig 4.05. Guidance to the Flower Gate

### 3. Bold Gate / Community activities

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The greenhouse acts as a first indicator of approaching the Greenbelt entrance. However, the border crossing experience needed to be pushed longer since the high-speed cars reduce it to merely few seconds. Therefore, in respect to the Flower Gate concept, I thought about adding a second door, in front of the hydro poles gate, through a moderate planting field of sunflowers. The thicker and brighter the gate, with the yellow colors coming from the new sunflowers field, the better it is, alerting drivers of approaching the Greenbelt. As HWY 48 was surrounded by corn fields, gate 400 now has the sunflower fields, which can embody the identity of this gate. In addition, the choice for sunflowers was supported by the idea of the cliché of road-trippers who stop to take pictures even if, of course, in the 400 this cannot happen, unless the drivers decide to stop in the nursery garden.

For me this garden centre, whether private or public/private partnership, can initially finance itself and maybe even some elements of another gate in the future. Business or not, I thought that what it can offer to the community was the most important factor and a key for people to engage in the Greenbelt cause. It starts by building a social dynamic in the community, supported by this Greenbelt gate. Therefore, the second component added in the landscape program is an orchard of peach, apples and lemons. Since my arrival in Canada, I have been intrigued by the importance of apple picking activities to the Canadian families: almost a ritual. That is what I wanted to offer with the orchards in the nursery garden. Not relying solely on the employees of the garden centre, the program of the project really draws itself on the engagement of the communities to take care of it, and in background the Greenbelt gate.

Families, individuals, tourists can come learn and take care of the plants, of the flowers in the runway, the sunflower, the greenhouse, and get closer to Friends of the Greenbelt. These activities can connect them with the project, with the gate and with the Greenbelt.

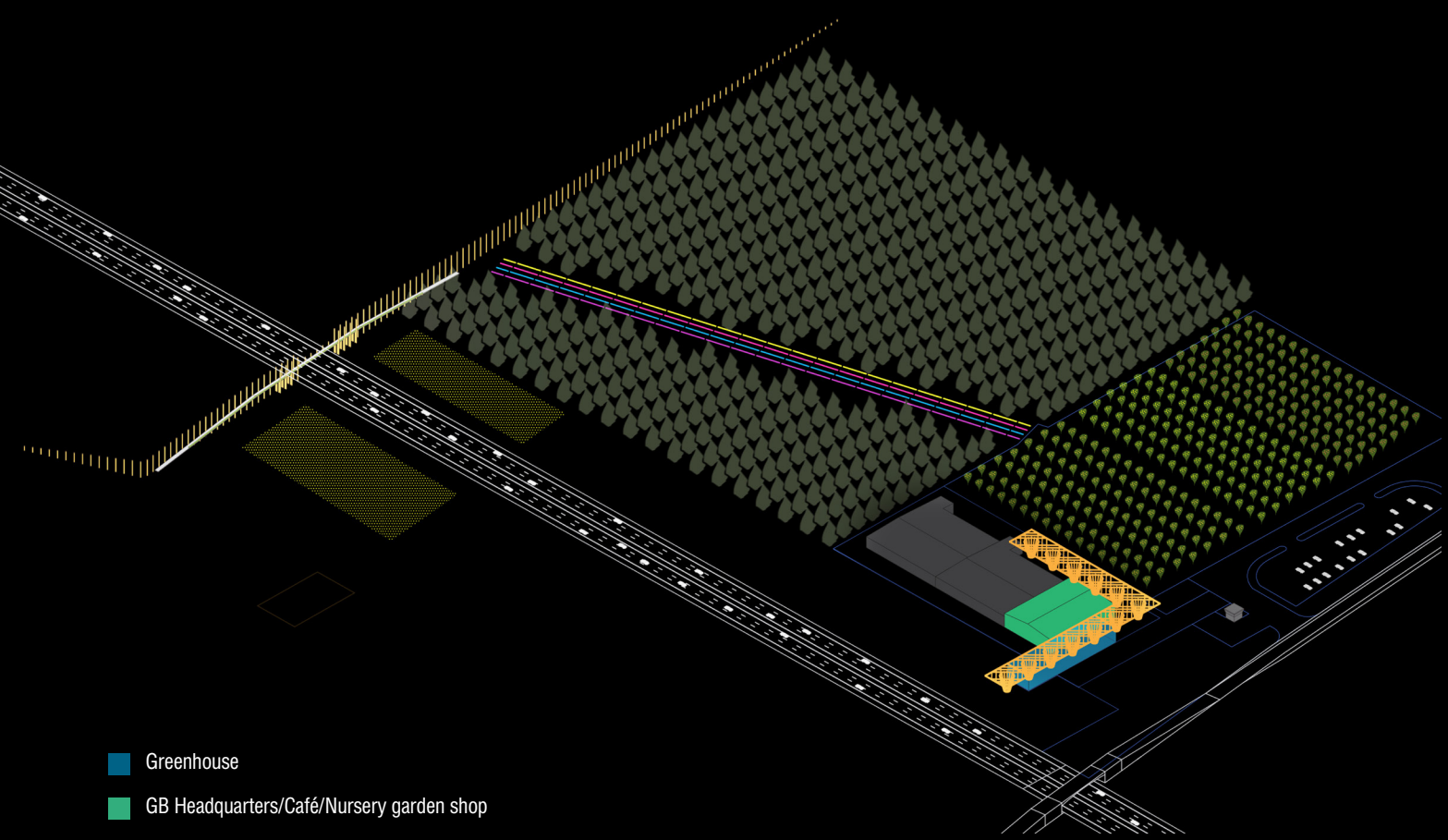


Fig 4.06. A Bold Gate



## 4. Last touches

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The last step of the design was to complete the project with a necessary program for the nursery garden and the gate. Two big hangars, which still remained, were located right after the first one that hosts the store and the Greenbelt headquarters. The second is meant to be a storing space for the plants ready to go to the shop in the first hangar. A big cold room, important to the orchards for storing fresh fruits, is placed there, and can as well be used by the farmers of the neighbourhood if it is empty. In addition, the machinery of a sophisticated watering system of the whole project is located there, beside the mechanical room of the three hangars. The third hangar is divided in two. First, comes a garage for some farming machines and service vehicles that helps manage the projects. Second, the other half, facing north, hosts a big workshop for the maintenance or restitution of any components here as well as in the 12 other gates. It is a workshop also open to the community to learn wood working while contributing to the nursery garden needs. The last piece, the tower control, is a good fit for a control, security and logistic space. Faithful to its past, it is the eye of the nursery garden that manages all the operations in the project, and regulates the automatic watering system.

The Flower Gate project gains its meaning from the way the gradual experience of the approach prepares the drivers or the users to enter the Greenbelt. It is a gate that takes its monumental position because of the landscaped elements around it. If you were a driver on the 400, it starts by crossing the existing bridge of King Vaughan Rd, 600 m away from the gate. Then, right after, the big greenhouse with its significant structure indicates the beginning of the approach. A wall of forestry, where the flower runway is hidden, guides the drivers getting closer to the gate. Thereafter appears suddenly the yellow 150 m carpet of sunflowers, indicating that we are about to enter to the Greenbelt. At the end of this yellow passage, the big span hydro poles pedestrian bridge, of the Greenbelt line, gets crossed in a fraction of second.

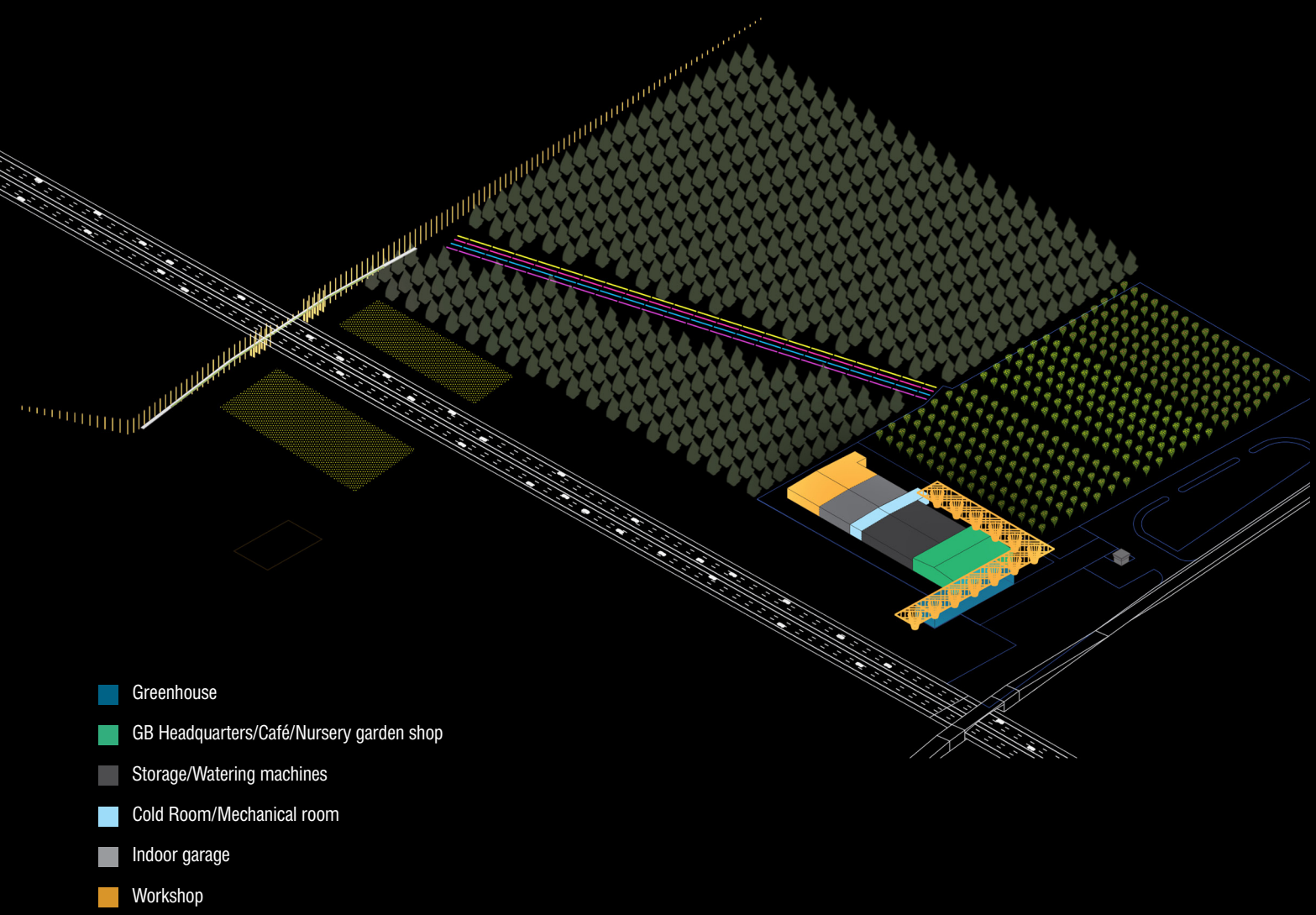


Fig 4.07. Hangars Retrofit

All this approach happens while in constant view are the hydro poles that elegantly indicate the frontier before disappearing into the smooth hills in the west and the forest in the east. Like Gate 48, a planting box on the hydro pole structure exhibits a tall line of sunflowers. The gradual approach is different for the visitors of the garden centre. First, the visitors will have to experience the entrance to the Greenbelt in highway 400 with their cars, in order to access the garden centre of the Greenbelt. This explains why I did not want to build an exit that would bring the drivers directly to the project without experiencing the border crossing first, besides the fact that there is a private house right between King Vaughan and the 400 in the south-east side.

When you are visitor in the nursery garden, the approach to the Greenbelt line is also phased with different landscape situations that enhance the excitement of arriving in the Greenbelt. As the first step, the parking is right next to the road at the entrance, circled by some tree lines that conceal it. From there, we see the control tower, and the big greenhouse with its structure invading the three hangars. The journey starts with the first hangar connected to the greenhouse, the big open space that hides a little coffee place, the dense tree plants for sale, the administrative staff as well as the Greenbelt headquarters located on a mezzanine. Nothing is hidden: the community, the nursery garden staffs, Friends of the Greenbelt Foundation—all transparently building social relation and contributing to the Greenbelt future. From this point, people can go to the orchards for fruit picking or enjoy a coffee beside the greenhouse or do some handwork in the wood workshop to help build the Greenbelt gates or maintain it. The next step, if people want to get to the long hydro poles intervention, the Greenbelt line, they will have a colorful experience of passing through the lengthy old runway beautified by the flower field. It is a flower field that the community can work and take care of, while very far, the hydro poles indicate the presence of the Greenbelt line. At the end of the flower field the entire important hydro poles intervention is visible with its walkway that gently starts taking us off the ground to the big hydro poles'



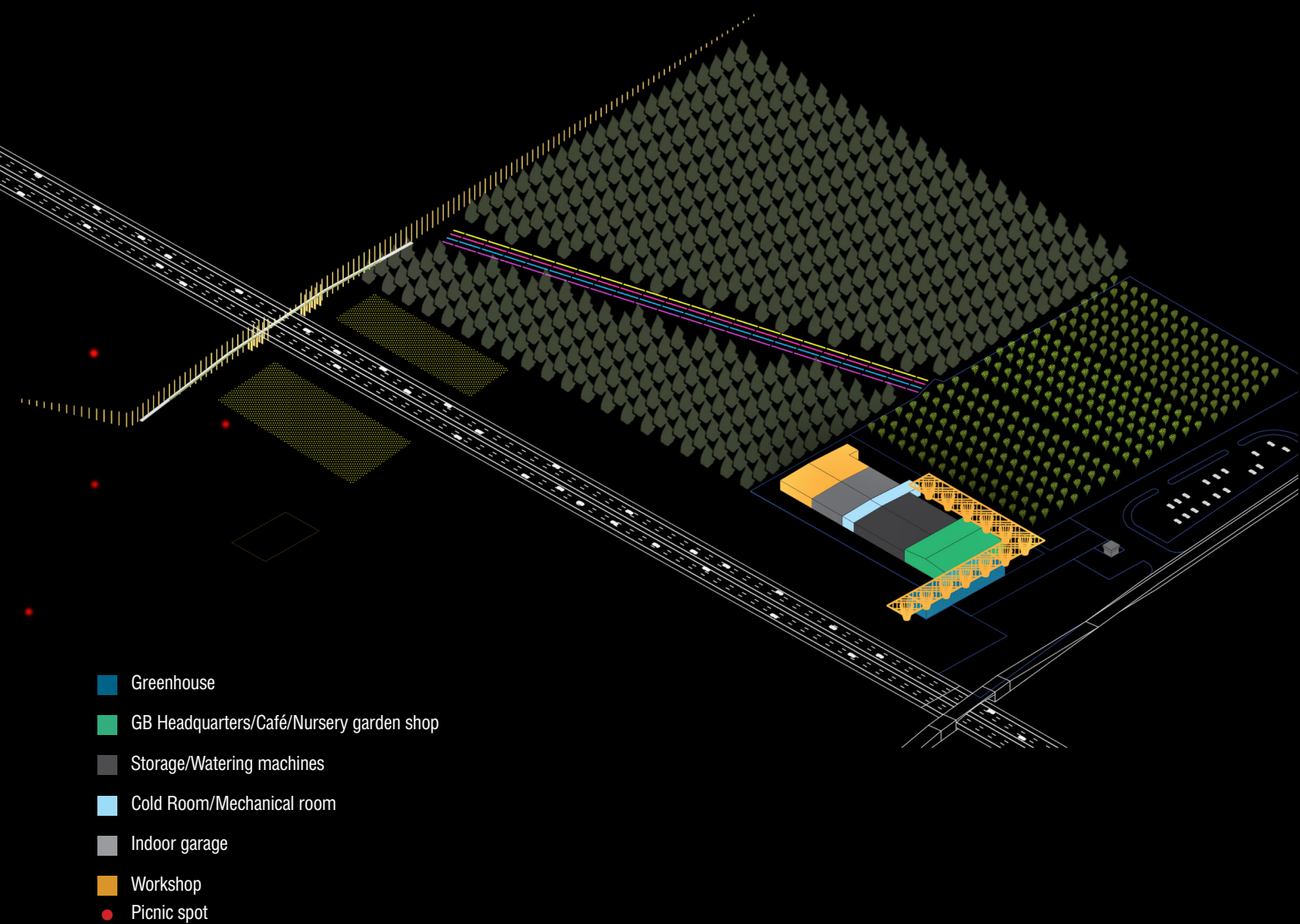


Fig 4.08. Gate 400: A Landscape and Architectural Project









Fig 4.09. HWY 400 Road Trip Map of the Greenbelt



pedestrian bridge. At the end of the journey, we end up in a complete and empty natural space beside the sunflowers, the ravine of the Humber River, few patches of trees, the wooden hydro poles and the Greenbelt behind. I mandated myself to give a quiet program for this area, without any intervention, like picnic or art or paint spots. It was just simply too beautiful naturally and to add anything would have been superfluous.



*Fig 4.10. Gate 400: The Flower Gate*



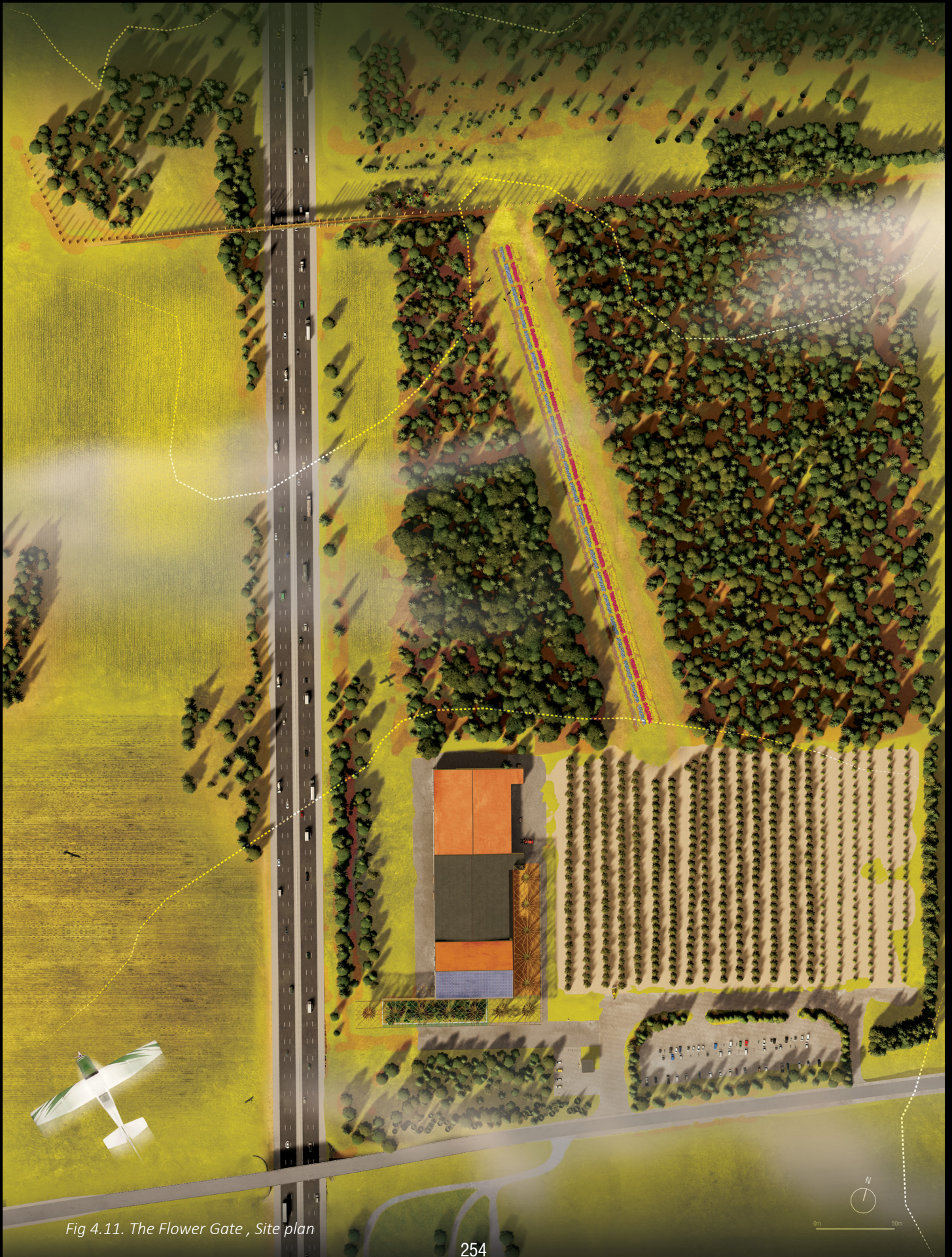
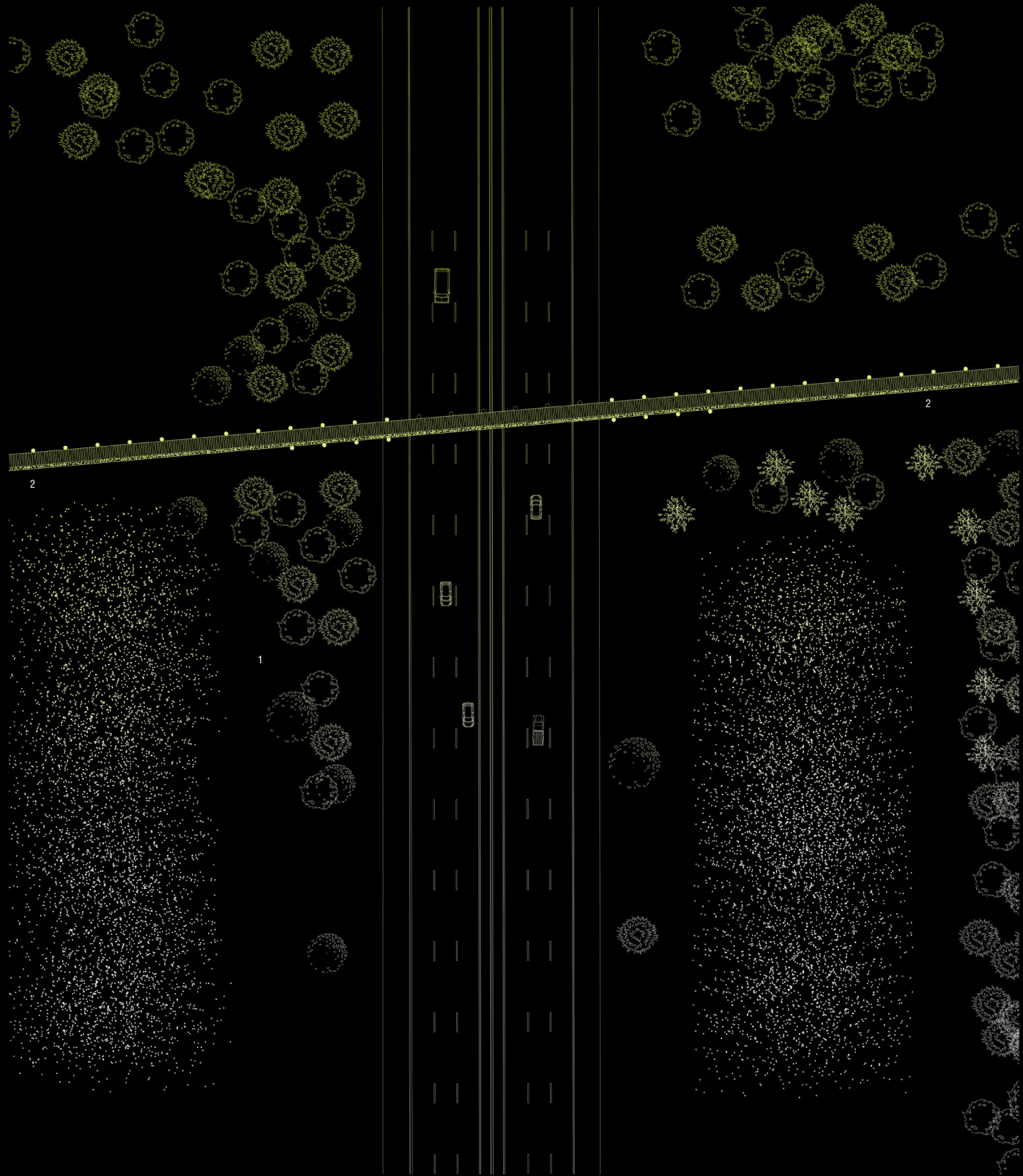


Fig 4.11. The Flower Gate , Site plan





GROUND FLOOR

Fig 4.12. Gate 400: Top view

- 1. SUNFLOWER FIELD
- 2. WOODEN WALKWAY TO OPEN AREA (GREENBELT LINE)
- 3. WOODEN WALKWAY TO THE FLOWER RUNWAY (GREENBELT LINE)

HWY 400  
THE FLOWER GATE



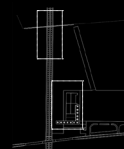


Fig 4.13. Ground Floor Plan

GROUND FLOOR

- 1. GREENHOUSE
- 2. HIGHWAY 400 LOOKOUT
- 3. MEZZANINE PLAN: FRIENDS OF THE G.B. / GREENBELT FUND NEW OFFICE
- 4. DECK
- 5. ORCHARD
- 7. CAFE

- 8. CACHIET / INFO
- 9. GARDENING TOOL SHOP
- 10. IRRIGATION CONTROL FACILITY
- 11. COLD ROOM
- 12. MECHANICAL ROOM
- 13. WORKSHOP OFFICE



0m 10m 30m (1:400)

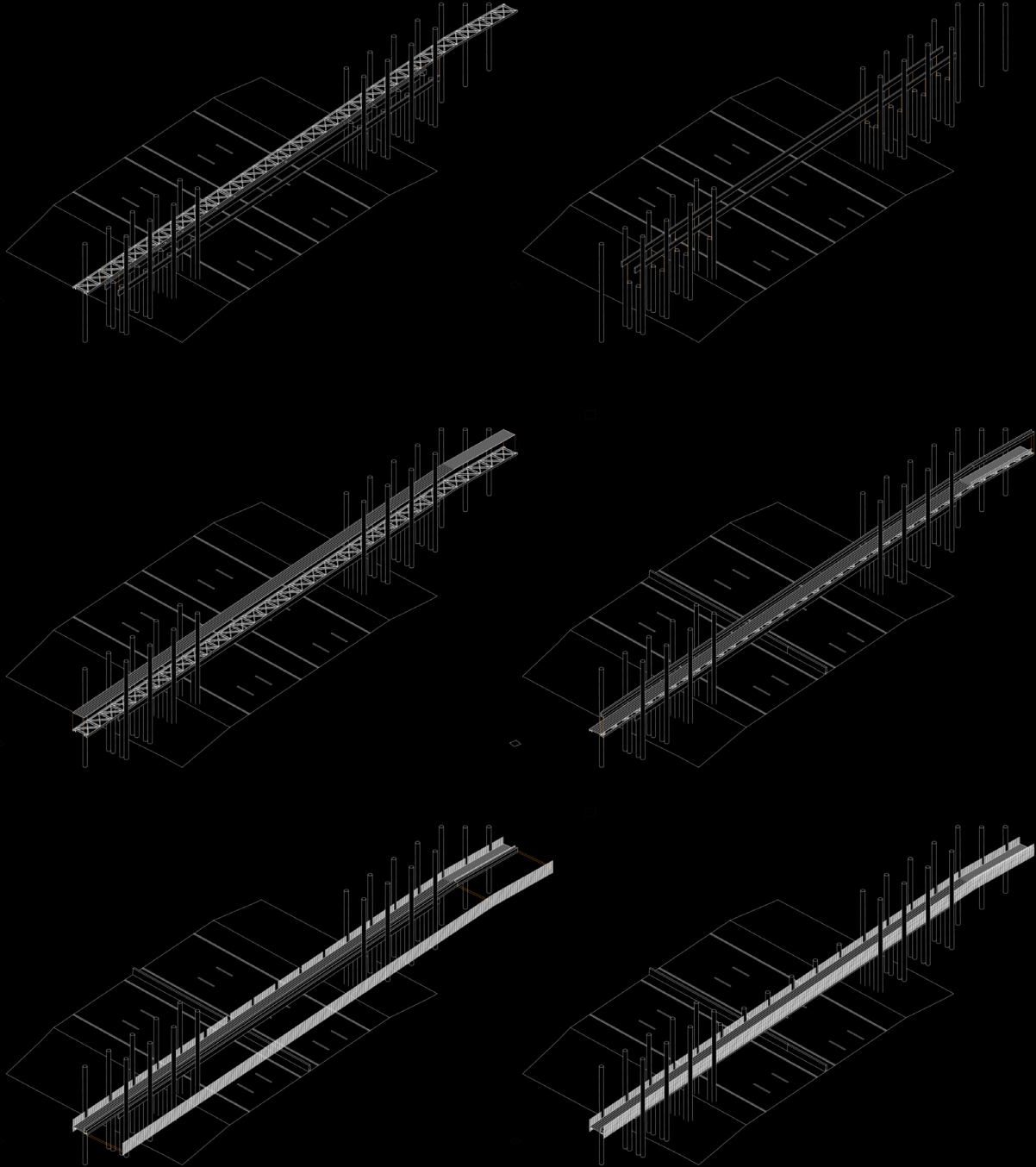
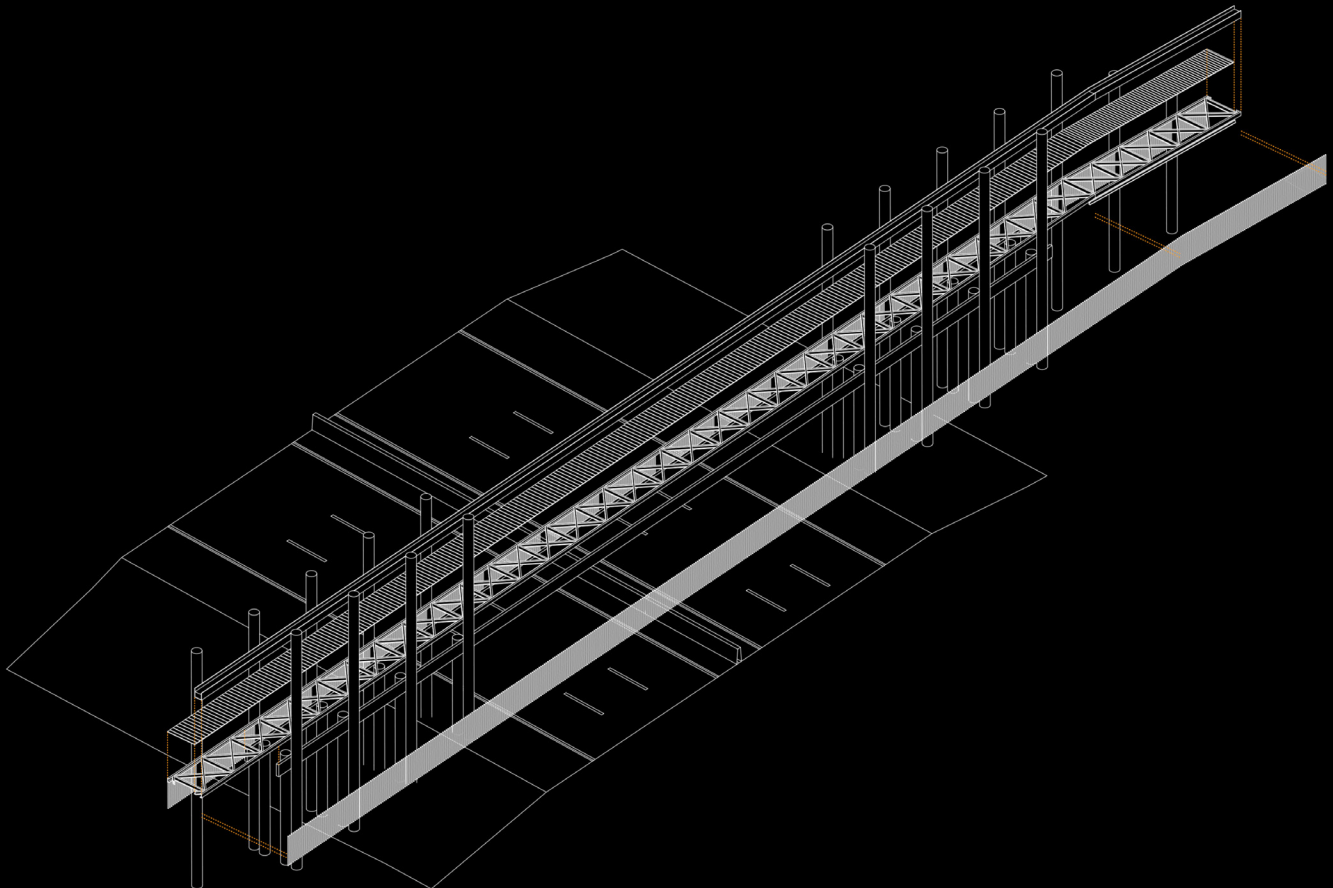


Fig 4.14. Structure Assembly

## Structure strategy

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The hydro pole intervention in the 400 is similar to the 48. However, because it is spanning on a highway of 35m, an adapted structure system needs to be implemented in order to hold the walkway. Therefore, I chose to use two big glulam beams that aesthetically matches with the hydro poles' materiality. In addition, I doubled the hydro poles line, by adding four more in each side of the walkway because I could not allow cantilever in the bridge part.



*Fig 4.15. Structure Assembly*





*Fig 4.16. Gate 400: The Flower Gate*

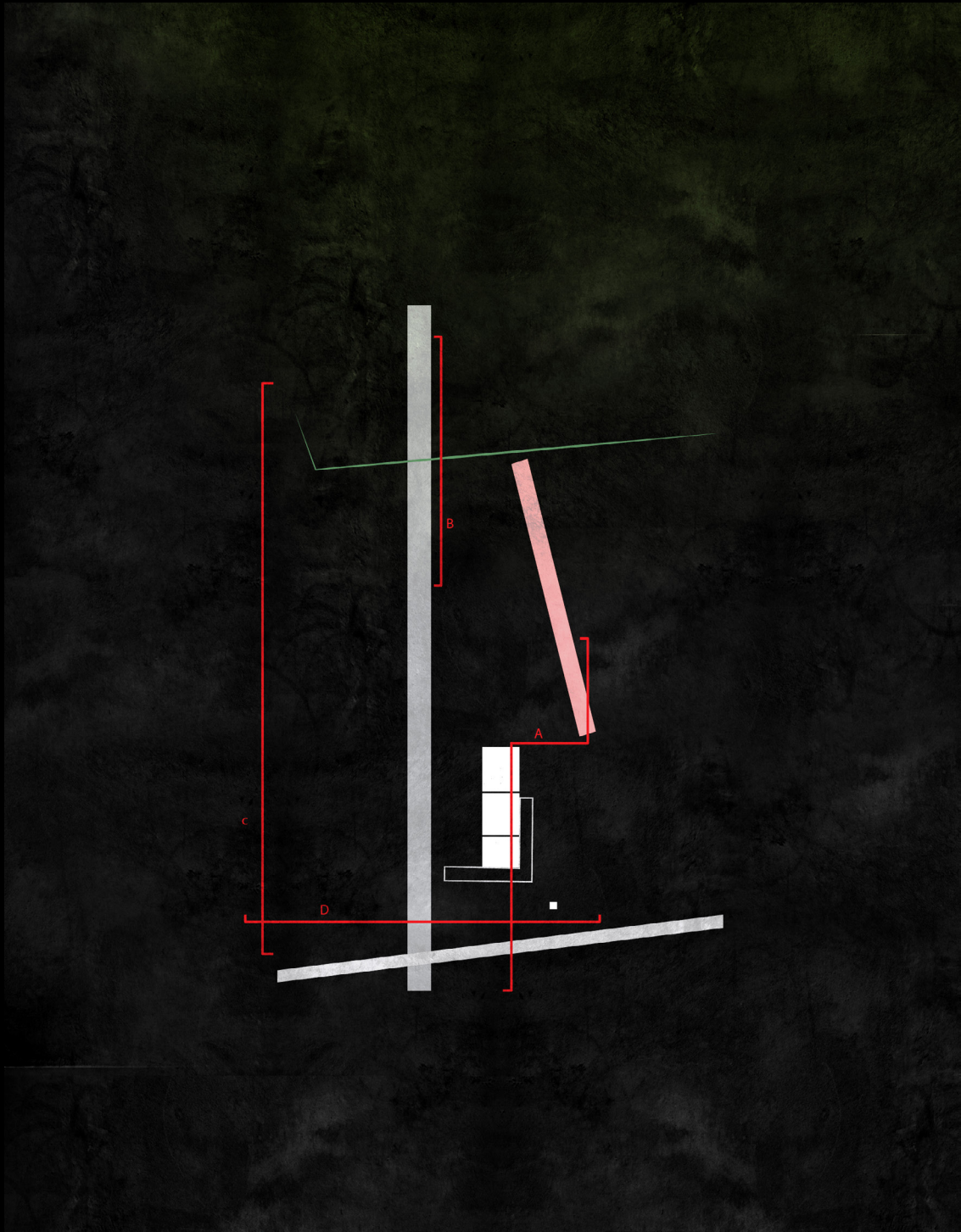
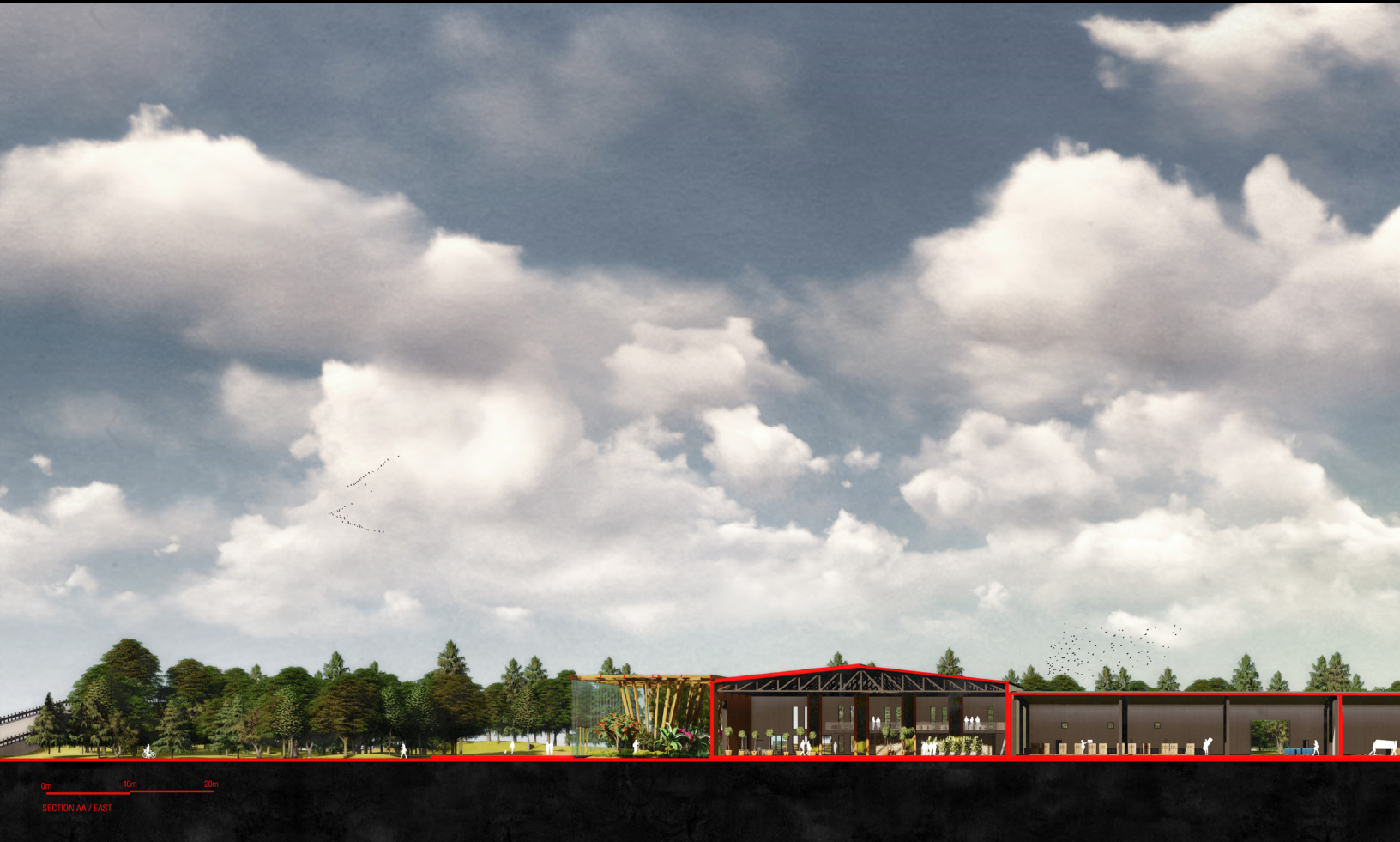
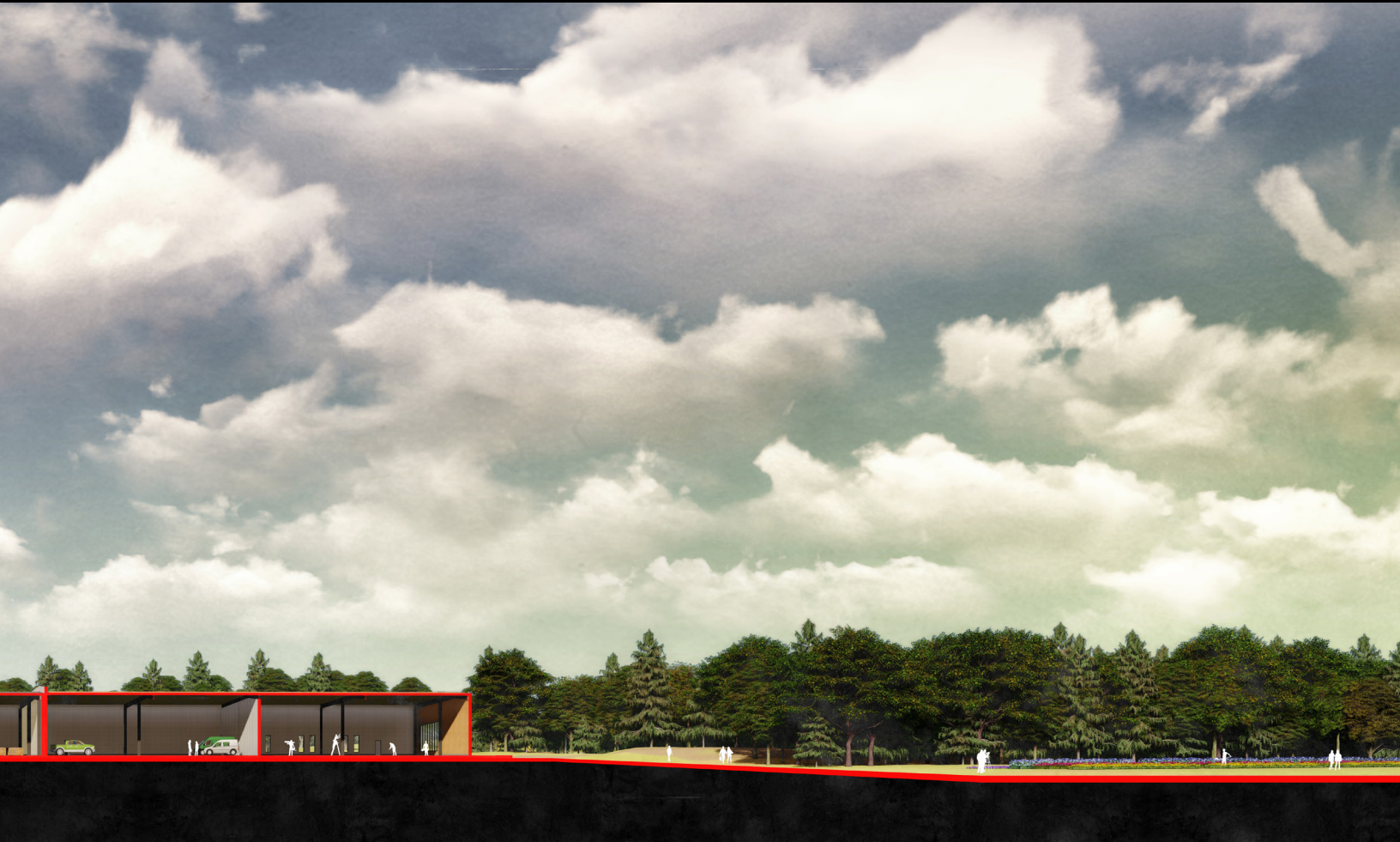


Fig 4.17. Sections Location Map









*Fig 4.18. A-A East*



0m 10m  
SECTION BB / EAST



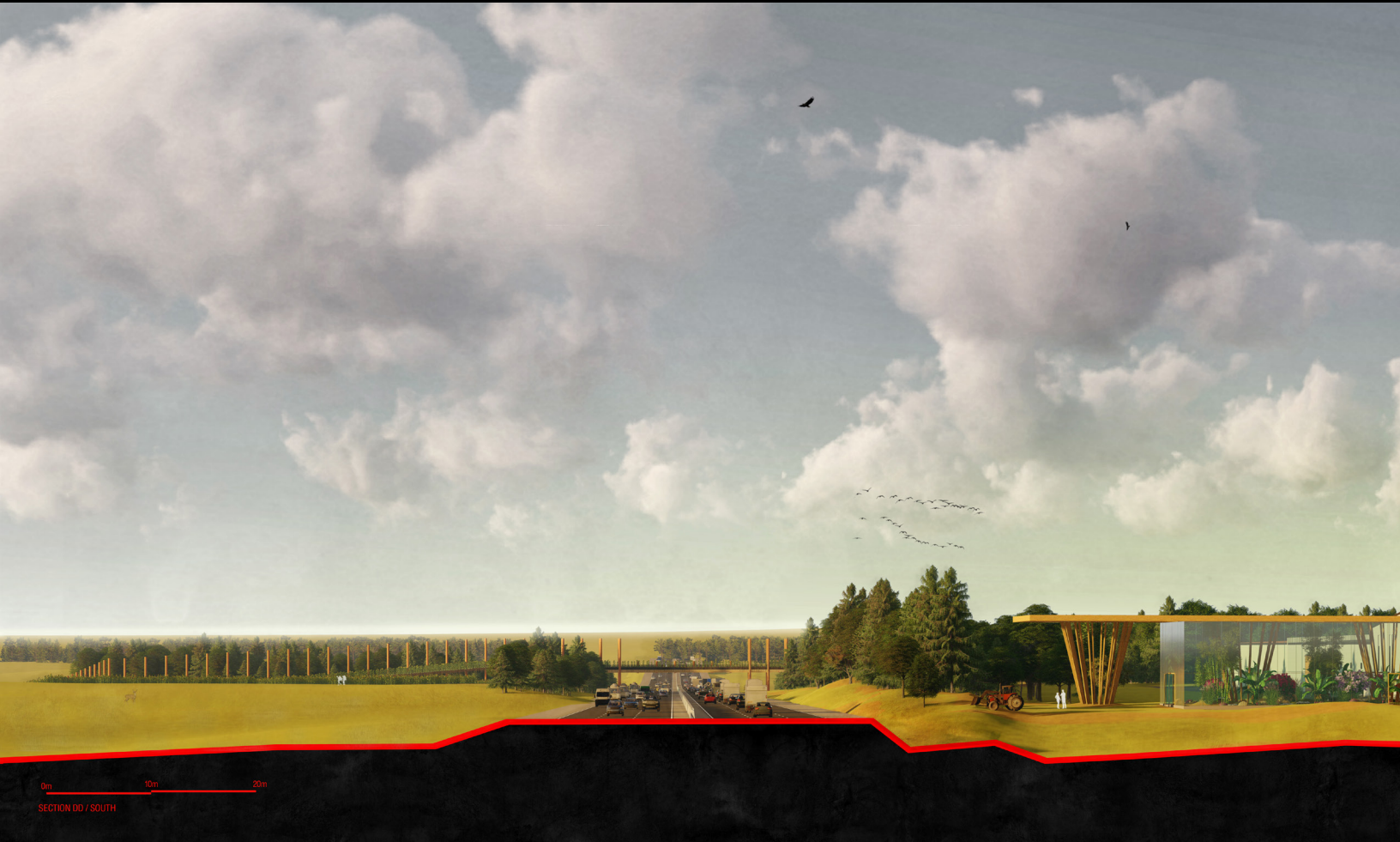
*Fig 4.19. B-B East*







*Fig 4.20. C-C West*







*Fig 4.21. D-D*





Fig 4.22. Gate 400 and the New King City Airport









*Fig 4.23. Beginning of the Gate 400 Approach*



*Fig 4.24. The Old Runway: A Flower Field Toward the Greenbelt*



*Fig 4.25. "Entering the Greenbelt"*





*Fig 4.26. The Flower Gate*



*Fig 4.27. A Quiet Program Beside the Edge*

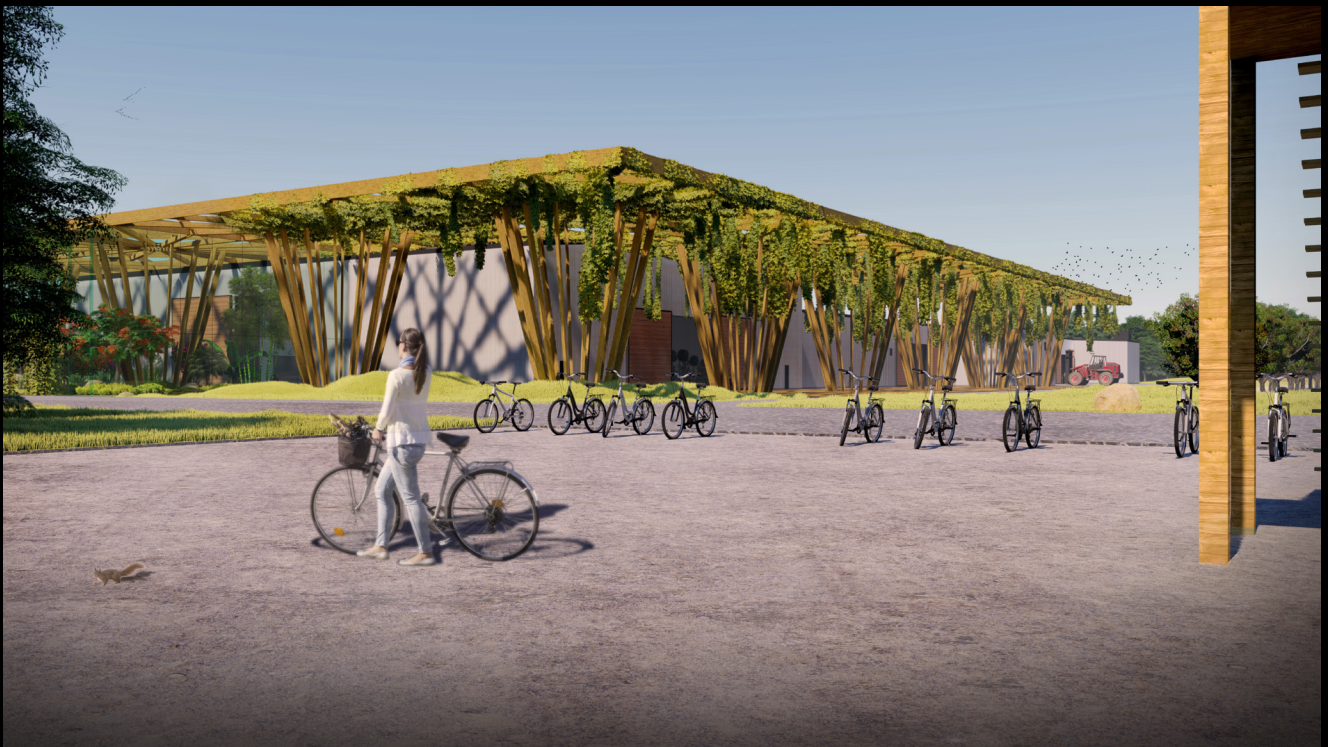


*Fig 4.28. A Flower Line*





*Fig 4.29. Glulam Beams for a 30 m Span*



*Fig 4.30. Artificial Trees*





*Fig 4.31. The 400 Café*





*Fig 4.32. Friends of the Greenbelt Foundation Headquarters*



*Fig 4.33. In the Greenhouse*





*Fig 4.34. In the Greenhouse, and the 400 Café Terrace*





*Fig 4.35. End of the Runway: The Greenbelt Frontier*



*Fig 4.36. "Entering the Greenbelt" (Night)*

*“The landscape imagination is a primary form of critical action in society, embodying creative reflection on the inheritance, context, and potential of designed landscapes. Works in the landscape are situated in space, time and tradition, and inevitably become the site of future reflection, exposition, and projection. As such, there can be no significant landscape architecture without robust living and ongoing critical thought.”<sup>39</sup>*

James Corner

<sup>39</sup> James Corner and Alison Hirsch, *The Landscape Imagination: The Collected Essays of James Corner, 1990–2010* (New York: Princeton Architectural Press, 2014), 45



## *appendix A*

### **Video animation of the Gate 48 design**

The name of the video file is:

“El Filali\_Salim.mp4”

If you accessed this thesis from a source other than the University of Waterloo, you may not have access to this file. You may access it by searching for this thesis at <http://uwspace.uwaterloo.ca> .

The video gives an overview of how it feels to be at the Corn Gate of Highway 48 and cross it. It begins with a site plan view from where we can see a dynamic interaction between the traffic and the Greenbelt line. A closer view at the human scale can lead us to observe the social life of the project. On the one hand we see a child walking through the corn field, with the project in background, and on the other hand we see people in the east side entrance. The scene fades, simulating the driver’s experience of crossing the gate from outside the car. Then inside, with the camera from the driver’s point of view. Afterward, the video slides into the program of Gate 48. We can witness the activities with people in the charging stations, in the small court beside the road underneath the structure, and at the 48 Café with its terrace. The day in the Gate 48 finishes, with a final 360° orbit of the camera, showing the whole project with a little overview of it in the winter before ending with a night view. Toward the end, we can appreciate the project as viewed at night with all the lighting design strategy, like the purple cloud or the rhythm of the vertical LED lights in the hydro poles. The video ends with the sunrise, with the scene of a father and son admiring the project before concluding with a quote of James Corner.

## *bibliography*

Barthes, Roland. *The Eiffel tower and Other Mythologies*. Translated by Richard Howard. Berkeley, Los Angeles, London: University of California Press, 1997.

Bingel, Nelson. *National Wood Pole Standards*. Senoia: Nelson Research, 2019.

Black Dog Publishing, ed. *Mapping New York*. London: Black Dog, 2009.

Corner, James, and Alison Hirsch. *The Landscape Imagination: The Collected Essays of James Corner, 1990–2010*. New York: Princeton Architectural Press, 2014.

Cotton, Marie-Ève. “L’être Humain n’est pas fait pour Réagir aux Changements Climatiques.” Radio podcast, médium large, December 2018. Accessed August 28, 2019. <https://ici.radio-canada.ca/premiere/emissions/medium-large/segments/chronique/99350/etre-humain-pas-fait-pour-reagir-changements-climatiques-cotton>

De Geyter, Xaveer. *After-Sprawl Research for the Contemporary City*. Rotterdam: NAI Publishers, 2002.

Environics. “Public Opinion on the Greenbelt, its Review and Local Food.” Accessed August 10, 2019. [https://d3n8a8pro7vhmx.cloudfront.net/greenbelt/pages/2545/attachments/original/1449265610/2015-12-07\\_OVERALL\\_Environics\\_Poll\\_-\\_FINAL\\_\(1\).pdf?1449265610](https://d3n8a8pro7vhmx.cloudfront.net/greenbelt/pages/2545/attachments/original/1449265610/2015-12-07_OVERALL_Environics_Poll_-_FINAL_(1).pdf?1449265610)

Forman, Richard, T.T. *Land Mosaics: The Ecology of Landscapes and Regions*. Cambridge: Cambridge University Press, 1995.

Friends of the Greenbelt Foundation. “Learn about the Greenbelt.” Accessed August 12, 2019. [https://www.greenbelt.ca/about\\_the\\_greenbelt](https://www.greenbelt.ca/about_the_greenbelt)

Jeffords, Shawn. “Ontario Reverses Course on Bill That Could Open Greenbelt to Development.” *CTV News*, January 23, 2019. <https://www.ctvnews.ca/canada/ontario-reverses-course-on-bill-that-could-open-greenbelt-to-development-1.4266139>.

Kelly, Bill. “Bill Kelly: Doug Ford Backtracks on Greenbelt Promise.” *Global News*, December 11, 2018. <https://globalnews.ca/news/4749633/doug-ford-greenbelt/>

Koolhaas, Rem. "O.M.A. at MoMA: Rem Koolhaas and the Place of Public Architecture : November 3, 1994–January 31, 1995." New York: The Museum of Modern Art, 1994.  
[https://www.moma.org/documents/moma\\_catalogue\\_440\\_300293616.pdf](https://www.moma.org/documents/moma_catalogue_440_300293616.pdf)

Levitt, Andrew. *Listening to Design: A Guide to the Creative Process*. London, UK: Reaktion Books, 2018.

MacHarg, Ian L. *Design with Nature*. New York, Natural History Press, 1971.

Mausberg, Burkhard. *The Greenbelt: Protecting and Cultivating a Great Ontario Treasure*. Toronto: Barlow Book Publishing, 2017.

Ministry of Municipal Affairs and Housing, Ontario. *A Place to Grow: Growth Plan for the Greater Golden Horseshoe*. Ottawa: Queen's Printer for Ontario, 2019.

Ministry of Municipal Affairs. *Oak Ridges Moraine Conservation Plan*. Ottawa: Queen's Printer for Ontario, 2017.

Ministry of Transportation. Ontario Provincial Highways Traffic Volumes 1988-2016.  
[http://www.raqsa.mto.gov.on.ca/techpubs/TrafficVolumes.nsf/fa027808647879788525708a004b5df8/88c66a2279555c798525788d0048cca4/\\$FILE/Provincial%20Highways%20traffic%20Volumes%201988-2016.pdf](http://www.raqsa.mto.gov.on.ca/techpubs/TrafficVolumes.nsf/fa027808647879788525708a004b5df8/88c66a2279555c798525788d0048cca4/$FILE/Provincial%20Highways%20traffic%20Volumes%201988-2016.pdf)

Niagara Escarpment Commission and Ontario Ministry of Natural Resources. *Niagara Escarpment Plan*. Ottawa: Queen's Printer for Ontario, 2017.

Oak Ridges Trail Association. "Oak Ridges Moraine." Accessed August 23, 2019.  
<https://oakridgestrail.org/moraine/>

Sanderson, Eric, W. *Mannahatta: A Natural History of New York City*. New York: Abrams, 2009.

Senge, Peter. "Systems Thinking for a Better World." Filmed November 2014. YouTube video, 1:00:14. Posted December 2014. <https://www.youtube.com/watch?v=0QtQqZ6Q5-o&t=2525s>

Shop King, Township of King, Resident Survey Results .Clear Impact, 2016. Accessed August 13, 2019  
<http://www.king.ca/Business/StartorExpandaBusiness/Documents/>

The Neptis Foundation. "A note about the 'Whitebelt'." Accessed August 23, 2019.  
<https://www.neptis.org/publications/story-so-far/chapters/note-about-whitebelt>



Venturi, Robert, Denise Scott Brown, and Steven Izenour. *Learning from Las Vegas*. Cambridge, Mass: MIT Press, 1972.

Volubilis Website. "L'arc De Triomphe." Accessed August 12, 2019. <https://sitevolubilis.com/larc-de-triomphe/>

White, Richard. *Urban Infrastructure and Urban Growth in the Toronto Region, 1950s to the 1990s*. Toronto: Neptis Foundation, 2003.

