



**DYSTOPIAN NARRATIVE AS A TOOL FOR THE  
REJUVENATION OF BROWN FIELD SITES: A Proposed  
Mixed Use Park for Colenso**

**Zane Brian Atkinson**

Dissertation submitted to the School of Built Environment and Development Studies,  
University of KwaZulu-Natal, in partial-fulfilment of the requirements for the degree  
of Master in Architecture

Durban, South Africa

March 2015



D  
Y  
S  
T  
O  
P  
I  
A

Figure 0 Concept art by Hovig Alahaidoyan, edited by author [Source: undertomorrowssky.liamyoung.org]

# ABSTRACT

---

The main function of this undertaking is to explore the theory behind dystopian Science Fiction [SF] and to see how this can be of use in the architectural design process; this exploration will be approached based on, what began as one of the most simple observations, the visual similarity between dystopian SF and places in the built environment.

The presence of urban and peri-urban dystopias in South Africa forms the basis of the research problem as well as defines the context [scope] for the research; the initial part of this research will be the setting out of the research problem, the definition of the research boundaries and the structure of research. The research will be motivated based on global trends within the built environment as well as from a South African perspective; stating why dystopian environments should be considered as a very important part of South African heritage and built environment.

The method or approach to the research will be outlined; illustrating the thorough process by which the research data will be accumulated and organized within this document. The general structure of the research will be described and can be viewed as a map to the whole document; it could even go as far as being a rudimentary theoretical framework as it shows the supposed links between the research data.

The rigorous examination of contemporary literature that falls within the scope of the research will form the main body of this undertaking; it will attempt to build a strong base understanding of the various theories and concepts while tying them back to the topic and sub-topic of the research. The literature will follow the research structure which will make it relatively easy to navigate from dystopia to narrative in an understandable manner.

The precedent studies form the second part of the secondary research data and will be analyzed through the previous literature in a critical manner; the main limitation being the connection to the research topic. The precedents will reflect a contemporary perspective on the literature and serve as comparable data for the case studies.

The case studies will make up the first part of the primary research data and will undergo a rigorous analysis that is comparable to that done with the precedent studies. These studies will place the secondary data within a new context; highlighting facts that are unique to being in South Africa.

The critical analysis of the literature and precedents, carried out through the case studies and questionnaires will drive the research towards its conclusions. It is here that a more refined theoretical framework can be established which will pave the way for the design recommendations that both conclude the research and begin the design process.

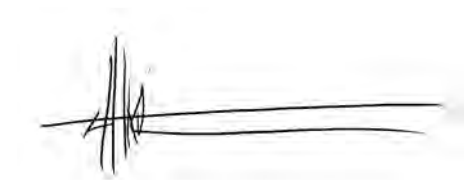
The aim of this research can be described in two parts; firstly it is to develop the fore mentioned theoretical framework that can be applied to the design of a mixed use park, focusing specifically on brown a field site in KwaZulu-Natal. Secondly, and less directly, the research intends to illustrate a means for architecture, which is rooted in dystopian theory and reality, to be a positive force in the built environment. Creating a dynamic and exiting architecture that can satisfy the human needs for meaning, continuity and hope.



# DECLARATION

---

I declare that this dissertation is my own, unaided work and carried out exclusively by me under the supervision of Mr Mthembeni Mkhize. It is being submitted for the degree of Master in Architecture in the University of KwaZulu-Natal. It has not been submitted before for any degree or examination in any other University.



.....  
Zane Brian Atkinson

4<sup>th</sup> of March 2015

# DEDICATION

---

To the love of my life.

# **ACKNOWLEDGEMENTS**

---

First and foremost, I thank my mom and dad for all their support and love over the years; I love them both very much.

I would also like to thank my fiancée Megan who has been with me throughout this mad journey; she makes me smile through the toughest times and I love her for that.

My gratitude goes to my academic Advisor Mr Mtembeni Mkhize, without his guidance I would not have come this far.

Special thanks to Juan Solis, Anand Naidoo and Bridget Horner who helped me wrap my head around my topic and all the reading material that came with it.

I am also thankful to all my friends that were there for me to bounce ideas off and who were always helpful and critical when I needed them to be.

# TABLE OF CONTENTS

---

ABSTRACT	III
DECLARATION	V
DEDICATION	VI
ACKNOWLEDGEMENTS	VII
TABLE OF CONTENTS	VIII
LIST OF FIGURES	XIII
LIST OF GRAPHS	XX
LIST OF APPENDICES	XXI
ABBREVIATIONS	XXII
CHAPTER ONE: INTRODUCTION	1
1.1 Background Statement	1
1.2 Motivation/Justification for the Study	3
1.3 Problem Statement, Aims and Objectives	4
1.3.1 Research Question	4
1.3.2 Statement of the Research Problem	4
1.3.3 Overall Aims and Objectives of the Study	7
1.4 Scope of the Study	8
1.4.1 Hypothesis	8
1.4.2 Research Scope and Limitations	8
1.4.3 Definition of Key Terms	10
1.5 Research Structure	12

## CHAPTER TWO: METHODOLOGY

2.1	Introduction	13
2.2	Research Materials	13
2.3	Case Study	15
2.4	Data collection methods	16
2.5	Research limitations	16
2.6	Methods employed in the data analysis	17

## CHAPTER THREE: LITERATURE REVIEW

3.1	Introduction	18
3.2	Theories and Concepts	18

### DYSTOPIA: The value within the 'bad place'

3.3	Fiction	23
3.3.1	Introduction	23
3.3.2	Classical Dystopia	24
3.3.3	Towards Critical Dystopia	27
3.3.4	Architecture of Dystopia	33
3.4	Non-Fiction	37
3.4.1	Introduction	37
3.4.2	Pessimism: Urban Death	37
3.4.3	Optimism: Urban Life	40
3.4.4	Phytoremediation	44
3.4.5	Adaptive Reuse	45

## NARRATIVE: The link between fiction and architectural expression

3.5	Storytelling	49
3.5.1	Introduction	49
3.5.2	The Importance of Stories	50
3.5.3	How to 'Tell' a Story [Narrative Form]	52
3.6	Narrative Theory in Architecture	56
3.6.1	Introduction	56
3.6.2	Narrative Architecture	57
3.6.3	Narrative Methods	62
3.6.4	'Imageability'	70

## CHAPTER FOUR: PRECEDENT STUDIES

4.1	Inujima Seirenscho Art Museum	75
4.1.1	Introduction	75
4.1.2	Critical Dystopia	76
4.1.3	Narrative Architecture	78
4.1.4	Conclusions	82
4.2	Landschaftspark	83
4.2.1	Introduction	83
4.2.2	Critical Dystopia	84
4.2.3	Narrative Architecture	87
4.2.4	Conclusions	89



## CHAPTER FIVE: CASE STUDIES

5.1	The Workshop Centre, Durban	91
5.1.1	Introduction	91
5.1.2	Adaptive Reuse	92
5.1.3	Dystopian & Narrative Analysis	96
5.1.4	Conclusions	98
5.2	The Constitutional Court, Johannesburg	99
5.2.1	Introduction	99
5.2.2	Dystopian Characteristics	100
5.2.3	Narrative Architecture	103
5.2.4	Adaptive Reuse	105
5.2.5	Conclusions	107

## CHAPTER SIX: SUMMARY OF THE STUDY, ANALYSIS, DISCUSSION AND FINDINGS

6.1	Introduction	109
6.2	Investigative Approach	109
6.3	Summary of analysis, discussion, key responses and findings	110
6.3.1	Critical Analysis	110
6.3.2	Key Questionnaire Responses	114
6.3.3	Discussions and Findings	120

## CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1	Significance of the Findings	122
7.2	Concluding Statements	123
7.3	Recommendations	123

7.3.1	Theoretical Framework	123
7.3.2	Criteria for Site Selection	125
7.3.3	Approach to Accommodation Schedule	126
REFERENCES		128
APPENDICES		133

# LIST OF FIGURES

---

Figure 0 **Concept art by Hovig Alahaidoyan -**

<<http://undertomorrowssky.liamyoung.org/2012/10/under-tomorrows-sky-concept-art-by-hovig-alahaidoyan/>> [Accessed 22/08/2013 ]

Figure 1.1 **An image depicting the dystopian society of "BladeRunner" -**

<[https://underthehollywoodsign.files.wordpress.com/2010/04/blade\\_runner1.jpg](https://underthehollywoodsign.files.wordpress.com/2010/04/blade_runner1.jpg)> [Accessed 16/08/2013]

Figure 1.2 **Fort McMurray Mine by J Henry Fair -**

<[http://i.telegraph.co.uk/multimedia/archive/02037/oil-tar-sand\\_2037717i.jpg](http://i.telegraph.co.uk/multimedia/archive/02037/oil-tar-sand_2037717i.jpg)> [Accessed 07/09/2013]

Figure 1.3 **Diavik Diamond Mine, Canada -** <<http://www.mining.com/wp-content/uploads/2012/06/DE-IMG4342.jpg>> [Accessed 07/09/2013]

Figure 1.4 **Nickel Tailings by Edward Burtynsky, 1996 -**

<[http://www.edwardburtynsky.com/site\\_contents/Photographs/image\\_galleries/Tailings\\_Gallery/TLG\\_34\\_96.jpg](http://www.edwardburtynsky.com/site_contents/Photographs/image_galleries/Tailings_Gallery/TLG_34_96.jpg)> [Accessed 07/09/2013]

Figure 1.5 **Structure of thesis -** By author

Figure 4.1 **A scene from the movie 'NINETEEN EIGHTY-FOUR' -**

<<http://www.thehollywoodnews.com/wp-content/uploads/1984-John-Hurt.jpg>> [Accessed 18/09/2013]

Figure 4.2 **Seoul as depicted in the movie "Cloud Atlas", drawn by George Hull -**

<<http://www.ghull.com/#/126006/>> [Accessed 04/03/2014]

Figure 4.3 **George Hull's illustration of 'new' & 'old Seoul' in Cloud Atlas -**

<<http://www.ghull.com/#/126006/>> [Accessed 04/03/2014]

Figure 4.4 **George Hull's illustration of architectural difference/contrast -**

<<http://www.ghull.com/#/126006/>> [Accessed 04/03/2014]

Figure 4.5 **George Hull's illustration of the human production line in Cloud Atlas -**

<<http://www.ghull.com/#/126006/>> [Accessed 04/03/2014]

Figure 4.6 **Tyrell Corp. Building from the 1997 film 'Blade Runner' -**  
<[http://3.bp.blogspot.com/-rL6vwr4SK0g/UiJue26h4yl/AAAAAAAAAVs/TCGIXRToktl/s1600/bladerunner\\_044a1.jpg](http://3.bp.blogspot.com/-rL6vwr4SK0g/UiJue26h4yl/AAAAAAAAAVs/TCGIXRToktl/s1600/bladerunner_044a1.jpg) >  
[Accessed 12/03/2014]

Figure 4.7 **Establishing scene from the 1997 film 'Blade Runner' showing the contrasting architecture, one megalithic and the other fragmented and hybridized. -**  
<<http://i6.minus.com/ibjmWBt0RrSzXT.jpg> > [Accessed 12/03/2014]

Figure 4.8 **Concept art by Daniel Dociu -** < <http://www.tinfoilgames.com/> > [Accessed 22/08/2013]

Figure 4.9 **Concept art by Hovig Alahaidoyan -**  
<<http://undertomorrowssky.liamyoung.org/2012/10/under-tomorrows-sky-concept-art-by-hovig-alahaidoyan/>>[Accessed 22/08/2013 ]

Figure 4.10 **Illustration by Lebbeus Woods, fragmented form as architecture of resistance -**  
<[http://broadmuseum.msu.edu/sites/default/files/sfmoma\\_LebbeusWoods\\_07\\_SanFranciscoProject\\_0.jpg](http://broadmuseum.msu.edu/sites/default/files/sfmoma_LebbeusWoods_07_SanFranciscoProject_0.jpg) > [Accessed 23/03/2014]

Figure 4.11 **Illustration of decaying Lichen -** By author

Figure 4.12 **Photograph of a sunken ship supporting life -** <  
[http://www.wallpaper4me.com/images/wallpapers/inhabited\\_sunken\\_ship\\_w1.jpeg](http://www.wallpaper4me.com/images/wallpapers/inhabited_sunken_ship_w1.jpeg)>  
[Accessed 19/05/2014]

Figure 4.13 **Photograph showing plants invading ruins -** By author

Figure 4.14 **Man vs. Nature, plants in dystopia -** <  
<http://moreintelligentlife.com/sites/default/files/legacy/American%20ruins1.jpg>> [Accessed 24/03/2014]

Figure 4.15 **Simple reuse of waste, tyres as planters -** < [http://www.greendiary.com/wp-content/uploads/2012/07/tyre\\_planters\\_tjov8.jpg](http://www.greendiary.com/wp-content/uploads/2012/07/tyre_planters_tjov8.jpg)> [Accessed 23/03/2014]

Figure 5.1 **Gustav Freytag's pyramid/narrative structure. Recreated by author -**  
<[http://en.wikipedia.org/wiki/Plot\\_%28narrative%29](http://en.wikipedia.org/wiki/Plot_%28narrative%29) > [Accessed 23/03/2014]

Figure 5.2 **Linear progression of narrative, one situation to the next over time -** By author

Figure 5.3 **Linear perception above, compared to simultaneous perception of spaces/situations below -** By author

Figure 5.4 **Gardens by William Kent use artificial ruins to create a narrative** - < <http://im.ft-static.com/content/images/dd54ea68-5d9f-45a9-b8f5-e29124f005af.img> > [Accessed 23/03/2014]

Figure 5.5 **The narrative of walking along a stream, not knowing what is around the next bend** - < Coates, N., 2012, 'Narrative Architecture', John Wiley & Sons Ltd., West Sussex, United Kingdom > [Scanned 18/03/2014]

Figure 5.6 **Interior of TWA Terminal, flowing concrete expressing movement/flight**- < <http://www.ronsaari.com/stockImages/nyc/TWATerminalInterior.jpg> > [Accessed 26/03/2014]

Figure 5.7 **Superstudio's Continuous Monument** - < [http://tallervdelacruz.files.wordpress.com/2010/08/superstudio\\_monumento-continuo-19691.jpg](http://tallervdelacruz.files.wordpress.com/2010/08/superstudio_monumento-continuo-19691.jpg) & [http://payload229.cargocollective.com/1/9/290260/6887095/superstudio02\\_905.jpg](http://payload229.cargocollective.com/1/9/290260/6887095/superstudio02_905.jpg) > [Accessed 26/03/2014]

Figure 5.8 **Model from Klein's project Contoured Embodiment showing a classical structure containing the structure of a human heart** - < [http://24.media.tumblr.com/tumblr\\_l5ki0pgi5j1qc4zz6o1\\_1280.jpg](http://24.media.tumblr.com/tumblr_l5ki0pgi5j1qc4zz6o1_1280.jpg) > [Accessed 26/03/2014]

Figure 5.9 **Laksa's Metropolitan Prison and Sanctuary Water park respectively, illustrating an extreme form of adaptive reuse** - < <http://thefunambulistsdotnet.files.wordpress.com/2010/12/kobalaksa1.jpg> & <http://static.panoramio.com/photos/large/20220253.jpg> > [Accessed 26/03/2014]

Figure 5.10 **Rescaling Lynch's elements** - By author

Figure 5.11 **'The big Frock' by Will Alsop** - < Coates, N., 2012, 'Narrative Architecture', John Wiley & Sons Ltd., West Sussex, United Kingdom > [Scanned 18/03/2014]

Figure 5.12 **Sketches showing gesture** - By author.

Figure 5.13 **The Blur by Scofidio is a great example of a literal narrative used as an event architecture** - < [http://theredlist.com/media/database/architecture/across\\_the\\_landscape/diller-scofidio-renfro/diller-scofidio-renfro-blur-building/005\\_diller\\_scofidio\\_renfro\\_blur\\_building\\_theredlist.jpg](http://theredlist.com/media/database/architecture/across_the_landscape/diller-scofidio-renfro/diller-scofidio-renfro-blur-building/005_diller_scofidio_renfro_blur_building_theredlist.jpg) > [Accessed 26/03/2014]

Figure 5.14 **Sequence narrative** - By author.

Figure 5.15 **The High Line, NY, illustrating a struggle between nature and the city** - < <http://prolandscapermagazine.com/wp-content/uploads/2012/09/High-Line-4.jpg> > [Accessed 26/03/2014]

Figure 5.16 **Biotope narrative** - By author

Figure 5.17 **Illustration showing how the juxtaposition of form, function and aesthetics can increase the visual and experiential effect of each space** - By author

Figure 5.18 **The BasketBar by NL Architects** - < [http://architettura.it/architettura/20031018/05\\_c.jpg](http://architettura.it/architettura/20031018/05_c.jpg) > [Accessed 26/03/2014]

Figure 5.19 **Sketch highlighting the 3 layers in the BasketBar** - By author

Figure 5.20 **Illustration of a 'strong' and weak edge** - By author

Figure 6.1 **Inujima Seirenscho Art Museum** - < [http://adaptivereuse.info/wordpress/wp-content/uploads/2013/01/inujima\\_1.jpg](http://adaptivereuse.info/wordpress/wp-content/uploads/2013/01/inujima_1.jpg) > [Accessed 05/04/2014]

Figure 6.2 **The design embraces the 'ruined', creating a dystopian labyrinth that leads up to the museum** - < <http://www.arcspace.com/features/sambuichi-architects/inujima-seirenscho-art-museum/> > [Accessed 06/04/2014]

Figure 6.3 **The design is extremely sustainable [thanks to ARUP] in that it uses passive heating/cooling and ventilation techniques as well as day lighting. To treat the contaminated topsoil orange trees have also been planted –**  
<[http://tokyogreenspace.files.wordpress.com/2009/05/inujima\\_enviro.gif](http://tokyogreenspace.files.wordpress.com/2009/05/inujima_enviro.gif) > [Accessed 06/04/2014]

Figure 6.4 **The juxtaposition of complete forms made of white plaster and glass against the ruined towers and walls** - < [http://adaptivereuse.info/wordpress/wp-content/uploads/2013/01/inujima\\_4.jpg](http://adaptivereuse.info/wordpress/wp-content/uploads/2013/01/inujima_4.jpg) > [Accessed 06/04/2014]

Figure 6.5 **Museum site & floor plans, not to scale** - < <http://assets.inhabitat.com/wp-content/blogs.dir/1/files/2010/10/new-2111.jpg> > [Accessed 06/04/2014]

Figure 6.6 **Major Landmarks, edited by author** -  
<<http://www.worldbuildingsdirectory.com/project.cfm?id=459> > [Accessed 06/04/2014]

Figure 6.7 **Different use of edges and landmarks to create contrasting experiences** - By author

Figure 6.8 **The sun as the goal at the end of the 'Earth Gallery'** -  
<[http://www.yanagistudio.net/works/inujimaproject02\\_view\\_eng\\_s.html](http://www.yanagistudio.net/works/inujimaproject02_view_eng_s.html) > [Accessed 06/04/2014]



Figure 6.9 **The ‘Sun Gallery’ employs much lighter architectural elements to maximize solar exposure** - < <http://www.arcspace.com/CropUp/-/media/745461/Sambuichi-Inujima-Seirenscho-Art-Museum-22.jpg> > [Accessed 06/04/2014]

Figure 6.10 **Ladnschaftspark, Duisburg-Nord, Germany [2000]** - <<http://static.panoramio.com/photos/large/26002128.jpg> > [Accessed 08/04/2014]

Figure 6.11 **There are almost no clues as to what is ‘new’ and what is ‘old’, minimal intervention with maximum effect** - < <http://www.deviantart.com/art/Forgotten-Places-03-174133702> > [Accessed 08/04/2014]

Figure 6.12 **Concrete bunkers used for climbing, metal cross on summit is out of sight** - <[http://2.bp.blogspot.com/\\_jbkUhsFSuC4/TvJZoXvARPI/AAAAAAAAAB4w/hD48gvlJj9M/s1600/Landschaftspark-Duisburg%2B%252836%2529.jpg](http://2.bp.blogspot.com/_jbkUhsFSuC4/TvJZoXvARPI/AAAAAAAAAB4w/hD48gvlJj9M/s1600/Landschaftspark-Duisburg%2B%252836%2529.jpg) > [Accessed 08/04/2014]

Figure 6.13 **Flowering fruit trees planted in a grid that speaks of the practical/ordered nature of the site rather than the traditional romantic style** - < <http://www.landezine.com/wp-content/uploads/2011/08/33-Landschaftspark-Duisburg-Nord.jpg> > [Accessed 08/04/2014]

Figure 6.14 **Plan of the ore bunker showing the intervention of new paths** - <email from <http://www.latzundpartner.de/> > [Received 09/04/2014]

Figure 6.15 **View from the inside of a bunker, containing manicured gardens** - <[http://upload.wikimedia.org/wikipedia/commons/0/0f/Landschaftspark Duisburg-Nord - Garten im Bunker.jpg](http://upload.wikimedia.org/wikipedia/commons/0/0f/Landschaftspark_Duisburg-Nord_-_Garten_im_Bunker.jpg) > [Accessed 08/04/2014]

Figure 6.16 **Blast furnace piazza** - < <http://www.landezine.com/wp-content/uploads/2011/08/05-Blast-Furnace-Park-Piazza-Metallica.jpg> > [Accessed 08/04/2014]

Figure 6.17 **Blast furnace plant at night looks like an amusement park** - <[http://s3.germany.travel/media/microsites\\_media/special\\_offers/staedtereisen/header Duisburg-Landschaftspark- 2202.jpg](http://s3.germany.travel/media/microsites_media/special_offers/staedtereisen/header_Duisburg-Landschaftspark-2202.jpg) > [Accessed 08/04/2014]

Figure 7.1 **Main entrance of the Workshop Shopping Centre** - By author

Figure 7.2 **The design embraces the ‘ruined’, creating a dystopian labyrinth that leads up to the museum** - By author

Figure 7.3 **Current site plan showing the Workshop centrally and the surrounding urban fabric** - By author

Figure 7.4 **Workshop reuse sketch** - By author

Figure 7.5 **Workshop interior sketch** - By author

Figure 7.6 **Sketch plans of the Workshop** - By author

Figure 7.7 **A photo of the Workshop in a poor state, just before renovations in 1985.**  
**Edited by author** - < [http://www.fad.co.za/wp-content/uploads/2013/02/13-12-2012-10\\_44\\_14-cr.jpg](http://www.fad.co.za/wp-content/uploads/2013/02/13-12-2012-10_44_14-cr.jpg) > [Accessed 04/05/2014]

Figure 7.8 **Comparison between Paxton's Crystal Palace 1851 and the Workshop 1986** -  
<<http://3.bp.blogspot.com/-7wTrsT3ZliM/T-RiRpLMC6I/AAAAAAAAABIM/QHXOa28vHOs/s1600/interior+of+the+crystal+palace+by+thoms+paxton+1851+..jpg> & <http://static.panoramio.com/photos/large/7932591.jpg> > [Accessed 04/05/2014]

Figure 7.9 **New cables and cameras cling to old structures in a disorderly and improvised manner** - By author

Figure 7.10 **Photograph of the South African Constitutional Court, main entrance** - By Author

Figure 7.11 **Photographs showing some of the dystopian parts of the Constitution Hill Site, the remains of the old prison blocks** - By author

Figure 7.12 **Photographs showing the incorporation of the old prison stairwells into the new building, using them [the past] as a base for the light boxes [hope for the present and future]** - By author.

Figure 7.13 **Sketch plan of the Constitutional Court building showing paths to main entrance, old/new buildings and reused materials** - By author

Figure 7.14 **The Great African Steps is one of the main paths and is defined by difference, the left is the old prison wall and the right the new dynamic wall made up of individual artist's steel panels** - By author

Figure 7.15 **Photograph showing use of projected images on old prison walls/floors to bring the tale of past events to life** - By author

Figure 7.16 **Photograph showing the simple addition of signage that along with new stairs, ramps, elevators and digital displays all make the unguided experience of the museums possible** - By author

Figure 7.17 **Showing a simplified diagram of the heating and cooling modes of the building [designed by ARUP]; edited by Author** - < Law-Viljoen, B., 2006, 'Light on a Hill:

Building the constitutional court of South Africa', David Krut Publishing, South Africa >  
[Scanned 20/08/2010]

Figure 8.1 **Photo showing the reuse of a derelict building by the marginalized in the Point area** - By author

Figure 8.2 **Map showing the geographical analysis of Q2, 3&11. Map from Google Maps edited by author** - < <http://maps.google.co.za/> > [Accessed 14/05/2014]

# LIST OF GRAPHS & TABLES

---

Graph 1 showing the results for question 2, by author.

Graph 2 showing the Office sample results, by author.

Graph 3 showing the DUT sample results, by author.

Graph 4 showing DUT architecture sample results, by author.

Graph 5 showing the AVERAGE results for Q9 & 10, by author.

Table 1 Showing research problems, questions, aims and objectives, by author.

# LIST OF APPENDICES

---

- **Appendix A:** Sample Questionnaires
- **Appendix B:** Brown Field Data

# **ABBREVIATIONS**

---

DUT: Durban University of Technology

SF: Science Fiction

GDP: Gross Domestic Product

EPA: Environmental Protection Agency

CABE: Commission for Architecture and the Built Environment



# **CHAPTER 1**

## **INTRODUCTION**

### **1.1. BACKGROUND STATEMENT**

“Dystopia is derived from the Greek words for “bad, hard” and “place, landscape”; a dystopia is in essence the antithesis of the Utopia or “no place” which is considered as an unattainable ideal or perfect place.” [Dystopia, 2013]

The built environment that surrounds most people today can easily be described in terms of various Utopia and Dystopia, ideal places and bad places respectively. This dissertation is an attempt to explore one particular type of dystopia that exists within the urban and peri-urban spaces of today, the term best used to describe this dystopian environment is “Brown Field”.

The term dystopia, like utopia, is predominantly considered as a work of fiction and therefore is a term more commonly found within the fields of literature and art. The Dystopian story is an important tool used within the creative fields; people look at the dystopian societies portrayed in novels, movies and other forms of popular culture and are able to identify with them. One can say this is because these works of fiction are a simple depiction of an extreme version of the present.

Dystopias have been a popular theme in both literature and cinema since the 1900's; some of the most notable works being by the likes of H.G. Wells, George Orwell and Philip K. Dick. The dystopian worlds like that in Philip K. Dick's “Blade Runner” are uniquely dark yet easily identifiable to the viewer as a possible future; they also allow for a stark contrast between good and evil to be made. Dystopias are great backdrops for heroes and as Michael has blogged on <http://literary-exploration.com> the correlation between dystopian literature and real world strife illustrates the escapist

nature of dystopia, allowing people to substitute the problems of the world with more nightmarish notions.

It is comforting to think that it could be worse.

“Dystopian societies- are often used to raise issues regarding society, environment, politics, religion, psychology, spirituality, or technology that may become present in the future.”

[Dystopia, 2013]



Figure 1.1 An image depicting the dystopian society of "BladeRunner" [Source: [underthehollywoodsign.files.wordpress.com](http://underthehollywoodsign.files.wordpress.com)].

Dystopias are not only a depiction of the future as Darryl Chen illustrates in his talk during *Failed Architecture's* event "Beyond Failure"; "Dystopian fiction represents our current society". [Productive Dystopia, 2013]

Architecture of dystopia targets and magnifies current problems within the urban landscape and society such that people can recognize the severity of the problems; if

the problems were to be left alone it “would result in a world we find abhor-rent.”  
[Friedmann in MacLeod & Ward, 2002: 153]

This sort of Utopian and dystopian thinking that Friedman refers to is meant to inspire people to find solutions to the current problems within society, and ultimately lead them to a better world [ a better built environment].

The following section will begin to show why this research into dystopia is of importance to the field of architecture.

## **1.2. MOTIVATION FOR THE STUDY**

Firstly the topic of dystopian architecture is perhaps one of the best at a research level because it is primarily something fantastic; it is purely a manifestation of the intellectual engagement with recognizable, and current, issues. One such issue that this dissertation focuses on is the prevalence of brown field sites which arise due to economic pressures or failures within the architecture itself.

People engage in some way or another with these architectural ruins on a daily basis yet within the architectural profession one would rather start with a blank site, what is referred to as a ‘green field’ site, than engage with the problems of brown field sites. This research will try to provide some additional tools and concepts for architects and planners to use when confronted with a brown field site; as it stands most methods of brown field remediation/rejuvenation erase the history of the site. The additional tools, previously mentioned, aim to make the brown field a usable site while maintaining a connection to the history of the site.

There is a synergy between the ruined sites which exist as current dystopias and other major issues within society that could give rise to even more drastic dystopian environments. It therefore seems logical that such brown field sites are the ideal locations for the exploration of dystopian architecture and the engagement with other major issues.

The following section will continue to show that the brown field sites are crucial to South Africa's history in many cases; this along with the fact that this research applies to the future built environment are two of the main motivations for the research. Architects are constantly trying to improve and develop the urban environment; so it only makes sense that how one approaches the worst places within the built environment is a crucial part of development.

### **1.3. DEFINITION OF THE PROBLEM, AIM AND OBJECTIVE**

One can get a good idea of the content that this research covers by looking at Table 1; it is summary of this section and clearly shows the relationship between the various questions, aims and objectives.

#### **1.3.1. Research Questions**

The key questions that this dissertation will try to answer are as follows:

##### **Main Question**

- How can architects approach and respond to brown field sites?

##### **Subsidiary Questions**

- Refer to Table 1.

#### **1.3.2. Statement of the Research Problem**

The urban landscape today is not without some form of Urban Decay where areas have fallen into disrepair due to depopulation, over population, economic failure, crime etc. The problem now is; how can architects engage with these dystopian landscapes, these Brown field sites.

The general response to such brown field sites would be to ignore them for the most part as the cost of rehabilitation is often too high but even in the case that the site is redeveloped the preferred response seems to be to wipe it clean. This thesis assumes

PROBLEMS	QUESTIONS	AIMS	OBJECTIVES
The tentative reaction towards brown field sites as possible sites for development by professionals within the built environment.	How can architects approach and respond to a brown field site?	To challenge the conventional attitude towards brown field sites and identify a design approach that can rejuvenate the brown field.	<ul style="list-style-type: none"> <li>• To highlight the need for an approach to reusing brown field sites.</li> <li>• To show that the future will require ways of designing on brown field sites.</li> <li>• To derive a framework for designing on brown field sites that is unconventional/productive.</li> </ul>
The prevalence of Urban Decay and disused buildings within the built environment. [The prevalence of brown field sites.]	What is the relationship between dystopias and brown fields?	To define brown fields as real world dystopias.	<ul style="list-style-type: none"> <li>• To define both brown field sites and dystopias independently of one another.</li> <li>• To show that there are similarities between real world brown fields and fictional dystopias.</li> <li>• To explore the definition of dystopia as a work of science fiction as well as an urban/environmental phenomenon.</li> <li>• To explore Urban Decay.</li> <li>• To identify dystopia within the built environment.</li> </ul>
	How does one design dystopian architecture?	To develop guidelines for designing architecture within the framework of a dystopian narrative.	<ul style="list-style-type: none"> <li>• To identify the architectural characteristics seen in dystopian films and fiction.</li> <li>• To understand the rules of dystopian narrative.</li> </ul>
	How can dystopian architecture become a positive part of the built environment? [This also applies to how it can guide the public towards a better awareness of social and environmental issues]	To explore ways of rejuvenating brown field sites and the surrounding areas.	<ul style="list-style-type: none"> <li>• To explore environmental rejuvenation techniques like phytoremediation and adaptive reuse.</li> <li>• To explore the positive impacts of dystopian stories.</li> <li>• To explore the importance of stories in society.</li> </ul>
	How does one design narrative architecture?  [see page 10 for a definition of 'narrative']	To develop guidelines and tools for designing architecture that tells a story.	<ul style="list-style-type: none"> <li>• To define narrative architecture</li> <li>• To explore how architects have created stories through built form and space.</li> <li>• To understand the role of Lynch's elements of the city in narrative design.</li> <li>• To understand the basics of creating any story.</li> <li>• To explore examples of narrative architecture.</li> </ul>

Table 2 Showing research problems, questions, aims and objectives, by author.

the position that the brown field sites will have to be developed at some point and that there are perhaps more design options for such sites than previously considered.



Figure 1.2 Fort McMurray Mine [Source: [i.telegraph.co.uk](http://i.telegraph.co.uk)]



Figure 1.3 Diavik Diamond Mine, Canada [Source: [www.mining.com](http://www.mining.com)]

When considering the places that constitute the brown fields there are some that stand out above the rest for their post apocalyptic nature and scale; industrial sites like those in figures 1.2 and 1.3 have a sublime beauty. It is a beauty that is not apparent in the more picturesque utopian landscapes; even still these industrial sites bring about romantic (dystopian) visions of progress and mystery.



Figure 1.4 Nickel Tailings Source: [www.edwardburtynsky.com](http://www.edwardburtynsky.com)]

One of the main dystopian narratives or themes is the one of man versus nature.

“Nature, the natural container, is now in a worse condition than it ever was in the past. Not only is natural beauty being eliminated by the bulldozer, but also the air that we breathe is



contaminated and the water that surrounds us polluted-” [Doxiadis, 1966]

South Africa has a special relationship with industrial and mining sites as they account for a massive portion of the economy. Around 60% of South Africa’s exports are from the mining industry and in 1970 made up 21% of the total GDP (gross domestic product). South Africa has a rich industrial history, especially in the mining sector which can be seen as a point of pride for the nation. One such example of this would be the fact that South Africa remains the largest supplier of Platinum in the world (78% of the world’s platinum) and is famous for its diamond production [mining industry of South Africa, 2013].

The problem can now be both extended and refined as follows; how can lateral or creative thinking within the architectural domain rejuvenate these brown field sites and raise issues within society that may lead towards dystopian landscapes? How can decayed and scared landscapes be rejuvenated such that they can meet the future demands for space and still represent what the sites were? In doing so the design could reflect the spirit of the place [Norberg-Schultz 1980]; local identity and failure of man, nature or both.

### **1.3.3. Aims and Objectives of the Study**

The main aim of this research is to challenge the way brown field sites are perceived by architects [problematic sites that are high risk] and to establish an interesting way for designing on these sites. It has been mentioned that these sites are a historical resource to South Africa; this research aims to highlight how to best use this resource. All other aims can be seen in Table 1.

The objectives of this research are numerous and can be seen in Table 1, those objectives can be condensed to those shown below:

- To outline a way that architects can engage with brown field sites such that they may be reinterpreted as **productive sites** [sites that contribute to local economies] for urban rejuvenation.
- To establish dystopian architectural expression as a useful tool for design within the current and future built environment.
- To show that narrative architecture is key in the successful use of dystopian themes; such that they can have an effect on the users.
- To use this understanding to create a design framework for designing within the realm of dystopia such that the design responds to the identity of the site.

#### **1.4. SCOPE OF THE STUDY**

##### **1.4.1. Hypothesis**

There are major issues present in South Africa (and the world) that could give rise to the dystopian societies and environments as depicted in fiction; there is also a prevalence of industrial sites in South Africa that are falling into disuse. The hypothesis for this research is that by actively engaging with the dystopian nature of such sites (their “badness”) one may be able to rejuvenate them into useful urban spaces that comment on the underlying issues in South Africa.

##### **1.4.2. Research Scope and Limitations**

The scope of this research is defined by the exploration of a predictable and possible future landscape in the South African context. This exploration will focus on the phenomenon of brown field sites with the goal of generating tools for positive architectural intervention on these sites. Research into brown field sites will be accomplished through social and architectural texts on the subject of urban decay; the

scope of this is limited by the relevance to brown field sites and comparisons to dystopian narratives.

This dissertation focuses on the theory behind dystopian novels and films [as well as architecture] for the purpose of finding design clues that may help identify a way of designing for dystopian sites; that being said the scope of dystopian theory will be limited mostly to the theory of a 'critical dystopia', as defined by Tom Moylan [Moylan & Baccolini in Molade 2008: 12]. It should be noted that the best way to illustrate the notion of 'critical dystopia' will be done through the analysis of popular literature and film that covers the subject. It is through the research of 'critical dystopia' that one will be able to identify the positive aspects within dystopian narrative and therefore be able to discuss the idea of a "productive dystopia" [Productive Dystopia 2013]; the productive aspect will allow for the identification of real world concepts and techniques that apply to the rejuvenation of dystopias.

One will try to establish connections between the fiction of dystopia and the real world dystopia that exists within the built environment; to do so the theory of narrative within both storytelling and architecture will be covered, it will be the linking structure between story and architecture.

As the research focuses on the reclamation and rejuvenation of brown field sites; the key to this research is the creation and uncovering of connections/parallels that exist between brown field sites and the dystopian landscapes. It follows that to best depict these connections case and precedent studies of: rejuvenated brown field sites, dystopic environments and adaptive reuse will be of importance.

In order to further clarify the intention of this research several assumptions need to be made clear.

- Firstly as the assumes that the need for land will become a pressing issue in South Africa's future; as it has in other areas of the world in current times.

- There is an assumption that the readers of this dissertation have at least some relation to the ideas and images of dystopian worlds; even if they have not been conscious when viewing them in movies or in novels.
- That the demolition of brown field sites to allow for entirely new architectural intervention results in wasted opportunity, history and character.
- The research also relies on the assumption that the way people experience architecture and space is completely subjective and therefore the effects of architecture on public behaviour or beliefs is, at best, difficult to quantify/qualify.

### **1.4.3. Definition of Key Terms**

The following non-conventional terms will appear in text:

**Utopia:** The “dream” [Doxiadis, 1966: xix] or unattainable (no place) paradise.

**Dystopia:** Typically an imaginary place, dream, which is bad in nature; characterized by squalor, overcrowding and general human suffering. The nature by which it is bad may vary depending on the aspect of current society or realities that the dystopia is born from.

**Dystopic:** Dystopian in nature.

**Narrative:** Can be considered as a synonym for ‘story’ and can be defined as the organisational method for recounting events or situations that can be true or fictional.

**Dystopian Narrative:** A particular type of story that falls within the genre of science fiction and is characterized by a scary or oppressive setting.

**Remediation:** The correction or repair of something that is bad or broken, it remedies the situation.

**Phytoremediation:** The correction or repair of an environment that has been damaged through various forms of pollution, this process is done using plants to control and remove the pollutants. [See Appendix B for further information, including information of bioremediation]

**Brown Field Sites:** These are sites that have been contaminated in some way and it is this contamination that hinders the redevelopment of the site. Typically the sites are disused industrial sites that are contaminated by existing structures and harmful waste products.

**‘Other’:** This term will often be used when referring to the marginalized members of society; the homeless, the criminal etc.

**Sci-Fi:** Science fiction is a genre of fiction that deals with the futuristic, extraterrestrial and unexplained. “Sci-Fi is largely based in writing rationally about alternative possible worlds or futures.” [Science Fiction, 2013] There are notably few Sci-Fi authors in South Africa.

**Catalyst:** refers to a single action or architectural intervention that brings about further actions and change; it is a beginning.

**Urban:** in, relating to, or characteristic of a town or city. [Stevenson, 2011] By this definition what is considered urban need not lie within the limits of a city and could in fact be in a rural area; a mining complex for example can be described as an urban environment.

**Rejuvenation:** making something better than it currently is; restoring the vitality of something. In the architectural sense it is the fixing of a space/area that may otherwise be disused.

## 1.5. RESEARCH STRUCTURE

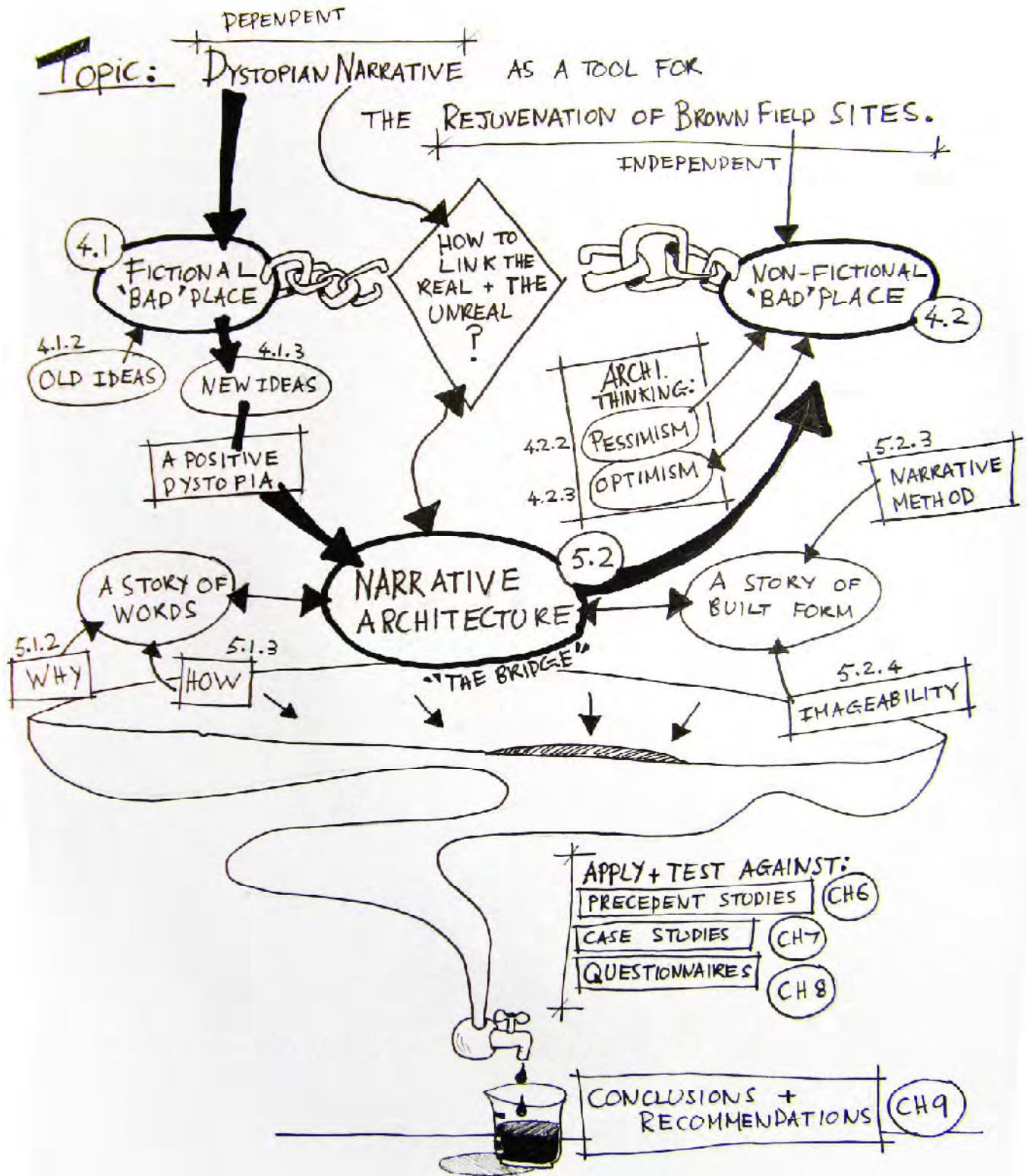


Figure 1.5 Structure of research [Source: by author].

# **CHAPTER 2**

## **METHODOLOGY**

### **2.1. INTRODUCTION**

This section looks at how the information contained in this dissertation will be gathered and analysed; it will show which forms of data will be considered and why.

Firstly one must point out that the research used in this dissertation will comprise of two types of research. First is **Primary research** which can be classified as original research; from case studies, recorded interviews, questionnaires, photographs and sketches. Then there is **Secondary research** which is the collection of second hand data and includes library research, media reviews and internet research.

The research questions and objectives will serve to guide the research process through the various bodies of information such that a focused and definitive document will be formed; this will be especially important where theories lying outside of the field of architecture are concerned as they can cover far more than what is relevant to this dissertation.

### **2.2. RESEARCH MATERIALS**

In this section both primary and secondary research methods that will be used in this dissertation will be discussed.

#### **Primary Research Methods**

##### **Focus groups and questionnaires**

The questionnaires allowed for a large number of people from all around the Durban area to act as a research proxy; the target information being the location and types of

dystopias around the Durban area. The questionnaires will also try to gain insight into the general perception of 'bad' places and the use of narrative within the built environment.

Several focus groups were chosen to try and get as diverse a sample as practically possible; the main goal of this being to get people from different areas because it is an assumption that people from different areas will have different attitudes towards 'bad' places. The three focus groups are the employees of a Westville office [10 participants], non-architectural students from DUT [Durban University of Technology] [20 participants] and architectural students from DUT [40 participants]. These institutions were chosen because they host people from all over the eThekweni area.

The total number of number of Questionnaires issued will be 70; this is to allow for some statistical analysis to be done, the variation of group sizes is due to access.

### **Observations, photographs and Sketches**

One of the goals of this dissertation is ultimately a design resolution and as a major portion of the research is based on the issue of site it makes sense that the documentation of the sites in question will be of great importance.

Distopias are best expressed with visual data because of their violently emotive nature; documenting any dystopic elements on the sites will enable a better correlation to be made between dystopian narratives/ themes and brown field sites. This form of research applies mostly to the various case studies that will be carried out and will be, as the heading suggests, made up of hand drawings and photographs done while observing the sites.



## **Secondary Research Methods**

### **Library studies**

Library studies will include books, journals, reports, documents and academic papers and the use of the internet to find information on the various theories relevant to this dissertation as well as information relevant to both case and precedent studies.

### **Precedent studies – specific library studies**

Precedent studies on rejuvenated brown field sites, dystopian landscapes and dystopian architecture will be carried out with a similar vigour as shown with the case studies but due to the fact that these precedents will not be visited the research will be isolated to library and internet resources.

The precedent studies allow for the topic to be explored at a global scale and may lead to solutions and thoughts that are relevant to the global architectural community.

The following will look specifically at the selection and approach to the case studies.

### **2.3. CASE STUDY**

Case studies will be conducted by visiting and critically analyzing various sites that are a form of rehabilitated dystopia [brown field sites], current dystopia or a site where adaptive reuse was used. Each case study will be conducted independently and will aim to gain as much understanding of the functioning and success of each case; this will involve the documentation of: the number of people, duration of occupation, preferred paths and nodes of activity, construction, materials choices [performance] etc. The case studies will provide an understanding of how brown field sites have been responded to in the past and present by both the users and the designers; they will also shed some light on what makes a current site dystopic and what happens on these sites [if anything at all].

Sites that are local to Durban that are prospective case studies will be the Meerbank copper plume, the old Durban airport and the Durban landfill site.

## **2.4. DATA COLLECTION METHODS**

The majority of the research data will be collected by the author; only where questionnaires are used will there be third parties that will both issue and collect the data.

For the purposes of this research qualitative and quantitative collection methods will be used; the questionnaires for example are a typical quantitative collection method yet it will contain more open ended questions which will make up the qualitative data. The other forms of qualitative data will form a part of the case studies; field notes, sketches and photographs that are taken on the various sites will form part of this data that can then be analysed in terms of the research topic and conceptual framework.

## **2.5. RESEARCH LIMITATIONS**

In any research there are limitations that one will expect to encounter; the most basic limitation being time. As this is a short dissertation there is a limited time frame that will be reflected in the scale of the research accomplished.

The other anticipated limitations will be with the various forms of primary research; in the case of interviews it is expected that several people will decline the interview process, this will affect the questionnaires in a similar fashion. It should also be pointed out that as the majority of the data is qualitative it the limitation of being considered to be difficult to replicate and may be interpreted differently [subjective to the researcher].

With regards to photographs; it is expected that some places will not allow photographs to be taken, this limitation will be overcome with hand drawings and notes.

## **2.6. METHODS EMPLOYED IN DATA ANALYSIS**

As previously mentioned the data that will be accumulated will be a mixture of qualitative and quantitative data; favouring the former.

Two methods will be used in the analysis of the data; one which will focus on a geographical and statistical analysis that can be applied to the quantitative data and another more theoretical approach to the qualitative data.

When referring to a theoretical approach it means that the data will be looked at in conjunction with any other observations done by the author as well as other literature to see how the data should be interpreted so that it may contribute to the research. For example the case studies will be analysed based on other research data like journal and web articles as well as the theoretical framework used in this dissertation.

The following chapters will cover literature relating to dystopia and narrative; looking both within and outside the school of architectural thought.

# **CHAPTER 3**

## **LITERATURE REVIEW**

### **3.1. INTRODUCTION**

In this chapter one will introduce the theoretical and conceptual cores to the research that will be explored in more detail in chapters three and four. How the various theories and concepts tie together [or not] with respect to the research topic, questions and objectives will form a part of chapter eight.

### **3.2. THEORIES AND CONCEPTS**

The various theories, that have been identified as important to this research proposal and that will form the framework for the literature review, are as follows:

#### **PRIMARY THEORY**

##### **Dystopian Theory**

“The opposite of utopia, dystopia describes a nightmarish vision of society” [Porter, 2004: 51]

Dystopia has been a part of the human imagination in the form of literature since the 19<sup>th</sup> century; with works like ‘The Time Machine’ by H.G. Wells leading the genre into the 20<sup>th</sup> century where dystopian environments became commonplace in fiction.

From a more contemporary viewpoint dystopian imagery is becoming increasingly popular in the creative industry; this can be seen in the areas of computer games and cinema (only been around in these mediums since 1950-1980). The romanticized neo-gothic landscapes that are often fantastically hybridized with nature and science easily capture the viewer’s imagination.

The dystopian theme has developed over the years and is now being engaged by the likes of Darryl Chen as a productive architectural narrative; similarly the work of associate professor Daniel K. Brown at the University of Wellington has been an investigation into the beneficial interaction with dystopian landscapes.

It is important to make it clear that dystopian theory has been best studied in the field of literature and media studies [as opposed to architecture ] and it is within these fields that one can begin to grasp both the history and current standing of dystopian theory.

As Peter Stillman writes dystopian literature has “moved towards Moylan as recently identified, in his book ‘Scraps of the Untainted Sky’, as “critical dystopias.”” This form of dystopia is a reaction to critical utopia and it takes what, Sargent in Stillman refers to as, the dystopian strategy “to map, warn, and hope” and builds upon it. The main change in the traditional dystopian literature is that they do not end with warnings and “the hope that readers will act to prevent the dystopian future- but they gain power and energy from a utopian horizon” [Stillman, 2001: 367]. This is what Stillman and Moylan refer to as “utopian anticipation”

It is the core aspects of mapping, warning, hope and anticipation that will be studied in order to develop a framework for engaging with dystopia from an architectural point of view.

The theory behind dystopian literature is a well documented field which makes it a suitable core theory to study; it has also been mentioned that it is a topic that is becoming ever more popular in the world today which could be due to its own appeal or perhaps because it people can relate with dystopias more so than utopias.

## **SUPPORTING THEORY**

### **Theory of Narrative Architecture**

Dystopian theory is firmly rooted as a form of narrative within the field of Science Fiction and in order to bridge the gap between dystopian theory [critical dystopia in particular] and architecture one will research the theory of narrative architecture as discussed by the likes of Coates.

Narrative architecture is the way built form can convey a story or lesson to the user and relates to the success of storytelling through the medium of architecture; Coates identifies that the narrative experience within the built form, as with any experience, has a base within the concept of perception and phenomenology, it is for this reason that a sub section of narrative theory will need to by the work by Kevin Lynch on the 'imageability' of the city.

## **CONCEPTS**

### **Urban Decay and Rejuvenation**

Urban decay and rejuvenation are pertinent to this research because brown fields are in part a product of urban decay while rejuvenation is the terminology for the redevelopment of such sites. The literature attached to both "decay" and "rejuvenation" is wide and will therefore be considered in a supportive manner; looking how and where it relates to dystopia. It is through these concepts that dystopian theory may be woven into a more architectural thinking of the urban environment.

Briefly, urban decay is something that has been an identifiable phenomenon impacting built form since the early 1900's and has therefore been debated by several authors, one such author would be Eliel Saarinen in the book *The City: It's Growth, It's Decay, It's Future* which focuses on the post war problem of urban decay.

Rejuvenation as described by Saarinen has to do with planned urban restructuring; a sort of surgery where the infected sites are removed and replaced with more suitable functions. This may be disputed as being slightly irresponsible and it therefore makes sense that there are many different architectural interventions that may rejuvenate a site or portion of the urban fabric. This said the majority of the literature on rejuvenation will be in the form of precedent studies.

### **Brown Field Sites [Decay]**

The topic of brown field sites falls under urban decay as it is a product of deindustrialization; it can be defined as follows:

“A brown field site is land previously used for industrial purposes or some commercial use. The land may be contaminated with low concentrations of hazardous waste or pollution” [Brownfield Land, 2013]

As far as literature on brown field sites goes the bulk of the information that describes their characteristics, locations, socio economic impacts and rehabilitation can be found on the EPA database [Environmental Protection Agency].

### **Phytoremediation & Adaptive Reuse [Rejuvenation]**

These are concepts that link to the rejuvenation of both natural and built environments respectively. Both concepts are sustainable practices and are therefore a form of responsible design that ties in with the fore mentioned idea of a 'productive dystopia'

Phytoremediation is a natural process where the pollutants that are typical on brown field sites are contained and reduced through the use of various plant species; the plants gradually heal the environment and restore balance to the ecosystem. This process also has the added benefit of introducing nature back into the urban environment.

Adaptive Reuse is also a relatively simple process where existing structures and materials on site are used for new functions and activities that they were not originally intended for; this can positively alter the perception of the site as well as lower the financial/environmental impact of the design.

The following sections cover all of the concepts and theories mentioned above in a detailed manner to develop an understanding of how they can work together and be applied to the problem of brown field sites.



## **DYSTOPIA**

### **The value within the 'bad place'**

This chapter covers the primary theory of the dissertation; that being Dystopian Theory which will be looked at from both the fictional and non-fictional perspectives. This will allow the exploration into the characteristics of dystopian images and architecture that can be found in films and novels; it also allows for the exploration of what dystopia is within the built environment and how it is viewed within the discipline of architecture.

### **3.3 FICTION**

#### **3.3.1 Introduction**

The notion of the fictional, the 'make believe' or ephemeral may at a glance seem to be in many ways the antithesis to architecture and built form which exist firmly in the physical realm but as architecture is born from human creativity, it of course first exists in the mind as something of fiction.

This portion of the dissertation will be focusing on dystopia as it is portrayed within Science Fiction [SF from here onwards]; looking briefly at its origins and development within literature and film, highlighting some of the main thinkers and authors on the subject. SF has a lot to offer the real world as it is tied by its nature to some form of reality or possibility; dystopia is merely a small part of the world of SF but has many threads which can be traced through to urban theory.

The single main aim of this section will be the defining of how a dystopian story is put together; what the rules and methodologies that the authors of these environments follow are. This will involve research into the imagery of dystopia; architecture is a visual experience as much as anything else which makes it important to research the visual characteristics of dystopian fiction as it can be seen in films and novels. This section will be the foundation for how one looks at real dystopia within the built environment.

### 3.3.2 Classical Dystopia

'Dystopia' is not the easiest word to get one's head around and it certainly is not commonly used in casual conversation, that being said it makes sense to start with a definition for dystopia. *The Encyclopedia of Science Fiction* defines dystopia as follows:

"The word "dystopia" is the commonly used antonym of "eutopia" [Utopia] and denotes that class of hypothetical societies containing images of worlds worse than our own."  
[Clute & Nicholis 1993: 360]

Put simply a dystopia is considered a hypothetical 'bad place' and was first used by John Stuart Mill [1806-1873] in a speech addressing the British parliament when referring to the Irish land policy of the time, Mill has been regarded as one of the most notable English philosophers of that period and is known for endorsing the rights of the individual. Perhaps not so coincidentally Mill was also quite opposed to the idea of overarching government bodies which will be shown to be a core theme in most dystopian literature.

The origins of 'dystopia' having been shown to come from a philosopher's thoughts on politics one notes that a dystopia is defined on the premise of a utopia, it therefore make sense that within the history of SF utopian narratives naturally precede those of a dystopian nature. Earlier the term 'eutopia' was used when referring to utopia; for the sake of clarity the word utopia is derived from the aforementioned eutopia [meaning good place] and outopia [meaning no place]. The epistemology of utopia reveals its nature to be an unattainable ideal, a truly fictional place that would become a goal for society.

In early utopian fiction writers would create beautiful, imaginary worlds that acted as a comparison to the world they lived in; one of the earliest examples being Thomas More's aptly named *Utopia* [1516]. Since More's work the idea of an ideal world captivated SF writers for many years but it was during the 19<sup>th</sup> century, leading up to

WWI, that David Seed refers to as “The golden age of utopias”. Seed links the popularity of utopian fiction to the [then] current surge of technological progress and debates on social justice, as one continues through the history of SF it becomes clear that fiction reflects and comments on the society out of which it is born. [Seed 2001]

The dystopian narrative which later began to grow within SF amidst the social unrest of the time has been well studied and characterized; Clute & Nicholis describe the classical dystopian narrative as follows:

“Dystopian images are almost invariably images of future society, pointing fearfully at the way the world is supposedly going in order to provide urgent propaganda for change in direction.” [Clute & Nicholis 1993: 360]

The dystopian stories of the early 20<sup>th</sup> century were essentially warnings against some sort of idea; the ideas which the stories targeted were numerous but there are always some commonalities within the classical dystopian stories, one could say that they are the fundamentals of dystopia. The main fundamental which Clute & Nicholis refer to is “the oppression of the majority by a ruling elite” [Clute & Nicholis 1993: 360], this fear of oppression was an easy issue for readers to relate to because most people in Britain and America feared the rise of socialist and fascist politics, it also links back to the fears of Mill back in the 1800s.

To best exemplify this period of dystopian literature one must refer to George Orwell’s *Nineteen Eighty-four* [published in 1949] which is a story of a post apocalyptic United Kingdom where the ruling government go as far as controlling the citizen’s thoughts.

“... If you want a picture of the future, imagine a boot stamping on a human face – forever.” Chief torturer in NINETEEN EIGHTY-FOUR

The classical Dystopia, like *Nineteen Eighty-four* were truly bleak in that they did not have the 'and they lived happily ever after' scenario; the lack of utopian optimism is what defines the classical dystopia. Figure 4.1 illustrates some of the bleakness of a classical dystopian environment where the protagonist is trapped in an oppressive, prison like, place with no hope of a better future.

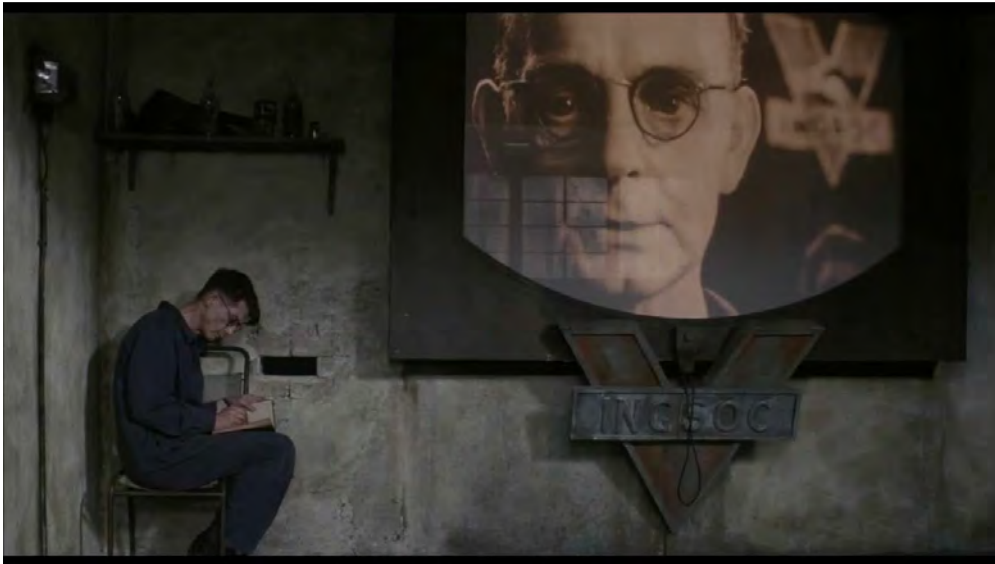


Figure 4.1 A scene from the movie 'NINETEEN EIGHTY-FOUR'

“- classical dystopias depict the reinstatement of a totalitarian order and preclude any notion of progress.” [Mohr 2007: 9]

In the years following WWII the world in general had lost faith in the future, this was referred to as an age of despair by Clute & Nicholis. Dystopian stories gave little attention to the nature of the dystopia and offered no underlying social commentary but rather hopelessness, the dystopian image was established as an actual pattern of expectation rather than a literary warning device. The issues that brought about this pessimistic outlook, later, served to become popular themes in the dystopian literature that was to follow.

Such themes were: Overpopulation, pollution, the pace of change, masculinity and so on.

In the following section the rise of the 'critical dystopia' will be illustrated in quite some detail as its plot structure is the core for this dissertation.

### 3.3.3 Towards Critical Dystopia

The fact that utopia and dystopia are so strongly linked within SF is what allowed authors to slowly merge the two, hiding utopia within dystopia. The main contributors to the theory of utopian and dystopian narratives, in the contemporary sense, are Tom Moylan, Raffaella Baccolini and Angelik Bammer but it is Moylan who is known for his work of 'critical utopia' and 'critical dystopia' within field of literary studies.

Moylan first noticed the idea of 'critical utopias' within the feminist writings of the 1970's and in his book *Demand the Impossible: Science Fiction and the Utopian Imagination* he explains how they differ from the classical utopia. The difference has to do with the static nature of a classical utopia which is a fixed ideal, a model of perfection that is not subject to any form of change. The critical utopia is more dynamic, it "reject[s] utopia as a blueprint while preserving it as a dream" [Moylan 1986: 10], this lack of absolution within the narrative allows for a much more interesting story that puts emphasis on character development and non-linear process. Mohr further explains how the imperfection of a utopia allows for diversity and multiplicity of perspective that challenges the utopian tradition. Strangely 'critical dystopia' was only really defined in Moylan's *Scraps of the Untainted Sky* which was published in 2000; even though it took so long the definition of a critical dystopia is not that different to what has been discovered with its utopian counterpart. Peter Stillman sums up critical dystopia quite well in the following quotation:

"Retaining from the critical utopia the need both to be socially critical and to re-evaluate the utopian tradition, critical dystopias revive the traditional dystopian strategy" to map, warn, and hope" [Sargent], extending" hope" to include alluring if indefinite suggestions of a better world." [Stillman 2001: 366]

A key aspect of Stillman's definition is "indefinite suggestions" which is perhaps the main aspect of both critical utopias and dystopias; it is their willingness to "resist narrative closure" [Moylan & Baccolini in Molade 2008: 12] that sets them aside from the classical examples and leaves a lot to the perception/ imagination of the reader. Stillman's definition of critical dystopia also offers a relatively clear narrative structure that can be analyzed and reinterpreted in an architectural sense: the sequential movement from mapping, to warning and then finally hope [anticipation of hope].

It is this structure that will now be expanded on with reference to the film 'Cloud Atlas' [2012], directed by Tom Tykwer & Andy Wachowski, as an accessible contemporary example of dystopian fiction.

## Mapping

The process of mapping, when creating a critical dystopian narrative, is crucial in that



Figure 4.2 Seoul as depicted in the movie "Cloud Atlas", drawn by George Hull [Source: [www.ghull.com](http://www.ghull.com)].

it is generally what defines the theme or setting for the story. A critical dystopia is in part a commentary on current society, it takes some debatable issue and blows it out of proportion; an example of this can be seen in figures 4.2 & 4.3. The idea of rising sea levels is taken to the possible extreme where cities become partially submerged; in this case it is the somewhat familiar city of Seoul in South Korea. This process where the familiar is defamiliarized is what Darko Suvin refers to as "cognitive estrangement" [Stillman 2001: 366] and it allows for the acceptance and exploration of alternative

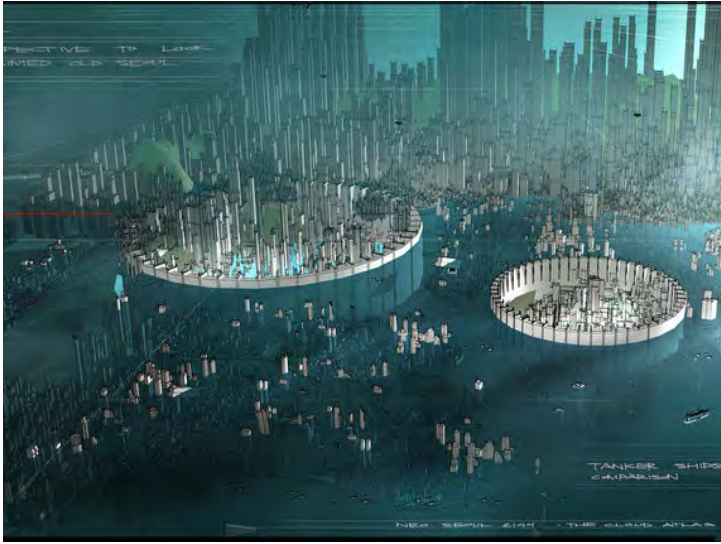


Figure 4.3 George Hull's illustration of 'new' & 'old Seoul' in Cloud Atlas [Source: [www.ghull.com](http://www.ghull.com)]

perspectives that, without the context of the familiar, would be unimaginable.

When creating the dystopia map the author considers his/her present environment, which thanks to the internet is the whole world, looking at present phenomenon that could be used to create the dystopia. Phenomenon that are often the building blocks of

critical dystopia are things like: corporate/capitalist power, highly developed technology, degradation of the environment and weakened government. These phenomena are but a few that Stillman refers to as there are many more identifiable flaws within contemporary society which vary depending on location; for example an author in the South African context would find issues like the nationalization of the private sector or the rise in immigrant population to be feasible dystopian catalysts.

Julie de Molade refers to “the setting” in her thesis which is essentially the “mapping” currently being reviewed; one key point that she raises is the distinction between background and foreground. Molade states that the setting in a dystopian story is not a simple background that is described briefly to contextualize the reader but rather a constant element in the foreground of the story. The reader establishes and explores the setting slowly throughout the narrative. [Molade 2008]



One should also note that even though the critical dystopian narrative structure is broken into mapping, warning and utopian anticipation/hope it still needs to be considered holistically; the dystopian map sets the scene, props and characters which define what the warning in the story will be.

## Warning

“- science fiction can help us understand the present as history and in this respect, it can help us understand what should be changed” [Molade 2008: 14]

The critical dystopian narrative tries to instil in the reader a tendency to be critical of the current society or environment; it does this by warning the reader of how current phenomenon [mapped out] could lead to a bad future for mankind. This is a simple concept to understand when one looks at an example within ‘Cloud Atlas’.

As previously mentioned the future city of Seoul, South Korea, is depicted in Cloud Atlas to exist in a flooded world. This imagery of present world sky scrapers being under water serves as a warning against the degradation of the environment, it warns of a likely future if mankind does not respond to pollution and global warming. In the



Figure 4.4 George Hull's illustration of architectural difference/contrast [Source: [www.ghull.com](http://www.ghull.com)]

film this environmental warning is subtle in comparison to the warnings portrayed through the cities architectural juxtaposition and the proposed consumerist norms. Figure 4.4 shows an image of the ‘old Seoul’ being overshadowed by ‘new Seoul’, the dark and poverty stricken is contrasted against the bright and successful.



This simple contrast warns of a chaotic future full of social unrest and inevitable rebellion which could be born from unrestricted social and financial inequality. The notion of 'server' and 'served' is the main topic of the film that is warned against; the film takes commodification and consumerism to an extreme that the reader would find repulsive.

One can't help but notice the importance of architecture and the built environment in the depiction of the dystopia in *Cloud Atlas*, the built environment is a manifestation of society it serves as an easily interpreted image of the current power struggles, despair and resistance.

### Hope and Open-Endings

"The critical dystopia maintains hope inside its pages as opposed to the classical dystopia where hope, if there at all, is outside its pages." [Moylan & Baccolini in Molade 2008: 12]



Figure 4.5 George Hull's illustration of the human production line in *Cloud Atlas* [Source: [www.ahull.com](http://www.ahull.com)].

The presence of hope within critical dystopia is referred to by Stillman as "utopian anticipations" and is the crucial component in contemporary dystopia; it is the thing that speaks of solutions and rejuvenation. The idea is once again quite simple; the dystopia has been mapped on the present and intensifies some 'issue' within society

to create a narrative of warning but there is also a counter narrative that suggests ways to oppose the 'issue'. An example could be if the dystopia is based on pollution and throughout the main narrative there are suggestions that the environment can be regenerated with new technologies. As the issue is based in the present so must the solution be an extrapolation of present ideas, if the solutions were purely fictional then they would be less identifiable to the reader.

A separate point that Molade refers to is how Baccolini places importance on the open-endedness of the narrative, the ending must not be a conclusive 'happy ending' as in traditional fantasy or utopian SF as it would prevent the reader from continuing the story beyond the confines of the pages. One of the main aims of a critical dystopia is to instil a critical thinking in the reader and the open ending allows the readers to come to a solution/ utopian horizon on their own.

"By using these open ended means, the critical dystopias teach their readers about their present and suggest ways in which the texts can help find new ways to change it." [Molade 2008: 13]

One can begin to see the relevance of a critical dystopian narrative from an architectural point of view. All of the work that is done in the built environment is meant to make it better in some way, whether it is in the form of new developments or rejuvenation projects it is always meant to be positive. That is why the critical dystopian narrative is so important; it is a narrative which is essentially both transformative and positive it is a narrative about how to escape the 'bad place' and move towards a rejuvenated better place. There is a synergy between the critical dystopian narrative and architectural intent which allows such a narrative to perhaps be a useful part of architectural design.

The next portion of this dissertation will be looking at how dystopia and utopia are portrayed in fiction; it will be looking at the architectural characteristics of the critical dystopian environment that can be seen in movies and computer games.

### 3.3.4 Architecture of Dystopia

It is within movies and computer games that dystopian environments thrive; they are free of the real world which allows them to be truly amazing, although bleak, visions of the future. Some of the concept art for 'Cloud Atlas' has already been discussed, showing the dystopian character of binary architecture; one architecture of power/oppression and another of subjugation and strife.

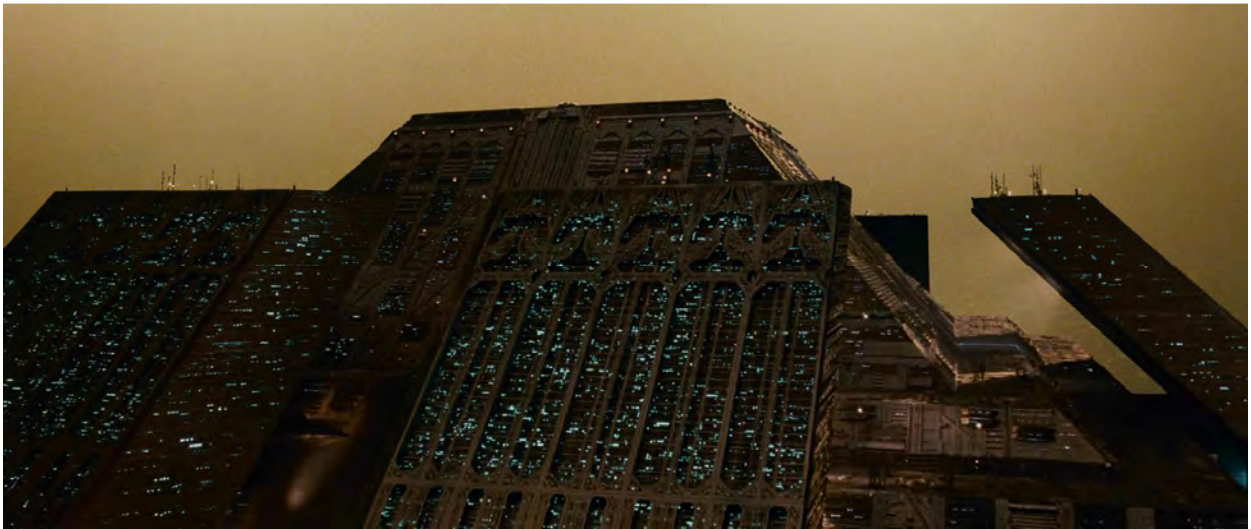


Figure 4.6 Tyrell Corp. Building from the 1997 film 'Blade Runner' [Source 3.bp.blogspot.com].



Figure 4.7 Establishing scene from the 1997 film 'Blade Runner' showing the contrasting architecture, one megalithic and the other fragmented and hybridized [Source: i6.minus.com].

One can see in Figure 4.6 another example of powerful architecture; the Tyrell Corp. building stands above all else both in height and mass, but when one looks closer there is also a high level of detail and order to the façade. The architecture of this ziggurat like building establishes a clear contrast of power between it and the rest of the city which is made up of hybridized architecture; industrial chimneys tower over environments that fuse the neon glow of bustling china town with the architecture of a 1950's American city.

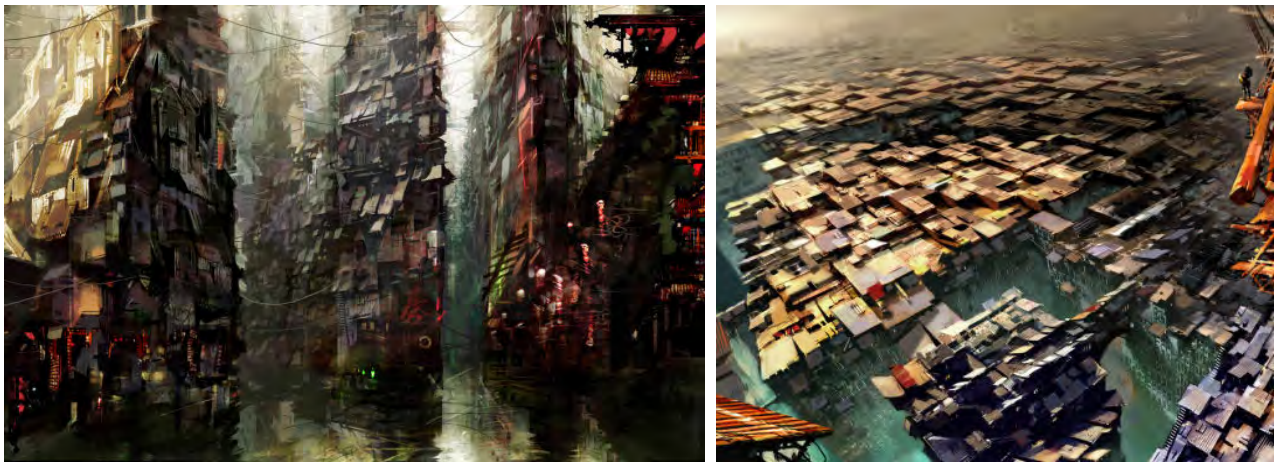


Figure 4.8 Concept art by Daniel Dociu [Source: [www.tinfoilgames.com](http://www.tinfoilgames.com)].

The image of a more hybrid and fractured architectural landscape is quite popular in dystopian images and can be seen in figures 4.8 & 4.9; the fractal landscapes perhaps resemble the roofs of shanty towns or favelas which are familiar to the viewer as 'bad places'. The architecture is one that speaks of resistance; it has the aesthetic that it is home made in an attempt to fight against the current situation.



This idea of resistance is familiar point within architectural discourse and was a main theme for, the architectural theorist, Lebbeus Woods. One can see a clear similarity between Woods' work and that of Docui or Alahaidoyan which highlights the importance of resistance within dystopian architecture; the resistance between binary forces: disordered against ordered, understated against powerful, naturalistic against industrial and so on.

There are also some architectural movements or styles that are often used when depicting dystopian architecture; the notion of order which refers to classical architecture has been

mentioned already but there are a few more. An example would be gothic architecture like that used when depicting Gotham city [in batman] which uses sharp vertical elements and gargoyles to create a rather sinister image. On the opposite end of the spectrum there is the use of modernist architecture when depicting the utopian elements within the dystopian story. An example of this would be the floating house in the film 'Oblivion' [2013] which acts as a perfect, white, shining beacon of safety; contrasting the broken world below. In a critical dystopia there is the hope, the small element that subverts the overall dystopia, Oblivion has this element of hope; within the decaying dystopia there is a small natural oasis that has within it a small log cabin. The cabin in the film is a very simple form of architecture that is full of romantic imagery and acts as a repository for the memories of a better time, memories that are not meant to exist within the dystopia, making it architecture of resistance once again.



Figure 4.9 Concept art by Hovig Alahaidoyan [Source: undertomorrowssky.liamyoung.org]



Figure 4.10 Illustration by Lebbeus Woods, fragmented form as architecture of resistance [Source: broadmuseum.msu.edu].

This brief look into some of the architectural characteristics within dystopian fiction shows that there are many tools within architecture that can be used when creating a dystopian narrative; it also shows that the idea of resistance within the architectural expression is a central part to the way the dystopian environments are portrayed.

To conclude this section on fictional dystopia one can say that dystopia has captured people's imaginations for a long time and has therefore developed into something that can be used or perceived as a positive force for change. The critical dystopia which has been identified to be the more contemporary dystopian narrative is perhaps the pinnacle as a literary force for change; it is a narrative that warns the reader of their own shortcomings and creates a sub-narrative that leads them from a bad future to a better one, it creates hope. This partially answers the question of how dystopian imagery can lead people towards a better future but has yet to cover how it may be accomplished through the medium of architecture.

This section also highlights the importance of a story that is relevant to the reader, which he/she can relate to, as well as the importance of open-endedness such that the reader can make their own conclusions; this once again begins to show ways to maximize the effect of the dystopian image on the viewers and therefore maximize the effect on public awareness.

The architectural possibilities that come out of a critical dystopian story are truly fantastic; strong contrasting imagery and styles that are crucial in creating the setting [binaries]. The main aspect of the architectural expression though is the notion of resistance and power; an opportunistic form of architecture that stands against the powerful form and the dystopian environment. This serves as a way for architects to design within a dystopian theme and context which was also one of the research questions; Science Fiction can provide design characteristics for dystopian architecture and more specifically, critically dystopian architecture.

### **3.4 NON-FICTION**

#### **3.4.1 Introduction**

With the advent of movies and computer games the imaginary dystopian landscapes, which have been captured by the SF writers of the past, now form a part of society's visual library. Dystopia are now more real than ever as people can more easily relate existing landscapes to those traditionally only found in SF literature or films. These 'existing landscapes' that can be considered as dystopia form a part of the built environment which makes them relevant to the field of architectural study.

Under the heading of "non-fiction" one will review the presence of dystopian thought and visions within architectural theory as well as within the built environment. This review will begin with a brief look at the origins of architectural dystopia, covering the various, pessimistic, views of the urban environment; leading towards the more optimistic perspectives that some thinkers have taken.

#### **3.4.2 Pessimism: Urban Death**

This section has been labelled as 'Pessimism' because much of the postmodern literature on the city seems to be about death, decay and failure; it highlights how the postmodern city is a bad place [how it is a dystopia].

The origin of dystopias within architectural theory begins in the notion of utopias, just like in the case of SF, in Macleod & Ward's article "Spaces of Utopia and Dystopia" they site David Harvey who "contends that most of what passes for city planning has been inspired by utopian modes of thought" [MacLeod & Ward 2002: 153]. The cities of the world have been influenced by several utopias in the past ranging from Plato's vision of a Republic to the more modern versions by Howard and Le Corbusier. Both Howard and Le Corbusier essentially endeavoured to promote cities founded on the principles of "social solidarity rather than segregation" [Fishman in MacLeod & Ward

2002: 154], Howard with small satellite communities and Le Corbusier with a more general socialism.

Both utopias proposed by Howard and Le Corbusier were pursued in the years following WWII as there was a need for urban development but in true utopian spirit they were never truly realised. They were searching for a 'better city' and a better built environment for all people, as one reads further into the article by MacLeod & Ward one begins to see that this notion of 'better city' [a utopian city] remains a goal for contemporary thinkers. The cities of today have been exposed to numerous developments of various scales and various levels of success; the main point that comes across in the literature is that these utopian attempts are closely linked to the dystopias that exist around them, whether the utopia is a response to a dystopia or vice versa differs for each example.

“- an intensely uneven patchwork of utopian and dystopian spaces that are, to all intents and purposes, physically proximate but institutionally estranged. Put another way, the densely settled and heterogeneous 'worlds' that make cities such vibrant places appear to be premised increasingly upon 'indifferent' worlds and detached lifestyles” [Allen, 1999, p.91].

If one adopts the view taken by MacLeod & Ward which is that the contemporary city is indeed a patchwork of utopia and dystopia it becomes clear that the built environment is comprised of difference and multiplicity; it is a complicated network of spaces that are either bad, or good, or somewhere between the two. MacLeod & Ward identify multiple urban environments to be utopia and dystopia but, for the purposes of this dissertation, their classifications are less important than the fact that they exist within the contemporary architectural discourse. This dissertation takes a focused approach on one particular space that exists within the urban landscape; it looks at brown fields and their effect on the built environment.



To understand where brown fields sit within the context of architectural and urban theory one must first have a brief understanding of 'urban decay'.

The term 'urban decay', blight or disease defines the phenomenon where parts of a city fall into disrepair or neglect and is characterized by "depopulation, economic restructuring, property abandonment, high unemployment, fragmented families, political disenfranchisement, crime and desolate urban landscapes" [Urban Planning 2014] . The cause of urban decay has been attributed to many variables within the city but the most common reason mentioned by theorists has to do with the post utopian deindustrialization. The movement of industry, and with them jobs, away from the city forced people to follow and settle in the ever growing suburban areas. Saarinen likens this movement and radial suburban sprawl to lichen on a cliff face; "expansion outwards causes the withering of the centre." [Saarinen 1965: 14]

The loss of taxpayers in the city results in less money to maintain the city and forces the municipality to take preference in certain areas; as MacLeod & Ward mention the preference becomes guided by things like investor interests and profit as opposed to being guided by a vision of a better city. This said it has become common to see how some areas are heavily redeveloped while others are left to decay further; creating more difference and otherness between these areas and the people that inhabit them.

The deindustrialization that is placed at the centre of urban decay holds a special significance with regards to this dissertation; an abandoned/disused industrial site is a typical example of a brown field site.

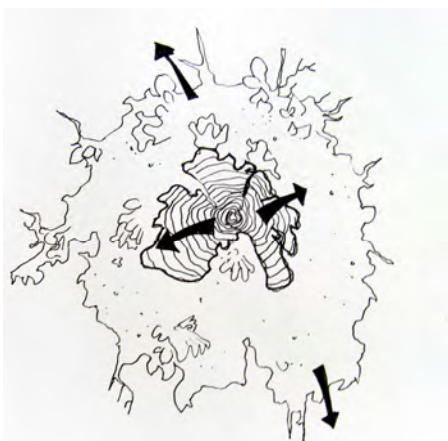


Figure 4.11 Illustration of decaying Lichen [Source: By author].

"Brown fields are properties where the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of hazardous substances, pollutants, or contaminants" [Calkins 2012: 35]

Generally a brown field site is a site that was previously used for a, productive, industrial process like: oil refinement, coal mining, zinc plating etc. which, as disused industrial sites, become catalytic centres for urban decay. It can therefore be viewed that these brown field sites are also at the centre for dystopia within the urban environment; it should be noted that this is still all with a pessimistic perspective and will later be challenged slightly by more optimistic ideas about 'dystopia' within the city.

For detailed information pertaining to brown fields one can refer to Appendix B which is a collection of some of the most relevant data that the EPA [Environmental Protection Agency of America] have made available.

The following section looks more at the optimistic views of the urban environment which begins to highlight a dualism similar to the critical dystopia; a bad place with hidden good.

### **3.4.3 Optimism: Urban Life**

There are theorists who are far less pessimistic about the heterogeneous state of the urban environment and disagree with the negative lexicon of some contemporary academics and planners who label them as: waste, dead, uncertain, blank and bad.

One of the main contributors towards the understanding of the urban environment and in particular the post industrial landscape is Gil M. Doron who is the founder of the 'Transgressive Architecture group' in London. In an article for the field journal, 2007, Doron discusses his research and opinions on "industrial ruins" and "derelict land" [Doron 2007: 12] which is the British equivalent to a brown field site. One of the main points that Doron makes in the article is that these derelict sites are seldom empty of activity and that they should be considered as assets to the built environment as opposed to scars or wounds that need "treatment"[Doron 2007: 12].

Doron takes issue with many of the loose definitions and legislation that is applied to derelict sites as they are in terms of the “general population”; which excludes the marginalised groups. Little concern is given towards the likes of the homeless or the prostitutes that use these sites as their homes and workplaces. Another point of contention that is quite valid has to do with how people identify these sites; Doron refers to a study done by CABA [Commission for Architecture and the Built Environment] where most people identified these sites based on their aesthetics. One can contend this way of defining sites on the simple basis that “beauty is in the eye of the beholder, so is unsightliness.” [Doron 2007: 15]

Moving away from the issue of definitions for now it is of more relevance to illustrate some of the positive views with regards to derelict industrial sites.

One basic good that comes with derelict sites existing within the urban environment is that they often allow for nature to creep back into the city. They act much like a sunken ship [Figure 4.12]; they become a shell or platform that houses nature and increases the overall biodiversity within the built environment. Other than housing nature these derelict sites also often accommodate various “special, architectural, and social qualities that cannot be found in, and are often actively excluded from, other urban



Figure 4.12 Photograph of a sunken ship supporting life [Source: [www.wallpaper4me.com](http://www.wallpaper4me.com)]

spaces”. [Doron 2007: 15] Here Doron is referring to the various phenomena that transgress or go against the norms of society and space; things like informal living communities, secret brothels and bare knuckle boxing arenas.

These sites house a multitude of functions which make them highly mixed use as a typology and yet they are very flexible in their operation; Doron mentions how they can even be considered as radically democratic sites, issues negotiated between individuals as opposed to any governing bodies. MacLeod & Ward refer to Doron's positive perspective towards the more dystopic parts of the built environment and the dystopians [people of dystopia] who "transform the street from traffic channels [human or vehicle] to a living-working space, to a space of performance and festivity, to a place to be in and not only move through, and 24 hours a day" [Doron in MacLeod & Ward 2002: 164]



Figure 4.13 Photograph showing plants invading ruins [Source: By author].

One can still contend the views of Doron, MacLeod & Ward on the basis that they are narrow at times. Yes perhaps the streets are more alive with the 'others' and in many ways it is their presence that brings activity to the built environment but the question needs to be asked: 'is that enough?'

There is a possibility that more responsible architecture that offers various opportunities could enable the 'others' to lead less dangerous lives.

Towards the end of Doron's article he defines the characteristics of an "industrial ruin" [Doron 2007: 17]; it is within these characteristics that one begins to see how such dystopia can be seen as positive spaces of transgression which embody limitless possibility and otherness/difference.

Brown fields or industrial ruins [as Doron refers to them] offer unique environments for design; they are spaces that embody 'otherness' as they are no longer seen to be a part of the city, nor are they natural landscapes. One of the key features of the

industrial ruin is the lack of boundaries; the boundary that would mark the edge of the site is not maintained and tends to blend into the surrounding environment, similarly the internal boundaries of the site have also decayed to allow spaces and functions to melt together and create an “aesthetic of disorder” [Doron 2007: 17].

The spaces become vessels of timelessness and possibility as they are void of programme; without any defined past, present or future. An architect will most probably never get the opportunity to alter classical ruins like the Roman Coliseum or the Pantheon but within the contemporary urban environment there are ruins that hold as much, if not more, possibilities and excitement.

It must be noted that Doron does not stand alone with his positivity towards the derelict and the other within the urban environment, there is also the, somewhat controversial, opinions by Rem Koolhaas et al. on the African city of Lagos. Jennifer Robinson refers to the views taken by Koolhaas et al., in her article titled “Living in Dystopia”, they see the contemporary dystopia as an productive environment that stimulates new uses of urban spaces. Koolhaas et al. see the resistance of the dystopians with respect to their environment, the way abandoned highway flyovers become multi-markets or railway tunnels become brothels, as new ways for planners and architects to view/design the built environment.

Jennifer Robinson criticizes the eager perspective of Koolhaas et al., that the study of dystopias can help create new urban environments, in that there is no concern for the dystopia or those who live in the dystopian environments. Robinson is very critical of how architects and academics view dystopias; her main concern is the limiting nature of dystopian fantasies. She refers to Andy Merrifield in saying that by imagining dystopic futures one can “enable creative urban interventions. However, dystopias can also profoundly misrepresent the city, drawing it toward a unitary representation, a singular narrative of the future, and thus limit opportunities for imaginative interventions.” [Robinson 2010: 226]

Dystopic visions of cities, according to Robinson, can be a positive force towards change but are far less complex than the cities they represent and it is this complexity which makes such visions unpredictable. This being said Robinson does tend to follow the work of Moylan with respect to the critical dystopian narrative; she refers to “hope” much in the same way as Moylan the difference that she makes is that the hope is a part of the city itself. Robinson looks at the urban environment and writes that “new urban features lies at the very least in the city itself, as a site of assemblage, multiplicity, and social interaction that offers the potential for something different to emerge.” [Robinson 2010: 229]

One cannot ignore the warnings of Robinson but it does not mean that dystopian narrative is tossed aside; all it does is place an emphasis on the open-endedness of the narrative. If the architecture is subtle enough to allow the users to define the narrative lesson it is possible to avoid the issues that Robinson points out.

In the contemporary architectural discourse there is a fixation or curiosity towards dystopia and what they have to offer as generators of forms and functions within the built environment; but that is not the only reason for the curiosity. Merrifield is, quoted by MacLeod & Ward, who writes that even though people create utopias they seldom wish to live in them as they lack all that is exciting in life; leaving only routine and the mundane. It is within the dystopia where fantasy, novelty, tension, adventure and mystery exist.

#### **3.4.4 Phytoremediation**

The term ‘phytoremediation’ was coined by a professor of plant biology, Ilya Raskin, in 1994 and can be defined as “- the use of plants for environmental remediation. That involves removing organics and metals from soils and water.” [Raskin in Black 1995: 1106] Essentially phytoremediation is a natural process that has been identified to have great potential when it comes to fixing man made mistakes; there are other ways

of cleaning up post-industrial environments [dystopia] but the use of plants is by far the cheapest. Black mentions some clean-up projects that American Environmental Protection Agency [EPA] did where they used other soil cleaning methods that cost in the region of \$7 million [Black 1995].



Figure 4.14 Man vs. Nature, plants in dystopia [Source: moreintelligentlife.com].

Some of the other positive features of phytoremediation that Black mentions are the reduction of waste and the health benefits; through the use of plants the top soil does not need to be removed and disposed of, this process is both costly and wasteful. Similarly through the use of plants the possibility of human exposure to contaminated soil is reduced; plants cover the soil and discourage human traffic [Black 1995], more recent studies have also shown that a planted environment has a direct effect on the user's mental and physical health [Larsin 2005].

When thinking how phytoremediation ties in with a productive dystopia one should point out that in the industrial ruins there exists a struggle between man and nature; as shown in figure 4.14. Plants are a part of the dystopian image yet are also possible tools for transgressing the overall dystopia through the process of phytoremediation. This process is a productive part of the dystopia that begins to lead the users [actors] within the dystopia towards a better environment. [Appendix B has more information]

### 3.4.5 Adaptive Reuse

To best define adaptive reuse one can refer to David Woodcock who says adaptive reuse is where old buildings, parts of the built environment, are renovated to meet contemporary standards, where their functions are altered to “provide stimulating environments for uses unheard of at the original time of construction-” [Woodcock in Austin 1988: viii].



Adaptive reuse prioritizes the preservation of buildings within the urban environment over reconstruction because preservation focuses on maintaining the character of the environment, the 'sense of place', which allows for better community support and aesthetic continuity.



Figure 4.15 Simple reuse of waste, tyres as planters [Source: [www.greendiary.com](http://www.greendiary.com)].

Industrial ruins generally have a strong history within the community, they are structures at a scale that cannot help but be a major influence on the immediate area. How adaptive reuse helps these ruins be productive can be seen from a social and economic perspective; when an old building is to be reused there is a need for skills development, workers/contractors need to learn the old techniques used to create the building. If the building is a landmark within an area then its reuse and reactivation can lift the local society's perception of the area and of themselves; "We will shape our buildings and our buildings will shape us-" [Woodcock in Austin 1988: x]. There is also the obvious economic productivity that will come from a building that moves from disuse to use but there are several other benefits; the environmental cost being one of them. Calvert and Galveston mention how such ruins have an abundance of existing materials to work with, they make the example of how eight bricks reused amounts to one gallon of gasoline that would have been burnt to remake those bricks [Calvert & Galveston in Austin 1988: 13].

The notion of reusing elements of a dystopian environment to build something new speaks of the productive dystopian narrative; the dystopia transgressing itself. Adaptive reuse can also be productive in that it is a simple process that people can easily identify with and learn from; old tyres stacked up to create planters [Figure 4.15] or oil drums cut up to make furniture suggest to the viewers that there is a lot that can come out of waste and ruin.



Using the existing rubble and 'waste' to build new spaces with new functions that can begin to change the overall perception and social/economic value of the environment; the recreation of green spaces within the urban environment to heal both the environment as well as the people within it. These are two very positive and productive things that can be born out of the dystopian environments that exist in the city; their location and nature allow for changes to be made within the built environment that could not happen elsewhere.

To conclude this section on the non-fictional dystopia one can say that within the contemporary built environment there are a multitude of perceivable dystopias that architects, urban planners and designers can engage with; one such dystopia is the brown field or industrial ruin. One of the research questions asks what the connection is between brown fields and dystopia; one can now say that a brown field is a type of ruined landscape and therefore a type of dystopia, they share common aesthetic and experiential qualities that are often identified as 'bad'.

These environments have a huge amount to offer as they can be looked at as examples of places of transgression and resistance that give clues to new ways of existing and designing within the urban context; they also offer a place for the marginalized community within the city, a place of work and a place to call home. They are places of countless possibilities and contain energy, a tension and excitement that cannot be found in other parts of the city; definitely not within the pseudo utopias that are the gated estates and edge cities.

These real dystopias are sites for responsible, positive and productive architectural intervention; they have a catalytic nature that can be used to stimulate the rejuvenation of the immediate area and society surrounding them. While on the topic of rejuvenation it should be mentioned that the title of this dissertation is in part 'the rejuvenation of brown field sites'; this means that some research into how that is accomplished was necessary. This section has began to show how concepts like phytoremediation and adaptive reuse can be used when designing on a brown field

site; they are concepts that can successfully rejuvenate both the natural and built environment on the sites that desperately need it.

All of the mentioned theories and concepts will be further analyzed in the following chapters through the study of relevant precedents and cases; this analysis will be done with the reviewed literature in mind such that an even deeper understanding of how the theories and concepts apply to design can be achieved. This process should begin to condense the literature into a framework for designing on brown field sites that speaks of local and contextual rejuvenation, as well as the creation of a narrative architecture that may allow the users to engage with the dystopian issues of the city.

## **NARRATIVE**

### **The link between fiction and architectural expression**

This chapter will be looking at the Narrative Theory as it will support the understanding and application of dystopian theory in architectural design. First one will explore narrative as a part of storytelling and the traditional mediums of literature and film then these principles will be extended to Narrative Theory in architecture; this looks at how one can tell a story with built form.

## **3.5 STORYTELLING**

### **3.5.1 Introduction**

Up to this point this dissertation has looked at Science Fiction [SF] and its use of the critical dystopian narrative within the more contemporary SF work; the characteristics and structure of this particular dystopian narrative have been identified and highlighted for its use of hope. One then moved from fiction to the more real built environment to find that it contains both utopia and dystopia; but it seems that it is the dystopia that is of most interest, some seeing it to be the seed of decay and chaos while others find it to be the container of creativity and life.

One can begin to see that there is a relationship that exists between fictional dystopia and real dystopia but how that relationship can be exploited through architecture has yet to be defined and explored. This dissertation makes the assumption that the linking structure [bridge] between the SF dystopia and the brown field dystopia can be found within the idea of storytelling and narrative structure. That being said this section will be focusing, briefly, on storytelling within society showing why it is important to man now as much as it was when he first began communicating. Secondly there is a need to define narrative and to briefly cover some aspects of narrative form/structure such that a basic understanding of how a story is constructed and told can be established.

Before moving on it must be pointed out that the body of literature on narrative form is vast; it being the basis for the field of narratology which dates back to the age of “Plato and Aristotle of the fourth century BCE”. [Keen 2003: 7] This vastness cannot, and will not, be fully covered in this dissertation; but some understanding is required as a basis for the topic of narrative within architecture.

### **3.5.2 The Importance of Stories**

There has always been some interest in storytelling and why people enjoy both the act of telling and listening to stories. The word story is derived from the Latin word *historia* which means history; from this one can begin to define a story as the recalling of some series of events, some history that may be based on fact or fiction. Storytelling and narrative are covered by many academic disciplines and as such it would be difficult to pinpoint any main theorists on the subjects; for the purposes of this dissertation the article titled: “The Secrets of Storytelling” by Jeremy Hsu will be reviewed along with any work that Hsu refers to.

When it comes to the question; “why do people like stories?” Hsu writes that it has a lot to do with the fact that humans are social animals.

“The safe, imaginary world of a story may be a kind of training ground, where we can practice interacting with others and learn the customs and rules of society.” [Hsu 2008: 1]

The above quote by Hsu links storytelling to both education and social cohesion but it also illustrates a story’s ability to evoke emotional responses and connections towards things that are either real or imaginary. Hsu goes on to mention the persuasive and motivational nature that stories have on people linking it directly with the human

capacity for empathy; empathy being “the ability to understand and share the feelings of another”. [Dictionary.com]

Storytelling’s importance within research can further be made due to its universal nature; storytelling transverses all cultures and aspects of society to make it a very persistent/influential part of human life. In fact one could say that humanity has survived due to storytelling; Hsu refers to, the evolutionary psychologist, Steven Pinker in this regard. Pinker highlights that stories are tools for “learning and developing relationships” [Hsu 2008: 3] and that as social animals humans survive/progress because of their ability to work together.

The most important aspect of storytelling, with respect to the aims of this dissertation, is not necessarily that they are why humans are alive but rather their ability to influence people’s opinions and beliefs. There have been multiple studies that show that people tend to accept new ideas when they are presented in a fictional way, using characters and narratives, as opposed to facts. If an advertisement on television were to simply list facts the viewers would become far more analytical and therefore critical of the product; this is why advertisements usually involve some sort of story. Both Patrick Colm Hogan, a professor of literary theory, and the psychologist Melanie C. Green support the idea that narrative influences people. Green has taken this further and identified that storytelling is an opportunity to influence society, using stories to promote things like good health practices and social behaviour. [Hsu 2008: 5]

With a base of literature supporting the idea that narratives can influence the viewers/listeners to the degree that even their behaviour and beliefs may change; one can begin to see how narrative within the architectural medium might be able to guide the public through dystopia and towards hope.

### 3.5.3 How to 'Tell' a Story [Narrative Form]

Armed with the knowledge that stories hold a great deal of importance as a guide for human behaviour and belief; now one must briefly describe how a story is told. Firstly one must consider the medium through which the story is being told; as previously mentioned narrative theories are interdisciplinary and therefore narratives exist in various mediums. For the purposes of this dissertation the medium of architecture is relevant but as an introduction to an architectural story telling [narrative architecture]; the more traditional oral and written storytelling will be explored.

Firstly one must define 'a story' in more detail to be able to know how to tell one:

"A story is a structured, coherent retelling of an experience or a fictional account of an experience. A satisfying story will include the following elements: themes, goals, plans, expectations, expectation failures (or obstacles), and perhaps, explanations or solutions." [Schank & Berman 2002: 288]

The fore mentioned elements are the basic building blocks of a story and ties in with how one is meant to construct a captivating story. The elements mentioned by Schank & Berman can be defined as follows; making reference to Gustav Freytag's narrative structure which is widely considered as the standard model for most stories.

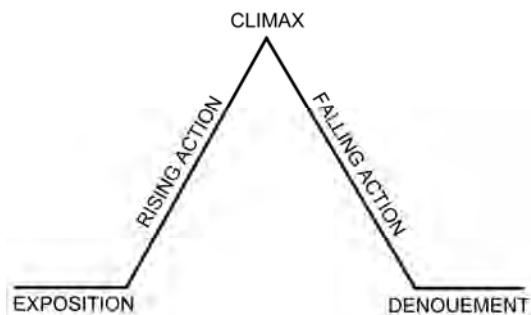


Figure 5.1 Gustav Freytag's pyramid/narrative structure. Recreated by author [Source: en.wikipedia.org]

**Theme:** A story needs a reason for being told, this can be summed up by the theme or topic of the story. The theme is the guideline or organizing structure that is made up of all of the following elements with the aim of an underlying lesson.

**Goals:** A story needs a point of departure and this is often in the form of goals, the characters want to achieve some goal and in doing so, the actions that they take form the story. Even the ending of a story is tied to the goals as it is often either the realization of the goals or the lesson learnt by not achieving them. This forms part of the “exposition” phase of the story which is essentially the contextualization or set up of the story; it lets the listener know where, when and why the story is taking place as well as introduces the characters of the story.

**Plans:** “A plan is the set of actions a person chooses to take in order to get from his existing state to his goal state.” [Schank & Berman 2002: 297] The plans that are formed are the beginnings of the characters development or movement towards the goal and falls within the “Rising Action” phase of Freytag’s pyramid; this movement is generally sparked by some motivational force and often a movement through conflict.

**Expectations & Expectation failures:** These two elements of a story can be grouped together because they generally make up the middle part of the story, the climax or turning point. The plans that have been perused by the protagonist and antagonist collide in the climax and it is typical for both plans to have various amounts of success and failure. The successes within the protagonist’s plans typically show off his good moral qualities while his failures highlight his misperceptions of the world. Schank then goes on to note that the realization by the protagonist that his perceptions or beliefs are wrong leads him towards a desire to change, learning from his mistakes, this change is what has an impact on the listeners. “Expectation failures are the opportunities that lead to learning in most situations.” [Schank & Berman 2002: 299]

**Explanations or Solutions:** Having encountered failures Schank writes that people immediately try to explain why they failed to meet their expectations; by creating an explanation people can then modify future expectations. This is a form of learning from ones mistakes that allows solutions to be made in the future; “we use old cases to make sense of new ones.” [Schank & Berman 2002: 299] If one had to place this process of finding solutions within Freytag’s pyramid it would be in the “falling action”;

this is where events move towards the stereotypical 'happy ending', where characters resolve their problems. This said it also falls within the final part of the pyramid, the "Denouement", which is where the underlying theme of the story comes to a close resulting in some emotional effect. One can say this because, as Schank writes, the explanation is essentially the lesson that the story intended to teach; it is what established the theme to begin with.

Schank & Berman refer to a successful story based on the stories impact on the viewer/listener; they are mainly focusing on the education of the viewer and by extension the didactic quality of stories. According to Schank & Berman there are several main determinants of narrative impact on a viewer; those determinants can be summarized as: interest, frame of reference and timing. A brief summary of each determinant will now be explored as per Schank & Berman's definitions.

**Interest:** Refers quite simply to how motivated a listener is in the story, Schank & Berman point out that storytelling [unlike life experiences] there is the possibility that the listener may "not care enough about the theme to modify his memory structures." [Schank & Berman 2002: 304]

Studies have been done that show how people that are more engaged with the story tend to be able to suggest better solutions to the problems within the story.

**Frame of Reference:** Determines how well a listener can relate to the story and it's themes, put simply; if the listener has no prior knowledge or experiences that he/she can relate to the story they will struggle to understand it.

**Timing:** Has a lot to do with the relevance of the story, it needs to be told at the right time in the listeners lives such that the story relates to the current goals of the listeners. "In essence, to maximize impact, listeners should want or need the information embedded in the stories because they recognize the flaws in their existing representations." [Schank & Berman 2002: 306]



Based on what has been reviewed one can say that to tell a good story, where there is a strong impact on the listener, the story should be constructed with the listeners in mind. The story should have many details and a rich context that the listener can identify with from their own frames of reference, allowing them to get drawn in to the story; this can be taken even further to involve listener participation in the storytelling process. Participation removes a boundary between the listener and the story which allows them to invest more emotionally and personally.

“- the more personally relevant the story becomes, and the more likely we are to learn from it.” [Schank & Berman 2002: 308]

The final aspect of good story telling that has been eluded to is the need for the lesson to be something that the listeners find for themselves; the lesson should not be explained but rather discovered for the greatest impact to be had. What this means from an architectural perspective could be that if an environment is to get some message across to the user it needs to be a place that belongs within the user's context and that allows the user to become an actor in the story. It is also important that the architecture be subtle with respect to the lesson so that the user can be able to discover it on his/her own.

To conclude this section on storytelling one can see that storytelling has been a part of human culture for ages; it has infiltrated multiple disciplines and is of great importance to mankind. As social creatures communication is key and all communication is some form of storytelling; stories have a big impact on those who listen to them, they can alter people's beliefs and behaviours. If books can change society through a story then the more concrete medium of architecture and built form could have an even more pronounced effect; if one can represent the structure of a story through architecture then one will begin to make a place that is full of the drama, excitement and meaning one would expect from a book or film. Architecture that uses narrative will be able to allow people to learn lessons about issues that face society and the environment; with respect to the question of how dystopian warnings and stories can change people's

awareness, one can say that it is through narrative architecture that dystopia can begin to change people's awareness.

Having identified that a narrative architecture is what is needed to best engage with dystopian theory and with a dystopian site [brown field]; one must now explore how to design narrative architecture. The next section will look at how narrative theory exists in architectural expression.

### **3.6 NARRATIVE THEORY IN ARCHITECTURE**

#### **3.6.1 Introduction**

As with Chapter two the literary theories associated with storytelling and narrative have been explored; now it is time to delve into the architectural theory and practices that relate to narrative. In this section the intent is to focus on the work by Nigel Coats who has written an architectural primer titled "Narrative Architecture"; Coats gives a good overall view of the role that narrative plays within architecture and design, he also gives reference to other major works within architectural theory. The literature is limited to Coates as he is also the only contemporary writer on the subject of 'narrativity' who offers some sort of methodology for the creation of narrative architecture. Coates uses the work of Kevin Lynch when describing the elements of narrative architecture; it is because of this relevance that one will also look briefly at Lynch's 'The Image of the City', the aim being to get a greater understanding of the aforementioned elements.

The main aim of this section is to find within it a way to approach narrative from an architectural design perspective; to possibly outline a design framework that can generate built form that transcends muted architecture and engages the user/visitor in a meaningful experience.

### 3.6.2 Narrative in Architecture

“- every culture looks to architecture for enduring messages, and to a certain articulation of life itself. Narrative provides a way of coming face to face with architecture in the ‘dark and unfrequented wood’ of the anything-goes culture of our times.” [Coates 2012: 9-10]

The connection between narrative and architecture is one that runs back to the beginnings of architecture, as Coates put it; any person can find narratives within architecture because of the spontaneous way narratives arise within people’s everyday experiences. Even in the case that the architect designs a building with no intention of creating any narratives he/she is betrayed by the architecture in the end; “the built environment inevitably ‘communicates’ – it cannot avoid doing so.” [Coates 2012: 9-13] This is perhaps not a betrayal by the architecture but rather human nature to create narratives; the architect cannot prevent people from defining something within the story of their existence or from giving meaning to something. One can already begin to see aspects of phenomenology appearing; how people experience, give meaning and identify parts of the built environment is a central part of narrative architecture.

The general definition of narrative is the organization of real or fictional events into some sort of sequence; this sequence exists and is perceived physically by the viewer as a linear object. One can think of books or films as an example of this; regardless of dynamics like flash backs or forwards there is a definite beginning and end to them [page 2 follows page 3 and so on].

Coates points out that this is where the architectural medium differs from the norm; architecture is the creation and organization of three dimensional spaces and if organized into a “prescribed

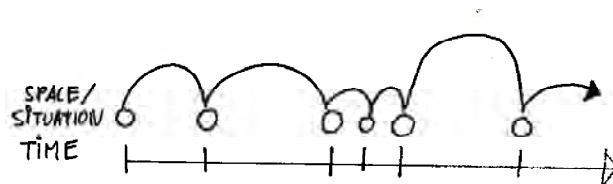


Figure 5.2 Linear progression of narrative, one situation to the next over time [Source: By author].

experiential sequence” is quite unusual. What he is saying is that architectural narrative is less of a prescribed ride and more of a subtle experience.

The second main difference that occurs within the architectural medium has to do with time, architecture is static, timeless, and it is not subject to change/movement [generally speaking]. Architecture

endures time which could be a problem when it carries a particular narrative; a narrative that is good now may be bad later. Both of these points of difference illustrate the need for architectural narrative to be subtle rather than overt, Coates refers to a narrative architecture needing an “anti-sequential framework” as opposed to a more contrived sequential framework. [Refer to Figure 5.3]

“Nothing is experienced by itself, but always in relation to its surroundings, the sequence of events leading up to it -” [Lynch 1960: 1]

From the literature available one can see that ‘narrative architecture’ falls into two distinct groups; ‘concrete narrative’ and ‘pure narrative’, each of which shall be explained through the examples used by Coates.

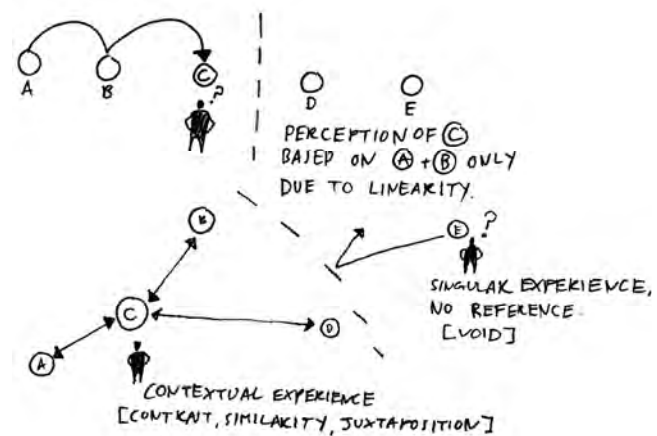


Figure 5.3 linear perception above, compared to simultaneous perception of spaces/situations below [Source: By author].

**Concrete narrative** is narrative in built form, a physical architecture that manifests some sort of narrative/story. An early example of concrete narrative, where the design was intended to have a story, was the buildings and landscapes created by the Roman emperor Hadrian. [Coates 2012: 19] The narrative that Hadrian created was meant to allow a reconnection with the past; to transport the user back in time to a story long forgotten. This specific type of narrative is common within architecture and can be seen in the gardens designed by William Kent [1741]. Figures 5.4 & 5.5 show how Kent created a “romantic sense of abandonment” [Coates 2012: 21] that recreates the experience of stumbling across lost Roman ruins; with statues framed by openings that mark ‘nodes’ along the meandering ‘paths’/streams.

Jumping ahead in time; architects began to use narrative more and more to push their creations to a higher level. By creating a narrative it allowed architects to rationalize the creation of more wondrous architecture; in many ways the intended narrative forms a part of the concept.



Figure 5.4 Gardens by William Kent use artificial ruins to create a narrative [Source: im.ft-static.com].

“An initial concept need say nothing about the form the design is to adopt; essentially, it expresses the idea underlying a design and functions as a signpost to guide the direction of the ensuing design journey.” [Porter 2004: 27]



Figure 5.5 The narrative of walking along a stream, not knowing what is around the next bend [Source: Coates 2012]

In the design of the TWA terminal at the John F. Kennedy International Airport by Eero Saarinen [1962] the building resembles the eagle which embodies American pride and power from a conceptual view point; the building also links with the underlying narrative of flight.

The architecture continues the narrative experience of flight through

the use of smooth white concrete forms; “soaring curves” that “suggests flight itself in their trajectories. Flying while still earthbound -” [Coates 2012: 27].



Figure 5.6 Interior of TWA Terminal, flowing concrete expressing movement/flight [Source: [www.ronsaari.com](http://www.ronsaari.com)].

**Pure narrative** is the un-built architecture, made up of dreams and imaginary designs that are typically experimental in nature; artistic ventures that try to push architectural understanding further than ever before. Coates attributes the rise in pure narrative to the post-industrial/Postmodern landscape where “architects began to stand back” [Coates 2012: 31] from the city in order to try and respond to the increasing issues like decay and sprawl.

Some classic examples of pure architectural narrative would be the commentaries provided by Archigram, Superstudio and Rem Koolhaas; each of them explored some sort of narrative to raise theoretical awareness to the state of the built

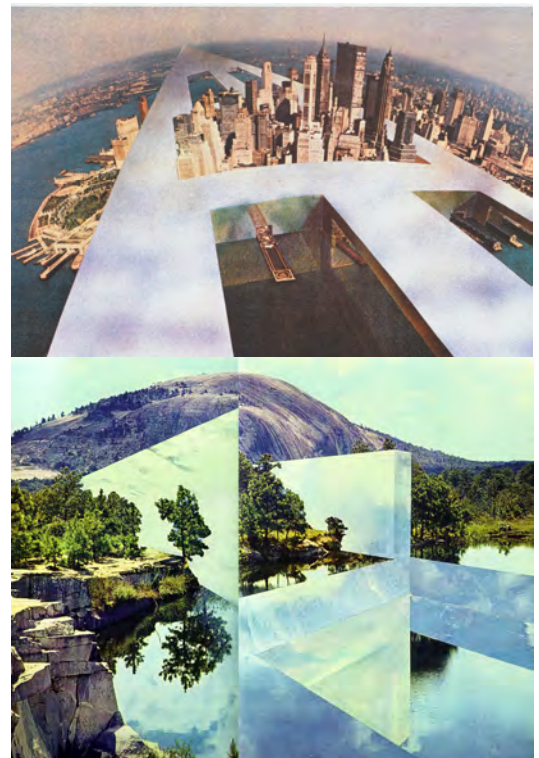


Figure 5.7 Superstudio's Continuous Monument [Sources: [tallervdelacruz.files.wordpress.com](http://tallervdelacruz.files.wordpress.com) & [payload229.cargocollective.com](http://payload229.cargocollective.com)].



environment. Archigram comments on Le Corbusier's idea that a house is a machine for living; they use a post war dystopian landscape as a backdrop for their theoretical walking cities. The cities themselves resembling parasitic insects create the narrative that human existence is destructive and parasitic, living on the back of a ruined world.

Superstudio imagined the ideal future world without cities, roads and cars; where everything is the same and without difference/conflict. Their 'continuous monument' [Figure 5.7] reveals the struggle between capitalist and socialist ideals as well as a general discontent with urban life; wanting to return to something simpler.

"There is a very valid argument for an artistic interpretation of architecture to stretch the medium out of its comfort zone -" [Coates 2012: 135]

The 21<sup>st</sup> century has seen a boom in conceptual architecture that prioritizes the communication of narratives over physical realization. In 2009; Tobias Klein's work *Contoured Embodiment* "captures an existential narrative 'I am architecture', so to speak." [Coates 2012: 153] Through his conceptual design Klein told the story of the link between the human body and architecture; architecture which houses human lives and ideals is taken to the narrative extreme where it is the 'body' for the human heart.



Figure 5.8 Model from Klein's project *Contoured Embodiment* showing a classical structure containing the structure of a human heart [Source: 24.media.tumblr.com].

Another conceptual work of the 21<sup>st</sup> Century that has a specific resonance with the topic of this dissertation is the exhibit presented by Kobas Laksa [Figure 5.9] for the 2008 Venice Architecture Biennale; focusing on “the balance between permanence and impermanence of architecture.” [Coates 2012: 153] The architect imagines the future of several prominent buildings that fall into a dystopia where they are adapted and reused in ways that contradict the building’s original purposes. The project speaks directly of a dystopian narrative, difference and hopeful reuse; all of which are a central part of this dissertation.



Figure 5.9 Laksa's Metropolitan Prison and Sanctuary Water park respectively, illustrating an extreme form of adaptive reuse [Source: thefunambulistdotnet.files.wordpress.com & static.panoramio.com].

The existence of narrative within architecture has been made quite clear yet little has been discussed as to a method for using narrative within architecture; the next section will illustrate how narrative can exist as an architectural methodology, focusing on the three narrative forms that Coates defines as binary, sequence and biotopic.

### 3.6.3 Narrative Methods

Architecture can be related to a book as both are physical objects that sit between the viewer and the author/architect; both objects are also capable of being vessels of



meaning and knowledge that the viewer can experience. However architecture is more complex and full of multiplicity in comparison to a book and it is for this reason that there are few set rules or methodologies for designing a narrative architecture.

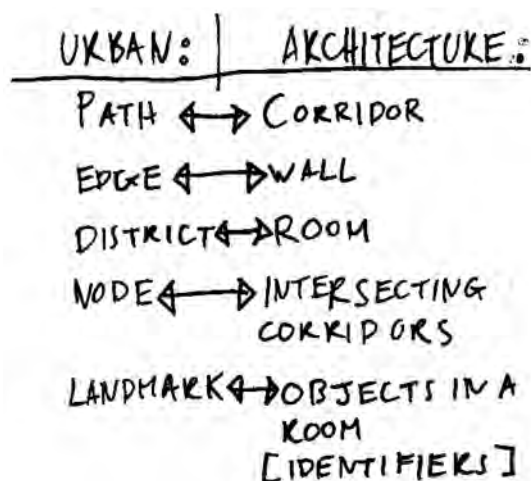
“Narrative is not an option selected from a pattern book or looked up on the internet. It relies on your ability to draw on the world around you, render it light enough to move into the territory of imagination.” [Coates 2012: 32]

Coates understands the wide nature of narrative architecture yet he does define some tools and typologies that begin to form a method for designing architectural narrative; he begins by creating a narrative lexicon that allows him to further interpret three distinct forms of narrative.

1. Binary narrative
2. Sequence narrative
3. Biotope narrative

It is with these types of narratives that architecture surpasses the simplistic historical revivals or the ‘in your face’ representations of concept that result in the architecture one would expect to see in Las Vegas or an amusement park.

The basic elements of Coates’ lexicon “correspond to Kevin Lynch’s elements of the



city: path, edge, district, node and landmark.” [Coates 2012: 81] Each element can play a part in the overall story by overlaying them with narrative; as Coates puts it the architect depicts the imaginary with simple forms, used in any design or building. Figure 5.10 illustrates the relationship between Kevin Lynch’s elements of the city and the elements at an architectural scale; the basics of Kevin Lynch’s theory of the image of the city will

Figure 5.10 Rescaling Lynch's elements  
[Source: By author].

be covered in section 5.2.4. What follows now will be a brief definition of each of the three forms of narrative with a built example of each.

### Binary Narrative

This is the most simplistic of the three narratives that Coates has identified; a binary narrative is where the intervention, “object or ‘situation’” [Coates 2012: 83] is imbued with a parallel identity; the parallel identity being a construct of the mind that elevates the object from the banal to the

exciting. This being said there is the risk that the design becomes too contrived or cliché in its representation of the parallel identity; the clarity and simplistic nature of the binary narrative is perhaps best suited where a strong and easily accessible message is needed [large expo. Sites and international events like the Olympics].

Coates shows ‘The Big Frock’ by Will Alsop [Figure 5.11] as a small scale example of binary narrative; the installation clearly embodies the idea of a dress yet is not too plain as to look exactly like one. Coates defines the method behind the binary narrative as follows:

“[T]he design process first sites and then converts the chosen narrative, it creates a rhetorical trope that can be applied spatially and architecturally.” [Coates 2012: 84]



Figure 5.11 'The big Frock' by Will Alsop  
[Source: Coates 2012].

Unpacking his method one finds a few key aspects of the binary narrative; firstly there is the aspect of 'conversion' which means that the chosen image or narrative must be changed from its most basic representation and into a 'trope'. The trope is the second aspect as it means to make a gesture; "a figurative illustration, exaggerated to suit the purpose" [Dictionary.com], Figure 5.12 shows a simple example of creating gesture. In the sketches the artist aims to show off the action or emotion and therefore exaggerates the form, deforming it in a way.



Figure 5.12 Sketches showing gesture [Source: By author].

Coates then goes further to state that the gesture must be a part of the intervention, as opposed to a clip on component. Binary narrative embodies a certain amount of wit and in some cases humour but truly wondrous architecture can be made through the use of such a narrative; another example of binary narrative [which exemplifies the exhibition nature of this form] is the 'Blur' by Diller Scofidio [2002]. The 'Blur' takes the simple narrative of a cloud and creates it through architecture and technology; the resulting experience for the visitors would have been truly unique as they got to disappear into the cloud which seemed to have been captured by the hidden architectural structure.

### Sequence Narrative

Sequence narrative can often be associated with the term 'journey';



Figure 5.13 The Blur by Scofidio is a great example of a literal narrative used as event architecture [Source: theredlist.com].

where the architect wishes to guide a viewer from space to space and experience to experience.

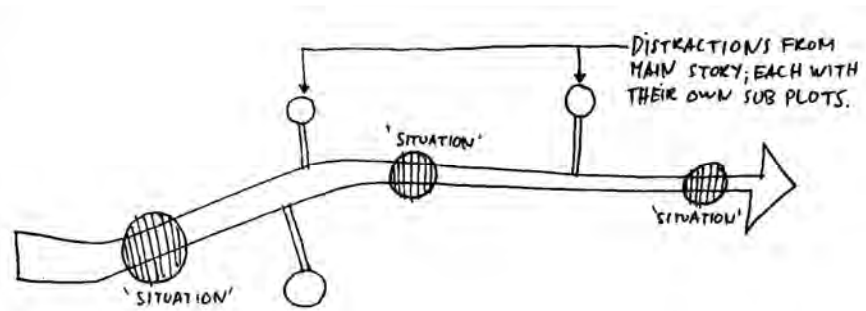


Figure 5.14 Sequence narrative [Source: By author].

“This articulation of the ‘sequence’ kind that lays out spaces along a predetermined route tying together several ‘situations’, each of which has its own special coherence.” [Coates 2012: 92]

Once again this type of narrative has specific architectural typologies that are associated with it; those being: airports and other transport buildings, museums, galleries and parks. Figure 5.14 shows the idea of sequence narrative in diagrammatic form; illustrating the linearity of the design which guides the viewer from situation to situation, however Coates also mentions that it need not be a purely continuous experience. To create breaks in the continuity of the story there can be “distractions” [Coates 2012: 92] in the form of cafes, shops or other points of rest.

The several built examples that Coates refers to all have a synergy with this dissertation in that they are mostly examples of industrial reuse; where the architects have taken old factories and turned them into a sort of experience factory.

One of the clearest examples of sequence narrative would be ‘The High Line’ in New York City; designed by Diller Scofidio [2009] which plays with the narrative of untamed nature overcoming the city. The railway lines are viewed as a form of urban ruin or “industrial archaeology” [similar to



Figure 5.15 The High Line, NY, illustrating a struggle between nature and the city [Source: prolanscapemagazine.com].

Kent's gardens] that lies partially hidden beneath a more natural landscape; a natural landscape that is often removed from urban environments.

When analyzing 'The High Line' one cannot help but refer to Kevin Lynch and his interpretation of 'path':

"The events and characteristics along the path – landmarks, space changes, dynamic sensations – might be organized as a melodic line-" [Lynch in Coates 2012: 95]

People move through the built environment so it makes sense that one of the most important experiences to the user of a building or environment is the path; it is where the designer can influence the user the most, giving the user a single movement option or many.

### **Biotopic Narrative**

According to Coates the biotopic narrative is rooted in Kevin Lynch's idea of form; "The form must be somewhat noncommittal, plastic to the purpose and perception of its citizens. -" [Lynch in Coates 2012: 99-100]

The word 'biotopic' stems from the word 'biotope' which is defined as "a small, uniform environment occupied by a community of organisms-" [Dictionary.com]; from an architectural perspective it can be translated as an urban area that "includes a variety of functions and storylines that are mutually supporting yet independent-" [Coates 2012: 100]. In a sense a biotopic environment can be likened to any small ecosystem; bark may house fungi, insects and lichen that create a mutually beneficial micro-world.

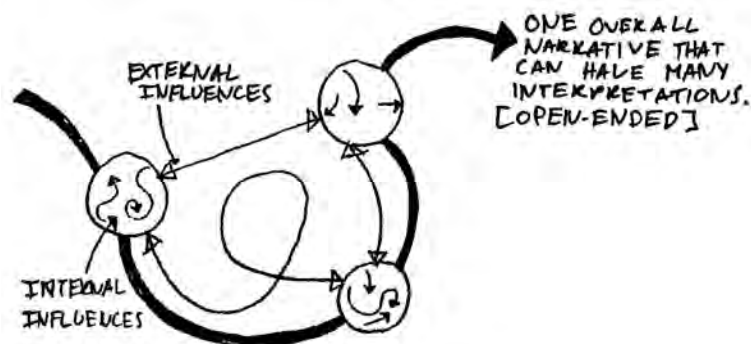


Figure 5.16 Biotopic narrative [Source: By author].



The biotopic narrative creates an environment where the viewer is aware of the multiplicity, the several worlds that exist in one space, heightening the viewer's experience of each individual world.

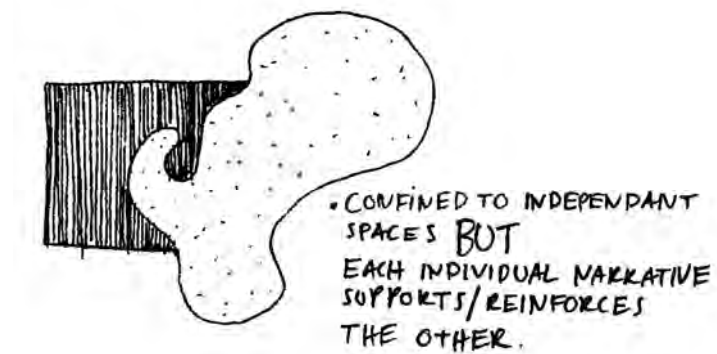


Figure 5.17 Illustration showing how the juxtaposition of form, function and aesthetics can increase the visual and experiential effect of each space [Source: By author].

Figure 5.16 shows a diagram of the biotopic narrative that could be viewed in comparison to the sequence diagram in Figure 5.14; Figure 5.17 takes this even further to illustrate the effects of the 'related influence' between spaces. It shows how two independent objects/spaces when viewed simultaneously support each other's individual narrative; this juxtaposition of narratives and spaces can help to create an awareness of difference in the viewer which can be a part of a larger narrative theme.

Coates gives several good examples of biotopic narrative within architecture but the one that stands out quite well is the BasketBar designed by NL Architects in 2003; it is a single design that layers functions on top of each other in an easily readable way. The architects layer three distinct 'situations' on top of each other allowing each to penetrate slightly into the next such that the one supports the next. An organic lounge spills into the submerged bar, drawing people inwards, and from the inside of the bar there is a visual connection to the basketball court above through a large oculus. There is a

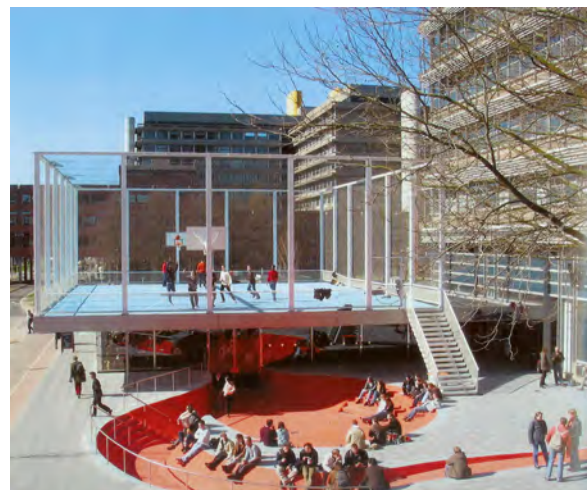


Figure 5.18 The BasketBar by NL Architects [Source: architettura.it].

building up of energy from the lounging outside, to the jovial drinking inside and finally to the energetic running above:

“Despite each of the objects possessing objective clarity, combined they build a biotopic narrative out of relative behaviours: each of the ‘actions’ informs and invades the others.” [Coates 2012: 105]

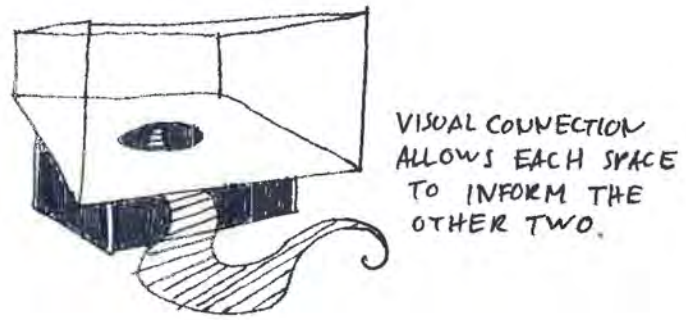


Figure 5.19 Sketch highlighting the 3 layers in the BasketBar [Source: By author].

Coates takes these three narrative forms along with what he has learned from other examples and forms of narrative architecture and comes to a conclusion that narrative can enable architecture to go beyond imitation and style to create more engaging experiences for the users. A narrative architecture can be established in many different ways but by looking at the language that Coates uses when he describes the various characteristics that make up architectural narratives there is an element of tension that becomes apparent. Techniques like: the ‘distortion’ of programme, the ‘decontextualization’ of functions, the challenging of the architectural norms, the focus on the ‘other’ and the use of decay all have lexical similarities to resistance and conflict. There is also a synergy with SF and dystopian narrative which uses decontextualization to create an imaginary world where the story of a struggle against some norm takes place. From this one can say that narrative architecture is an expressive architecture that embodies a large amount of energy and dramatic tension that is very similar to the tensions within fictional dystopia.

To conclude this section one should state that narrative gives architecture a uniquely inspirational quality and allows for the user to engage with it beyond the realm of functionality; whether this makes a building better can be argued but one cannot deny relevance of narrative architecture with respect to sites that already have a story to them [old industrial sites]. Leading up to this point the dystopian environments that

exist within the built environment have been said to possess a sense of excitement, mystery, adventure and tension that other spaces do not [MacLeod & Ward 2002: 166]; with this in mind one can end this section with a quote by Coates.

“Architecture can hardly be narrative unless it contains a degree of tension, and incorporates the visitor in a thinking, being experience.” [Coates 2012: 161]

#### **3.6.4 ‘Imageability’**

“- at every instant, there is more than the eye can see, more than the ear can hear, a setting or a view waiting to be experienced” [Lynch 1960: 1]

Kevin Lynch in “The Image of the City” is concerned with the way people perceive the built environment and in particular the city; to use his words he was interested in the ‘legibility’ or ‘imageability’ of the city from the user’s/observer’s perspective. When reading Lynch one cannot help but see the similarities to narrative and storytelling, he describes the city as a stage, the users as actors and is saying that the way people see the city is the same as the way they see a story. If one looks back at how narrative is defined and then look at Lynch’s definition for legibility they are strikingly similar, they both have to do with the organization and perception of situations or parts.

“- the ease with which its parts can be recognized and can be organized into a coherent pattern.” [Lynch 1960: 2-3]

It is this legibility that makes it easy to navigate a city, ‘way-finding’ as Lynch calls it, but it can also help organize human activity, belief or knowledge. This effect on how knowledge and belief is seen by the observer has a direct link to the work of Melanie C. Green which states that narrative forms have a strong influence on people’s beliefs and behaviour. One last similarity between narrative theory and Lynch’s work, before one can move on to the idea of image and then the elements that create the image, is the notion of open-endedness [covered in 4.1.3]. Kevin Lynch mentions that architects



and urban planners should be striving towards an “open-ended order, capable of continuous development.” [Lynch 1960: 6]; it is this room for urban growth that links to the room within a good narrative for the reader to expand on the story. To further understand the idea of legibility or ‘imageability’ one must look at how Lynch defines an ‘image’.

## **Image**

The image of any object is how any individual sees that object and is a mental construct based on three key factors. Any single object is first identified by its own features and characteristics, size, shape, colour etc. and this makes up what Lynch calls ‘identity’; then an object is identified based on its context or the things around it. This context includes the viewer and therefore varies with the position of the viewer within the environment, Lynch refers to this as the ‘structure’; lastly an object is identified based in imbued meaning, this is some practical or emotional meaning that the viewer gives the object based on their past experiences. In the case of Lynch he is referring to the ‘image’ of a very large object [a city] which means that it must be made up of smaller elements or phenomenon that help to create the image, with this in mind Lynch defines five elements that make up the image of a city: paths, edges, districts, nodes and landmarks. These elements are what Coates mentions as the key elements in narrative architecture and is why what follows is a brief definition of each element with the focus on how they may influence narrative.

## **Elements of an Image**

Each of these elements are things that an architect or urban planner can control and ,as shown earlier in Figure 5.10, can be scaled down to suit interventions of a smaller scale.

**The Path** is a movement channel and the experience of the path can be affected by multiple factors such as the activities along the path, the edges of the path and the

features of the path. The types of activities and their positioning help to give the path identity and character; this is also true for the edge of the path [if it is hard, soft, colourful or dull]. The architectural features of the path can help create rhythm or focus and importance; this is done with columns, landmark structures and the shape of the path. From a narrative perspective the linearity of a path links perfectly with that of a story; a sequential experience of space.

**The Edges** are also linear elements but are not to be used or seen as paths; they define the boundaries of other elements.

A good or strong boundary, as Lynch puts it, needs to be clearly visible and continuous [without breaks] but one shouldn't fall into the trap that the boundary is some hard object that cannot be crossed [it can be hard if needed]. A boundary may be a simple line on the floor; something permeable

acting as a joining structure. In a narrative the edges are important in framing situation/objects, placing them in perspective so that they can begin to tell a specific story; edges are perhaps the main structural element to the narrative.

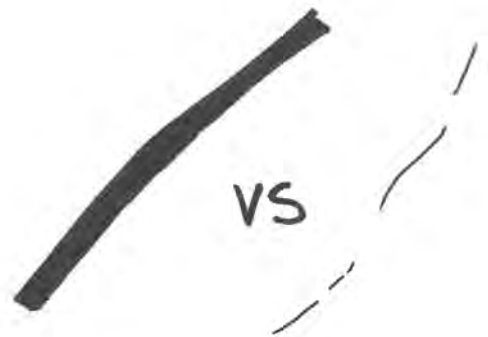


Figure 5.20 Illustration of a 'strong' and weak edge [Source: By author].

**The District** is much like a room or even a box; it is an area/space that a person can identify by its characteristics, some internal and others external. The notion of external and internal makes it clear that a district needs to be within some sort of edge which reinforces the notion of difference, otherness. In a narrative the district can be likened to a situation or a scene where a portion of the story is told and is clearly separate from the other parts of the story.

**A Landmark** is “a point of reference considered to be external to the observer” [Lynch 1960: 78] and is central to how a people [observers] orientate themselves within the

built environment. A small scale example would be how a person knows that he/she is in a bathroom; there are several 'landmarks' that identify the bathroom, the toilet or the shower are unique to that space and are some of the visual cues that define a bathroom. Lynch states that a strong landmark should have a clear form that stands out [contrasts] from the background environment; he also refers to "spatial prominence" [Lynch 1960: 80] which means that the landmark is visible/identifiable from multiple locations and at various scales. This becomes important with respect to 'way-finding' because when a person comes across a node he/she will know where a certain district is based on its prominent landmark; way-finding can be linked to the formation of an individual's narrative within the built environment , moving through a story to a desired goal.

After looking at Lynch's theory of imageability one can see how much it has influenced the work of Coates and his methodology for narrative architecture. The imageability of a city can be directly linked to the narrative of a story therefore when one is designing with the idea of creating any meaningful narrative experience, one has to keep Lynch's five elements of the city in mind. Kevin Lynch's work provides the architectural tools needed to create narrative architecture.

To conclude this section one can say that the narrative theory of architecture has a place within the built environment and that it allows architects to engage with design on a level that is separate from the purely pragmatic. When trying to identify the link between dystopian fiction and architecture one discovers that dystopia exists within architecture as decay and ruin while fiction or story exists within narrative architecture.

It has been identified that there are various elements that can be used to define a design methodology, bricks with which to build narrative architecture. Narrative architecture is an architecture that centres on the experience, making Lynch's 'imageability' relevant; it relies on the way one organizes spaces and experiences such that a story can be 'read' by the user.

From the point of view of this dissertation, which looks at how one can use dystopian narrative to rejuvenate brown field sites, one can come to the conclusion that it is possible to create narrative with architecture and that the narrative will result in a more exiting and engaging architectural experience. If the narrative is critical dystopian narrative it will relate directly to the characteristics of a brown field site as well as producing an architecture that is hopeful; an architecture that leads the users out of dystopia and towards the rejuvenation of the site.

The following chapters will analyze precedent and case studies that focus on the reuse of brown field sites to see how the designs use narrative and how they approach the rejuvenation of the site. As this dissertation takes the view that the dystopic nature of these sites are unique design opportunities the studies will also be looking at how the designs work within the boundaries of dystopia and critical dystopian theory.

# CHAPTER 4

## PRECEDENT STUDIES

In this section three precedents will be studied in a systematic manner; each will be looked at from two perspectives, the first will be with dystopian theory that will identify any dystopian and utopian characteristics as well as any techniques that make the designs economically/environmentally productive. The second perspective will be looking at any narrative qualities; the building telling a story or being designed through the use of a story, if there are narrative qualities they will be looked at through the theory of narrative architecture and supported with 'imageability'.

### 4.1 INUJIMA SEIRENSHO ART MUSEUM

#### 4.1.1 Introduction



Figure 6.1 Inujima Seirenscho Art Museum [Source: [adaptivereuse.info](http://adaptivereuse.info)].

The Inujima Seirenscho Art Museum was completed in 2008 and designed by Hiroshi Sambuichi of Sambuichi Architects in Hiroshima, Japan. The project was funded and headed by Soichiro Fukutake of the Benesse Corporation.

The project can be located on a small island in the Seto Island Sea which is home to a tiny population of around 50 residents; the focus of the project was a 'seirenscho' [a copper refinery] that shut down in 1919 after only ten years of operation. The aim of the project was to "revitalize the area while at the same time raise awareness about the issues

surrounding industrialization-” [Inujima Art Project 2013] through the design and realization of a cultural art museum.

The island is 0.54 square kilometres with the museum on the south eastern coast; the building is comprised of several gallery spaces and outdoor parks, the engineers for the project were ARUP and they were tasked to aid in the sustainable design of the project. Together, ARUP and Sambuichi Architects, managed to design a building whose interior is controlled passively through the use of natural energy sources and an excellent understanding and use of materials. This helped to win the building the title of ‘Best Project’ by both the Architectural Institution of Japan and the Japan Institute of Architects in 2011 [ARUP Projects 2014]

#### 4.1.2 Critical Dystopia

One can easily identify the dystopian aesthetics of the design; Figure 6.2 shows how much of the original refinery is left as an industrial ruin. The ruined man made

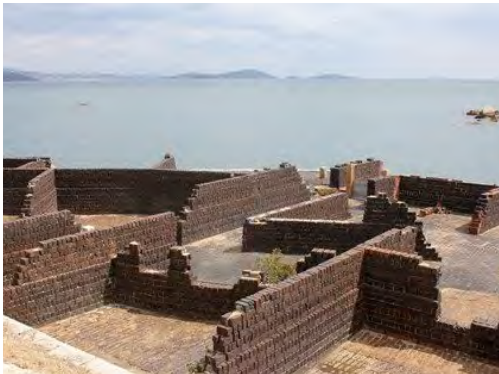


Figure 6.2 The design embraces the 'ruined', creating a dystopian labyrinth that leads up to the museum [Source: [www.arcspace.com](http://www.arcspace.com)].

structure gives the dystopian image of a ‘post-man’ environment; this is reinforced by the presence of nature and the fact that the site is practically deserted [they only allow 50 people per day to enter].

The dystopian aspect of the design is the easy part but for it to obey critical dystopian theory it needs to have a contrasting element of ‘hope’.

One can say that Inujima Seirenscho Art

Museum has that element of hope within its design; as a person viewing the museum from the outside there is a crisp beauty to it that comes out of a new yet humble architecture. Figure 6.1 shows this view of a clean/fresh architecture made up of white plaster and glass that can only be described as refreshing and hopeful in comparison to the bleak and broken image of figure 6.2. Furthermore the function of the building

speaks to the overall narrative that the architects wished to create; it is a vessel for [and image of] the past as it houses a part of Japanese art/cultural heritage. This prioritization of Japanese heritage has a synergy with the lesson that modernization and progress is not just high-tech solutions; solutions exist within the past as well. [archspace 2013]

This is the hope for Japanese tradition and culture in a rapidly modernizing, post-industrial, Japan. There is even further hope in the way the design is extremely

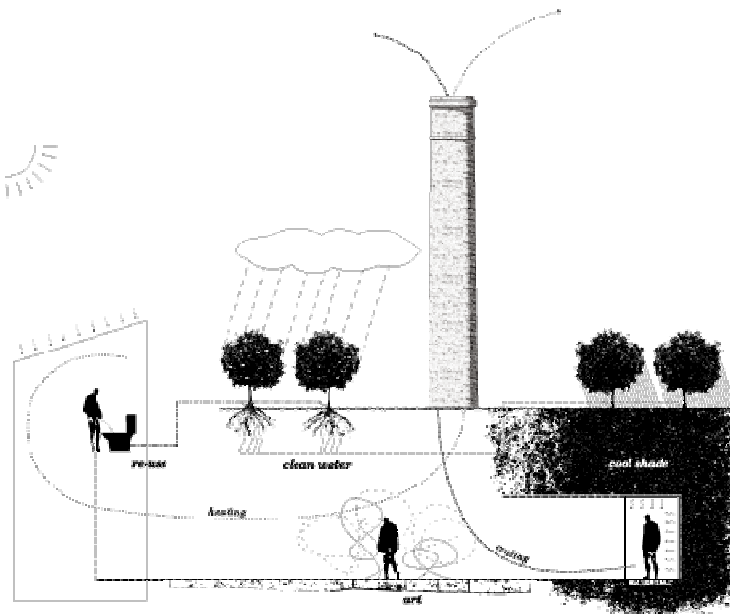


Figure 6.3 The design is extremely sustainable [thanks to ARUP] in that it uses passive heating/cooling and ventilation techniques as well as day lighting. To treat the contaminated topsoil orange trees have also been planted [tokyogreenspace.files.wordpress.com].

sustainable in both operation and construction; it uses simple/passive techniques to create comfortable interior environments as opposed to high-tech solutions. It is a productive dystopia in its sustainability; it is also slowly healing the dystopian environment through phytoremediation where waste water is filtered and used to sustain orange groves [another form of production].

Sambuichi Architects have truly used the concept of adaptive reuse to its extreme. Most of the new building is constructed out of 'slag bricks' [a waste product of the

refinery] which proved to have amazing thermal properties as well as offered a unique, contextual aesthetic.

One can conclude from this that Sambuichi Architects have succeeded in taking an existing dystopian environment and making it into one that is both responsible architecturally as well as critical from the dystopian perspective; so much so that one can identify productive social and environmental elements in the design.

#### 4.1.3 Narrative Architecture



Figure 6.4 The juxtaposition of complete forms made of white plaster and glass against the ruined towers and walls [Source: [adaptivereuse.info](http://adaptivereuse.info)].

In terms of narrative analysis one must first define the story or lesson behind the building, as the architect intended it to be. This was briefly mentioned in 6.1.2 and will be expanded on now as one begins to analyze how the design creates the narrative through the use of paths, edges, nodes, juxtaposition, sequential experience etc.

The architects saw this project as an opportunity to raise an awareness of industrialization in Japan; highlighting the connection between the past and the future, they designed the museum as a sort of signpost that illustrates how all existing materials [including local heritage] can be reused in a productive manner [archspace 2013]. This narrative about how the future is not only built on high-tech industrial processes comes through in a form of satire; the design achieves great success and leads the way for sustainable building yet does so without any Sci-Fi gadgets or industrial processes. The success [hope] is highlighted by the use of **contrast/juxtaposition** between the ruined copper refinery and the new museum buildings.



The museum also contains the narrative of the art within; artist Yukinori Yanagi created the art exhibits for the museum which focuses on the life and work of the Japanese author, Yukio Mishima.

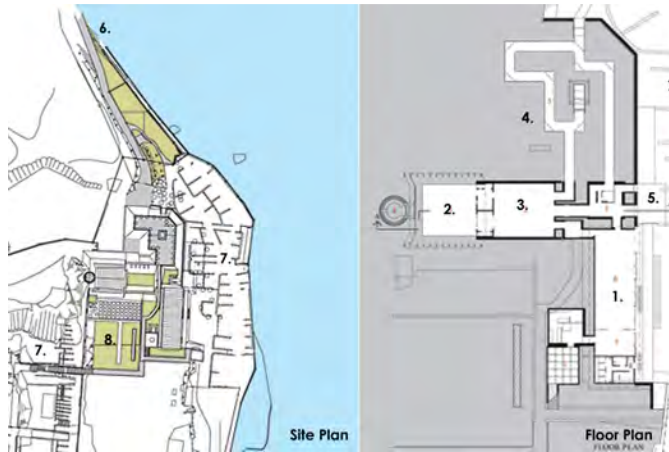


Figure 6.5 Museum site & floor plans, not to scale  
[Source: [www.inhabitat.com](http://www.inhabitat.com)].

Yukinori 2008]

“Seirenscho” is a message to Japan. Composed of six artworks integrated with architectural functions, it was made by collaging parts of an abandoned house, which represents post war Japanese culture, on the ruins left by Japanese modernization. These works are given the overall title “Hero Dry Cell.” [Yanagi

The individual artworks fall within various spaces in the museum; these are the individual situations of the story and are strung together with a narrative structure that the designers took from the *tale of Icarus*. The *tale* is where Daedalus and his son Icarus try to escape their prison within the labyrinth of Crete by flying on the winds with artificial wings, Icarus flew towards the sun and his wings fell apart as the wax connections melted.



Figure 6.6 Major Landmarks, edited by author  
[Source: [www.worldbuildingsdirectory.com](http://www.worldbuildingsdirectory.com)].

One can see that the use of this narrative was to help reinforce the lesson that the designers had in mind; that the thoughtless pursuit of the future [sun] is not the way towards success.

In terms of Coat's narrative typologies the Inujima Seirenscho Art Museum possesses a **sequential narrative** where the user experiences one space at a time; slowly building up the story as each 'situation' informs the next. The design creates a strong sequential narrative through the use of bold architectural images and experiences that skilfully use the elements of Lynch's 'imageability'. The journey begins far from the actual museum to allow the users to identify various large scale landmarks and images as they move, unobstructed, through a thin park. These major **landmarks** set the context for the narrative; the tower, the labyrinth and the ocean are all defining landmarks of the tale of Icarus [See Figure 6.6].

The next major experience within the narrative is created by the control of **edges**; Sambuichi Architects lead the user from a relatively well defined path [edged by plants and water] to the labyrinth which has a multitude of discontinuous/ruined edges, this leaves the user to try and discover the entrance to the gallery [#5 in Figure 6.5]. The entrance marks a **node**; where the user can make a choice [open ended narrative] as

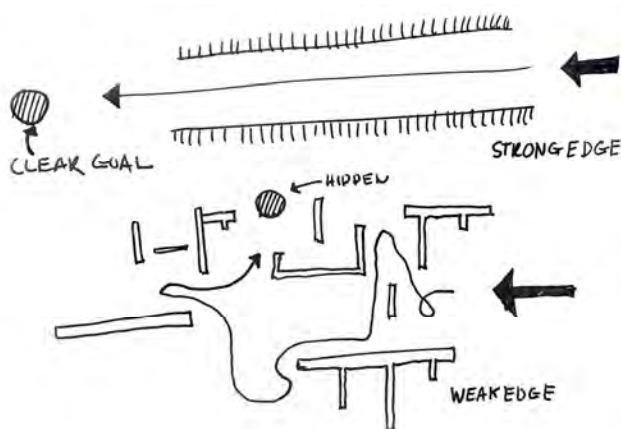


Figure 6.7 Different use of edges and landmarks to create contrasting experiences [Source: By author].

to which gallery they wish to see first, there are four galleries split into three zones on each sides of the entrance hall.

When referring to Figure 6.5 the various galleries can be identified as follows: number one is the 'Sun Gallery', number two is the 'Chimney Hall', number three is the 'Energy Hall' and number four

is the 'Earth Gallery'. The 'Earth Gallery' has a very well defined path due to the clear goal and edges; the user chases the sun that is reflected down the corridor by mirrors, surrounded by darkness and pushed by a cool breeze. The user becomes Icarus in the 'Earth Gallery'.



Figure 6.8 The sun as the goal at the end of the 'Earth Gallery' [Source: [www.yanagistudio.net](http://www.yanagistudio.net)].

The other galleries represent, as Yanagi stated, the captivity of Japanese art/culture by modernization; this can also be viewed as the captivity of Daedalus and Icarus. The design of the galleries have very specific functions with respect to the passive heating/cooling of the museum yet they also allow for

**contrasting experiential quality** to be created; the dark 'Earth Gallery' sitting opposite the bright 'Sun Gallery'. Unlike in a Biotope narrative experience where the juxtaposition is direct; here the contrasting spaces are separated by a buffer space which makes the realization of the difference less harsh and more suitable to self discovery.



Figure 6.9 The 'Sun Gallery' employs much lighter architectural elements to maximize solar exposure [Source: [www.arcspace.com](http://www.arcspace.com)].

The narrative experience of the Inujima Seirenscho Art Museum is one that has been carefully created by both architects and artists. The strength of the experience has made the museum a popular destination that has begun to rejuvenate the decaying Inujima Island.

#### **4.1.4 Conclusions**

One can say that when engaging with an industrial brown field there is uniqueness to the scale of such a project that demands the architectural interaction with both dystopia and narrative at various scales. One defines large landmarks to define large ideas or themes; small landmarks to guide and define small ideas or themes. When engaging with the dystopian landscape one automatically becomes critical when trying to become productive; in order to be socially and environmentally responsible within the design one needs to be productive, making the building as sustainable and light on the landscape as possible to counteract the past damage done by industry. Sambuichi Architects have a philosophy of valuing “the moving materials” [Sambuichi 2013]: water, air, light, people and story; they believe that one controls these materials with the “non-moving materials” [Sambuichi 2013] in the design. This thinking can be useful when trying to establish narrative within a building; it places the designer in the frame of mind that allows critical thinking towards the formation of edge and path within the design.

The success of the narrative message is subjective yet can be guided by the architecture; in the case of this building one can relate its social acclaim to the success of both positive architecture and the critical message. It is the successful architecture and successful narrative that makes this a great precedent for this dissertation and shows how one can design such that each of these two elements support each other to create an amazing built environment.

## 4.2 LANDSCHAFTSPARK

### 4.2.1 Introduction



Figure 6.10 Landschaftspark, Duisburg-Nord, Germany, 2000 [Source: static.panoramio.com].

The Landschaftspark is a large scale project that focuses on the rejuvenation of the deindustrialised zone in the Rhur basin, north of the city of Duisburg [Germany]. The project began in 1992 and ended in 2000; it is a 2.3 million square meter project that was designed by Latz & Partners, the lead architect being Peter Latz.

The main aims of the project were: the ecological rejuvenation of the Emscher river system, the recovery of an important green area, the preservation of an industrial monument, strengthening local identity and to improve the living conditions of the people living in Duisburg north through the creation of a public recreational space.

The site is the old Thyssen Hochofenwerk Meiderich, former steel/iron works, which is a massive industrial complex made up of mining, steel works and material storage tanks that are all strung together with “an extensive network of industrial railways” [Public space 2000]. The factory was closed in the 1980’s which left it abandoned; it became a massive, wasted and polluted, site that was not accessible to the public.



Lats & Partners proposed a design that can be seen as very soft; no major new architecture was proposed, they simply recovered the industrial landscape by making small adjustments that would make it a legible and successful public park. They have managed to create a completely new form of park that serves as a strong precedent for any future industrial reuse projects; it illustrates how much can be accomplished with the minimum amount of intervention.

#### 4.2.2 Critical Dystopia



Figure 6.11 There are almost no clues as to what is 'new' and 'old', minimal intervention with maximum effect [Source: [www.deviantart.com](http://www.deviantart.com)].

At a glance one will say that Landschaftspark is just an old industrial ruin; that it is a dystopian landscape full of dangers, pollution and images of nature fighting to reclaim the built environment. This would be a poor assessment; the park is a well designed place where Lats & Partners have dared to try a new form of landscape

design, one that tries to “become an integral part of the world we live in now, indeed possibly even to become a type of open space that can point the way forward for the present day” [Weilacher 2008: 104].

This notion of **pointing the way forward** and the creation of a park that is critical of the parks of that time are synonymous with the thinking behind the critical dystopia; one can further identify Landschaftspark as a form of critical dystopia based on the fusion of utopia [hope] and dystopia. The project took a site that was a clear catalyst for decay and dystopia; 230 hectares of polluted landscape and 8000 desperate families, and rejuvenated it through the change in ecological and practical function.

The singular biggest aspect of Latz design that speaks of a critical dystopia shines through in the openness of the design; the park is literally **open ended**: “there is free access over the whole area” [Weilacher 2008: 131], but it goes even further than being accessible.

The park is also open ended in function; the design process has

allowed for user participation in the definition of the activities, the reinterpretation of space and function.



Figure 6.12 Concrete bunkers used for climbing, metal cross on summit is out of sight [Source: 2.bp.blogspot.com].

“-concrete forms of the ore and coke bunkers. Here the park’s users have completed the creative reinterpretation themselves by erecting a summit cross-” [Weilacher 2008: 120]

This ‘reinterpretation’ [**adaptive reuse**] by the user and the designers form a major part of what makes this dystopian environment so productive. The various elements of the factory have been imbued with new functions and meanings that, like the climbing walls, promote good health and exercise; the old sewage facilities promote rainwater collection and filtration [they also promote exploration via scuba lessons]. There is no fee to use the park yet there is a huge amount of value to it with all the new activities and gardens that it houses; Landschaftspark is a place for people to be productive and to find value.

The other thing that is ever present in the design is vegetation and nature; Latz & Partners have shown how such a dystopian environment can have the capacity for life and even rare forms of life that could only occur there. **Phytoremediation** can be seen throughout the park in the form of tailored gardens, fruit trees planted to suit the



Figure 6.13 Flowering fruit trees planted in a grid that speaks of the practical/ordered nature of the site rather than the traditional romantic style [Source: [www.landezine.com](http://www.landezine.com)].

industrial order and natural gardens that have sprung up due to the specifics [ruined] of the environment.

The philosophy behind the use of plants in an industrial setting is not to create contrast [which is the more typical route in dystopian fiction] that points out the ‘anti-world’ nature of the site; rather Latz is creating a harmony between technology and nature.

“I am absolutely allergic to the idea that nature should reconquer something for itself. That is definitely not what is intended, as it simply means that nature is triumphing over technology. Then we have lost society as a whole. We have to keep a hold on technology, and integrate it into our environment.” [Latz in Weilacher 2008: 129]

One can now come to several conclusions; firstly it is that large scale industrial ruins make successful parks and that they can be done with minimal intervention so long as there is an active involvement from the local community. One also begins to see how important the approach to the natural landscaping is in not only the phytoremediation but also the design language; dystopia has been a subject of entertainment within literature and film for many years and it seems that it can also provide many entertaining spaces within the built environment.



### 4.2.3 Narrative Architecture

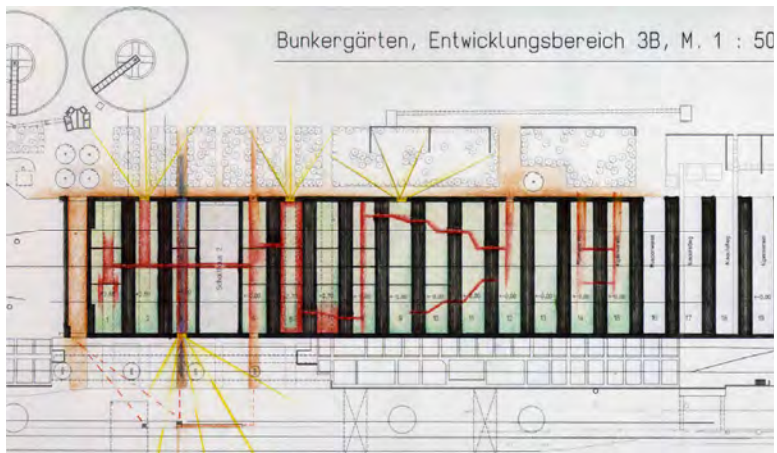


Figure 6.14 Plan of the ore bunker showing the intervention of new paths [Source: email from [www.latzundpartner.de](http://www.latzundpartner.de)].

The narrative behind the design of Landschaftspark can be described as a **narrative of reinterpretation or discovery**; Latz did not wish to disregard the dystopian landscape because he saw the educational potential of the

site, where users are allowed to interact and learn about the historical structures while reinterpreting their functions. The users would gain new perspectives and perceptions of the machine which Latz describes as “an identification item, ‘landmark’ or mythological dragon.” [Latz in Weilacher 2008: 112]

One can see that Latz was thinking in narrative terms; giving the factory the alternate meaning of a dragon [**binary**]; this thinking informed the design as he looked back at the dragon statues [relics] within the Bomarzo gardens. The Bomarzo gardens are similar to those designed by William Kent [mentioned in 5.2.2] and possess a strong narrative quality of discovery. But what typology of narrative exists within the Landschaftspark design; Binary, Sequence or Biotope?

The scale and complexity of the project makes it difficult to choose a single narrative typology but one that stands out most would be the **Binary narrative**, this is where an ‘object’ has a dual meaning. The many parts/objects of the factory all possess their original meaning but due to the narrative of reinterpretation and rediscovery they all possess a new second meaning/function. One can then begin to look at how Lynch’s ‘imageability’ applies to these objects and how they enable the overall narrative of rediscovery.

**The ore bunkers and railway/walkway** are one example of these 'objects' where Latz & Partners transgressed or broke the defined edges in order to create new internal paths



Figure 6.15 View from the inside of a bunker, containing manicured gardens [Source: [www.wikimedia.org](http://www.wikimedia.org)].

[Figures 6.14 & 6.15]; this along with the conversion of the above railway line into a walkway provides **multiple paths**.

The multiple paths allow for multiple perceptions of the same spaces; this reinforces the narrative of rediscovery in a similar way as Kent's gardens.

**The blast furnace park**, which can be seen in Figure 6.17, is one of the main spaces in the whole park and can be read as a fusion of **node**, district and landmark. It is an area where multiple paths come together at a piazza [Figure 6.16] of reclaimed iron plates. It is primarily a large open space [**district**] where outdoor exhibitions and cultural events take place.

The blast furnace park is also the location of the towering furnace plant which acts as a large scale [urban] identifiable **landmark**. It acts as a beacon that lights up at night to resemble an amusement park and reinforces the dual identity of the park as both a place for recreation and a place of ruin [the binary narrative].



Figure 6.16 Blast furnace piazza [Source: [www.landezine.com](http://www.landezine.com)].



Figure 6.17 Blast furnace plant at night looks like an amusement park [Source: s3.germany.travel].

The idea of narrative and story within this project can also be seen in the design process at the conceptual phase; similar to how the story of Icarus fuelled the design of the Inujima Seirenscho Art Museum.

“For Duisburg-North Landscape Park I began by writing stories. Stories about a falcon circling a mountain. And it gradually became clear to me what I would do with the blast furnaces.” [Latz in Weilacher 2008: 114]

#### 4.2.4 Conclusions

Landschaftspark is truly a great example of large scale environmental rejuvenation and industrial reuse; when viewed along with Inujima Seirenscho Art Museum one can begin to make even more informed conclusions. Firstly the binary narrative that exists in the park is one that has definitely fuelled a strong design philosophy that centres on minimal change; it has also been successful in bringing the local community into the process of defining and rediscovering a site that was once lost. Looking back one can see that the narrative lesson in the Inujima project is stronger yet perhaps less effective in involving the users as it effects a far smaller population. If the message and the rejuvenation of the local area are important then an open intervention like the park seems to be more successful due to the free access to the project [more people allows for more economic development].

Earlier it was mentioned that Landschaftspark was achieved through minimal intervention; this idea of leaving the dystopian landscape as intact as possible has financial gains but could also be seen as to passive a response. The Inujima project

amplified the existing ruins through the construction of new ruins and the juxtaposition against a very successful/productive architecture; while Landschaftspark uses little new architecture it achieves similar contrast with natural elements [rivers and gardens].

Both Projects have been successful in terms of how they have used Lynch's 'imageability' but the intervention at Landschaftspark is unique in that it has woven the ideas of edge, path, node, landmark and district into an existing complex structure; it shows how structures can be easily adapted to create new elements that suit the overall narrative.

Both projects illustrate how one can successfully engage with a dystopian landscape and produce a design that is responsible and productive towards both the environment and the community.

# CHAPTER 5

## CASE STUDIES

In this section three case studies will be looked at in a similar way as with the precedent studies; any dystopian and narrative qualities will be identified and analyzed but the main focus of the various case studies will be their success/failure as reused buildings. The functionality of the buildings, how people use them, how they affect the surrounding built environment and surrounding community are all key research findings that this section will aim to uncover.

### 5.1 THE WORKSHOP CENTRE

#### 5.1.1 Introduction



Figure 7.1 Main entrance of the Workshop Shopping Centre [Source: By author].

The Workshop that can be seen in Figure 7.1 is a well known building in the Durban CBD and serves as one of the oldest iconic buildings in Durban; thousands of people pass through or near this building every day and most know it as a shopping centre but that is not its original function.

The Workshop is a suitable case study for this dissertation because it is one of Durban's earliest and largest examples of adapted reuse [conservation]; in the late



1800's the Workshop was, as its name says, a railway workshop that supported the adjacent railway line. The building was kept due to its historic significance, as a part of the first steam railway in South Africa, and its aesthetic appeal.

The workshop is a 12,410 m<sup>2</sup> building that forms the centre of a massive site that is collectively known as the Centrum site and was completed in 1986 [just after the 1985 Expo which could be seen as the main catalyst for the reuse of the whole area]. At the time of construction the cost of the Workshop was R30 million and was called a "themed- speciality retail shopping" [Durban's Victorian Theme Centre 1987: 16] development due to its undeniable Victorian street theme.

The following subsection will cover how the abandoned railway buildings were reused; focusing on the more practical before moving on to explore the narrative and dystopian aspects of the building.

### 5.1.2 Adaptive Reuse

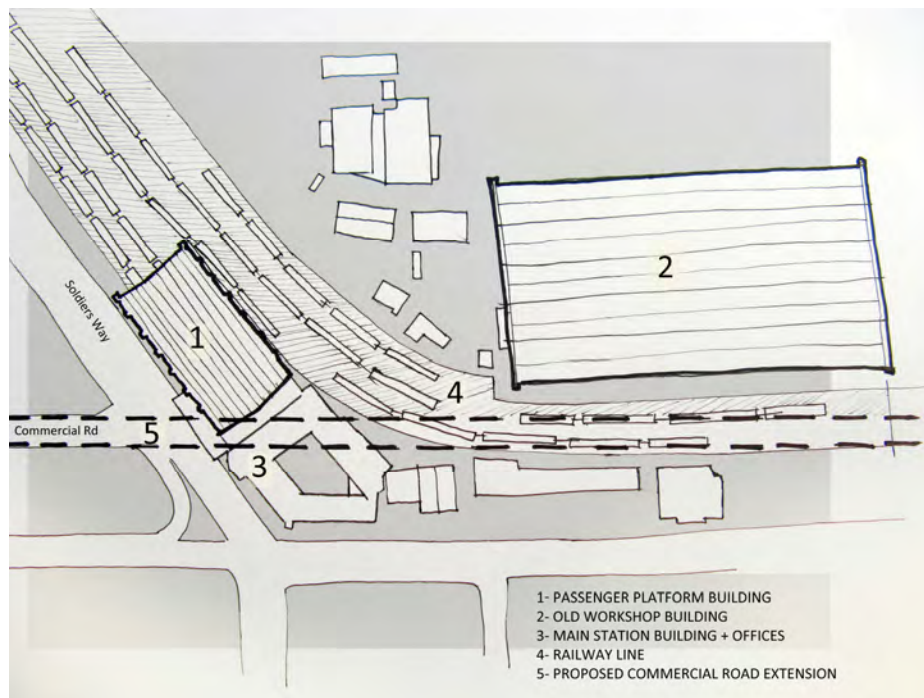


Figure 7.2 The design embraces the 'ruined', creating a dystopian labyrinth that leads up to the museum [Source: By author].

Figure 7.2 shows a sketch plan of how the station buildings were arranged before their adaptation and later reuse; once the railway lines were removed [thanks to a new

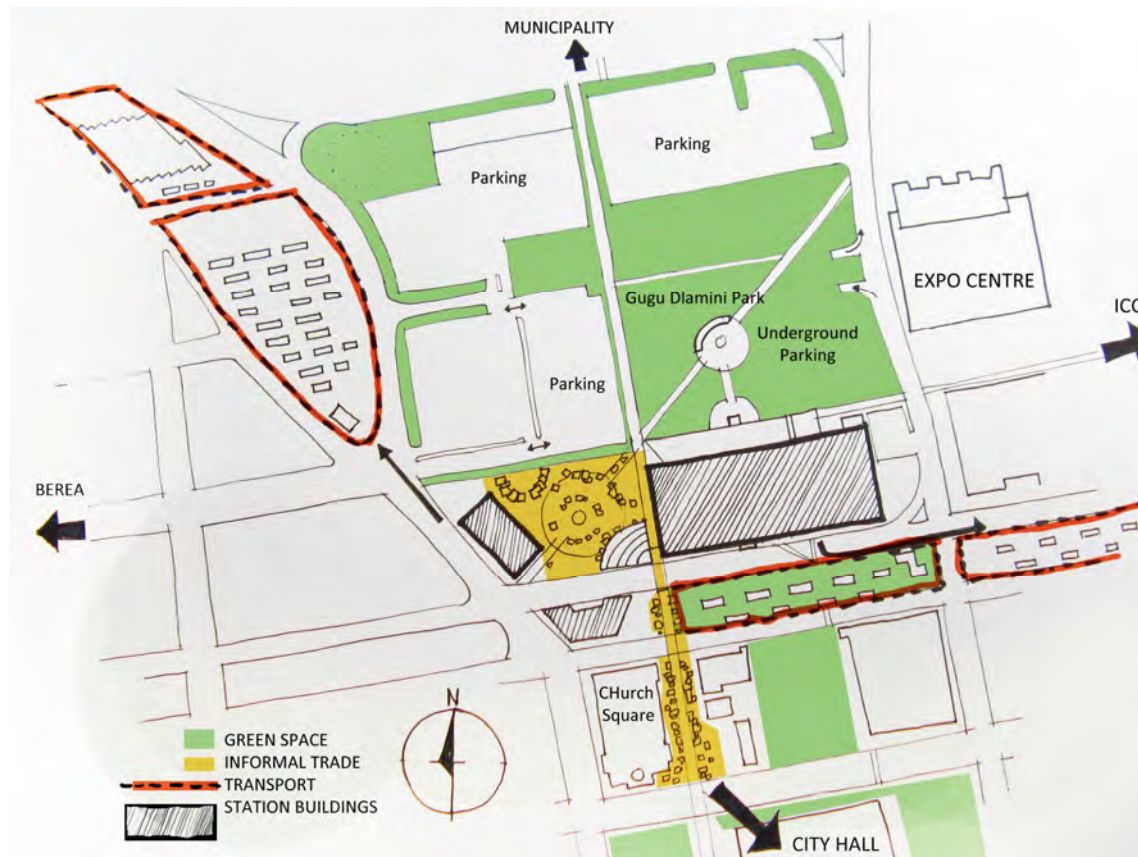


Figure 7.3 Current site plan showing the Workshop centrally and the surrounding urban fabric [Source: By author].

route and Berea station] as well as the Commercial Road extension had taken place the site was fragmented and broken [refer to Figure 7.7].

The image of how the site was broken is crucial to understand the full extent of how not only the building but the surrounding urban fabric was altered or adapted to give rise to a new and more vibrant part of Durban.

Figure 7.3 shows a sketch plan of the current Centrum site; one can see how the whole site was adapted to suite its new function as a cultural and social centre for the Durban CBD.

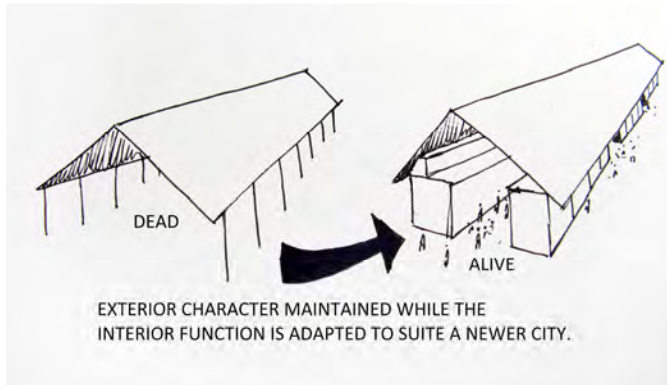


Figure 7.4 Workshop reuse sketch [Source: By author].

The buildings were bisected to allow for new pedestrian and vehicular movement routes; by doing this the Workshop could be connected to the centre of Durban as well as to the main modes of transportation [Berea Station to the West]. From the macro perspective little is changed in

terms of the workshop itself; making the Workshop adaptation the simplest of the three main buildings.

Figure .74 shows the general principle used in the Workshop adaptation; how by only altering interior function the building can be revitalized and retain its original character. One might wonder why a new building wasn't constructed but the answer to that is quite simple and offers an important lesson; in a thesis titled 'Conversion of existing Durban railway station to a Conference and Exhibition Centre' by Ivor Daniel [1975]

there is mention of the importance of architectural conservation in South Africa.

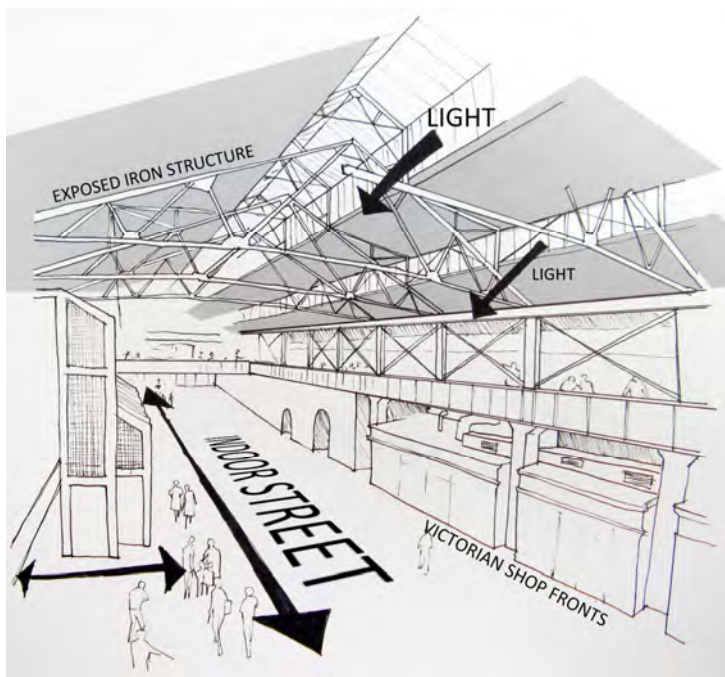


Figure 7.5 Workshop interior sketch [Source: By author].

Firstly it is cheaper than building something from scratch but more importantly it retains some of Durban's history and heritage; "South Africa where there is limited historical layering" [Daniel 1975: 7] must respect these older buildings so that there can be some form of



continuity as the city develops [narrative].

There are several factors that can be identified with this project that could be seen as common for many industrial reuse projects; the first being the notion of scale.

Industrial buildings, like the Workshop, are designed at a machine scale to accommodate trains, cranes, trucks and other large objects. This machine scale translates to an epic human experience as it is usually far larger than people are used to experiencing [the lowest height in the original workshop being 9 meters]; when it comes to the adaptive reuse of the building it means that there is a huge amount of space to work with.

Figures 7.5 & 7.6 show how the space was used in the case of the workshop; a 150m long internal street was created [15m wide] with little but 18 meters of air above it

before reaching the glass roof that allows light to pour in. The rest of the space is then used for shops, cinemas and restaurants that occupy the multiple levels to the soffit of the terraced roof; this allows for over 105 shops that are easily organised to fit within the comfortable structural grid [see Figure 7.6].

At this point one can say that the adaptive reuse of the Workshop was mostly just filling an

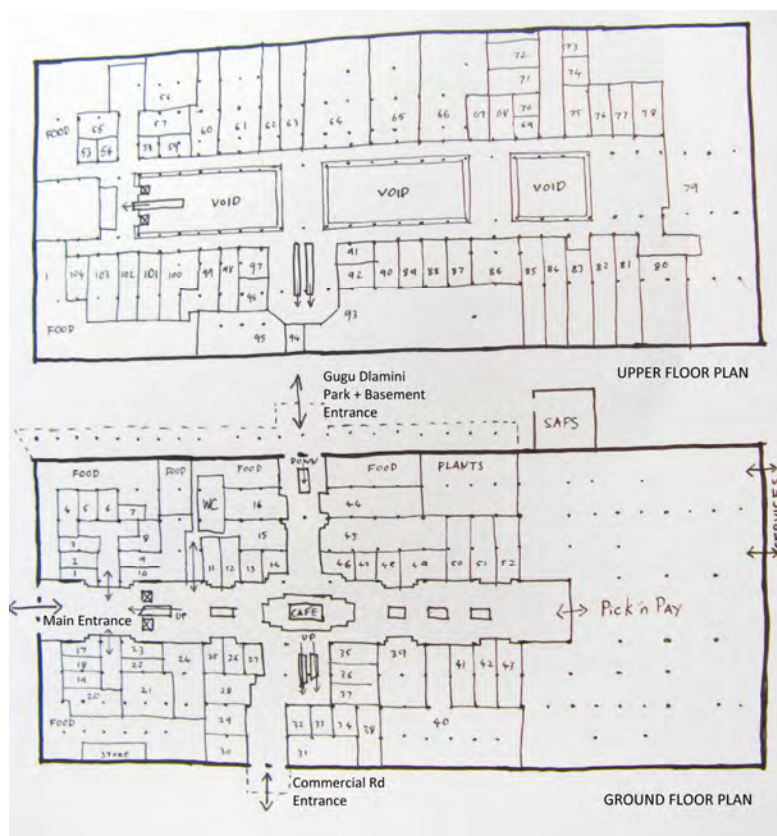


Figure 7.6 Sketch plans of the Workshop [Source: By author].

envelope; there was a fair amount of restoration of windows and walls but for the most part the shell of the building remained as it was. The existing iron work and logical planning drove the organization of the shopping centre but it goes even further; the iron work and facades are in the Victorian style and it is this that guided the internal theme or style of the shopping centre as it exists today.

The past informed the [then] present and this is something that can be argued as the wrong approach in a contemporary sense; to repair the building such that the exterior lived up to the dream interior several unsustainable actions took place. The importing of rivets and tools from England, the hand making and firing of bricks as well as the custom made windows are some of the expenses that were done more out of preservation than reuse and conservation. In retrospect one could say that the Workshop is a bit too reserved in its adaption and possibly too contrived; it is good that its exterior provides some form of historical layering to the urban fabric but it speaks little of development and change that it should have as a new social icon for Durban.

### 5.1.3 Dystopian and Narrative analysis



Figure 7.7 A photo of the Workshop in a poor state, just before renovations in 1985. Edited by author [Source: [www.fad.co.za](http://www.fad.co.za)].

If one looks at the photo in Figure 7.7 one can see that there was a point when the Workshop was a brown field site of sorts; abandoned and decaying as there was no more use for the building it can be said to be a 'bad place' or a dystopia. With the reuse

of the Workshop as a shopping centre all of the dystopian aspects disappeared and it became a temple of recreation and entertainment that could be considered to be



Figure 7.8 Comparison between Paxton's Crystal Palace 1851 and the Workshop 1986 [Source: 3.bp.blogspot.com & static.panoramio.com].

Utopian. Looking at it now in 2014 however one can begin to see the 'bad' in the Workshop.

Firstly there has been little change to the Workshop since 1985 [29 years] which means that when one experiences the building it has this museum

like quality to it; the user is transported back to an old English street with Victorian shop fronts, furniture, English phone booths and riveted iron. That is a fine experience but the oddity comes in the form of neon lights, television screens, cell phones, air conditioners and cables that sit within this old English scene. Even though the building

hasn't changed time and technology has, Figure 7.9 shows a sketch of these alien invaders that cling to the old iron structure; the most dystopian being the spindles of security cameras that watch people pass buy [typical dystopian image of control].

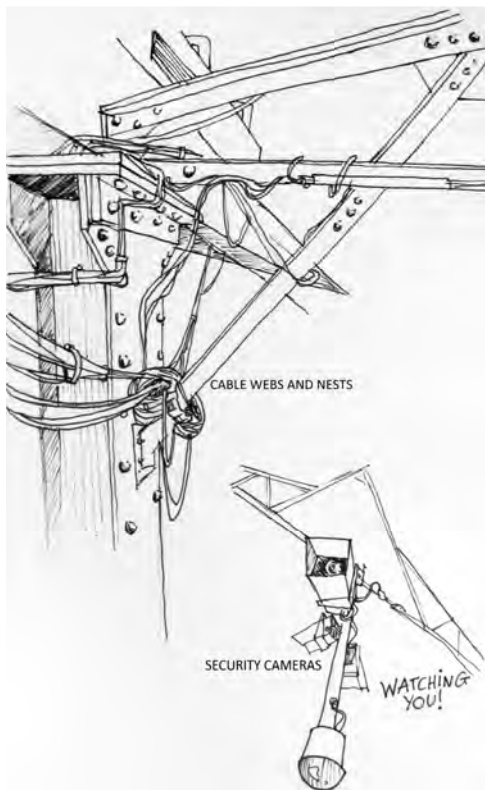


Figure 7.9 New cables and cameras cling to old structures in a disorderly and improvised manner [Source: By author].

If one would to ask the question; is the Workshop a Critical Dystopia? The answer would be no; there is little to no existing 'bad' that acts as a warning to the users and instead of hinting at a future the building mostly reflects a distant past.

This is a good time to consider the issue of narrative and whether or not there is any architectural narrative in the Workshop.

The Workshop has a very simple narrative and could be characterized as a Binary Narrative as it is a shopping centre that has been imbued with the spirit and characteristics of an old English high street; it embraces the Victorian style totally and in some ways could be likened to the Crystal Palace that was designed by Joseph Paxton in 1851 [See figure 7.8]. It is this overly simplistic narrative that is one of the building's biggest shortcomings; Coates warns that a Binary Narrative can easily be seen as cliché.

When it was constructed the Workshop provided a relatable experience to the users who could identify with the English heritage but in 2014 few users will be able to relate with the dated Victorian theme; Victorian architecture is an important part of Durban's architectural history but the Workshop's design gives few clues as to the origins of the building or its importance as an early industrial building.

In terms of Lynch's elements of a city that form the basis of narrative analysis [in architecture] there is one main element that the Workshop uses to create the narrative; path. The notion of an old street is defined as a pathway by its strong edges [Victorian shops] and clear objectives [the entrances/exits as well as the anchor shop, Pick n Pay].

#### **5.1.4 Conclusion**

The key points that came out of this study are as follows: firstly the nature of industrial buildings, like the Workshop, are that they are big buildings with large spans and ordered grids; this makes for a massive blank and well ordered canvas for architects to use.

Then there is the fact that the Workshop reuse has had a positive effect on the surrounding urban fabric and has made it an iconic building.

When one is faced with a reuse project like this one there are several issues to consider; the continuity of urban form along with the historical layering, but one must



not forget that conservation and adaptation can deal with these issues and still move the project forwards as opposed to turning it into a museum.

When faced with a site like the Workshop one will also be confronted with the issue of accommodation and function, what will go inside the building? This case proves that shops and other small [modular] elements suit the structural grid quite well; they also generate a lot of movement and money within the building.

The final point has to be that when one uses narrative architecture there is going to be a risk of failure; a building like the Workshop would easily become a landmark due to its scale and history, it is for this reason that whatever narrative is used must either be able to endure or adapt over time.

## **5.2 THE CONSTITUTIONAL COURT [CONSTITUTION HILL]**

### **5.2.1 Introduction**



Figure 7.10 Photograph of the South African Constitutional Court, main entrance  
[Source: By author].

The Constitutional Court of South Africa was opened in 2004 after beginning its conception in the minds of, the Durban based, OMM Design Workshop in 1998; ever since then the building has been an icon within the Johannesburg landscape as well as within the South African architectural community.

The site selected for the project is an area named 'Constitution Hill'; a 12.5ha block that rests on the Braamfontein Ridge between Hillbrow and Johannesburg North. [Avern-Taplin 2005: 23]. This site which was selected due to its historical significance now houses a complex arrangement of buildings that function as courts, museums, accommodation and retail. The court building takes the accommodation schedule even further with elements like: the public foyer, constitution square, court chamber, judge's chambers, administration/offices, library and exhibition gallery.

The reasons this building has been chosen as one of the case studies are that the design shows the masterful reuse of an old building; it deals directly with the ideas of dystopia and hope which are central to Critical Dystopian theory and it is an extremely responsible building due to the high level of sustainability as well as the affect it has had on the surrounding precinct [rejuvenation]. The final reason for studying this building is because of the rich amount of narrative within the site's past, the design process and the built form.

The following subsection will differ from the analysis of The Workshop case as this building is deeply rooted in dystopian and narrative theory; that said one will first look at the dystopian aspect of the building before moving on to the narrative architecture and then the more pragmatic adaptive reuse.

### **5.2.2 Dystopian Characteristics**

When referring to the dystopian characteristics of the site it is important to approach the topic from two perspectives; first is the history of the site and then the current site.

As previously mentioned the Constitution Hill has a history as both a military compound and prison; both these functions speak to dystopian themes of control, subjugation and conflict; the previous function of the site as a prison complex is the most significant part of its history as this was during the Apartheid era [1948-1994]. The site was the very place where the rules and laws that characterized the oppressive Apartheid era were enforced; it was there where people were put on trial and incarcerated simply because of their 'otherness'. Much of this dystopian past remains in the current Constitution Hill as a physical form of memory; this can be seen as the current 'bad' within the design and is the part that warns the users of a world without human rights and the constitution [Est. 1996].



Figure 7.11 Photographs showing some of the dystopian parts of the Constitution Hill Site, the remains of the old prison blocks [Source: By author].

“Like all South Africans of our generation, we had been born into a fundamentally dysfunctional society.” A dystopia [Makin in Law-Viljoen 2006: 11]

The photographs in Figure 7.11 show parts of the remaining prison block that the designers purposefully left in a state of disrepair; the rotting timber windows, peeling paint, rusted guard huts and layers of barbed wire creates a truly bleak experience; an image of dystopia that magnifies the experience of the new court building. That being said the old prison block does not simply stop at the edge of the new court building; much of the new building is made up of reclaimed bricks from the awaiting trial building

that was demolished. The four stairwells from the original prison block are the most striking remaining elements as they guide people towards the court entrance and even form part of the main foyer.



Figure 7.12 Photographs showing the incorporation of the old prison stairwells into the new building, using them [the past] as a base for the light boxes [hope for the present and future] [Source: By author].

Figure 7.12 shows one of the main elements of the design that speak of the concept behind the new court building; “interweaving past with future” is done by contrasting new and old. These elements are crucial when considering the building as a critical dystopia; they resemble the hope within the darkness, or as Viljoen put it the “Light on a Hill” [Law-Viljoen 2006]. By doing this the architects create a building that embodies the aim of the South African Constitution itself; it points to the dystopia of the past injustices and offers a brighter future that is built on South Africa’s past hardships.

As one explores the dystopian characteristics of the design, the main theme behind the architectural narrative begins to stand out. The following subsection will look more carefully at the narrative architecture.



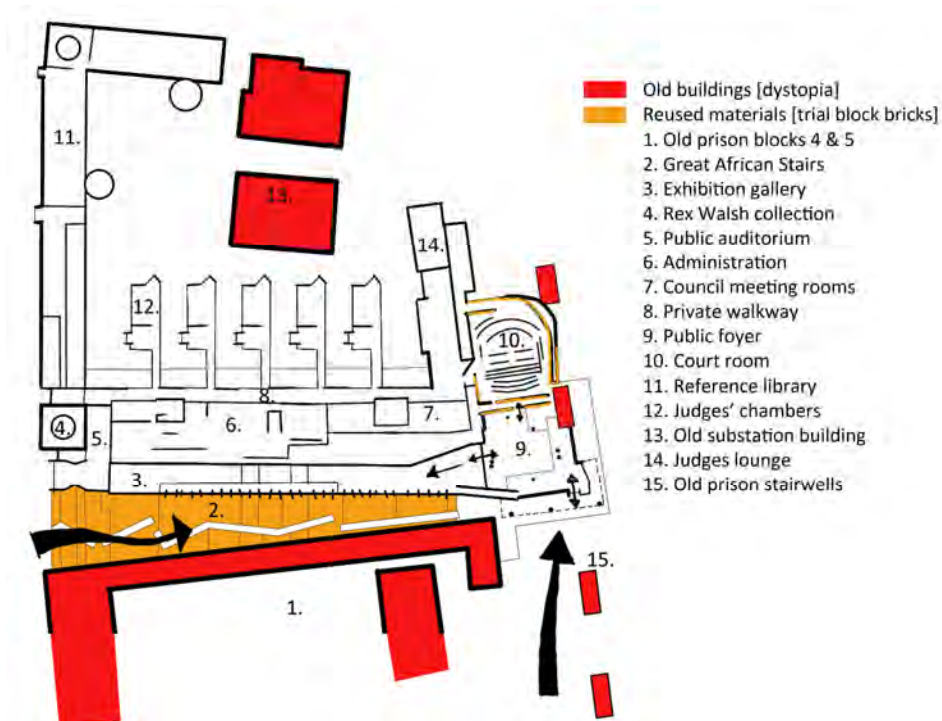


Figure 7.13 Sketch plan of the Constitutional Court building showing paths to main entrance, old/new buildings and reused materials [Source: By author].

### 5.2.3 Narrative Architecture

Narrative is tied with concept and the main concept behind the Constitutional Court is the weaving together of past and future, the bad and good, the injustice and justice; Figures 7.13 and 7.12 highlight some of the ways that the narrative manifests itself within the architecture. The juxtaposition of old and new that is the core of the narrative is obvious but one still needs to identify what form of narrative; Binary, Sequential or Bi-topic.

There are several museums and galleries on the site, those along with the great stairs [2. In Figure 7.13] all have a strong sequential narrative; the user moves from one end to the next. This said the narrative is not sequential because one can approach the site from any side; the Constitution Hill is open [speaking of a democratic nation] which means the users can move as they want. The Narrative is therefore the Bi-topic form which relies more on the layering of various places, situations and forms such that

they support each other. The presence of the old prison heightens the users understanding of the new court building [justice] and vice versa.

In terms of Lynch's elements there are several that stand out in the creation of the narrative; first is the prominent use of **landmarks**. The old stairwells are converted into towers of light [Figure 7.12] that guide the users to the court building, metaphorically they guide one towards the pinnacle of justice in South Africa [note the tower on the court building is the tallest]. The next notable element is the use of **edges** to both



Figure 7.14 The Great African Steps is one of the main paths and is defined by difference, the left is the old prison wall and the right the new dynamic wall made up of individual artist's steel panels [Source: By author].

guide [create paths] and highlight the difference that exists between the layers; the architects seem to have placed the most significant of paths between different edges, the Great African Steps being an example.

For a Biotope Narrative to be most effective the several layers of the narrative need to be viewed simultaneously, this can be done through proximity like Figure 7.14 but can extend further to physical penetration of forms [Figure 7.12 & 7.13 show this]. When one experiences the Court building there is a high amount of dynamic elements that add life, hope and fun to the building; it can be said that this is all to reinforce the

narrative of the 'good' versus the 'bad'. This is achieved in the built form through moving steel facades, a mixture of materials, the use of angled columns and waving concrete that is punctured with colourful triangles.

When one visits the Constitutional Court as a South African it is an experience that



Figure 7.15 Photograph showing use of projected images on old prison walls/floors to bring the tale of past events to life [Source: By author].

has a profound effect on the visitor; it acts as a single place where the past and future of South Africa collide in a meaningful way. OMM Design Workshop have used multiple narrative elements to create a strong icon for the country; when contrasting this to the narrative of The Workshop one has to say that the theme here is one that is more lasting.

The architecture has a historical value yet it has not ventured into the contrived or the 'themeparkish' like The Workshop;

it is therefore a far better case study in narrative architecture.

#### 5.2.4 Adaptive Reuse

This section will be brief as much of the reuse has been touched on already but it will be looking at it from the viewpoint of a responsible design and sustainable practices.

If one looks back at the plan in Figure 7.13 there are two highlighted areas that show the parts of the old prison building that have been reused; the red



Figure 7.16 Photograph showing the simple addition of signage that along with new stairs, ramps, elevators and digital displays all make the unguided experience of the museums possible [Source: By author].

showing the parts that stand mostly in their original form while the orange shows reused materials. Part of the experience of the Constitution Hill is visiting the several museum buildings; these are the old prison blocks, women's prison and the old fort; they each have had small modifications done to them so that they can tell the story of the museums better [adapted function].

These modifications are all simple and done in materials that contrast the old buildings [frosted glass and powder coated steel.]. When designing a building where people need to be able to learn specific details and move in certain ways, the addition of signage, art installations and digital displays are crucial.

So far the adaptations have been from a functional perspective and cater for the human experience, but there is a large amount of reuse in the design that is both for human experience and sustainability.

For the court complex to exist the old awaiting trial prison block and other buildings had to be demolished; this was done in a sensitive manner such that materials and structures could be reused. The reuse of the old stairwells have already been looked at but a large amount of the original brickwork was reclaimed to be used as paving and dry stack walls within the court design. This sort of reuse reduces the overall carbon footprint of the building and keeps it connected with its past [genius]; this is a sustainable practice which supports the rest of the building philosophy of passive heating/cooling and water collection [more sustainable practices/systems].

The adaptive reuse of a building is just a part of being sustainable within the urban environment and should not be something that is done in isolation of all other forms of environmental and social sustainability. One should consider the approach of reuse to be applicable to multiple resources that extend beyond building materials; heat energy and rainwater form a part of adaptive reuse in the Court design.

## 5.2.5 Conclusion

This case study must be viewed in contrast to the Workshop case; in many ways it is a more complicated example of adaptive reuse than the Workshop. It achieves the same ends as the Workshop, that being the conservation of the sites history, but it goes much further and this is what makes it a far more successful building. The main lesson that comes out of the Constitutional Court study is how the narrative used is far more sustainable; it is not totally subtle yet it is in no way cliché or contrived and therefore should last [unlike the Victorian street of the Workshop].

The Workshop also never embraced the dystopian aspect of the site but rather

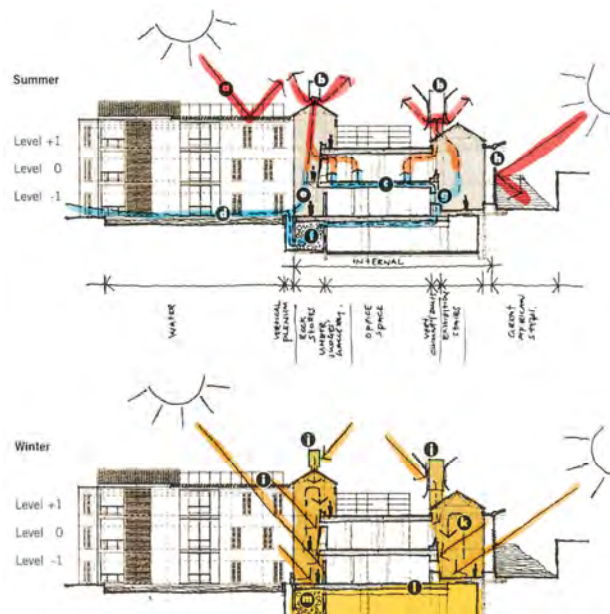


Figure 7.17 Showing a simplified diagram of the heating and cooling modes of the building [designed by ARUP]; edited by Author [Source: Law-Viljoen 2006].

approached is as a total rejuvenation; it can be argued that the Centrum site has never been fully rejuvenated, despite this approach. The Constitution Hill by contrast is well on its way to rejuvenating not only the site but the immediate area; it maintained a connection with the past and therefore with the old built environment, one could say that this makes it a stronger catalyst for rejuvenation [rejuvenation being one of the main aims of this research].

This concludes the main body of the research and the chapters that follow will focus on the interpretation and analysis of this body with respect to the theoretical framework; the aim being to draw the main conclusions and the recommendations for the design that is to follow.

# **CHAPTER 6**

## **SUMMARY OF THE STUDY, ANALYSIS, DISCUSSION AND FINDINGS**

### **6.1 INTRODUCTION**

In this chapter the results of both primary and secondary research methods will be brought together in a form of summary; this summation of the research will allow for analysis and discussion of the data in relation to the topic and aims of this dissertation. Through this analysis and discussion one will begin to see if the research has managed to address the various questions, aims and objectives that were posed in the very first chapter of the research.

The main aim of this chapter will be to lay a brief, yet strong, foundation of information that can be used to build the theoretical framework as well as the various design guidelines or rules that will all fall in chapter seven.

### **6.2 INVESTIGATIVE APPROACH**

The investigative approach will be carried out in a logical manner; following the structure of the research document as much as possible. Firstly the literature will be analysed with respect to the various precedent and case studies such that the findings that are most crucial to the aims of the research can be highlighted.

Secondly one will document and analyse the research data accumulated through the questionnaire process; this data will also be analysed with respect to the aims of the research and serve as a point of comparison for the first set of data. It is the comparison of the two sets of data that will allow for a more informed selection of final findings and statements.



## **6.3 SUMMARY OF ANALYSIS, DISCUSSION, KEY RESPONSES AND FINDINGS**

### **6.3.1 CRITICAL ANALYSIS**

#### **FICTION**

The research on SF and dystopia shows that people enjoy reading fiction; their imaginations are more stimulated and it is for this reason that dystopia could be seen as a tool for influencing people. The research aims to try and have a positive impact on both brown field sites and the area surrounding them [the society]; it was within dystopian theory where a narrative that could have the desired impact was found.

The critical dystopian narrative has a very well defined structure that guides the readers towards making their own decisions that may ultimately lead to a better future. This is a key part of the research as it provides a structure that embraces the 'bad' and still progresses towards hope which embodies the required positive impact.

The research also made clear the importance of how the dystopian setting is created; this can easily be expressed in architectural terms and therefore becomes a way to engage with existing real world dystopias [brown fields].

The key aspects of critical dystopian imagery and setting are as follows:

1. Strong contrasting imagery that allows for dynamic interplay between the two binaries.
2. There should be some form of resistance that can be in the form of parasitic or opportunistic architectural expression [generally one of the binary elements].
3. The path towards hope or towards a solution to the problem that defines the dystopia should only be suggested; allowing for the participation of the user in finding the solution. This may even result in unexpected solutions.

This critical dystopian approach offers a 'new' way for designers to engage with existing dystopias in a progressive and positive way. The analysis of the several precedent and case studies supports the notion that designing within the existing dystopia and embracing the 'bad' of a site can lead to a stronger architecture that sits



more naturally within the surrounding context. Engaging with the old parts of the site has also proven to fit in with a more sustainable design approach which once again forms part of the positive impact.

## **NON-FICTION**

The research into the real dystopia has created an understandable link between the worlds found in SF books and places within the built environment; it shows that there are multiple dystopias that exist within the current urban landscape. One such dystopia that has been identified is the industrial ruin or brown field site; this brings the topic of the dissertation into frame and answers the question of how brown fields and dystopias are linked.

They are linked by their aesthetics, experiential qualities and social structure.

The topic of this research focuses on how this knowledge can help with the rejuvenation of brown fields and the built environment; fortunately several positive factors were illustrated within the literature that begin to speak of a productive dystopia.

Firstly brown field sites can offer architects and designers insight into new ways of using space and built form, learning from the transgression and resistance that often happens in these 'bad' places. These places also offer unique design opportunities as they contain things that no other urban spaces contain. Fringe or criminal activities, artistic expressions [vandalism], residential and work spaces for the marginalized community and an air of excitement

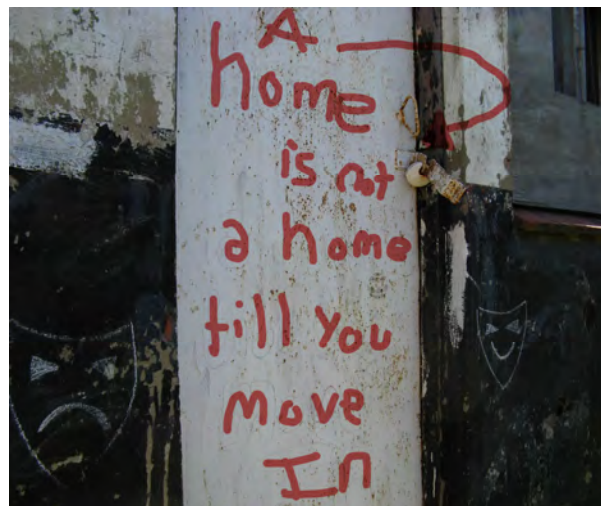


Figure 8.1 Photo showing the reuse of a derelict building by the marginalized in the Point area [Source: By author].

make up some of these unique aspects. The investigation of such sites proved much of this potential to be true; when entering ruined landscapes it is an adventure unlike any other landscape.

It has also been pointed out that such sites are catalysts; they tend to infect the surrounding areas negatively.

This catalytic nature could help rejuvenate the area with the aid of appropriate intervention. The appropriate types of interventions on these sites have been identified as phytoremediation and adaptive reuse; they are responsible and sustainable methods that have been proven successful in both the precedent and case studies [where rejuvenation is concerned].

## **STORYTELLING**

There is one, main, conclusion that was realised from this section of literature and yet it is what defined the means for the architectural engagement with both dystopia and brown fields.

Stories have been proven to be massively important to human society and have the ability to change people's opinions and beliefs; stories are also proven to be the best mediums for education and entertainment. As critical dystopia is a type of story that comments on real world problems [brown fields]; the best way for architecture to engage with dystopia is through story or narrative.

## **NARRATIVE ARCHITECTURE**

The discovery of the importance of narrative in this research lead the way to the theory of narrative architecture, it was the 'how' that was needed when asking the question of 'how architects can engage with dystopia?'

It was identified that narrative architecture has a long history of precedents and could therefore be relatively well characterized into three main types of narrative:

Binary,  
Sequence and  
Biotopic.

The precedent and case studies revealed that dystopian narrative can be achieved through any of the above types but **Sequence and Biotopic** offer a higher chance for long term success as a binary narrative can easily be cliché; this was observed in the case of The Workshop shopping centre.

The various studies and body of literature also showed how these types of narrative can be designed; the main tools used when creating narrative architecture are the elements of the city, as defined by Kevin Lynch:

Edges,  
Paths,  
Nodes,  
Districts and  
Landmarks

This makes sense as narrative is about experience and these elements are tools for designing experience; organising situations or spaces to form a story.

## **PRECEDENTS & CASE**

Some of the findings from the precedent and case studies have already been mentioned but this section will look at the remainder of the data.

Firstly is the issue of scale; it was identified that the majority of the brown field sites are large sites, ranging from 1.2 ha to 200ha. This means that the design interventions have to respond to several scales; creating both large and small narratives.

It also became clear that the projects all prioritised the reuse of the existing structures and materials; this made the designs more economically viable and sustainable. [This speaks to the idea of a productive site]

The various projects that were studied also show various levels of alteration; what is important though is that there is still some form of change that goes beyond the functional. This change serves to communicate to the users that progress has been made on site; it is a form of rebranding that enables people to change their perception of the site.

The interpretation of the site is synonymous with the rediscovery of the site, this process of rediscovery is important and is best achieved by making the design open to the public [The Landschaftspark and The Constitutional Court]. A park is an example of an open design typology and has the capability of accommodating large numbers of people; in a design where the social impact is important this capability becomes an asset.

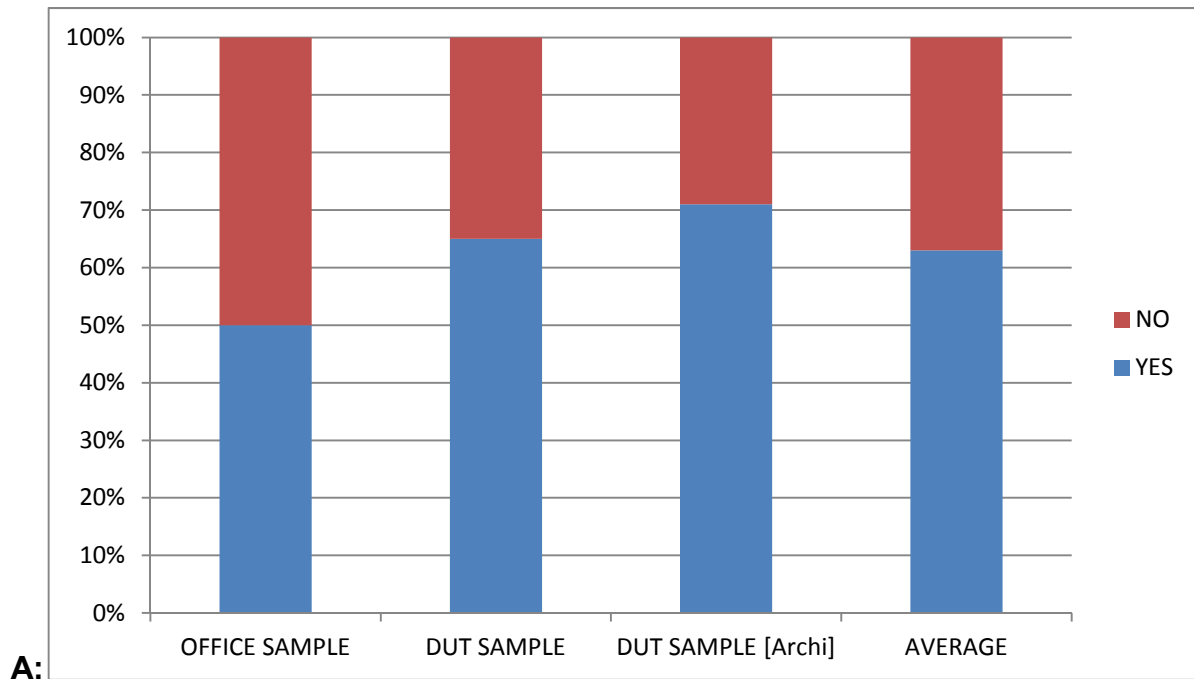
The following section will list the data gained through the questionnaires that were returned on time.

### **6.3.2 KEY QUESTIONNAIRE RESPONSES**

For the purpose of this section please refer to Appendix A which contains a sample questionnaire with anticipated responses and comments; the anticipated responses will be important when analysing the actual responses. Appendix A also contains a sample of the collected questionnaires that can be reviewed.

## Question 2 Results:

**Q:** Are there any bad places in the area you live; places you think are unsafe, scary or unhealthy?



Graph 1 showing the results for question 2, by author.

This information shows that a majority of the participants have bad places in their respective areas; at the very least this data shows that there are dystopian environments in the Durban area. The presence of dystopias in the local built environment aids in justifying this research into an architectural solution to such sites.

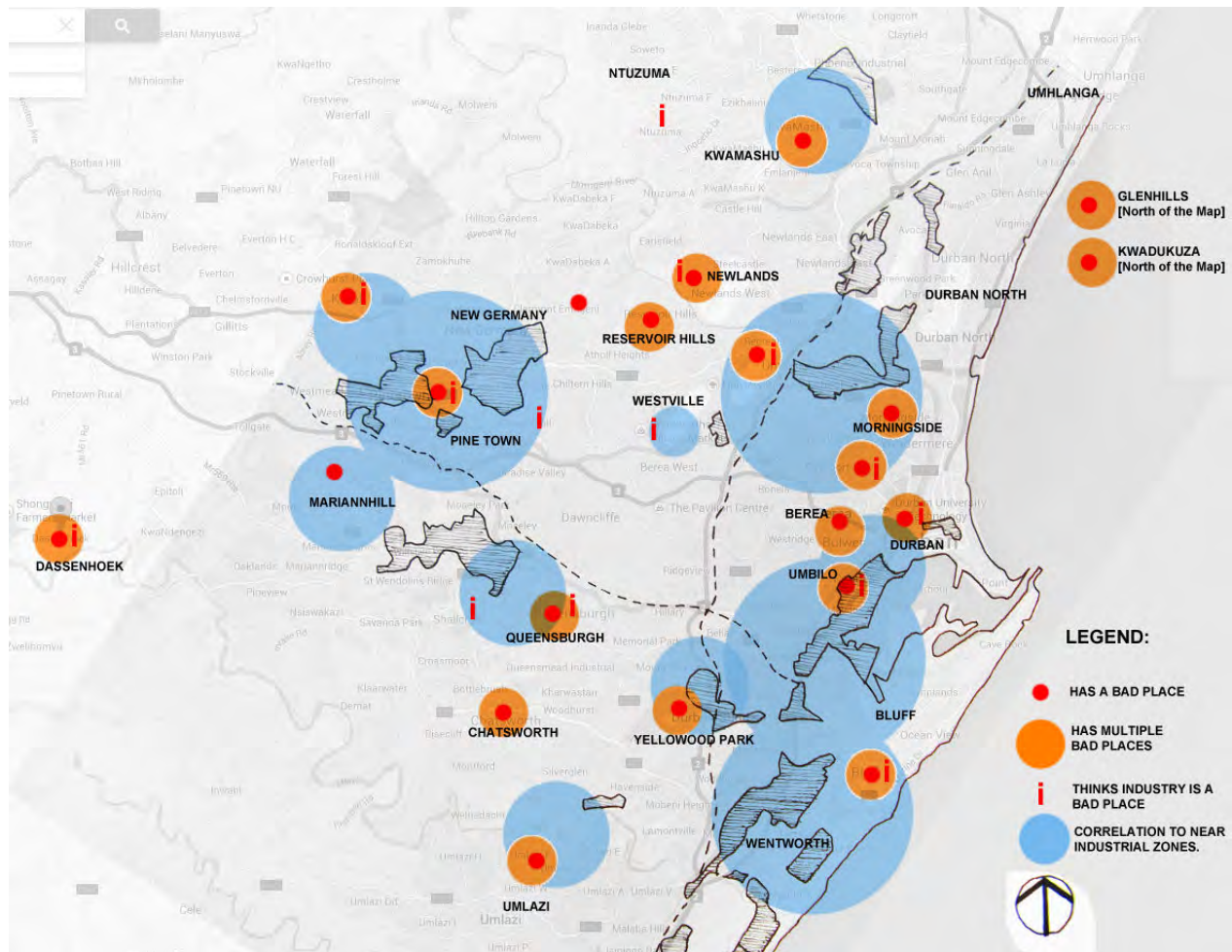


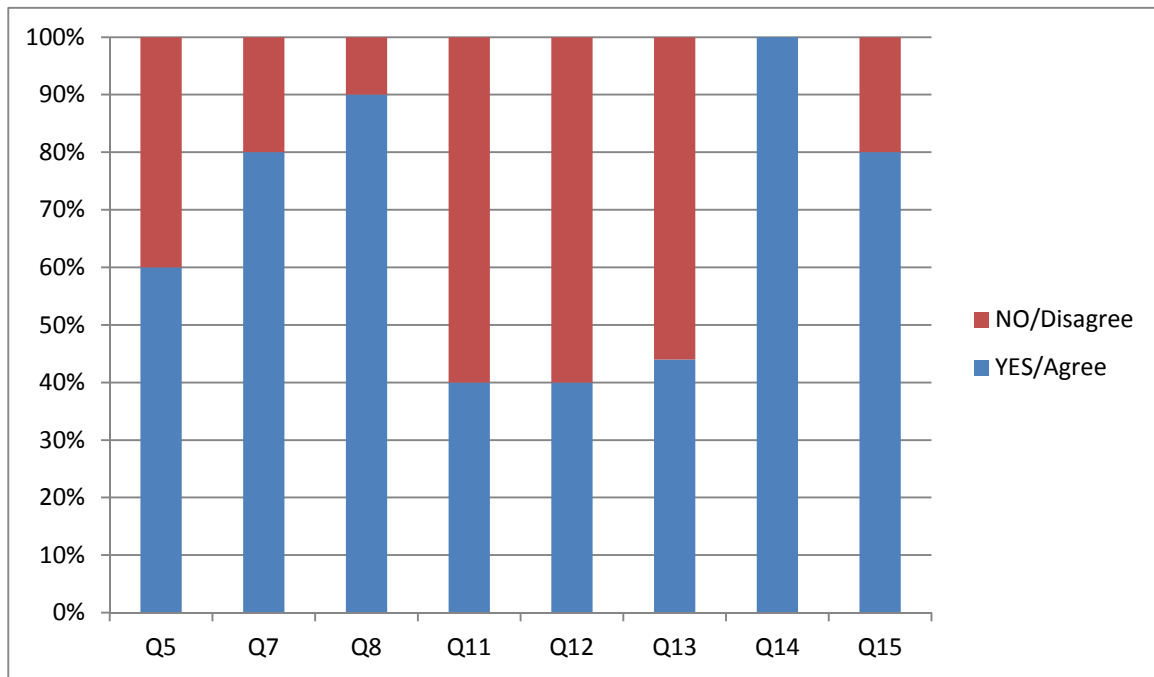
Figure 8.2 Map showing the geographical analysis of Q2, 3&11. Map from Google Maps edited by author [Source: maps.google.co.za].

Figure 8.2 shows the correlation between the results for questions 1, 2, 3 and 11; it illustrates that 'bad' places are scattered all over the greater Durban area.

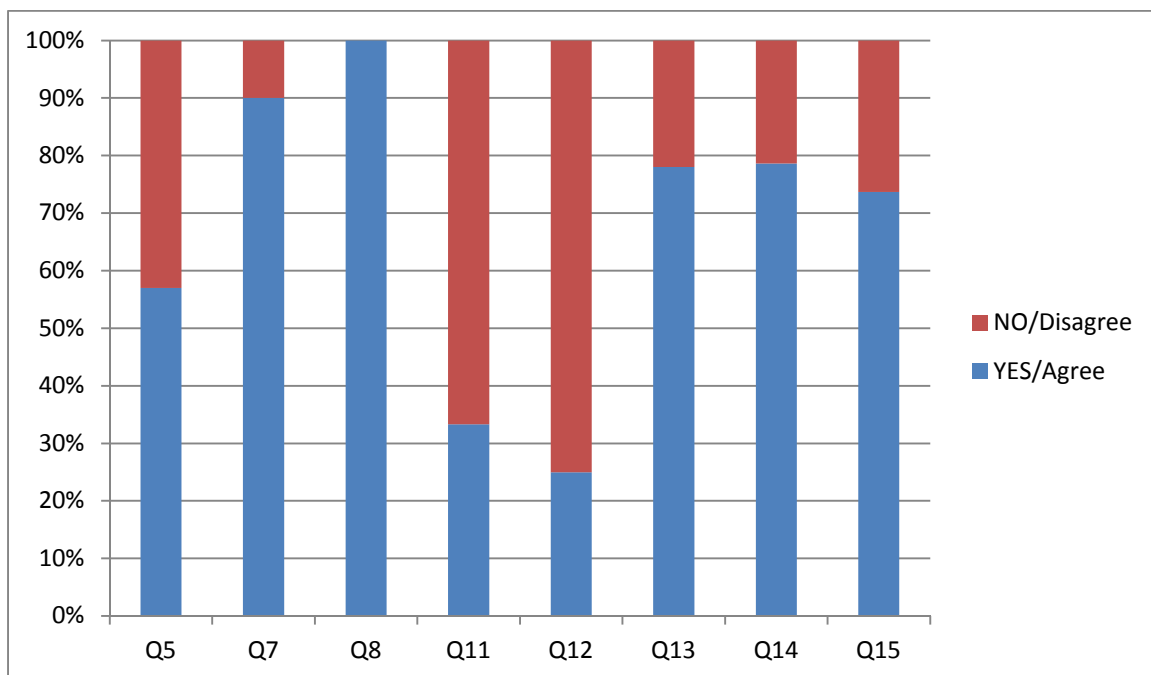
However when looking at the hatched areas in the map which roughly indicate the industrial areas in the Durban area and one can begin to see that areas that are farther from industrial zones have no reports of 'bad' places. This should not be taken as an indicator that those areas have no 'bad' places as the sample groups do not cover every region of the greater Durban area.

It is interesting though to see the groupings of bad places closer to the industrial zones with the exception of Dassenhoek which contrasts the response to question 11 which

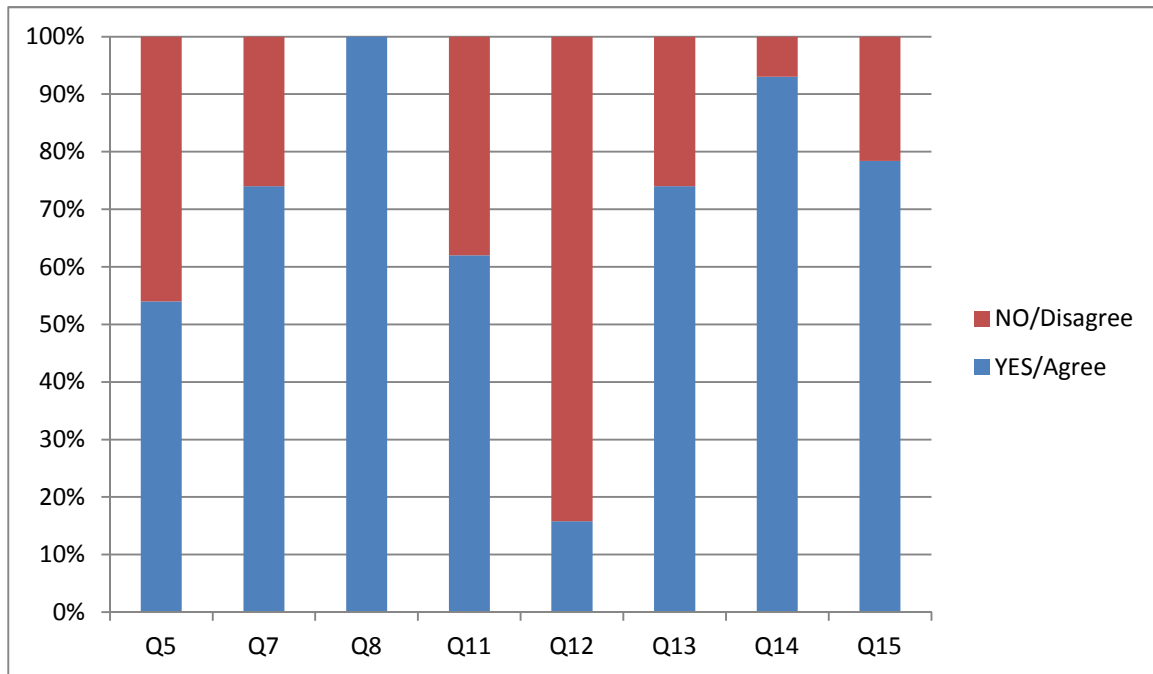
asked if industrial places are 'bad'; the majority of the participants said they were good places.



Graph 2 showing the Office sample results [Source: By author].



Graph 3 showing the DUT sample results [Source: By author].



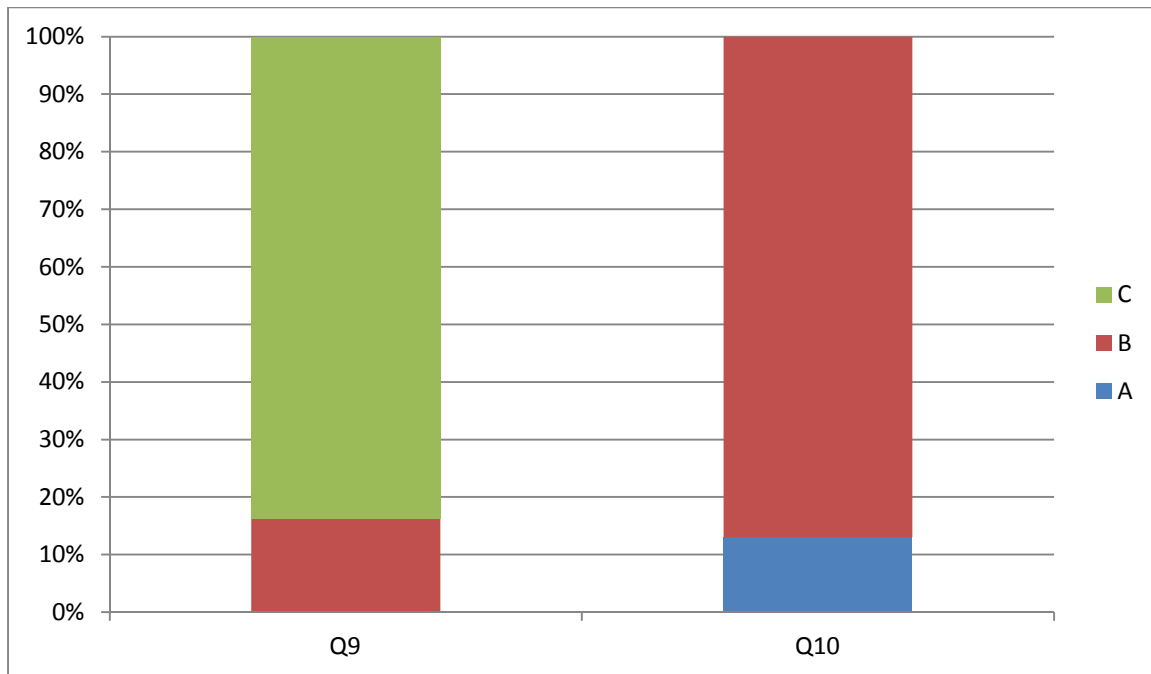
Graph 4 showing DUT architecture sample results [Source: By author].

The results in Graphs 2, 3 & 4 show more results from the questionnaires; question 5 shows a majority YES across the groups which shows that of the bad places that were identified, most used to be good places. This supports the notion of urban decay and illustrates that it is still happening in contemporary South Africa.

Questions 7 and 8 were testing how people perceive good and bad places; the results were as expected; this shows that people have a strong sense of good and bad aesthetic qualities. When people are confronted with poor aesthetic qualities they easily identify the picture to be of a bad environment; however there was an interesting contrast between these results and those from question 4.

Question four asks the participant to describe what makes a place bad; the results were that 63.6% of the answers were blaming people. This idea that bad people [criminals, drug dealers, 'woonga individuals', etc.] cause bad places is a valid point of view and illustrates that people are more conscious of social problems than they are of environmental problems.





Graph 5 showing the AVERAGE results for Q9 & 10 [Source: By author].

A separate graph [Graph 5] has been used to show the results for questions 9 & 10; firstly the results from question 10 were as expected, most people found the scene with human activity to be more appealing. This can be used to justify that minimal design interventions that at least alter the function of a space can rejuvenate the space.

Question 9 however is a little more interesting; it was expected to be mostly 'B' which would promote the notion that a bad place with natural life [plants etc.] is better than one without. Instead people chose 'C' which, after some short interviews, shows that people prioritize the more complete image of a building. The participants also commented on the fact that doors and windows are visible in image 'C' which meant that it was a 'place' that you could enter and live in.

Questions 12 & 13 aimed to establish a link between industrial and dystopian images; the main result that they provided is the majority YES in question 13, this directly links SF and industrial landscapes [young brown field sites]. The reason the Office result is

lower in question 13 can be attributed to their occupation; as geotechnical engineers who would not find 'minescapes' to be surreal or SF.

Questions 14 & 15 refer to the value people place on stories and narrative architecture; the results for both questions were mostly YES/Agree. This data supports the literature which stated that stories can teach people lessons and change the way they behave; it also shows that people think architecture should have a story. Considering that these sample groups are not all architects; it was surprising to see the importance they placed on buildings connecting with their history and some greater meaning.

### **6.3.3 DISCUSSION AND FINDINGS**

Much of the research data has been discussed in the previous two sections and to avoid any repetition it seems best to use this section as a form of conclusion to the findings.

There are numerous dystopias around Durban [and likely South Africa] that are easily recognised by the public based on both the social activity and physical aesthetics of the sites. Both activity and aesthetic fall under the control of architects and planners; urban dystopias are therefore an issue that should be solved within the architectural field. The research has defined some of the characteristics of dystopian architecture but more importantly a way for engaging with it.

Taking a sustainable approach that prioritises adaptive reuse and the exploitation of natural systems has proven to be a responsible and successful response; it also fits well within the concept of designing within the framework of a story/narrative. Other findings are that people perceive places based on how they are used which suggests that very simple interventions can be just as successful as big/costly schemes.

This is a good opportunity to mention the hypothesis of the research:

*By actively engaging with the dystopian nature of brown field sites (their “badness”) one may be able to rejuvenate them into useful urban spaces that comment on the underlying issues in South Africa.*

All of the above research suggests that the hypothesis is possible which makes the hypothesis an important part of the findings; it should be noted however that without testing a real design it is difficult so completely confirm the hypothesis.

The following chapter will conclude the research more thoroughly and make more specific design recommendations.

# **CHAPTER 7**

## **CONCLUSIONS AND RECOMENDATIONS**

### **7.1 SIGNIFICANCE OF THE FINDINGS**

The significance of the various findings from this dissertation will be discussed briefly in this section; the purpose being to justify the importance of the findings not only to the research topic but to the architectural field in South Africa.

In a country where there is a high percentage of unemployment that is the result of multiple economic and social issues; there exists a high amount of 'others' within the built environment [the homeless and other marginalized groups]. These 'others' exists within the 'other places'; the parts of the built environment that developers and architects wipe clean in favour of new buildings that exclude 'others'.

This research makes the statement that this thinking is wrong and that there are better ways of engaging with these places, these dystopias, such that a far more responsible form of development can take place.

The significance of the findings of this research is that there is a way to better engage with urban dystopias; as the research topic suggests, the urban dystopias that are brown fields can be rejuvenated through the use of narrative architectural expression. The expression must follow the structure of a critical dystopian novel to have the maximum impact; allowing the architecture to guide the public towards the betterment of both site and society [hopeful future], as well as grounding the architecture firmly in the nature of the site.

This may not seem all to significant as there seems to be an abundance of open space in South Africa but the reality is that most of this space is not developable; this said any brown field sites are valuable resources. The findings herein will be able to serve

as a guide to approaching and designing on the brown field sites of the present and the future.

## **7.2 CONCLUDING STATEMENTS**

The research has brought to light that both the tools and precedents exist for designing within a dystopian narrative framework but at the same time it has also shown that there are few examples where a dystopian narrative was the core concept for the design.

This dissertation will take the information gathered and use it to create a theoretical framework that focuses on a critical dystopian narrative; in doing so it will fill a gap within the South African architectural discourse and add to similar work that is currently being pursued around the world [Brown 2012].

By engaging with the dystopian nature of a brown field site in the design of an architectural intervention; the intervention will rejuvenate the site while still being a relatable place within the surrounding built environment. By honouring the dystopian nature of the site the design will have the added effect of creating a 'readable' narrative that promotes sustainable and better living.

All that is left is to design an intervention that lives up to the expectations of this research document; this process begins in the following section where various recommendations will be made to guide the design in the right direction.

## **7.3 RECOMMENDATIONS**

### **7.3.1 THEORETICAL FRAMEWORK**

The theoretical framework is one that is deeply connected to the structure of a critical dystopian narrative and will therefore be described in a manner that best suits this structure.

In a future South Africa where the freedom of the people has become contrasted by the lack of free space there will be a new interest in the left over spaces; the disused sites that form a part of the dystopian image. The brown fields stand as physical memories of productivity and economic activity while at the same time being sites of refuge for the economically estranged and the opportunistic.

The critical dystopian framework is made up of three elements: mapping, warning and hope; in the above scenario the mapping is already in place. The dystopian setting is already characterised by the selected site and will display the various aesthetic and social qualities required. The next element is the warning; the architecture must warn the public of a world that is polluted and without free, natural space. The final aspect is hope and requires a polar architectural expression; it is the light to the dark that must speak of a way to avoid the dystopia. The journey from warning to hope is key in the architectural expression as it is here that the social messages will be realised and begin to impact on the society.

The architecture needs to create and amplify these three elements while remaining open ended and relatively unspecific as to avoid overly cliché results; the best method for realising this framework is through the methods of narrative architectural expression. A sequential narrative or a Biotope narrative can allow for the three elements of the framework to be realised in a subtle manner; they also set various design criteria that can be met through the control of how the various elements of the design relate to one another. Juxtaposition is a key form of expression that suits the polar nature of the framework while a sequential progression [path] can ensure the clear movement from warning to hope.

The site shall be large enough to allow the user to become lost in the story and to fully exploit the concepts of edge, path, node, district and landmark at various scales. Housing architecture that has both a historical value and a current use; productive spaces that use farming, natural wetlands and more obvious man made techniques to

rejuvenate the site. These natural typologies will reinforce the dystopian image and paint a scene of a high tech ruin being surpassed by simpler, sustainable structures.

The site needs to be open and display all the characteristics of a healthy park; allowing all members of the public to use it in some way. This will require multiple functions that target various groups but one group that is very important to the framework is the 'other'.

The decontextualization of functions and the distortion of programme will be the normal approach to the 'other spaces' in the design and will aid in the binary tension within the narrative. The design is formed around a dramatic and energised dystopian framework; much of this needs to come through in the architectural expression with contrasting spaces, forms and materials.

As the users become participants in the narrative scenario so they will become convinced by it; there needs to be ample space for growth such that the users can test ideas and realise the 'hope' of sustainable living for themselves. By reaching this point the public, as the readers of the critical dystopian framework, would have made their conclusions and have been affected by the narrative; by leaving the site they take the lessons with them and can therefore help change the surrounding area for the better. The intervention is the beginning of wider rejuvenation and a wider impact; it is natural for people to pass on stories to others which is why narrative is key to rejuvenation.

For this process to be as successful as possible the framework requires the 'hopeful' architecture to surpass the dystopian architecture; this should mean that it can be more economically and environmentally successful than the original site ever was.

### **7.3.2 SITE SELECTION CRITERIA**

An important part of any design project is the choice of site; fortunately the research has provided several selection criteria that can help make the choice.

1. The site must be a current brown field site; this means it must be a disused site that is contaminated in some way.
2. The site must be large; it should be in the region of 12 to 30 hectares.
3. The site would best suit the research material if it could be a disused industrial site, this would generally meet the scale, contamination requirements and aesthetic qualities.
4. The surrounding built environment should show signs of decay or suffering; this is to help justify the development of the site.
5. A site should be chosen with existing buildings or structures that are in some stage of decay.
6. For practical reasons the site should be chosen within the Province of KwaZulu-Natal.

Based on the above selection criteria a few preliminary suggestions can be made; Firstly there is the old Durban International Airport site which is a disused site that is surrounded by heavy industrial buildings. The second possible site is the Colenso power station site; the building was decommissioned several years ago causing the surrounding town to decay.

### **7.3.3 APPROACH TO ACCOMMODATION SCHEDULE**

Based on the research findings the appropriate typology for the design is a large scale park that contains multiple building types; it will be a form of urban plan that can then have a smaller portion as the design focus. Those best suited as the small scale typologies are mainly economic and entertainment oriented; museums, galleries, offices and retail that can entertain the local population as well as attract foreign investments.



The design needs to replace the economic activity that was lost along with the original industrial buildings. This said one can now make suggestions about how to approach the accommodation schedule.

1. There should be multiple functions that fit within the design.
2. The functions should be a part of and support the typology of an entertainment park; museums, galleries appropriate retail and select offices.
3. The scale of the site can allow for accommodation but it may not suit the narrative of the design; it should therefore not be a main concern. However the inclusion of the current 'others' may require some form of housing.
4. The selection and organisation of functions needs to be derived around the narrative structure; this may allow an easy way of including the 'other' places within the design.
5. A possible building typology that addresses the needs of the 'others' while also responding to the data from the questionnaires would be a form of rehab facility.
6. One of the main objectives when selecting functions is the rejuvenation of the site and its context; they should therefore promote economic progress as much as possible.
7. Phytoremediation and bioremediation is proposed and links to the use of natural systems; this said farming should be considered, it will also increase the economic success of the project and support the marginalised community while teaching sustainable skills to the community.
8. Both the history and existing buildings are important in the process of adaptive reuse; this also means that some functions should speak directly to the original purpose of the site. For example; if the building site was a copper refinery then there should be some function that deals in copper.

It should be made clear that even though these recommendations are not rules; they should be taken seriously when beginning the design process.

# References

---

## Books

Austin, R. L., 1988, 'Adaptive Reuse: Issues and Case Studies in Building Preservation', Van Nostrand Reinhold Company Inc., New York.

Calkins, M., 2012, 'The Sustainable Sites Handbook: A Complete Guide to the Principles', *Strategies and Practices for Sustainable Landscapes*, John Wiley & Sons Inc., Hoboken, New Jersey.

Clute, J. & Nicholis, P., 1993, *The Encyclopedia of Science Fiction*, Orbit Publishers, London.

Coates, N., 2012, 'Narrative Architecture', John Wiley & Sons Ltd., West Sussex, United Kingdom.

Doxiadis, Constantinos A., 1966, 'Between dystopia and utopia', Faber and Faber, London.

Keen, S., 2003, 'Narrative Form', Palgrave Macmillan, New York.

Law-Viljoen, B., 2006, 'Light on a Hill: Building the constitutional court of South Africa', David Krut Publishing, South Africa.

Lynch, K., 1960, 'The Image of the City', *The M.I.T Press*, London.

Norberg-Schultz, C., 1980, 'Genius Loci: Towards a Phenomenology of Architecture', Rizzoli Publishers, New York.

Porter, T., 2004, 'Archispeak: An illustrated guide to architectural terms', Spon Press, London.

Robinson, J., 2010, 'Living in Dystopia: Past, Present, and Future in Contemporary African Cities', in Prakash, G., 'Noir Urbanisms: Dystopic Images of the Modern City', pp. 219-240, Princeton University Press, New Jersey.

Schank R.C. & Berman T.R., 2002, 'The Pervasive Role of Stories in Knowledge and Action', in M.C. Green, J.J. Strange & T.C. Brock(eds.), 'Narrative Impact: Social and Cognitive Foundations', pp. 287-313, Lawrence Erlbaum Associates Inc., New Jersey USA.

Seed, D., 2011, 'Science Fiction: A Very Short Introduction', Oxford University Press, New York.

Weilacher, U., 2008, 'Syntax of Landscape: The Landscape Architecture of Peter Latz and Partners', Birkhauser Verlag AG, Germany.

## **Journals**

Alvern-Taplin, A., 2005, 'Constitutional Court, Johannesburg', Arup Journal, 2/2005, pp21-27.

Black, H., 1995, 'Absorption Possibilities: Phytoremediation, Environmental Health Perspectives', Vol. 103, No.12, pp1106-1108.

Davey, P., 2000, 'South bank show', The architectural review, number 1238, pp48-51.

Doron, G.M., 2007, '...badlands, blank space, border vacuums, brownfields...', field Vol.1, No. 1, October 2007, pp10-23.

Hiroshi Sambuichi, 2013, "Inujima Seirenscho Museum" Simulation model of air flow', Japan Architect, 91, pp46-47.

Larsin, J and Krietzler, M, J., 2005, 'Healing by Design: Healing Gardens and Therapeutic Landscapes', Implications, Volume 2, issue 10, pp1-6.

MacLeod, G. & Ward, K., 2002, 'Spaces of Utopia and Dystopia: Landscaping the Contemporary City', Geografiska Annaler. Series B, Human Geography Vol. 84, No. 3/4, pp153-170.

Mohr, D. M., 2007, 'Transgressive Utopian Dystopias: The Post Modern Reappearance of Utopia in the Disguise of Dystopia', ZAA, 55.1, pp5-24.

Sargent, L. T., 1994, 'Three Faces of Utopianism Revisited', Utopian Studies Vol. 5, No.1, pp1-36.

Stevenson, A., 2011, 'Concise Oxford English Dictionary', Oxford University Press.

Stillman, P. G., 2001, 'Dystopian Visions and Utopian Anticipations: Terry Bisson's "Pirates of the Universe" as a Critical Dystopia', Science Fiction Studies, Vol. 28, No. 3 [November 2001], pp365-382.

Wale, L., 1987, 'Durban's Victorian theme centre', Architect & Builder, March 1987, pp15-19.

## **Thesis**

Daniel, I.J., 1975, 'Conversion of existing Durban railway station to a conference and exhibition centre', BArchs degree, Dept. of Architecture, University of Natal.

Molade, J., 2008, 'Building Bridges between Brave New Worlds: A Study of Margaret Antwood's *Oryx and Cake*', thesis, Dept. of Culture and Identity, Roskilde University

## **Web**

Adaptive reuse, n.d., 'Inujima art project', viewed 3 April 2014, from <http://adaptivereuse.info/portfolio/inujima-art-project/>.

Archspace, 2013, 'Inujima Seirenscho Art Museum', viewed 3 April 2014, from <http://www.arcspace.com/features/sambuichi-architects/inujima-seirenscho-art-museum/>.

Arup, n.d., 'Inujima Seirenscho Art Museum', viewed 3 April 2014, from [http://www.arup.com/Projects/Inujima\\_Art\\_Project-Seirenscho.aspx](http://www.arup.com/Projects/Inujima_Art_Project-Seirenscho.aspx).

Brown, K. D., 2012, 'Cultural Practices: Narratives. The architecture of Dystopia: Project for a Revolution', viewed 12 April 2013, from <https://www.victoria.ac.nz/architecture/pdf/Daniel-Brown-Research-Topic-Dystopia.pdf>.

<http://dictionary.reference.com>.

Public Space, 2000, 'Landschaftspark Duisburg-Nord', viewed 25 March 2014, from <http://www.publicspace.org/en/print-works/a008-landschaftspark-duisburg-nord>.

Yanagi Studio, 2008, 'SEIRENSHO 'Hero Dry Cell'', viewed 4 April 2014, from [http://www.yanagistudio.net/exhibition/photo\\_seirenscho\\_eng.html](http://www.yanagistudio.net/exhibition/photo_seirenscho_eng.html).

Wikipedia, 2013, 'Mining industry of South Africa', viewed 12 July 2013, from [http://en.wikipedia.org/wiki/Mining\\_industry\\_of\\_South\\_Africa](http://en.wikipedia.org/wiki/Mining_industry_of_South_Africa).

Wikipedia, 2013, 'Science Fiction', viewed 16 March 2014, from [http://scifi.wikia.com/wiki/Science\\_fiction](http://scifi.wikia.com/wiki/Science_fiction).

Wikipedia, 2014, 'Urban Planning', viewed 16 March 2014, from [http://en.wikipedia.org/wiki/Urban\\_planning](http://en.wikipedia.org/wiki/Urban_planning).

# Appendices

---

## Appendix A:

### Contents

1. A sample questionnaire that has been edited to show the expected results and with additional comments by the author.
2. Sample questionnaires from the various sample groups: 3 from the Office group, 3 from the DUT group and 4 from the DUT architecture group [in that order].



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

## QUESTIONNAIRE

## EXPECTATIONS AND COMMENTS

Please try to answer the following questions honestly and to the best of your ability. Please note that this is not a test and there is no right or wrong answer as the questions are asking for your personal opinion. Please note that if you do not feel comfortable answering any question you can skip it. This is an anonymous survey so please do not put your name on this document.

### Question 1

Area information will allow a geographic analysis of the quantitative data.

What area do you live in? [Upper Glenwood, Umbilo, Pinetown etc.]

---

---

### Question 2

Are there any bad places in the area where you live; places that you think are unsafe, scary or unhealthy?

[YES]

[NO]

Both YES and NO answers should be chosen throughout the sample group, this will show that there are dystopias scattered around the Durban area.

If you chose YES could you please describe one of the places in as few words as possible?

---

---

By combining this data with Q1 one will be able to get an idea of where dystopias are more prevalent, this can be compared to other maps.



---

---

**If you answered NO in Question 2 please skip to Question 7**

**Question 3**

Is there more than one bad place in your area?

**[YES]**

**[NO]**

A higher percentage of YES answers would suggest that there is a higher amount of dystopias in an area.

**Question 4**

What, in your opinion, makes the place bad?

This will give qualitative data that will be able to be compared to the literature on dystopian architecture and dystopian places.

**Question 5**

Did the bad place used to be better or possibly even a good or fun place in the past?

**[YES]**

**[NO]**

This question will test the concept of urban decay in the various areas; there will be large amounts of error here due to whether the participant has lived in the area for a long time or not.

**Question 6**

If you could do anything to the bad place what would you do?

This question is to test the participant's understanding of rejuvenation and development. Their answers will not reflect the professional and theoretical opinion and could therefore be of use to compare to the literature researched.

### Question 7

Would you say this is a bad place?



It is expected that the majority will choose YES, this is a control to establish the notion of 'bad place' and dystopia.

[YES]

[NO]

### Question 8

Would you say this is a bad place?



It is expected that the majority will choose NO, yet another control but it is also expected that the architectural group may reflect some YES choices.

The yeses would be comparable with the criticism of gated communities and utopia.

[YES]

[NO]

### Question 9

Which place is better?

It is expected that the majority will choose B due to the presence of life. All three images are of the same place but from different perspectives; this is to show that the use of plants can improve the image of a place.



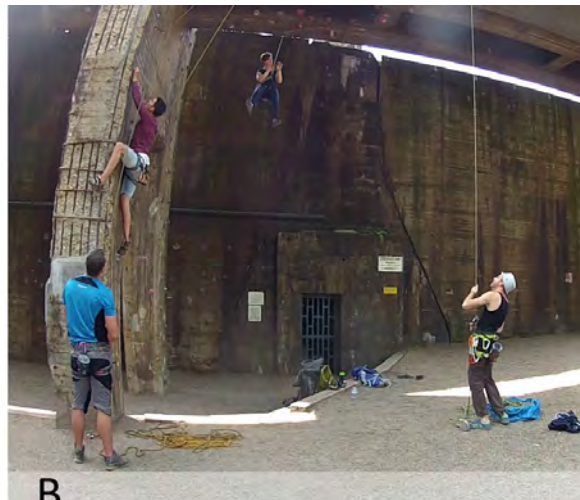
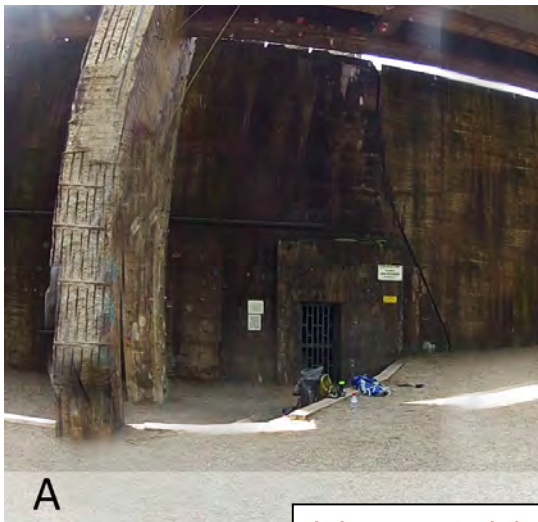
[A]

[B]

[C]

### Question 10

Which of the two images are more appealing?



It is expected that the majority will choose B due to the change in function and the presence of human activity. This will motivate towards adaptive reuse.

[A]

### Question 11

Do you consider industrial areas, mines and factories to be bad places?

[YES]

[NO]

It is assumed that it will be majority YES; showing the link between industrial structures and dystopias.

### Question 12

Would you say that the mine environment in picture B is similar to the environment shown in picture A?



It is the author's opinion that the images are similar and therefore a majority YES is expected. This further links industrial sites to dystopia.

A



[YES]

This question now tries to highlight the link between Fiction, dystopia and industrial sites. It also is asked to support Q12 as participants may answer No in Q12 because of differences in medium and forms used.

### Question 13

Both picture A and B in Question 12 look like something out of a Science Fiction movie or book.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] [Agree] [Strongly Agree]



#### Question 14

A person can learn a lot from a fictional [not true] story, so much so that he/ she might change their behaviour based on the story's lessons.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] [Agree]

It is expected to be mostly positive, this would then support the literature on learning through narrative and the importance of narrative.

#### Question 15

Do you think it is important for buildings and places to tell some sort of a story?

[YES]

[NO]

If you answered YES, state why they should tell a story in as few words as possible.


The final question is very open ended [qualitative] and is aimed more towards the architectural group. It is expected to be answered mostly YES and will help justify the importance of narrative architecture in the built environment.

**When completed, please return this questionnaire to the researcher/lecturer who gave it to you.**

**Thank you very much for your time and co-operation.**



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

## QUESTIONNAIRE

Please try to answer the following questions honestly and to the best of your ability. Please note that this is not a test and there is no right or wrong answer as the questions are asking for your personal opinion. Please note that if you do not feel comfortable answering any question you can skip it. This is an anonymous survey so please do not put your name on this document.

### Question 1

What area do you live in? [Upper Glenwood, Umbilo, Pinetown etc.]

Westville

### Question 2

Are there any bad places in the area where you live; places that you think are unsafe, scary or unhealthy?

[YES]

~~NO~~

If you chose YES could you please describe one of the places in as few words as possible?

---

---

**If you answered NO in Question 2 please skip to Question 7**

**Question 3**

Is there more than one bad place in your area?

**[YES]**

**[NO]**

**Question 4**

What, in your opinion, makes the place bad?

---

---

---

---

---

---

**Question 5**

Did the bad place used to be better or possibly even a good or fun place in the past?

**[YES]**

**[NO]**

**Question 6**

If you could do anything to the bad place what would you do?

---

---

---

---

---

**Question 7**

Would you say this is a bad place?



☒ [YES]

[NO]

**Question 8**

Would you say this is a bad place?



[YES]

☒ [NO]



### Question 9

Which place is better?



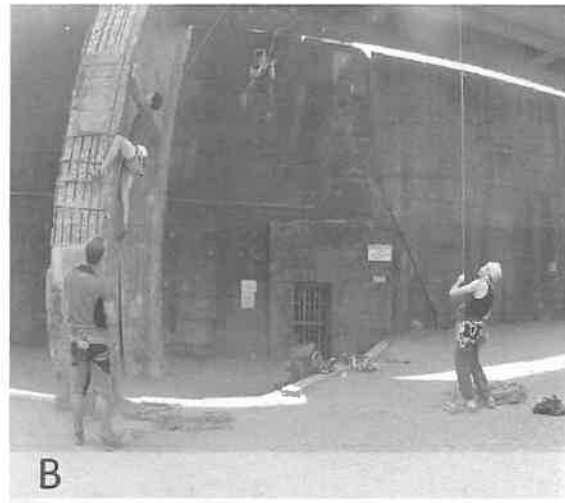
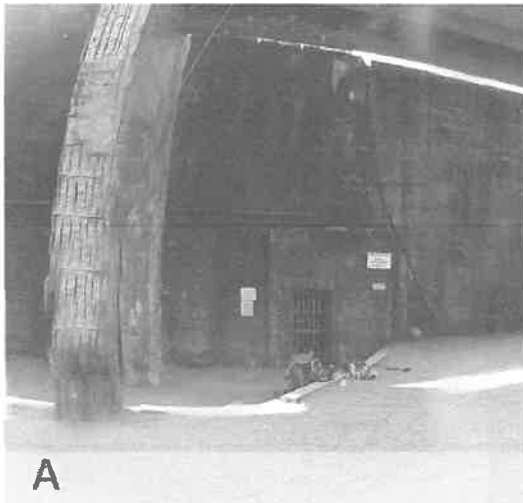
[A]

☒ [B]

[C]

### Question 10

Which of the two images are more appealing?



[A]

☒ [B]

**Question 11**

Do you consider industrial areas, mines and factories to be bad places?

[YES]

~~[NO]~~

**Question 12**

Would you say that the mine environment in picture B is similar to the environment shown in picture A?



A



B

~~[YES]~~

[NO]

**Question 13**

Both picture A and B in Question 11 look like something out of a Science Fiction movie or book.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] ~~[Agree]~~ [Strongly Agree]

#### Question 14

A person can learn a lot from a fictional [not true] story, so much so that he/ she might change their behaviour based on the story's lessons.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] [Agree] [~~Strongly Agree~~]

#### Question 15

Do you think it is important for buildings and places to tell some sort of a story?

[~~YES~~]

[NO]

If you answered YES, state why they should tell a story in as few words as possible.

It is important <sup>in</sup> that there is a sense of belonging and history. People identify with certain areas and feel like a part of the community.

When completed, please return this questionnaire to the researcher/lecturer who gave it to you.

Thank you very much for your time and co-operation.



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

## QUESTIONNAIRE

Please try to answer the following questions honestly and to the best of your ability. Please note that this is not a test and there is no right or wrong answer as the questions are asking for your personal opinion. Please note that if you do not feel comfortable answering any question you can skip it. This is an anonymous survey so please do not put your name on this document.

### Question 1

What area do you live in? [Upper Glenwood, Umbilo, Pinetown etc.]

MORNINGSIDE

### Question 2

Are there any bad places in the area where you live; places that you think are unsafe, scary or unhealthy?

☒ [YES]

☐ [NO]

If you chose YES could you please describe one of the places in as few words as possible?

RAPSON ROAD, UMGENI ROAD, GOBLE ROAD, STAMFORDHILL ROAD

---

---

If you answered NO in Question 2 please skip to Question 7

**Question 3**

Is there more than one bad place in your area?

☒ [YES]

☐ [NO]

**Question 4**

What, in your opinion, makes the place bad?

ROBBERIES, SHOOTINGS

---

---

---

---

---

**Question 5**

Did the bad place used to be better or possibly even a good or fun place in the past?

☒ [YES]

☐ [NO]

**Question 6**

If you could do anything to the bad place what would you do?

MORE VISUAL SECURITY

---

---

---

---

---

**Question 7**

Would you say this is a bad place?



[YES]

[NO]

**Question 8**

Would you say this is a bad place?



[YES]

[NO]

**Question 9**

Which place is better?



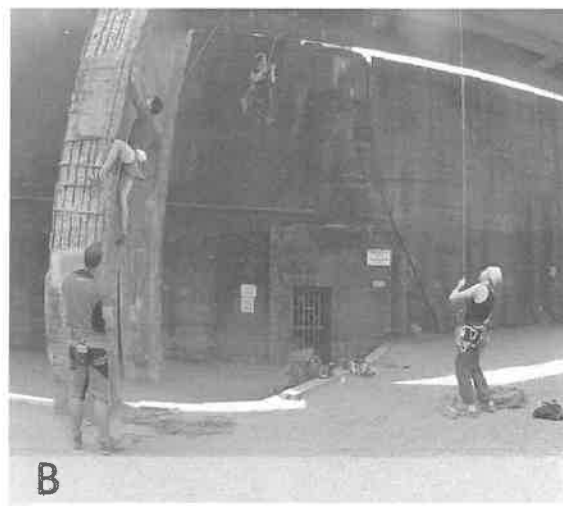
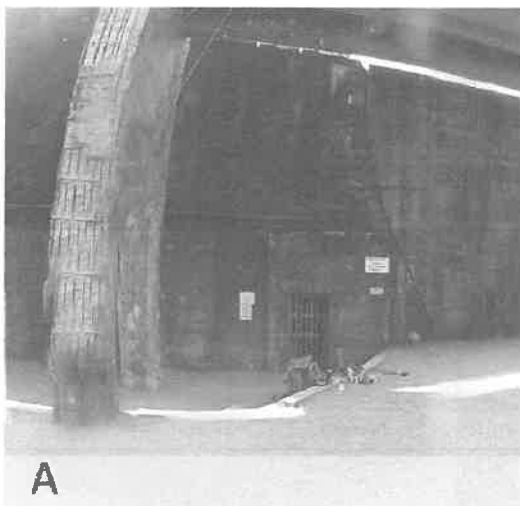
[A]

[B]

[C]

**Question 10**

Which of the two images are more appealing?



[A]

[B]

### Question 11

Do you consider industrial areas, mines and factories to be bad places?

[YES]

[NO]

### Question 12

Would you say that the mine environment in picture B is similar to the environment shown in picture A?



[YES]

[NO]

### Question 13

Both picture A and B in Question 11 look like something out of a Science Fiction movie or book.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] [Agree] [Strongly Agree]



#### Question 14

A person can learn a lot from a fictional [not true] story, so much so that he/ she might change their behaviour based on the story's lessons.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] [Agree] [Strongly Agree]

#### Question 15

Do you think it is important for buildings and places to tell some sort of a story?

[YES]

[NO]

If you answered YES, state why they should tell a story in as few words as possible.

DERELICT BUILDINGS GIVE AN AREA ~~OF~~ A FEELING OF INSECURITY / UNEASINESS

---

---

---

---

**When completed, please return this questionnaire to the researcher/lecturer who gave it to you.**

**Thank you very much for your time and co-operation.**



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

## QUESTIONNAIRE

Please try to answer the following questions honestly and to the best of your ability. Please note that this is not a test and there is no right or wrong answer as the questions are asking for your personal opinion. Please note that if you do not feel comfortable answering any question you can skip it. This is an anonymous survey so please do not put your name on this document.

### Question 1

What area do you live in? [Upper Glenwood, Umbilo, Pinetown etc.]

Clermont

### Question 2

Are there any bad places in the area where you live; places that you think are unsafe, scary or unhealthy?

[YES] ✓

[NO]

If you chose YES could you please describe one of the places in as few words as possible?

A place called Sub5 is too dangerous have lot of mafias and gangsters, Sometime they point a gun on you

near the police station, they can rob you in the midday where lot of people are there watching

If you answered NO in Question 2 please skip to Question 7

### Question 3

Is there more than one bad place in your area?

[YES]

[NO] ✓

### Question 4

What, in your opinion, makes the place bad?

I think it because the place is more getto, and they sell drugs even for the young kids. Old people and parents are shouting at their kids when they are drunk, calling their kids with strong language. Some parents even ask their kids to still from their neighbours house. Young girls ended up being the prostitute, quitting school at the primary level.

### Question 5

Did the bad place used to be better or possibly even a good or fun place in the past?

[YES] ✓

[NO]

### Question 6

If you could do anything to the bad place what would you do?

I can close all the place that sell booze and arrest those people who sell drugs, Open different types of clubs the youth may involve in e.g soccer club, debate classes. Kids may avoid themselves in whoonga, crime and other bad things if I can open something that will motivate them.

**Question 7**

Would you say this is a bad place?



[YES] ✓

[NO]

**Question 8**

Would you say this is a bad place?



[YES]

[NO] ✓

### Question 9

Which place is better?



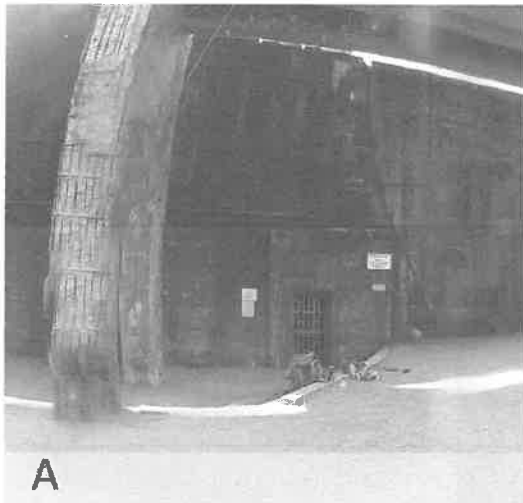
[A]

[B]

[C] ✓

### Question 10

Which of the two images are more appealing?



[A]

[B] ✓

### Question 11

Do you consider industrial areas, mines and factories to be bad places?

[YES]

[NO] ✓

### Question 12

Would you say that the mine environment in picture B is similar to the environment shown in picture A?



[YES]

[NO] ✓

### Question 13

Both picture A and B in Question 11 look like something out of a Science Fiction movie or book.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] ✓ [Neutral] [Agree] [Strongly Agree]

**Question 14**

A person can learn a lot from a fictional [not true] story, so much so that he/ she might change their behaviour based on the story's lessons.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] [Agree] [Strongly Agree]

**Question 15**

Do you think it is important for buildings and places to tell some sort of a story?

[YES] [NO]

If you answered YES, state why they should tell a story in as few words as possible.

building describe kind of place. what kind of people  
are living in this place, e.g. suburbs building and ghetto  
building are different and building explain the different  
life this place live

**When completed, please return this questionnaire to the researcher/lecturer who gave it to you.**

**Thank you very much for your time and co-operation.**



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

## QUESTIONNAIRE

Please try to answer the following questions honestly and to the best of your ability. Please note that this is not a test and there is no right or wrong answer as the questions are asking for your personal opinion. Please note that if you do not feel comfortable answering any question you can skip it. This is an anonymous survey so please do not put your name on this document.

### Question 1

What area do you live in? [Upper Glenwood, Umbilo, Pinetown etc.]

Umbilo

### Question 2

Are there any bad places in the area where you live; places that you think are unsafe, scary or unhealthy?

[~~YES~~]

[NO]

If you chose YES could you please describe one of the places in as few words as possible?

Dead old buildings, DARK places with no street lights and also a quite dark place



---

---

If you answered NO in Question 2 please skip to Question 7

**Question 3**

Is there more than one bad place in your area?

[YES]

[NO]

**Question 4**

What, in your opinion, makes the place bad?

Streets kids together with thieves are found there, where there are unfinished buildings or old buildings, ~~that~~ of more often in dark places where police are not likely to be for patrol. Near the tavern where all drunkards are likely to be found, different kinds of people act in a weird manner when they are drunk so also rapists are found there

**Question 5**

Did the bad place used to be better or possibly even a good or fun place in the past?

[YES]

[NO]

**Question 6**

If you could do anything to the bad place what would you do?

I would renovate those old, dark buildings and create an orphanage home where I would keep orphans and old people to be looked after, together with homeless people to decrease the number of walking up and down people day and night.

**Question 7**

Would you say this is a bad place?



☒ **YES**

☐ **NO**

**Question 8**

Would you say this is a bad place?



☐ **YES**

☒ **NO**

### Question 9

Which place is better?



A



B



C

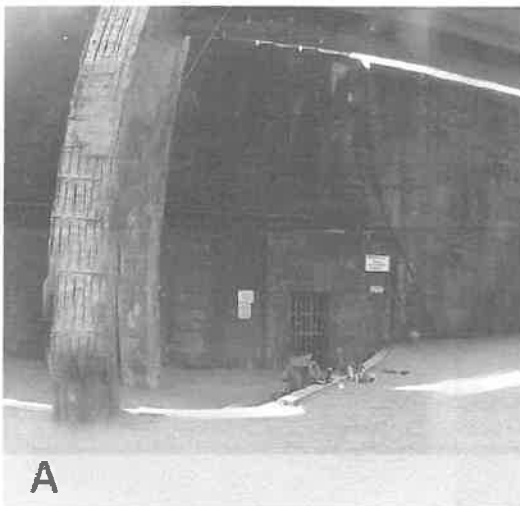
[A]

[B]

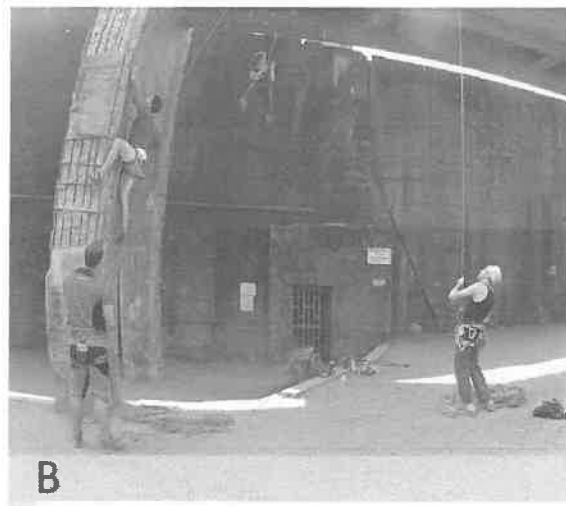


### Question 10

Which of the two images are more appealing?



A



B

[A]

[B]

### Question 11

Do you consider industrial areas, mines and factories to be bad places?

☒ [YES]

☐ [NO]

### Question 12

Would you say that the mine environment in picture B is similar to the environment shown in picture A?



☐ [YES]

☒ [NO]

### Question 13

Both picture A and B in Question 11 look like something out of a Science Fiction movie or book.

How much do you agree with this statement?

☐ [Strongly Disagree] ☐ [Disagree] ☒ [Neutral] ☐ [Agree] ☐ [Strongly Agree]

#### Question 14

A person can learn a lot from a fictional [not true] story, so much so that he/ she might change their behaviour based on the story's lessons.

How much do you agree with this statement?

[Strongly Disagree] [~~Disagree~~] [Neutral] [Agree] [Strongly Agree]

#### Question 15

Do you think it is important for buildings and places to tell some sort of a story?

[~~YES~~]

[NO]

If you answered YES, state why they should tell a story in as few words as possible.

So that people would know about the possibilities  
and impossibilities of ~~what~~ what might happen.

---

---

---

When completed, please return this questionnaire to the researcher/lecturer who gave it to you.

Thank you very much for your time and co-operation.



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

## QUESTIONNAIRE

Please try to answer the following questions honestly and to the best of your ability. Please note that this is not a test and there is no right or wrong answer as the questions are asking for your personal opinion. Please note that if you do not feel comfortable answering any question you can skip it. This is an anonymous survey so please do not put your name on this document.

### Question 1

What area do you live in? [Upper Glenwood, Umbilo, Pinetown etc.]

Berea

### Question 2

Are there any bad places in the area where you live; places that you think are unsafe, scary or unhealthy?

~~[YES]~~

[NO]

If you chose YES could you please describe one of the places in as few words as possible?

The place consists of crooks that may attempt to mug individuals and they are situated by the transport stop places (bus stops).

---

---

**If you answered NO in Question 2 please skip to Question 7**

**Question 3**

Is there more than one bad place in your area?

**[YES]**

**[NO]**

**Question 4**

What, in your opinion, makes the place bad?

The removal of the woonga individuals from the bridge near smith street to a more social area. Now there are a lot of crooks near to the residential areas and ranks which makes it uneasy for one to strole on a regular day.

**Question 5**

Did the bad place used to be better or possibly even a good or fun place in the past?

**[YES]**

**[NO]**

**Question 6**

If you could do anything to the bad place what would you do?

I would remove the woonga individuals from that area and use it in a more socially positive area for the community around the area.  
Promote social activity.

**Question 7**

Would you say this is a bad place?



☐ **[YES]**

☐ **[NO]**

**Question 8**

Would you say this is a bad place?



☐ **[YES]**

☐ **[NO]**



**Question 9**

Which place is better?



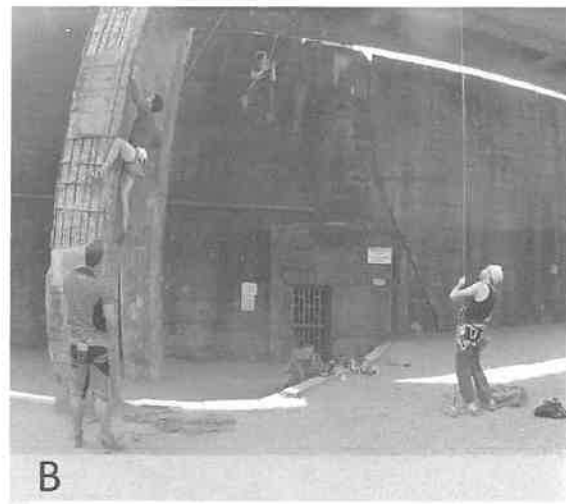
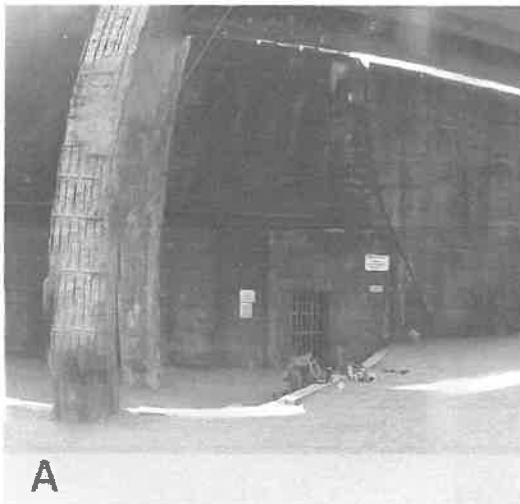
[A]

[B]

~~[C]~~

**Question 10**

Which of the two images are more appealing?



[A]

~~[B]~~

**Question 11**

Do you consider industrial areas, mines and factories to be bad places?

[YES]

~~[NO]~~

**Question 12**

Would you say that the mine environment in picture B is similar to the environment shown in picture A?



[YES]

~~[NO]~~

**Question 13**

Both picture A and B in Question 11 look like something out of a Science Fiction movie or book.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] ~~[Agree]~~ [Strongly Agree]

**Question 14**

A person can learn a lot from a fictional [not true] story, so much so that he/ she might change their behaviour based on the story's lessons.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] [~~Agree~~] [Strongly Agree]

**Question 15**

Do you think it is important for buildings and places to tell some sort of a story?

~~[YES]~~

[NO]

If you answered YES, state why they should tell a story in as few words as possible.

The buildings should tell a story of how they came about to be in a particular form based on its context. Therefore individuals that come into contact with those buildings could read what the structure has to offer.

**When completed, please return this questionnaire to the researcher/lecturer who gave it to you.**

**Thank you very much for your time and co-operation.**



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

## QUESTIONNAIRE

Please try to answer the following questions honestly and to the best of your ability. Please note that this is not a test and there is no right or wrong answer as the questions are asking for your personal opinion. Please note that if you do not feel comfortable answering any question you can skip it. This is an anonymous survey so please do not put your name on this document.

### Question 1

What area do you live in? [Upper Glenwood, Umbilo, Pinetown etc.]

BEREA

### Question 2

Are there any bad places in the area where you live; places that you think are unsafe, scary or unhealthy?

[YES]

[NO]

If you chose YES could you please describe one of the places in as few words as possible?

Taxi RANK - DIRTY, draws-in 'Woonga boys' or thieves,  
congested.

---

---

If you answered NO in Question 2 please skip to Question 7

**Question 3**

Is there more than one bad place in your area?

~~[YES]~~

[NO]

**Question 4**

What, in your opinion, makes the place bad?

DIRT ; Too congested and vacant (moderate density is good); Buildings not taken care of.

---

---

---

**Question 5**

Did the bad place used to be better or possibly even a good or fun place in the past?

[YES]

~~[NO]~~

**Question 6**

If you could do anything to the bad place what would you do?

Clean it, Paint buildings and Introduce security

---

---

---

**Question 7**

Would you say this is a bad place?



☒ [YES]

☐ [NO]

**Question 8**

Would you say this is a bad place?



☐ [YES]

☒ [NO]

### Question 9

Which place is better? *(If there was a person in one of them, would have been better, but for me neither are better place than the other.)*



A



B



C

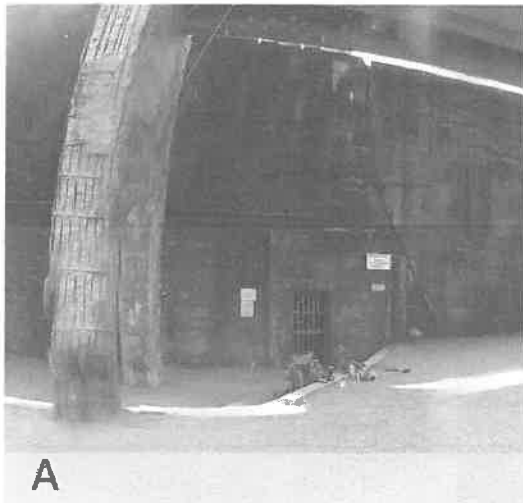
[A]

[B]

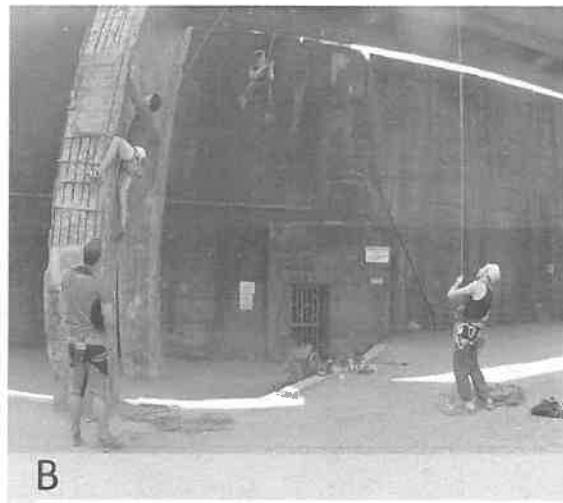
[C]

### Question 10

Which of the two images are more appealing?



A



B

[A]

☒ [B]

### Question 11

Do you consider industrial areas, mines and factories to be bad places?

~~[YES]~~

[NO]

### Question 12

Would you say that the mine environment in picture B is similar to the environment shown in picture A?



[YES]

~~[NO]~~

### Question 13

Both picture A and B in Question 11 look like something out of a Science Fiction movie or book.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] ~~[Agree]~~ [Strongly Agree]



#### Question 14

A person can learn a lot from a fictional [not true] story, so much so that he/ she might change their behaviour based on the story's lessons.

How much do you agree with this statement?

[Strongly Disagree] [Disagree] [Neutral] [Agree] [~~Strongly Agree~~]

#### Question 15

Do you think it is important for buildings and places to tell some sort of a story?

[~~YES~~]

[NO]

If you answered YES, state why they should tell a story in as few words as possible.

For experience purposes and the fact that we need to differentiate between a Hospital and a shopping centre, so yes! typology of a building is very important.

**When completed, please return this questionnaire to the researcher/lecturer who gave it to you.**

**Thank you very much for your time and co-operation.**

## **Appendix B:**

### **Contents**

1. 'Anatomy of Brownfields Redevelopment' by US EPA.
2. 'Introduction to Green Remediation' by US EPA
3. 'Bioremediation' by US EPA

# Anatomy of Brownfields Redevelopment



## Brownfields Solutions Series



A *brownfield* is a property on which expansion, redevelopment, or reuse may be complicated by the presence, or perceived presence, of contamination. EPA's Brownfields Program provides grants to fund environmental assessment, cleanup, and job training activities. Additionally, EPA seeks to strengthen the marketplace and encourages stakeholders to leverage the resources needed to clean up and redevelop brownfields.

This *Brownfields Solutions Series* fact sheet is intended to provide an overview of the brownfields redevelopment process. The brownfields real estate redevelopment process, along with key challenges, critical participants, and example redevelopment scenarios are discussed. Key real estate terms are highlighted in bold text. These terms are explained on page 7. The information in this fact sheet is based on stakeholders' experiences in the brownfields cleanup and redevelopment process and does not represent the views of EPA.

## Key Challenges in Brownfields Redevelopment

Several challenges make brownfields cleanup and redevelopment unique compared to other real estate development projects. These challenges include:

- **Environmental Liability**  
**Concerns:** Developers and property owners want to manage past and future liabilities associated with the property's environmental history.
- **Financial Barriers:** Private lenders are often reluctant to give loans for potentially impaired lands. In some cases, cleanup costs for a property may ultimately be more than the property's value.

- **Cleanup Considerations:**  
A brownfields redevelopment timeline may take longer than typical real estate development due to environmental assessment and cleanup activities.
- **Reuse Planning:** A reuse plan based on community goals or sound economic and environmental information (e.g., market potential) may be lacking.

In spite of these challenges, significant opportunities exist for successful brownfields redevelopment. A redevelopment idea that works to bring new life to an area, enhanced by public support for the project, can create the momentum necessary to overcome the challenges associated with brownfields transactions.

## Critical Participants in a Brownfields Transaction and Redevelopment Effort

Property owners, public- and private-sector stakeholders, and other parties (e.g., attorneys, regulators) have roles and interests in brownfields cleanup and redevelopment efforts. There is no specific point in the brownfields project that these participants must be identified and involved, but the more participants involved in the upfront planning, the smoother the project planning process. Included on the following page is a table that summarizes the roles each participant plays in a brownfields transaction and their interest in a successful transaction.

# The Real Estate Development Process

Brownfields redevelopment often relies on strong coordination among stakeholders including local communities; local, state, and federal governments; private parties; and nonprofit organizations. Successful development of brownfields can be enabled or accelerated when these stakeholders work together to assess and clean up the property and pursue a common redevelopment goal.

## Roles and Interests of Participants

Participants	Examples	Role	Interest
Property Owner		Sell or develop the property	<ul style="list-style-type: none"> <li>Want to receive a fair value of their property depending on the extent of environmental contamination</li> <li>Want to manage any liability concerns upfront</li> </ul>
Public-Sector Stakeholders	<ul style="list-style-type: none"> <li>Local Governments</li> <li>Community Groups</li> <li>EPA Grant Recipients</li> <li>Nonprofit Organizations</li> </ul>	Redevelop the property from a community and economic development perspective	<ul style="list-style-type: none"> <li>Want to see the project succeed in terms of revitalizing blighted properties and generating economic or community growth</li> <li>May want the successful property assessment, cleanup, and reuse to enhance the community's image</li> </ul>
Private-Sector Stakeholders	<ul style="list-style-type: none"> <li>Investors</li> <li>Lenders</li> <li>Developers</li> <li>Insurers</li> </ul>	Provide resources to develop the property	<ul style="list-style-type: none"> <li>Want to see the project succeed in terms of revitalizing blighted properties and generating economic or community growth</li> <li>Want to earn an appropriate return on investment</li> <li>May want to tie the property redevelopment into a larger redevelopment plan for the neighborhood or community</li> </ul>
Other Parties	<ul style="list-style-type: none"> <li>Attorneys</li> <li>Environmental Consultants</li> <li>State and Federal Regulators</li> </ul>	Provide technical, regulatory, or other guidance	<ul style="list-style-type: none"> <li>Want to ensure that the property is cleaned up and safe for appropriate levels of use and/or reuse</li> <li>Want to alleviate future environmental concerns on the property</li> </ul>

## Typical Steps in the Redevelopment Process



The redevelopment process generally follows four steps: 1) Pre-development; 2) Securing the Deal; 3) Cleanup and Development; and 4) Property Management. Within each of these steps, there are multiple activities that may occur, and the order of these activities may vary. As brownfields redevelopment projects vary greatly in their complexities and scope, a greater emphasis will be placed on different parts of the process depending on which type of redevelopment scenario occurs. Brownfields redevelopment typically follows one of three scenarios: private-led, public-private partnership, or public-led. These three scenarios are discussed on page 5.

## Pre-Development

**Pre-Development** activities lay the foundation for a successful brownfields redevelopment project by identifying and refining the redevelopment idea; conducting due diligence to assess the extent of contamination at the property; identifying potential funding sources; and resolving numerous other issues related to the property's redevelopment. The pre-development activities are an iterative rather than a linear process.



## Identify and Refine a Redevelopment Idea

To begin the pre-development process, a developer may reexamine a development idea several times before the project makes sense, from both a financial and environmental standpoint. In a private-led redevelopment scenario, the developer typically generates and refines the redevelopment idea, while in the public-led redevelopment scenario, the community input drives the redevelopment idea. In identifying a redevelopment idea, one of the first steps in the brownfields redevelopment process is to identify and assess potential reuses for the property. Early determination of the property's reuse will ensure that cleanup

efforts complement the reuse goal and that stakeholders are invested in the redevelopment process. All critical stakeholders should be assembled to facilitate communication and elicit support for the project. Input gathered through stakeholder meetings can be used to conduct a reuse planning effort to evaluate historic use patterns; examine existing planning and zoning; and refine potential redevelopment ideas.

**Conduct Due Diligence.** Due diligence involves a variety of activities in advance of purchasing a property as well as activities specific to the environmental components of the redevelopment. These activities typically include conducting property and environmental assessments, researching land and building titles for the property, and continuing communications with key stakeholders about the planned redevelopment. When reviewing property reuse assessments, the assessments typically consider the **highest and best use** of a property, environmental factors, available financial tools, and local stakeholder concerns. The highest and best use from a developer's perspective may vary from what the community considers the best use of the property. Potential contamination on the property may present obstacles to the developer's highest and best use for the property. The project developer or EPA grant recipient may also prepare a **market analysis** or feasibility study to evaluate local and regional economic and real estate conditions and characterize the market demand for various **real estate products**. During the due diligence process, a project developer will also likely conduct a **pro forma** analysis to determine the economic viability of the development.

Identifying the presence and extent of contamination is essential to evaluating risk, limiting liability, and determining an appropriate reuse. If not already done, a **Phase I environmental**

**assessment** should be performed to identify the presence, type, and extent of contamination that may exist onsite. If required, a Phase II assessment may be conducted to sample or test for specific hazards that may have been identified in Phase I and to help develop a **remedial action plan**.

**Secure Access to the Property.** Access to the property must be secured from the property owner before beginning assessment activities. A plan for obtaining property control or property ownership should be identified if the property owner is not an active participant in the redevelopment process.

**Identify Sources of Financing.** A combination of private- and public-sector funding may be used to finance assessment, remediation, purchase, and redevelopment activities. These funding sources may include: local, state, and federal government programs that offer **tax credits, tax abatements, TIF districts**, grants, subsidies, bonds, or loans; property owners; developers; investors; and nonprofit organizations. Municipal economic development agencies and/or state brownfields programs are likely sources of information for brownfields redevelopment financing.

## Securing the Deal

**Securing the Deal** can begin once the pre-development step has yielded a decision to purchase the property and continue with the project. In order to secure the deal, contract terms must be negotiated, financing secured, and a decision must be made on how to manage the environmental liability. Once all of these steps are satisfied, a formal commitment is made to move forward.



**Contract Negotiation.** A brownfields project may have complications that must be resolved between the buyer and seller that stem from environmental concerns. During the contract negotiation, a term sheet is often used to sort out what responsibilities the buyer and seller will each take in the property transfer. For example, if the property has existing buildings that will be reused, this may include normal property and building costs like repairing roofs or HVAC systems. Negotiations also include determining where the responsibility for remediation lies and who will manage the liability once the redevelopment is completed. Other issues requiring negotiation include establishing liability for various aspects of the cleanup including on-site vs. off-site concerns and agreeing on long-term responsibility for the maintenance of the remediation and institutional controls, if applicable.

**Secure Financing.** One of the developer's roles is to provide financing to develop the property. To ensure that cleanup and redevelopment are not hindered by a lack of funding, all public and private funding sources (e.g., grants, loans) identified in the pre-development step should be secured. If necessary, a nonprofit, trust, or other fund may be established to receive and distribute this funding. In many instances, **debt financing** is utilized, where loans are secured through a financial institution for the redevelopment. Private investors may also back developers through **equity financing**. Public financing may be utilized for many components of the redevelopment, including building demolition, infrastructure development, and cleanup activities.

**Establish A Remedial Action Plan.** In brownfields redevelopment, it is difficult for a property to transfer owners if the remediation costs are not quantified. Therefore in most situations a property is completely characterized and a remedial action plan is put in



place. This process can either be done by the buyer or the seller.

**Securing the Property and Formal Commitment.** If the property is not owned by the entity performing cleanup and redevelopment, it may be obtained through a purchase or sale agreement, or involuntary acquisition methods such as foreclosure. During the formal commitment, contracts and documents are signed and exchanged. Once obtained, any zoning changes or variances that may be required for the planned reuse should be pursued (e.g., changing the property's zoning from industrial to commercial).

## Cleanup and Development

### Cleanup and Development

occurs once the planning processes have been completed. This step encompasses receiving construction approvals; conducting cleanup and construction; integrating cleanup and construction activities; and completing the redevelopment signified by the property's sale or lease, including securing tenants.

**Approvals.** Prior to construction, all land use and construction approvals are necessary. In order to receive approvals, specifications of the buildings and site plans have been approved and permits have been secured.

**Cleanup.** Property cleanup is conducted based on the remedial action plan. Depending on the type, quantity, and toxicity of contamination found onsite, cleanup activities may include soil, surface water, or ground water remediation. If an entity that did not contribute to the contamination is

performing the remediation, it may do so through a state voluntary cleanup program, which may limit liability associated with any residual or newly-discovered contamination after cleanup. A cleanup may be considered complete when local, state, or federal regulatory closure (e.g., a No Further Action Letter) is issued.

**Integrate Cleanup and Construction.** Based on assessment activities, planned cleanup actions, and stakeholder input, developers are typically able to integrate cleanup and construction activities. Engineers for cleanup and construction activities have developed detailed plans for streamlining the process and ensuring all issues are resolved so that the redevelopment process runs smoothly. This portion of the redevelopment process is extremely time-sensitive as construction delays may cause overall increases in redevelopment costs.

**Property Sale or Lease.** Leasing begins when the construction schedule is determined. After construction is complete, the property may or may not be sold. A commercial property may be sold or leased for long-term management. However, in most cases the property is leased first.

**Completion and Formal Opening.** A brownfields project may be considered successfully redeveloped after construction is complete, ownership and leasing transactions are finalized, and the property is occupied and operating as its planned reuse. If the property is a large-scale redevelopment, the formal opening may be signified by an event in which brokers, neighbors, and elected officials are invited to view the completed property and celebrate the completion of the construction phase of the project.

## Property Management

**Property Management** of a brownfield may continue after redevelopment is considered complete.

Management involves a number of tasks to ensure the long-term sustainable reuse of the property. This includes managing the financial aspects, physical plant, community relations, and any long-term environmental issues associated with the property.

### Long-term Operations and Maintenance of Remedial Systems.

Some remedial methods, such as ground water pump and treat systems, require long-term operation and maintenance. In these instances, the property owner may be responsible for submitting monitoring reports to the agency with regulatory oversight on a periodic schedule. In addition, many brownfield properties incorporate engineering and **institutional controls** in their remedial plans to restrict property access or use. Engineering controls such as asphalt caps and fencing should be inspected on a regular basis to ensure they remain protective of human health and the environment. Institutional controls often take the form of deed restrictions or easements; property owners must maintain awareness of these restrictions and ensure they transfer to the new owner if the property is sold.



Property Management



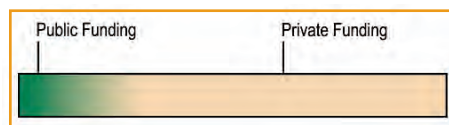
Cleanup and Development

# Redevelopment Scenarios

Brownfields redevelopment often involves many participants, including public- and private-sector partners. For brownfields projects that utilize EPA Brownfield grants, the levels and combinations of public/private funding vary from project to project. The public and private stakeholders involved, and necessary steps, can vary widely among brownfields projects.

The following redevelopment scenarios represent three common examples of brownfield transactions: private, public-private, and public.

## Private Redevelopment



In a typical, privately driven redevelopment scenario, a developer takes responsibility for the entire redevelopment process but may require some limited public investment to first define the extent of contamination onsite. The first step is for the developer to take title of the land via purchase or conveyance, and plan for the property's reuse. Given the developer's financial resources, private financing will need to be identified either through debt or equity. Public funding, such as an EPA Brownfields Assessment grant might be used to identify and quantify the property's contamination and define the environmental cleanup required. The developer completes all environmental cleanup activities, meeting the state's voluntary cleanup program requirements and other applicable federal or state regulations. Once cleanup is considered complete by the appropriate regulatory authority, the property may be redeveloped.

## Public-Private Redevelopment



A public-private partnership is an agreement between at least one public-sector entity and one private-sector organization to combine resources and efforts to accomplish a common goal. The level of participation can vary from all public to nearly all private. In typical public-private partnerships associated with brownfields restoration, the public entity usually sponsors the project and provides some initial funding, often for assessments that remove contamination uncertainties and for infrastructure to support development; a private-sector developer then funds and manages the pre-development and construction process.

The composition of the public-private partnership is unique for each brownfields project. Public-private partnerships are often successful because initial public investments provide the necessary incentives for private-sector development and operation. These collaborations reduce the financial burden on the public sector while accelerating property cleanup, redevelopment, and community revitalization.

## Private-led Redevelopment: Emeryville, California

Located between Oakland and Berkeley, California, the City of Emeryville saw most of its supporting industry abandon the area during the 1970s. By the mid-1990s, more than 230 acres within Emeryville were underused or altogether vacant, with more than 90 percent of this idle land known to have soil and ground water contamination. To aid in the city's assessment, cleanup, and redevelopment efforts for these tainted properties, EPA awarded Emeryville a \$200,000 Brownfields Assessment grant in March 1996. EPA and the city worked together to target ten area brownfields deemed ripe for redevelopment. In addition to performing assessments, Emeryville used EPA grant funds to develop a database on the areas brownfields—a "One Stop Shop" for potential investors and developers to learn about assessment results, land use and zoning issues, property ownership status, and other essential facts about city properties targeted for reuse. On one of Emeryville's brownfields, a private corporation purchased the property and constructed 200 units of mixed-income housing. Another brownfield was purchased by one of the country's largest biotechnology firms for its new headquarters—with planned construction of 12 buildings totaling more than two million square feet. Since EPA's Brownfields grant, the City of Emeryville has leveraged more than \$640 million in cleanup and redevelopment funding from the private sector, for projects ultimately expected to provide more than 10,000 new jobs and produce four million square feet of new office, commercial, and residential space.



## Public-led Redevelopment



For some brownfields, a public sector-led development process may return the property to productive use. In a typical public redevelopment scenario, a municipality takes responsibility for the entire assessment and cleanup process. The municipality may then “flip” the

property to a developer, or redevelop the property itself for public use.

In such scenarios, the municipality typically takes ownership of the property by foreclosure, eminent domain, or voluntary purchase. The municipality then conducts environmental assessment and cleanup activities, which may be funded using EPA Brownfields Assessment or Cleanup grants, state grant programs, or local funding. Once remediated,

the property may be transferred to the local economic development authority to prepare the property for construction. The property might be sold to a developer at this stage, or the municipality might construct speculative buildings that could later be leased or included in the property’s sale. A municipality may also elect to maintain a property after cleanup is complete, using the property for a public need such as a park, school, or other municipal building.

## Public-Private Redevelopment: St. Louis Park, Minnesota

In St. Louis Park, Minnesota, the vacant, 5.8-acre property of a former lithium processing facility had long meant trouble for the nearby community. Located near a public park and an elementary school, the property attracted vagrants and drug activity, and had been the subject of 45 police calls within five years. When a private developer purchased the property, initial assessments revealed lithium-impacted soils to a depth of 16 feet, as well as petroleum, lead, and barium contamination. An EPA Brownfields Cleanup Revolving Loan Fund awarded to Hennepin County, Minnesota, and a partnership between Hennepin County and the Minnesota Department of Employment and Economic Development (DEED) helped to cover the critical financing required for this \$2.3 million cleanup effort. In return, the developer financed a \$4.6 million redevelopment effort that transformed the property into a 79,000 square foot, multi-tenant modern office building less than a year after cleanup began. In preparing the property for redevelopment, more than 20 thousand pounds of pure lithium and other contaminants were removed from the property’s soil and ground water. Assessed value of the property went from \$1.7 million to \$5.2 million, and the property’s tax revenues for the city increased by 350 percent. Before redevelopment was even complete, nearly 80 percent of the office facility had been leased by a promotional manufacturing and distribution firm that brought 100 jobs to the community. The private developer received the Twin Cities Business Journal’s “Best in Real Estate Award” in the Redevelopment Category for 2003, and the National Association of Industrial and Office Professionals’ “Award of Excellence” in the Multi-Tenant Industrial Building category in 2005.



## Public-led Redevelopment: Prineville City Hall and Community Plaza, Prineville, Oregon

The City of Prineville, Oregon, faced a need for space to accommodate services including administration, planning and community development, police and emergency dispatch, and child/family assistance. A .25-acre, former gas station property was identified as a potential property for these uses. The gas station had operated from 1940 until 1997, and an environmental assessment revealed severe petroleum contamination. A \$200,000 EPA Brownfields Petroleum Cleanup grant awarded to the city in 2003 was used to address the property’s soil and ground water petroleum contamination and minimize the migration of vapors. In order to complete this project, the city contributed its own funding, and leveraged funding from sources including Crook County, an Oregon Housing and Community Services Department Community INVESTMENT grant, an Oregon Economic Community Development Department Flood Recovery and Restoration grant (for park development), a U.S. Department of Agriculture Forest Service Community Assistance Planning grant (for design costs), an Oregon Department of Transportation Local Street Network grant (for road updates), and a U.S. Department of Agriculture Rural Development loan (for construction). Cleanup was completed in June 2004, and Prineville’s new City Hall and Community Plaza opened in July 2005.





## Key Terms and Resources

---

Included below are definitions of important terms that may be used in brownfields redevelopment projects.

- **Debt Financing:** Project financing that comes from obtaining loans and/or issuing bonds.
- **Due Diligence:** Refers to the research or analysis that takes place in advance of purchasing a property.
- **Equity Financing:** Project financing that comes primarily from private investors investing in a project in exchange for an ownership stake.
- **Highest and Best Use:** The redevelopment use of the property that will result in the maximum market value for the property.
- **Institutional Controls:** Actions, such as legal controls, which help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use.
- **Market Analysis:** Investigating and reviewing local and regional real estate market conditions, economic conditions, and supply and demand data for a potential redevelopment.
- **Phase I Assessment:** Investigation performed by an environmental professional that typically involves property surveys, interviews with owners and local government, and reviews of historical records to determine the potential for contamination on the property.
- **Pro Forma:** A modeling of the projected cash flows of a potential redevelopment.
- **Real Estate Products:** The various types of real estate developments for different market segments (e.g., residential, commercial, industrial).
- **Remedial Action Plan:** A long-term plan that details the cleanup plans for a property.
- **State Voluntary Cleanup Programs (VCPs):** State VCPs can bring a final authority to the cleanup process via liability relief and No Further Action letters. A copy of the 2005 State Brownfields and Voluntary Response Programs Guide can be downloaded at: [http://www.epa.gov/brownfields/pubs/st\\_res\\_prog\\_report.htm](http://www.epa.gov/brownfields/pubs/st_res_prog_report.htm).
- **Tax Abatements:** Cities or counties may agree to reduce taxes owed or exempt property owners from paying property taxes for a period of time in order to spur economic development.
- **Tax Credits:** A tax credit lowers the amount of income tax owed by a tax payer.
- **Tax Increment Financing (TIF) Districts:** Cities create TIF Districts to make public improvements within those districts that will generate private-sector development. In these districts, the current tax rate is frozen while area improvements or development occur. Tax increases in property assessment values after redevelopment go into a special bond fund or are used for future growth in the district.

## Resources:

### *The 2005 Brownfields Federal Programs Guide*

Developed by EPA's Office of Brownfields Cleanup and Redevelopment (OBCR), this Guide offers information on a range of federal resources that can provide technical and financial support to brownfields cleanup and redevelopment. The Guide also includes a quick reference matrix that connects specific types of projects with specific funding sources. The Guide can be downloaded from the OBCR Web site at: [http://www.epa.gov/brownfields/partners/bf\\_fed\\_pr\\_gd.htm](http://www.epa.gov/brownfields/partners/bf_fed_pr_gd.htm).

### *EPA's Environmental Insurance and Brownfields Redevelopment Web Site*

The OBCR Web site provides links to many resources to encourage private-sector involvement, and includes detailed information on environmental insurance, policy coverage, and key terms. This information can be found at: <http://www.epa.gov/brownfields/insurebf.htm#about>.

### *New Markets Tax Credit Program*

The OBCR Web site provides a link to the New Markets Tax Credit Brownfields Solutions Series. This fact sheet discusses how the program can be used as a financing mechanism in brownfields cleanup and redevelopment. The PDF can be found at: <http://www.epa.gov/brownfields/matters.htm#relate>.

---

*Brownfields Solutions Series  
Anatomy of a Brownfields Deal*

*Solid Waste  
and Emergency  
Response (5105T)*

*EPA-560-F-06-245  
October 2006  
[www.epa.gov/brownfields/](http://www.epa.gov/brownfields/)*

---

# Introduction to Green Remediation

Office of Superfund Remediation and Technology Innovation

Quick Reference Fact Sheet

The U.S. Environmental Protection Agency (EPA) *Principles for Greener Cleanups* outline the Agency's policy for evaluating and minimizing the environmental "footprint" of activities undertaken when cleaning up a contaminated site.<sup>1</sup> Use of the best management practices (BMPs) identified in EPA's series of green remediation fact sheets can help project managers and other stakeholders apply the principles on a routine basis, while maintaining the cleanup objectives, ensuring protectiveness of a remedy, and improving its environmental outcome.<sup>2</sup>

## Overview

As part of its mission to protect human health and the environment, EPA develops and promotes innovative strategies that restore contaminated sites to productive use, reduce associated costs, and promote environmental stewardship. The process of cleaning up a hazardous waste site uses energy, water, and other natural or materials resources and consequently creates an environmental footprint of its own. The Agency encourages adoption of *green remediation as the practice of considering all environmental effects of cleanup actions and incorporating options to minimize the environmental footprints of cleanup actions.*

### Core Elements of Green Remediation

- Reducing total energy use and increasing the percentage of energy from renewable resources
- Reducing air pollutants and greenhouse gas emissions
- Reducing water use and negative impacts on water resources
- Improving materials management and waste reduction efforts, and
- Protecting ecosystem services during site cleanup



EPA's Office of Solid Waste and Emergency Response (OSWER) is identifying BMPs that can help stakeholders implement green remediation strategies and consequently improve environmental outcomes of site cleanup. The practices reflect techniques already used by EPA regions, other federal or state agencies, and private industry to reduce the environmental footprint of cleanups, as well as environmentally conscious approaches used in other business sectors such as industrial construction.

### Sample BMPs for Building a Site-Specific Checklist

#### Energy

- ✓ Use energy efficient equipment for treatment processes
- ✓ Conduct periodic optimization evaluations of treatment processes and adjust operations accordingly
- ✓ Integrate sources of onsite renewable energy to power treatment units or auxiliary equipment

#### Air & Atmosphere

- ✓ Retrofit machinery with clean diesel technologies such as diesel particulate filters
- ✓ Consolidate onsite and offsite vehicular trips to reduce fuel consumption
- ✓ Implement an engine idle reduction plan for vehicles and machinery

#### Water

- ✓ Use closed-loop graywater washing systems for equipment and vehicles
- ✓ Reuse treated water for purposes such as irrigation
- ✓ Apply low impact development techniques to treat stormwater as a resource instead of a waste product

#### Land & Ecosystems

- ✓ Install silt basins to capture sediment runoff along slopes
- ✓ Establish efficient traffic patterns to minimize soil compaction by vehicles and machinery in work areas
- ✓ Rescue and relocate sensitive or threatened wildlife

#### Materials & Waste

- ✓ Segregate demolition materials such as metals, concrete, and lumber for reuse or recycling
- ✓ Screen and stockpile clean, excavated soil for potential onsite use as infill and minimize shipments to landfills
- ✓ Salvage woody debris for onsite landscaping use or sale

BMPs relevant to commonly used treatment technologies, phases of a cleanup project, or activities common to most cleanup actions are compiled in OSWER's *Green Remediation Best Management Practices*.<sup>3</sup> Specific topics include:

- Pump and treat technologies
- Bioremediation
- Soil vapor extraction and air sparging
- Site investigation
- Clean fuel and emission technologies for site cleanup, and
- Integrating renewable energy into site cleanup.

### Highlights of Greener Cleanups

- ◆ **Frontier Fertilizer Superfund Site**, Davis, CA: Generating sufficient electricity from onsite solar resources to offset 100% of the groundwater treatment plant's consumption
- ◆ **Portland Harbor Terminal 4**, Oregon: Operated sediment dredging machinery on ultra low-sulfur diesel fuel to reduce emission of particulate matter and sulfur dioxide
- ◆ **Sanford Gasification Plant**, Seminole County FL: Reused 3.7 million gallons of water from onsite dewatering operations during the soil stabilization process
- ◆ **Re-Solve, Inc.**, Dartmouth, MA: Converted a four-acre, gravel-capped area to a native upland meadow to enhance local habitat and re-establish native species
- ◆ **Barksdale Air Force Base**, Bossier City, LA: Recycled 1,000 tons of concrete debris and beneficially reused 700 tons of extracted woody material

### When & Where to Apply the Strategies

BMPs of green remediation may be applied to cleanup actions taken at almost any hazardous waste site, whether conducted under federal, state, or local cleanup programs or by private parties. Success in improving the environmental outcome through use of the practices has been demonstrated at sites involving:

- Superfund remedial or removal actions
- RCRA corrective actions
- Leaking underground storage tank cleanups
- Brownfield cleanups, and
- Voluntary actions under state programs.

### Why We Need Green Remediation Strategies

Cleanup at Superfund sites, for example, frequently relies on pump-and-treat, thermal desorption, multi-phase extraction, in situ thermal treatment, air sparging, and/or soil vapor extraction technologies.

- EPA estimates that operation of these six technologies could consume **631,000 MWh of electricity annually** between 2008 and 2023<sup>4</sup> a quantity equivalent to the electricity consumption in nearly 53,000 homes over one year.
- Based on current average fuel mixes used by U.S. utilities, this consumption could result in emission of **435,357 metric tons of carbon dioxide equivalent each year**.<sup>5</sup>

Green remediation strategies emphasize a "whole-site" approach to be used throughout the life of a cleanup project, including:

- Site investigation
- Remedial design
- Remedial construction
- Operation and maintenance, and
- Long-term monitoring.

Early incorporation of a green remediation strategy into project documentation such as an investigative plan, feasibility study, remedial design, site management plan, and contractor procurement documents can help:

- Assure suitable BMPs are implemented in a manner that maintains protectiveness of the selected remedy
- Attain cost efficiencies throughout the project life, and
- Integrate site reuse plans into the cleanup infrastructure.

### Online Tools & Information Resources

The *Green Remediation Focus* website maintained by EPA's Office of Superfund Remediation and Technology Innovation (OSRTI) offers a compendium of tools to help stakeholders implement green remediation strategies. The compendium contains:

- Profiles of green remediation strategies applied in the field, and quantified results
- BMP fact sheets on selected topics
- The *Contracting and Administrative Toolkit for Greener Cleanups*, which cites sample procurement language
- Online software and calculators for potential use in evaluating portions of a cleanup footprint
- In-depth reports on using OSRTI's developing methodology for assessing the footprint of a cleanup
- EPA program strategies and regional policies for achieving greener cleanups on a national basis, and
- Announcements about new tools, recent reports, and upcoming events such as training webinars.

Visit *Green Remediation Focus* online:  
<http://clu.in.org/greenremediation>

### References [Web accessed: May 2011]

- <sup>1</sup> U.S. EPA; *Principles for Greener Cleanups*; August 27, 2009; <http://www.epa.gov/oswer/greencleanups/principles.html>
- <sup>2</sup> U.S. EPA; *Green Remediation: Incorporating Sustainable Environmental Practices into Remediation of Contaminated Sites*; EPA 542-R-08-002, April 2008; <http://www.clu.in.org/greenremediation>
- <sup>3</sup> U.S. EPA; *Green Remediation Best Management Practices*:
  - *Pump and Treat Technologies*; EPA 542-F-09-005, December 2009
  - *Bioremediation*; EPA 542-F-10-006, March 2010
  - *Soil Vapor Extraction & Air Sparging*; EPA 542-F-10-007, March 2010
  - *Site Investigation*; EPA 542-F-09-004, December 2009
  - *Clean Fuel & Emission Technologies for Site Cleanup*; EPA 542-F-10-008, August 2010
  - *Integrating Renewable Energy into Site Cleanup*; EPA 542-F-11-006, April 2011
- <sup>4</sup> U.S. EPA; *Energy and Carbon Footprint of NPL Sites: Tier 1 and Tier 2 Total NPL Sites 2008-2030*; draft, September 3, 2010
- <sup>5</sup> U.S. EPA; *Greenhouse Gas Equivalencies Calculator*; <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

This document updates and supersedes  
*Incorporating Sustainable Practices into Site Remediation* (EPA 542-F-08-002, April 2008).

For more information, contact:  
Carlos Pachon, OSWER/OSRTI ([pachon.carlos@epa.gov](mailto:pachon.carlos@epa.gov))  
U.S. Environmental Protection Agency



# Green Remediation Best Management Practices: Bioremediation

Office of Superfund Remediation and Technology Innovation

Quick Reference Fact Sheet

The U.S. Environmental Protection Agency (EPA) *Principles for Greener Cleanups* outlines the Agency's policy for evaluating and minimizing the environmental "footprint" of activities undertaken when cleaning up a contaminated site.<sup>1</sup> Use of the best management practices (BMPs) recommended in EPA's series of green remediation fact sheets can help project managers and other stakeholders apply the principles on a routine basis, while maintaining the cleanup objectives, ensuring protectiveness of a remedy, and improving its environmental outcome.<sup>2</sup>

## Overview

Bioremediation actively enhances the effects of naturally occurring biological processes that degrade contaminants in soil, sediment, and groundwater. In situ processes involve placement of amendments directly into contaminated media while ex situ processes transfer the media for treatment at or near ground surface. Green remediation BMPs for bioremediation address the techniques for:

- **Biostimulation:** injection of amendments into contaminated media to stimulate contaminant biodegradation by indigenous microbial populations. Amendments may include air (oxygen) by way of bioventing, oxygen-releasing compounds to keep an aquifer aerobic, or reducing agents such as carbon-rich vegetable oil or molasses to promote growth of anaerobic microbial populations
- **Bioaugmentation:** injection of native or non-native microbes to a contaminated area to aid contaminant biodegradation; successful bioaugmentation may involve prior addition of biostimulation amendments to create the conditions favorable for microbial activity
- **Land-based systems:** treatment of contaminated soil or sediment through surface mixing with amendments or placement of soil/sediment in surface piles or treatment cells, such as composting or landfarming, and
- **Bioreactors:** treatment of contaminated soil or groundwater in a controlled environment to optimize degradation, such as an in situ bioreactor landfill or biological permeable reactive barrier (biobarrier) or an ex situ batch- or continuous-feed reactor.

## Designing a Bioremediation System

Early and integrated planning will help design a bioremediation project involving activities with a minimal environmental footprint. Effective design will provide

flexibility for modified site or engineering parameters as cleanup progresses while continuing to accommodate current or future use of a site. Options for reducing the footprint of bioremediation implementation can be affected by local, state, and federal regulatory requirements. Permits for underground injections, for example, vary considerably among state regulatory programs.<sup>3</sup> Option evaluation also examines the short- and long-term advantages and disadvantages of in situ versus ex situ bioremediation techniques in terms of green remediation core elements.

### Core Elements of Green Remediation

- Reducing total energy use and increasing renewable energy use
- Reducing air pollutants and greenhouse gas emissions
- Reducing water use and negative impacts on water resources
- Improving materials management and waste reduction efforts, and
- Enhancing land management and ecosystem protection



Successful bioremediation relies on adequate site characterization and development of a good conceptual model to assure thorough delineation of the contaminant source area(s) and plumes. Effective modeling will typically lower the potential for unnecessary activities and associated natural resource consumption or waste generation.<sup>4a</sup> Techniques such as three-dimensional imaging, for example, can help optimize placement of injection boreholes. Representative field data are needed during in situ bioremediation design to assure: (1) influential factors such as aquifer hydraulic conductivity, groundwater geochemistry, and soil heterogeneity and adsorptive capacity are well understood, (2) the radius of influence for any injected substrates reaches the entire target area and spacing of multiple injection points provides optimal substrate control, and (3) any excavation for techniques such as installation of a trenched biobarrier are conducted in a surgical manner.<sup>4b</sup>

Efficiency in energy and natural resource consumption can be achieved through BMPs that optimize initial design of a bioremediation system. Early bench-scale treatability tests on soil collected from the target treatment area will help:

- Determine the onsite mass of contaminant parent and daughter products, other metabolic products, and existing microbial populations



- Demonstrate specific biodegradation mechanisms of potential microbial cultures, chemical substrates, or amendments
- Evaluate potential delivery methods and dispersion characteristics under simulated aquifer conditions, including use of options such as biodegradable surfactants
- Select the most suitable reagents or amendments and optimal concentrations or proportions, and
- Determine any need for supplemental technologies to destroy contaminants in hot spots or areas anticipated to involve lengthy periods of microbial acclimation.

***Profile: Bioaugmentation at MAG-1 Site,  
Fort Dix, NJ***

- Began bioaugmentation design through laboratory tests on MAG-1 groundwater samples to evaluate efficacy of a commercial bacterial culture in degrading targeted chlorinated volatile organic compounds (CVOCs) that were resistant to degradation by native bacteria
- Dispersed the microbial inoculant through a groundwater recirculation system, which minimized construction of new wells and associated resource consumption
- Optimized the system within six months of the first (of two) injections to reduce the initially high volume of buffering agents and extensive well fouling, resulting in reduced material consumption and equipment maintenance
- Decreased CVOCs nearly 99% within one year of project startup without negative impacts to natural groundwater conditions

Natural resource efficiencies also are gained by conducting an onsite pilot test that evaluates methods for delivering the selected substrate or amendment to a portion of the treatment area. Green remediation BMPs applied during a bioremediation pilot test will help optimize full-scale operations and may identify adverse environmental impacts in the field; for example, improper addition of nutrients in certain aquatic environments could quickly cause algal blooms.

Use of innovative reagents from non-traditional sources can significantly reduce consumption of virgin natural resources while beneficially using various waste products. For instance, enzymes are often introduced into the remedial process to additionally stimulate microbial degradation of contaminants. These enzymes commonly exist in agricultural or industrial byproducts that may be readily available from local sources. One example is manure compost, which can provide various enzymes depending on the feedstock and maturity. Another byproduct gaining use for bioremediation purposes is spent-mushroom compost, which can be supplied at little or no cost by local producers. Evaluating potential use of products often considered to be waste will include

examining the product's traditional fate and demand in markets other than site remediation.

Land-based systems and in situ bioreactors can particularly benefit from use of commercial waste. "Supermulch" contains common byproducts such as municipal biosolids, wood ash, and paper sludge that can be included in recipes for soil amendments or placed in a permeable reactive barrier to enhance activity of indigenous microbial populations. This approach can also be integrated with phytoremediation to encourage contaminant degradation and volatilization while enriching soil for revegetation in significantly disturbed areas such as mining sites.

Project designers can establish a schedule for periodic review of the selected bioremediation process and related decision points to:

- Determine if any improvements to field operations could reduce natural resource consumption and waste generation while maintaining bioremediation efficacy
- Identify any innovative materials that recently demonstrated success in biologically degrading contaminants while reducing the project's environmental footprint
- Identify unanticipated environmental impacts such as uncontrolled production of secondary byproducts, sub-optimal nutrient levels, or changes in non-targeted indigenous microbial populations, and
- Identify other processes that could accelerate biodegradation in certain areas without significantly increasing the project footprint; for example, some injection wells could be equipped with passive air flow-control devices and renewable energy-powered blowers to deliver air to the subsurface after bioaugmentation is conducted.

Future optimization may include introduction of alternate amendments to remediate portions of a site showing marginal biodegradation progress or alternate methods to increase efficiency of reagent delivery.



*Integrated planning of bioremediation activities at Marine Corps Base Camp Lejeune enabled injections of emulsified vegetable oil and sodium lactate in four borings to be completed within only one week, which reduced field redeployment and associated fuel use.*

**Profile: Soil Composting at Former Joliet Army Ammunition Plant, Will County, IL**

- Conducted pilot-scale field tests on compost windrows to optimize the designed soil amendment recipe, amendment timing, loading rate, and turning frequency
- Constructed a 20-acre composting facility to treat 280,000 tons of excavated explosives-contaminated soil with amendments such as manure, wood chips, stable bedding, and spent biodigester waste from local producers
- Installed a one-million-gallon basin to capture stormwater runoff for onsite aquifer infiltration
- Began early transfer of uncontaminated acreage to the U.S. Forest Service in 1997 to the newly formed Midewin National Tallgrass Prairie, with subsequent transfers of additional parcels as remediation progressed; by 2002, all (19,000) targeted acres were conveyed to the Prairie
- Completed soil cleanup in 2008, three years ahead of schedule, through implementation of an integrated cleanup and reuse plan for 3,000 acres now under development as business parks and an engineer training center

## Constructing a Bioremediation System

Best management practices initiated during bioremediation design can continue in the construction phase and during operation and maintenance (O&M). A significant portion of the environmental footprint left by construction of a bioremediation system involves the installation and testing of wells used to deliver the selected reagents and monitor performance. Recommended practices include:

- Using direct-push technology for constructing temporary or permanent wells rather than typical rotary methods, wherever feasible, to eliminate the need for disposal of cuttings and improve efficiency of substrate delivery into discrete vertical intervals
- Maximizing reuse of existing or new wells and boreholes for injections to avoid a range of wasted resources, and
- Using groundwater recirculation processes allowing multiple passes of groundwater through fewer wells.

Recommended practices for designing, constructing, and operating wells, such as those used for in situ injection and groundwater recirculation, are provided in: *Green Remediation Best Management Practices: Pump and Treat Technologies*.<sup>4c</sup> Additional practices for subsurface air delivery are provided in *Green Remediation Best Management Practices: Soil Vapor Extraction & Air Sparging*.<sup>4d</sup>

Project managers of land-based bioremediation systems can reduce the project footprint through BMPs such as:

- Constructing a retention pond within a bermed treatment area to store, treat, use, or release diverted stormwater

- Reclaiming clean or treated water from other site activities for use in injection slurries or as injection chase water
- Integrating a landfarm rain shield (such as a plastic tunnel) with rain barrels or a cistern to capture precipitation for potential onsite use, and
- Evaluating the need for a leachate collection system for a landfarm (along with a leachate treatment system) to fully preserve the quality of downgradient soil and groundwater.

Land disturbance during bioremediation construction, particularly at sites involving ex situ techniques, can be reduced through practices such as:

- Maintaining specific areas for different activities such as materials mixing or waste sorting, which will also avoid cross-contamination
- Covering ground surfaces of work areas with mulch to prevent soil compaction caused by activities such as front-loader application of soil amendments
- Establishing well-defined traffic patterns for onsite activities, and
- Employing rumble grates with a closed-loop graywater washing system (or an advanced, self-contained wheel-washing system) to minimize onsite and offsite trackout by delivery vehicles.

Emission of greenhouse gas (GHG) and particulate matter from mobile sources can be reduced through BMPs such as reducing engine idling, fueling heavy machinery with ultra low-sulfur diesel fuel, and retrofitting equipment with diesel oxidation catalysts or other advanced diesel technology. More practices are outlined in *Green Remediation Best Management Practices: Clean Fuel & Emission Technologies for Site Cleanup*.<sup>4e</sup>

### Contributors to the Bioremediation Footprint at Romc East Palo Alto

	Total Estimated Footprint	Attributed to O&M
Energy	23,000 million Btu	58%
Potable water	6,800,000 gallons	100%
CO <sub>2</sub> equivalent	5,000,000 pounds	70%
Sulfur oxides	22,000 pounds	86%
Particulate matter	800 pounds	78%
Air toxics	200 pounds	10%

O&M activities account for much of the environmental footprint of bioremediation recently initiated at the Romc RCRA site in East Palo Alto, CA. Site investigation, remedy construction, and future decommissioning also contribute but to a lesser extent. Although onsite contributors are relatively small in comparison to offsite factors such as "upstream" materials manufacturing, they may hold greater importance to the local community.

## Operating and Monitoring a System

Energy consumption and associated emissions during bioremediation O&M can be reduced by:

- Introducing biostimulation or bioaugmentation amendments to the subsurface via gravity feed in existing wells, when high-pressure injection is unnecessary to assure proper distribution in certain geologic units
- Evaluating feasibility of using pulsed rather than continuous injections when delivering air, to increase energy efficiency
- Employing portable units or trailers equipped with photovoltaic panels to generate electricity or direct power for equipment such as air blowers, and
- Investigating delivery of industrial byproducts needed in high volumes by way of rail rather than trucks.

Environmentally preferable purchasing in the context of bioremediation includes products such as:

- Tarps with recycled or biobased contents instead of virgin petroleum-based contents, for protection of ground surfaces in staging areas and coverage of soil undergoing ex situ treatment
- Soil nutrients and other treatment-related materials available in bulk quantities and packed in recyclable containers and drums, to reduce packaging waste
- Treatment liquids in concentrated form if a product is locally unavailable (and the concentration process does not involve additional energy consumption), to reduce long-distance shipping volumes and frequencies, and
- Biodegradable cleaning products effective in cold water applications, to conserve energy while avoiding introduction of toxic chemicals in environmental media.



*Composting of mining waste-contaminated soil and sediment with municipal biosolids and lime along the Upper Arkansas River in Colorado resulted in 100% vegetative cover in most previously denuded areas within ten years, due to increased microbial functions combined with phytoremediation and reduced leachate.*

Green remediation relies on continually improving a project's natural resource efficiencies and scouting for novel approaches. At the Distler Brickyard Superfund site in Kentucky, for example, chitin (a natural biopolymer derived from shrimp and crab shells) was injected into an

aquifer as a source of volatile fatty acids to promote VOC degradation. Another example is provided at the Naval Amphibious Base Little Creek in Virginia, where bioremediation involved injection of diluted cyclodextrin (a simple sugar) that could be recycled. Information on reagent options and evaluation of related factors is provided in various demonstration reports compiled by the Environmental Security Technology Certification Program (ESTCP).<sup>5</sup>

Opportunities to reduce the environmental footprint of long-term actions can be further reduced through optimization of the monitoring program. Periodic reevaluation can help identify potential monitoring changes such as reduced sampling frequency, fewer sampling locations, or routine sampling of a smaller well network as a contaminant plume collapses over time.<sup>6</sup>

### Green Remediation: A Sampling of Success Measures for a Bioremediation System

- *Reduced fuel consumption due to transport of high-bulk reagents via rail rather than trucks*
- *Reduced GHG emissions as a result of using gravity-fed injection systems rather than fuel-fed pumping*
- *Protection of nearby and downstream surface water through construction of bermed retention ponds that capture and treat contaminated stormwater runoff*
- *Beneficial use of industrial waste or surplus byproducts as bioremediation reagents*
- *Reduced soil compaction during system construction as a result of using well-defined work areas*

## References [Web accessed: 2010, February 28]

- <sup>1</sup> U.S. EPA; *Principles for Greener Cleanups*; August 27, 2009; <http://www.epa.gov/oswer/greencleanups>
- <sup>2</sup> U.S. EPA; *Green Remediation: Incorporating Sustainable Environmental Practices into Remediation of Contaminated Sites*; EPA 542-R-08-002, April 2008
- <sup>3</sup> Interstate Technology and Regulatory Council; *In Situ Bioremediation of Chlorinated Ethene: DNAPL Source Zones*; June 2008
- <sup>4</sup> U.S. EPA; *Green Remediation Best Management Practices*:
  - <sup>a</sup> *Site Investigation*; EPA 542-F-09-004, December 2009
  - <sup>b</sup> *Excavation and Surface Restoration*; EPA 542-F-08-012, December 2008
  - <sup>c</sup> *Pump and Treat Technologies*; EPA 542-F-09-005, December 2009
  - <sup>d</sup> *Soil Vapor Extraction & Air Sparging*; EPA 542-F-10-007, March 2010
  - <sup>e</sup> *Clean Fuel & Emission Technologies for Site Cleanup*; EPA 542-F-10-008, April 2010
- <sup>5</sup> ESTCP Environmental Restoration Projects and Related Efforts; <http://www.estcp.org/Technology/ER-Chlorinated-Solvents.cfm>
- <sup>6</sup> U.S. EPA and U.S. Army Corps of Engineers; *Roadmap to Long-Term Monitoring Optimization*; May 2005, EPA 542-R-05-003

Visit *Green Remediation Focus* online:  
<http://clu.in.org/greenremediation>

For more information, contact:  
Carlos Pachon, OSWER/OSRTI ([pachon.carlos@epa.gov](mailto:pachon.carlos@epa.gov))  
U.S. Environmental Protection Agency

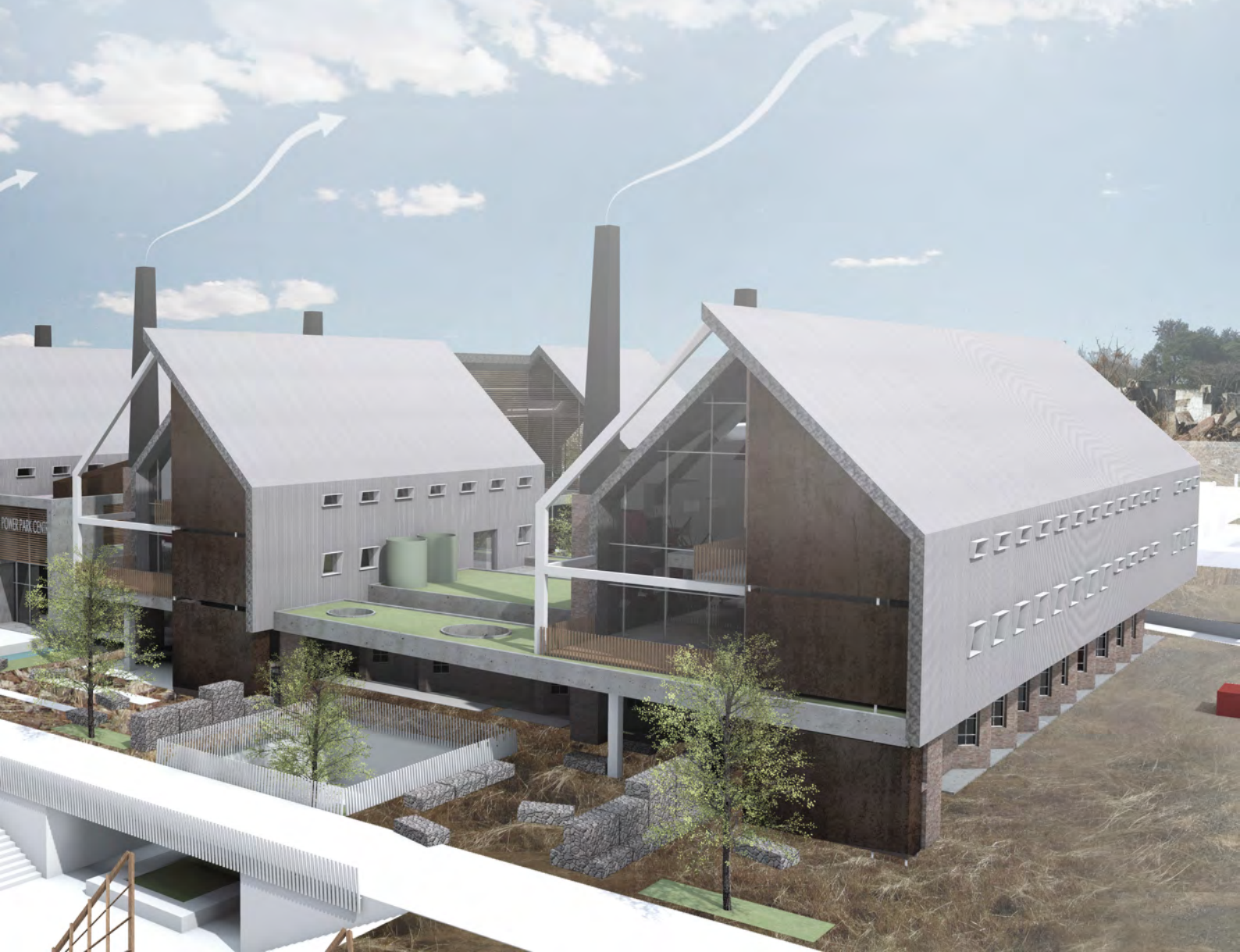




ZANE BRIAN ATKINSON

[DYSTOPIAN NARRATIVE AS A TOOL FOR THE REJUVENATION OF BROWN FIELD SITES]

# DESIGN REPORT





# DESIGN REPORT

---

CHAPTER ONE: INTRODUCTION	1
1.1 Introduction	1
1.2 Project Description	1
1.3 Project Motivation	1
1.4 The Client	3
1.4.1 The Client's Requirements	3
1.4.2 Sub Client	4
1.4.3 Project Funding	4
1.4.4 Detailed Client Brief	5
1.5 Conclusion	6
CHAPTER TWO: SITE SELECTION AND ANALYSIS	7
2.1 Introduction	7
2.2 Site Selection Process	7
2.3 Historical Value	10
2.4 Site Analysis	11
2.5 Urban Analysis	12

## CHAPTER THREE: DESIGN DEVELOPMENT AND RESOLUTION

3.2	Concept Development	13
3.3	Urban Design Framework	14
3.4	Design Development	16
3.5	Design Drawings	17
3.6	Physical Model	27
3.7	Technical Drawings	29

## CHAPTER FOUR: POST DESIGN 34

4.1	Introduction	34
4.2	Technical Discussion	34
4.3	Reflection & Conclusion	36

# CHAPTER 1

## INTRODUCTION

### 1.1. INTRODUCTION

This design report details the motivation, analysis, conceptual, design and technical issues that resulted from the informed design of a Mixed Use Park for Colenso. These issues make up the design process that has been informed, in large, by the research that precedes this report: ***Dystopian Narrative as a Tool for the Rejuvenation of Brown Field Sites***. The aim of the design project is twofold; firstly it sets out to produce a design for a Mixed Use Park and secondly is to use the research findings to inform the design such that the design can begin to illustrate the how architectural intervention can rejuvenate a ruined site.

This introductory chapter focuses on the definition and nature of the design project as well as the hypothetical client and his/her brief.

### 1.2. PROJECT DESCRIPTION

**‘What?’ - Rejuvenating a ruined, post industrial site by reactivating the site’s value as a public space.**

The project is given the broad name of ‘Mixed Use Park’ which could incorporate any number of functions, public spaces and buildings; this being said it is key to accurately define what is meant by ‘Mixed Use Park’ in terms of both the research and the design.

Firstly the term ‘Park’ refers to a form of public open space that is often associated with landscaped and natural environments that are aimed at public well being,

entertainment and recreation. This being said a large aspect to the project is public open space; how it is defined, designed and organised with respect to the more architectural components within the project.

Next is the notion of how the Park becomes 'mixed use'; this is best illustrated within the research document in the example of the Landschaftspark [page 82 of the research document] in Germany. It is a public park that is made up of numerous, well defined, places that allow for multiple activities to take place. The activities range from climbing and mountain-biking to music and food festivals.

The Mixed Use Park for Colenso is therefore a large public space within the built environment that houses multiple places and buildings that aim at serving both local and foreign members of the public. By focusing the project on recreation, retail and event architecture it allows the design to capitalise on tourist activity in the area as well as provide opportunities for the local community.

By making the project mixed use it also allows for flexibility within the brief such that other much needed building typologies can fall within the scope of the urban design.

### **1.3. PROJECT MOTIVATION**

**'Why?' – There is a need for active public spaces that are more than just open space, places of meaning and recreation. There is also a need to target voids within the built environment as opposed to the creation of a wider and 'newer' built environment.**

The specific motivation is strongly linked to the nature of the site; broadly speaking the project focuses on ruined sites, old industrial brown fields that are catalysts for decay within the built and natural environments.

There is a need for the development of these sites as they often take up a large part of urban space and are seen as bad places by the public. This negative perception contrasts the former importance and history of the sites which is why there needs to be a sensitive form of intervention that can reactivate the sites as well as maintain their historical value.

By converting a ruined industrial landscape into a public park there will be a high amount of interaction between the public and the landscape which is key in terms of the research and the narrative goals of the design. The project will act as a form of urban rejuvenation by providing new facilities and spaces to the public; it will also allow access to an industrial site which will promote public interest and awareness in the site. With renewed interest comes an opportunity for tourism and the economic activity that comes with it; this activity is a crucial part in countering the urban decay that surrounds such sites.

#### **1.4. THE CLIENT**

The hypothetical client for the project has been derived from the theoretical framework that was outlined in the research document [pages 121-126] and further supported by the project description and motivation.

The main client: **The Department of Economic Development, Tourism and Environmental Affairs [EDTEA]** for the province of KwaZulu-Natal.

##### **1.4.1. The Client's Requirements**

The EDTEA requirement's are as follows:

- A new centre for tourism and public events in KwaZulu-Natal.
- The design must target an existing brown field site.
- The site must allow for connections to existing tourism opportunities.
- The design needs to create an easily identifiable destination for foreign tourists.
- The design needs to offer a multitude of possible activities and events.

- The design must recognise the local community and their needs; it must be welcoming to all members of the public. It must honour their philosophy of inclusion and respect; respecting people, the environment and resources.
- The design needs to allow for a new regional head office for the EDTEA.
- The design must offer some element of local empowerment.

### **1.5. THE SUB CLIENT**

Based off of the need for local empowerment a sub client has been identified based on their involvement in the education of the community.

The sub client: **CEDARA Agricultural College** and by extension **the Department of Agricultural and Rural Development** for the province of KwaZulu-Natal.

The sub client requires that the brief be developed such that there is an allowance for agricultural practices and training within the park. The goals of these activities are to empower the local community to be self sufficient while respecting the value of local natural resources.

### **1.6. PROJECT FUNDING**

The clients are both government departments this means that the project would fall under the jurisdiction of public works. A large majority of the funding would come out of the EDTEA annual budget for tourism development.

The KwaZulu-Natal EDTEA budget for 2014 is 167.79 Million Rand with an allowance of 33.87 Million for Planning and Development. [KwaZulu-Natal Tourism Master Plan p61] This amount along with the contribution by the local municipality and private investors will make up the funding for the project.

It should be noted that the specific private investors would be site specific; in the case of the chosen site a possible investor would be Eskom.

## **1.7. DETAILED CLIENT BRIEF**

The functional aim of the project is a large Mixed Use Park that focuses on events and recreational activities. This said it is required that there be a key building that acts as the center for the project and which can house the administrative core of the park. This building will later be the main focus of the design and will be referred to as the Power Park Centre.

Functional requirements for the park are as follows:

- Local information centre
- Visitor information
- Museum and gallery
- Local market space
- Rentable small to medium retail space
- Large open event space and supporting facilities
- Indoor event space
- Public ablutions
- New municipal offices
- Cedara Agricultural training facilities
- Community farm land
- Natural and artificial park space
- Water sports facility
- Park maintenance facilities
- Rentable office space
- Regional office for EDTEA
- Park specific retail [Curios and rentable equipment]
- Relevant sustainable systems and structures

- Staff and public parking
- Pick up and drop off zone.

It should be noted that the brief will be developed further in terms of approximate floor areas and site specific requirements.

## **1.8. CONCLUSION**

At this point the scope of the project has been well defined and made realistic through the investigation and definition of the client, their brief and possible budget. The research is now beginning to take a far more pragmatic form and will continue to grow and change until the final design resolution. The research prioritises the design of layered public spaces that allow the users to engage with the nature of the site as well as the design narrative; it is important to bring these issues to light now so that they are not lost beneath a brief or an accommodation schedule. The goal here is the rejuvenation of a ruined site through the identification and highlighting of its value; this needs to be done while adhering to the pragmatic requirements.



## **CHAPTER 2**

### **SITE SELECTION AND ANALYSIS**

#### **2.1. INTRODUCTION**

This chapter will deal the site selection criteria and process; once a site is chosen one will then begin the analysis of both the site and the surrounding urban fabric such that informed design decisions can be made.

A large part of the theoretical approach to this project, which has developed out of the research, is the notion of value. It will therefore be crucial to identify any value on and around the site; this can be in terms of history, materials, economic activity, natural resources, landmarks etc.

#### **2.2. SITE SELECTION PROCESS**

In the last chapter of the research document the site selection criteria were set out, those criteria allow for three sites to be looked at objectively and the most appropriate site for the project chosen.

Those selection criteria have been developed and are as follows:

- Visibility
- Ecology
- Decayed Context
- Proximity to Tourism Resources
- Ruined
- History
- Accessibility
- Supporting Infrastructure
- Scale [Large]

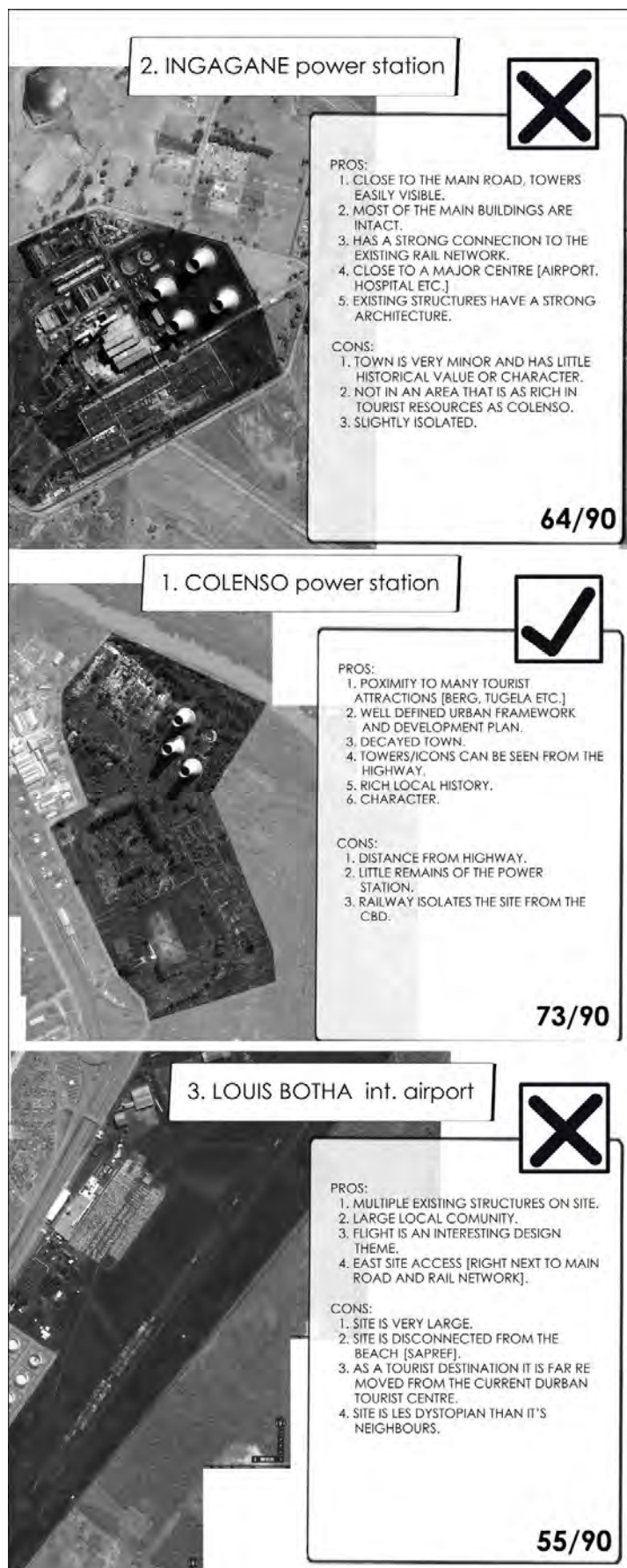
Each of the fore mentioned criteria have an equal weighting of 10 points; allowing each site to be scored out of 90 points.

The three sites chosen for evaluation are represented in figure 1 bellow; they are: Ingagane power station, Colenso power station and the Louis Botha international airport.



Figure 1Candidate Sites and Proximity to Tourism

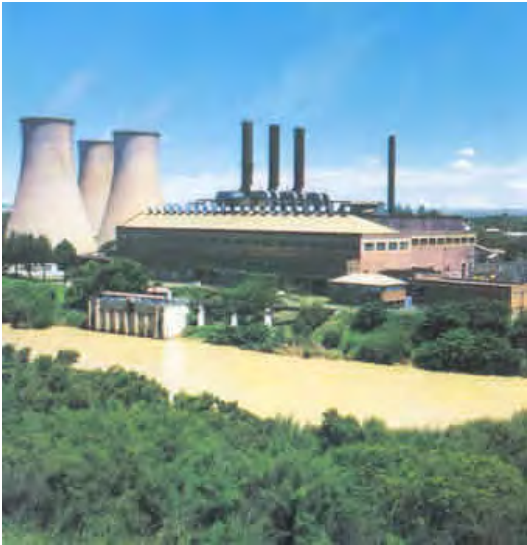
It can be seen that all three sites fall within areas with specific tourism resources as determined by the EDTEA in their Tourism Master Plan; this makes them good sites in terms of the client requirements and brief. What comes next is their indavidual scores based on the selection criteria which will point out which site suits the research best.



As the images in figure 2 illustrate the site best suited to the research and the project is the Colenso power station site new Ladysmith, KwaZulu-Natal.

**Figure 2 Site Selection**

### 2.3. HISTORICAL VALUE



**Figure 3 The Former Colenso Power Station**  
[Source: [heritage.eskom.co.za](http://heritage.eskom.co.za)]

One of the reasons this site was selected was because of the significant historical value contained within the site as well as the immediate area.

According to the Eskom heritage website [Eskom 2006] the town of Colenso was once the site for heavy fighting during the Anglo-Boer war. This said it is situated on along an established Boer war tour route; with multiple memorials, battlements and grave sites.

The Colenso Power Station as shown in figure 3 was the first thermal power station to run by Eskom [previously Escom]; it was built by the Railway Administration from 1922-1926. Colenso was an important point along the South African Rail network and is the place where the only electric steam engine was operated [named Tugela after the river].

The Power station was the back bone for the whole town which grew around it; it comes as little surprise then that when it was decommissioned in 1985 the town began to stagnate and decay. The current condition of the site is one of ruin; it is characterised by the three iconic cooling towers and multiple foundation structures that stand overgrown and lost.

The following sections that lead up to chapter four are all extracted directly from my final design presentation and follow the order outlined in the table of contents.

011545 A



# COLENSO POWER PARK

Est. 2024

by Zane Atkinson

## PROLOGUE [CONTINUED]

### URBAN ANALYSIS

#### COLENSO [EST. 1924]

THE TOWN IS SITUATED IN A VERY DEFENSIVE POSITION, MUCH LIKE A MEDIEVAL RIVER TOWN [IMAGE BELOW SHOWS AN EXAMPLE FROM FRANCE]



#### [25KM FROM LADYSMITH = SUPPORT TOWN]

COLENSO IS A LEVEL 2 INVESTMENT MODE. IT HAS ACCESS TO BASIC SERVICES BUT NEEDS LOCAL DEVELOPMENT.

HAS	NEEDS
CRICHE	0
HIGH SCHOOL	0
P. SCHOOL	1
CLINIC	1
MOBILE CLINIC	1
LIBRARY	1
COMMUNITY CENTRES	1
RELIGIOUS CENTRES	7
POST OFFICE	1
POLICE STATION	1

[KEY LINK TO THE MORE RURAL HINTERLAND]

POPULATION > 10355 (92.41% BLACK AFRICAN) 53.87% BETWEEN 35 AND 64 YEARS OLD.

33 % OF HOUSEHOLDS HAVE NO INCOME.

CLINIC IS 20KM AWAY.

ROADS ARE MOSTLY GRAVEL.

ONLY ONE INFORMAL TAXI RANK (MOST PEOPLE USE TAXIS)

#### RESIDENTIAL AREAS [LIGHT AREAS ON MACRO PLAN]

CHARACTER: **DECAYED AND QUIET** WITH LITTLE PEDESTRIAN MOVEMENT EXCEPT FOR AROUND THE SCHOOL. **MAIN MOVEMENT INDICATED BY DOTTED LINES ON PLAN.**  
STREETScape: NO CLEAR DEFINITION OF STREETS (WIDE, PAVED AND ROADS, POORELY KEPT, HOUSES SET BACK SEPARATING THEM FROM THE STREET).  
PUBLIC SPACE: VARIOUS OPEN SPACES THAT ARE NOT USED. PEOPLE SEEM TO RATHER GATHER NEAR THE CBD AND AROUND THE OLD STATION. (AFFINITY FOR STRUCTURE).

#### CBD [DARK AREA ON MACRO PLAN]

CHARACTER: **MIXED USE AREA** WITH TAXI RANK, SMALL DEALERS, BOTTLE STORE, HOTEL, PANEL BEATERS, RESTAURANTS, A BUTCHERY AND SUPERMARKET, A PETROL STATION, ETC. **MANY ASABANDONED.**  
STREETScape: 13M WIDE ROAD WITH NO BOLDING LINE. FACADES ARE **FRAGMENTED** POORLY DEFINING STREET EDGES.  
PUBLIC SPACE: **DECAYED AND POLLUTED.**

**MOSTLY ZONED AS GENERAL COMMERCIAL?**

MACRO PLAN



TYPICAL RESIDENTIAL STREETScape

NO WIDENING

BUILT HERITAGE  
CULTURAL RESOURCES  
NATURAL RESOURCES  
EXISTING. ICONS

INADEQUATE SERVICES  
POOR PLANNING  
DECAY  
POOR ECONOMIC CONDITIONS (NO INDUSTRY)  
DECLINING OPPORTUNITIES



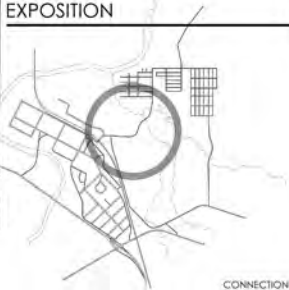
# COLENSO POWER PARK

Est. 2024

by Zane Atkinson

CONCEPT DEVELOPMENT

EXPOSITION



CONNECTION

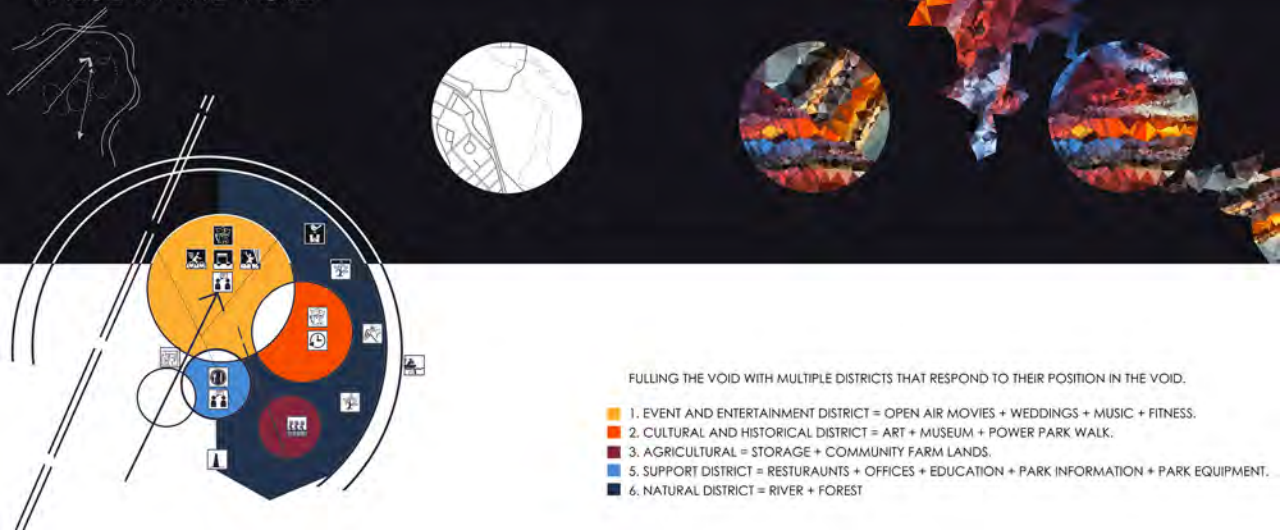


DENSITY



DIVERSITY

## "VALUE IN THE VOID"



FULLING THE VOID WITH MULTIPLE DISTRICTS THAT RESPOND TO THEIR POSITION IN THE VOID.

1. EVENT AND ENTERTAINMENT DISTRICT = OPEN AIR MOVIES + WEDDINGS + MUSIC + FITNESS.
2. CULTURAL AND HISTORICAL DISTRICT = ART + MUSEUM + POWER PARK WALK.
3. AGRICULTURAL = STORAGE + COMMUNITY FARM LANDS.
4. SUPPORT DISTRICT = RESTAURANTS + OFFICES + EDUCATION + PARK INFORMATION + PARK EQUIPMENT.
5. NATURAL DISTRICT = RIVER + FOREST

# COLENSO POWER PARK

Est. 2024

by Zane Atkinson

## URBAN DEVELOPMENT

EXPOSITION (CONTINUED)



## URBAN DESIGN FRAMEWORK: RECONNECTING WITH RESOURCES

1. HISTORY - OLD TOWN
2. RIVER/NATURE - SPONGE PARKS - BIOSWALES
3. EACH OTHER - PUBLIC SPACES

CONNECTING THE TWO HALVES OF THE TOWN WITH A NEW HIGH STREET.

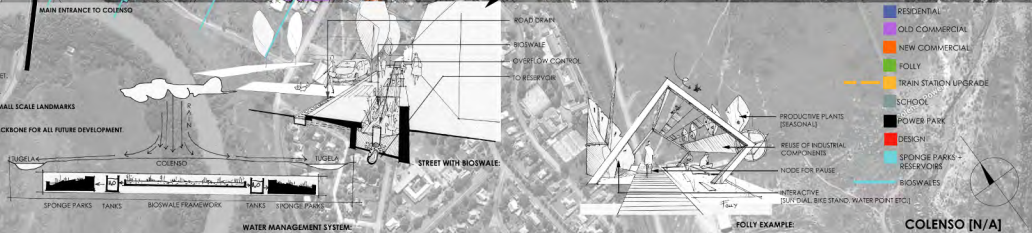
LINKING NEW AND OLD HIGH STREETS WITH TOURIST ORIENTED STREETS.

INTERACTIVE FOLLY STRUCTURES CREATE A LASTING CURIOSITY AND SMALL SCALE LANDMARKS FOR COLENSO. THEY ALSO ACT AS NODES ALONG BIOSWALES.

WATER MANAGEMENT SYSTEMS ACT AS A NATURAL SYSTEM AND A BACKBONE FOR ALL FUTURE DEVELOPMENT. THEY LINK THE NEW TO EXISTING AND THE BEST TO TUGELA TOWN.

\*WATER CONTAINS COLOURED AND IT LIVES!

- HIGH STREET TERMINATES AT POWER PARK WHICH HOUSES:
1. RECREATIONAL BUILDINGS (INFORMATION CENTRE), MUNICIPALITY ETC.
  2. CIOOMA AGRICULTURAL TRAINING AND DEVELOPMENT CENTRE
  3. POWER PARK MUSEUM
  4. INFORMAL MARKET
  5. MULTIPURPOSE EVENT SPACE
  6. FARMS



- RESIDENTIAL
- OLD COMMERCIAL
- NEW COMMERCIAL
- FOLLY
- TRAIN STATION UPGRADE
- SCHOOL
- POWER PARK
- DESIGN
- SPONGE PARKS - BIOSWALES

COLENSO [N/A]



# COLENSO POWER PARK

Est. 2024

by Zane Atkinson

MASTER PLAN

EXPOSITION [CONTINUED]

L = LOADING AREA  
M = INFORMAL MARKET / FARMERS MARKET  
B = BUS PICKUP + DROP OFF  
I = INFORMATION

- INSTITUTIONAL BUILDINGS
- COLENSO INFORMATION CENTRE
- COMMERCIAL RETAIL
- FOLLY
- RENTABLE OFFICE SPACE
- EDREA + CEDARA REGIONAL OFFICES
- CEDARA AGRICULTURAL EDUCATION + DEVELOPMENT FACILITY
- POWER STATION MUSEUM + GALLERY
- MULTI PURPOSE EVENT SPACE (MOVIES, WEDDINGS, CONCERTS...)
- BIOSWALES + SPONGE PARKS + RESERVOIRS

POWER PARK MASTER PLAN [N/A]



SPONGE PARK SECTION



SPONGE PARK PERSPECTIVE

PHYTOREMEDIATION OF WATER RUN OFF IN LARGE SPONGE PARKS.

THE PARKS RECONNECT PEOPLE TO THE TUGELA RIVER AND ACT AS A FORM OF PUBLIC SPACE.

SPONGE PARKS AND BIOSWALES INCREASES THE NATURAL RESOURCES BIODIVERSITY WHICH IS KEY FOR ECO-TOURISM IN COLENSO.

MUSEUM WALK SECTION



RECONNECTING WITH THE SITE AND THE EXISTING STRUCTURES USING SUBTLE INTERVENTIONS THAT HIGHLIGHT THEIR EXISTENCE JUST A POSITION HIGHLIGHTING THEIR NATURE. FOLLIES ACT AS POINTS OF INTERACTION AND INTEREST. EMBODY THE NARRATIVE OF THE SITE.

# COLENSO POWER PARK

Est. 2024

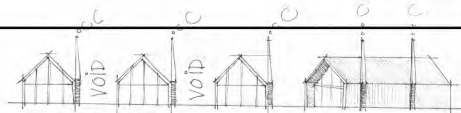
by Zane Atkinson

## DESIGN DEVELOPMENT

## EXPOSITION [CONTINUED]



NEIGHBOURING ESKOM BUILDINGS



INTERPRETATION OF CONTEXT



UTOPIAN EXPRESSION - CLEAN FORMS



HOPE IN NATURE - PLANAR EXPRESSION



DYSTOPIA - RUINED MATERIAL AND FORM



POWER PARK CENTER ARCHITECTURE

**FORM DEVELOPMENT:** THE RE SCRIPTING OF EXISTING INDUSTRIAL FORMS AND CONTEXT INTO A MORE CONTEMPORARY AND GESTURAL ARCHITECTURAL EXPRESSION.

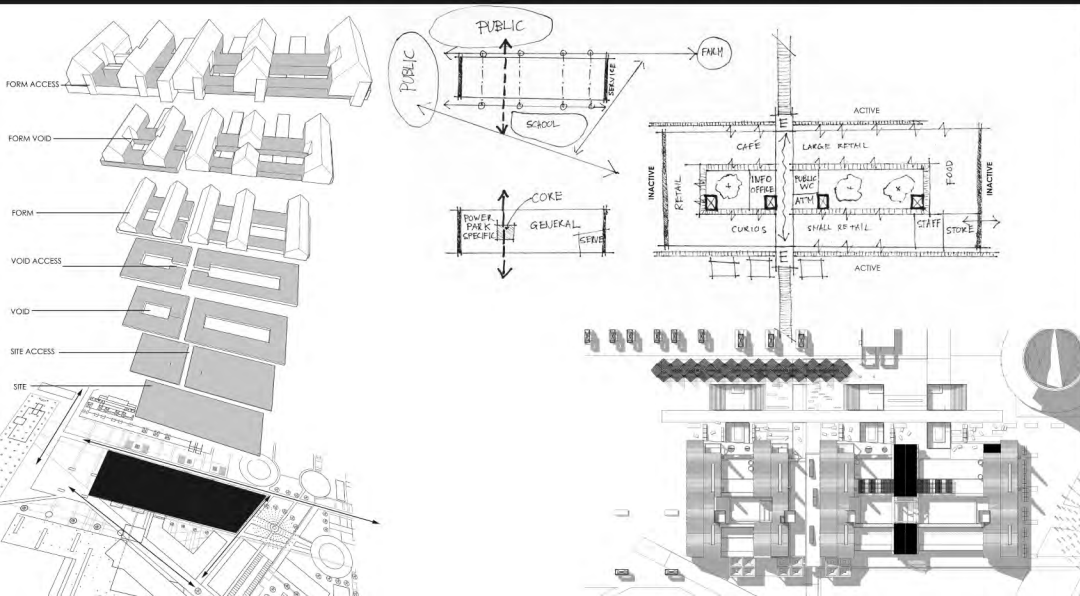
[SCALE ENDS + PITCHED ROOF + RHYTHM + ORDER]

**NARRATIVE EXPRESSION:** THE NARRATIVE IS TOLD THROUGH THE LAYERING OF MATERIALS AND FORMS SUCH THAT THEY CAN BE EXPERIENCED TOGETHER.

[AUXILIARY POSITION]

THIS CREATES A LAYERED HISTORIC NARRATIVE WHERE DYSTOPIA IS UNCOVERED BY UTOPIA, WITH A CONSIDERABLE THREAD OF HOPE.

[NEW - NATURE - OLD]



**PLANNING DEVELOPMENT:** PUBLIC-PRIVATE ZONING IS A VERTICAL LAYERING OF PUBLIC ON GROUND AND PRIVATE ON FIRST AND SECOND FLOORS.

WITHIN THE PUBLIC FLOOR (GROUND) CONTROL PARK, ZONE ALONG THE CENTRAL CONCOURSE, BETWEEN TWO ENTRANCES.

THE CONCOURSE DIVIDES THE GROUND FLOOR INTO TWO ZONES:  
1. GENERAL RETAIL + ENTERTAINMENT  
2. PARK RELATED INFORMATION AND RETAIL.

THE EDGES RESPOND TO THE SURROUNDING CIRCULATION AND ACTIVITIES, TWO INACTIVE AND TWO ACTIVE EDGES.

INACTIVE EDGES ARE BACKDROPS FOR PUBLIC GATHERING/STAY SPACES.

ACTIVE EDGES FEED OFF OF MOVEMENT PATHS.

ROOF PLAN [N/A]

# COLENZO POWER PARK

Est. 2024

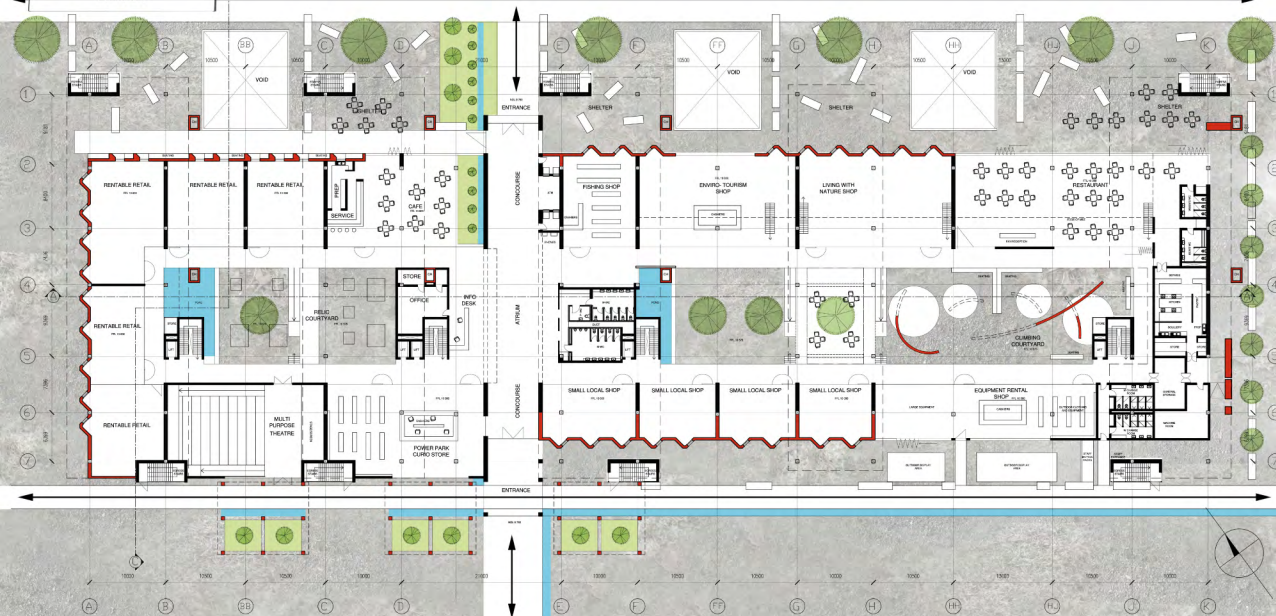
by Zane Atkinson

CLIMAX

AREAS:

INDOOR = 4800sqm  
COURTYARD = 1123sqm

DESIGN



POWER PARK CENTRE GROUND FLOOR PLAN 1-200



# COLENZO POWER PARK

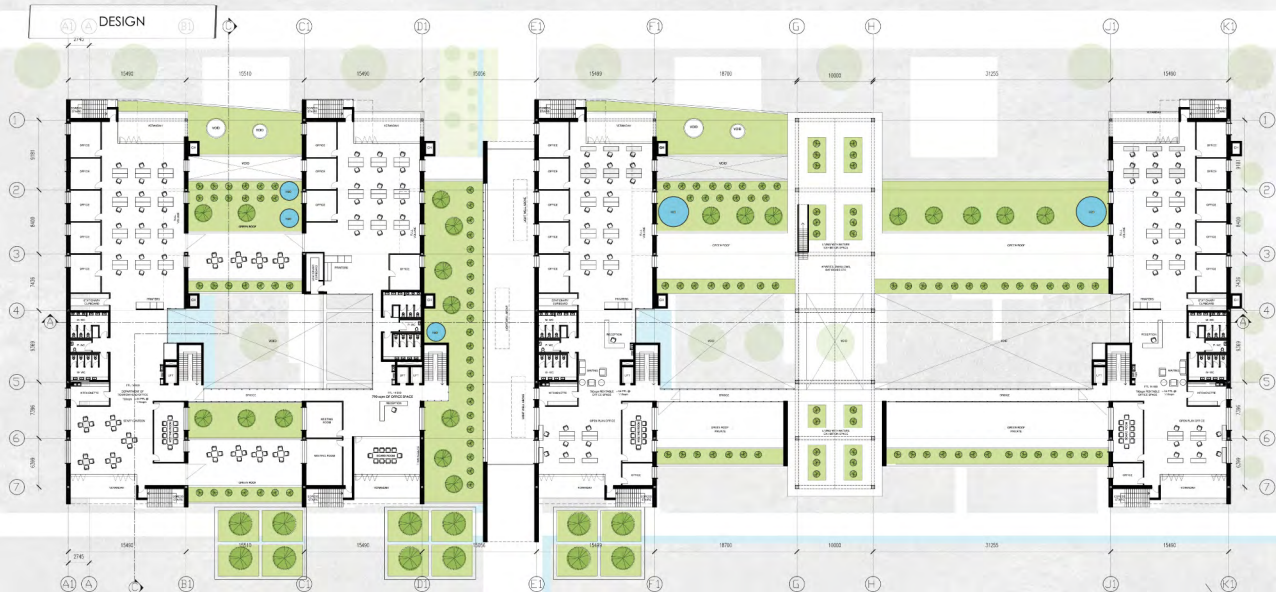
Est. 2024

by Zane Atkinson

CLIMAX

AREAS:

RENTABLE OFFICE SPACE = 1580 sqm  
EDTEA + CEDARA OFFICES = 1580 sqm  
PRIVATE OPEN SPACE = 790 sqm  
PUBLIC OPEN SPACE = 1165 sqm



POWER PARK CENTRE FIRST FLOOR PLAN 1-200

# COLENZO POWER PARK

Est. 2024

by Zane Atkinson

CLIMAX

AREAS:

RENTABLE OFFICE SPACE = 1380 sqm  
EDTEA + CEDARA OFFICES = 1380 sqm  
PRIVATE OPEN SPACE = 0 sqm  
PUBLIC OPEN SPACE = 0 sqm



POWER PARK CENTRE SECOND FLOOR PLAN 1-200

CLIMAX

# COLENSO POWER PARK

Est. 2024

by Zane Atkinson



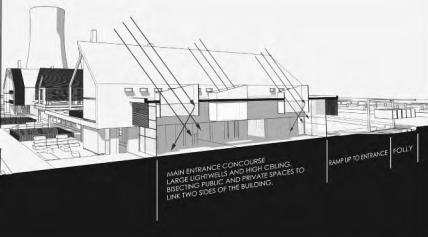


## CLIMAX

Est. 2024

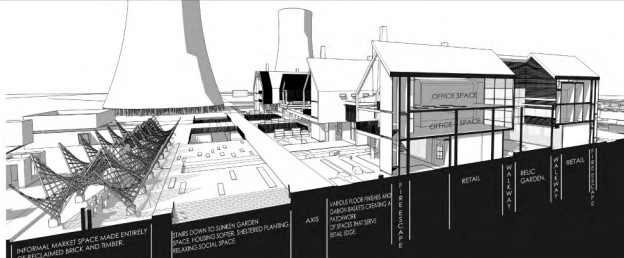
by Zane Atkinson

DESIGN



MAIN ENTRANCE CONCOURSE  
LARGE LIGHTWELLS AND HIGH CEILING.  
DIRECTING PUBLIC AND PRIVATE SPACES TO  
ENTER THE BUILDING.

CAMP UP TO ENTRANCE FOLLY



INFORMAL MARKET SPACE MADE ENTIRELY  
OF RECLAIMED BRICK AND TIMBER.

STAIRS DOWN TO SUNKEN C  
SPACE, HOUSING SOFTER, S  
SOCIAL SPACE.

VARIOUS FLOOR FINISHES AND  
GARBAGE BASKETS CREATING A  
PATCHWORK  
OF SPACES THAT SERVE  
RETAIL EDGE.

FIRE ESCAPE

1

RE	RE
----	----



NATURE EDUCATION  
PAGES.  
[INTERACTIVE EXHIBIT]

**NORTH EAST ELEVATION1-200**



**ENTRANCE FOLLY**  
BREAKS MAIN AXIS AS A NODE OF INTEREST,  
ALLOWING USERS TO IDENTIFY WITH THE POWER  
PARK CENTRE ENTRANCE



**ENTRANCE FOLLY**  
REUSE OF INDUSTRIAL MATERIALS. THE RE-PURPOSING  
AIMS TO ALTER THE WAY THE VIEWERS PERCEIVE  
INDUSTRIAL SPACES [DYSOPIAS]



**POWER PARK CENTRE ENTRANCE**  
USE EXISTING MONOLITHS TO FRAME ENTRANCE AND ORGANISE  
THE RHYTHM OF THE SW ELEVATION.  
RE-PURPOSED TO CONTAIN 'HOPE', FRUIT TREES.

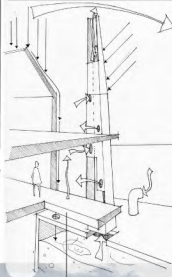
# COLENZO POWER PARK

Est. 2024

by Zane Atkinson

DESIGN

## CLIMAX



### SOLAR CHIMNEY DESIGN

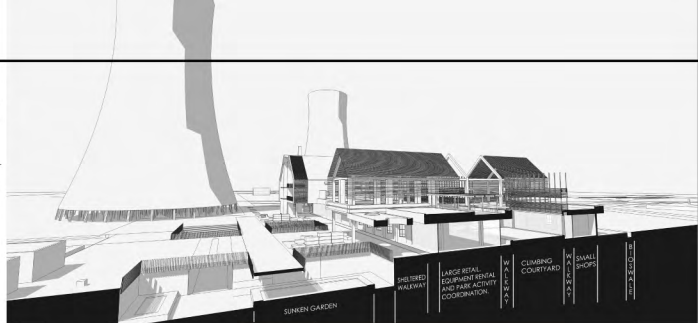
SOLAR CHIMNEYS ADD TO THE INDUSTRIAL AESTHETIC WHILE AIDING IN THE PASSIVE HEATING/COOLING OF THE BUILDING. RAINWATER IS STORED IN UNDERGROUND TANKS WITH A COOL AIR RESERVOIR ABOVE THE OVERFLOW CONTROL. FANS PULL AIR INTO THE RESERVOIR TO COOL.

COOL AIR IS THEN PULLED UP INTO THE BUILDING VIA A CONVECTION CURRENT THAT IS CREATED BY THE TEMPERATURE DIFFERENTIAL.

CHIMNEY HEATS UP, PULLING AIR UP THROUGH THE BUILDING AND OUT (VENTURE EFFECT).

THE RESERVOIR AIR WILL BE WARMER THAN EXTERNAL AIR IN WINTER MONTHS. THIS IN TURN WILL HELP HEAT THE BUILDING.

WATER TANKS FEED INTO THE BIOSWALE SYSTEM AND PUMPS SUPPLY GREY WATER TO TOILETS.



DEEP RECESSES TO DEAL WITH THE LOW ANGLE SUMMER AFTERNOON SUN.

BIOSWALE PROCESSES THE RAIN WATER RUN OFF FROM THE BUILDING BEFORE DRAINING IT TO THE TUGELA SPONGE PARK.

ENTRANCE

RE-PURPOSED STRUCTURE FOR FRUIT TREES AND TO FRAME THE ENTRANCE.

20m (66ft)

NATURE EDUCATION PACES (INTERACTIVE EXHIBITS)

SOUTH WEST ELEVATION 1-200



"HIGHLIGHTING" RUINS  
THE EXISTING CONCRETE AND BRICK FOUNDATION STRUCTURES FROM THE OLD POWER STATION BREAK UP THE OPEN SPACE AND ARE OPPORTUNITIES FOR SMALL INTERVENTIONS AND SEATING.



"HIGHLIGHTING" RUINS  
AT NIGHT THE EXISTING RUINS BECOME POWERFUL LANDMARKS FOR WAY FINDING AS VARIOUS SCALES. THE COOLING TOWERS ARE BEACONS FOR THE REGION.



INFORMAL MARKET SPACE  
THE MARKET BREAKS UP THE LARGE NORTH PLAZA AND REUSES EXISTING MATERIALS TO CREATE A USABLE SPACE. TIMBER IS RE-PURPOSED TO CREATE AN ENGAGING AND INTERESTING ROOF STRUCTURE [SEE 3D MODEL].



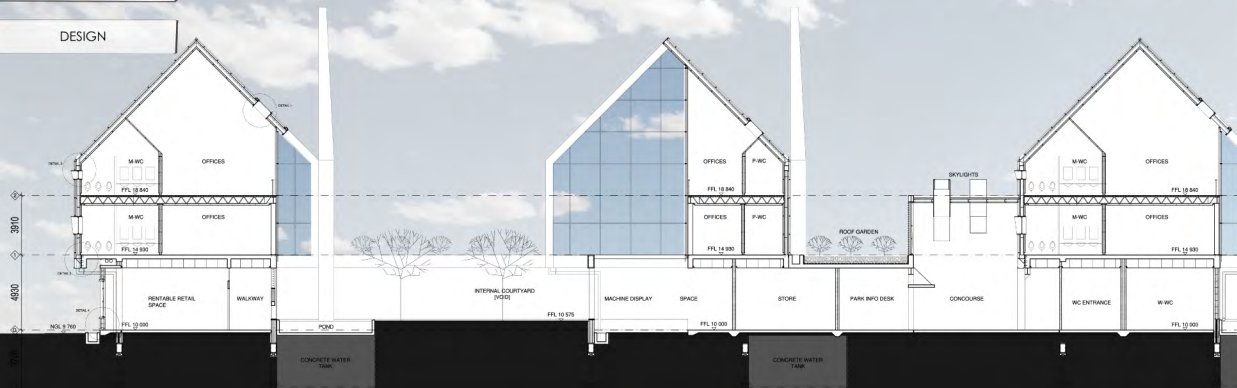
CLIMAX

# COLENZO POWER PARK

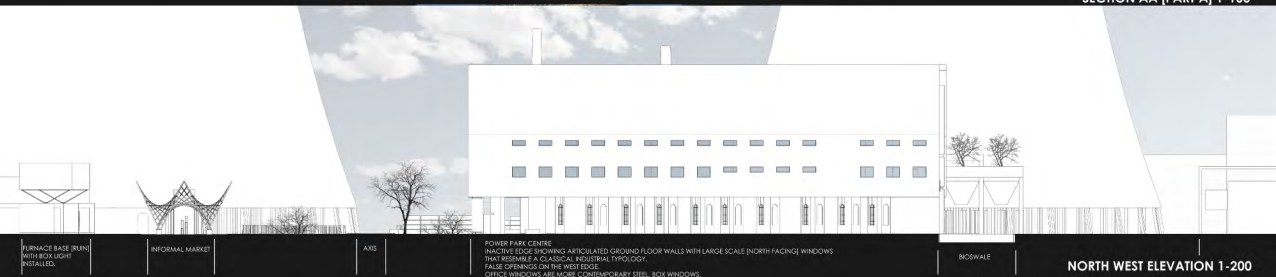
Est. 2024

by Zane Atkinson

DESIGN



SECTION AA [PART A] 1-100



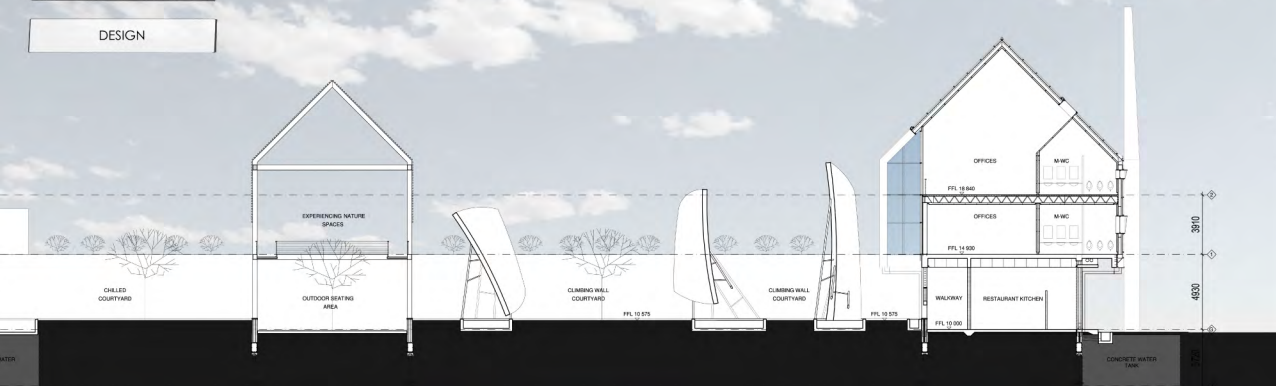
# COLENZO POWER PARK

Est. 2024

by Zane Atkinson

DESIGN

CLIMAX



SECTION AA [PART B] 1-100



**MARKET PLAZA**  
BETWEEN THE MUSEUM AND THE POWER PARK CENTRE IT HOUSES VARIOUS PUBLIC SPACES: SUNKEN GARDENS, GABION SEATING AREAS, SMALL FOLLIES AND THE MAIN EVENT SPACE. IT TERMINATES IN THE MAIN (MIXED USE) EVENT SPACE, ABOVE IT IS USED TO SCREEN A MOVIE AT NIGHT.



**CLIMBING COURTYARD**  
ABOVE SHOWS THE CLIMBING WALLS THAT ARE RECLAIMED SHELLS FROM THE DEMOLISHED COOLING TOWER. THE SHELLS ARE SUPPORTED ON STEEL STRUCTURES WITH SAND PITS TO CUSHION FALLS.



**CLIMBING COURTYARD**  
THE CIRCULATION CORES AND VOIDS WITHIN THE OFFICE STRUCTURES ARE DYNAMIC ENDS TO THE COURTYARD SPACES. THEY MAKE NAVIGATION EASIER AS THEY ARE EASILY IDENTIFIABLE BY THEIR MATERIAL.

# COLENSO POWER PARK

Est. 2024

by Zane Atkinson

## DESIGN

### MATERIALS

GALVANISED IBS SHEETING FORMS THE CLADDING FOR THE OFFICES. CLEAN AND SLICK FINISH THAT RELATES TO AN AGRICULTURAL CONTEXT AS WELL AS THE UTOPIAN IMAGE.

RECLAIMED BRICK EMBODIES THE PAST OF THE SITE AND SITES THE NARRATIVE OF HOPE OUT OF DYSTOPIA (REUSE).

RUBBLE ON SITE REUSED TO FILL GABION BASKETS THAT ARE THEN USED FOR SHEETING AND WIND WALLS IN THE PLAZA.

STRUCTURE IS A CONCRETE AND STEEL FRAME. CONCRETE FINISH IS MOST APPARENT IN THE ENTRANCE.

SOLAR CONTROL IS IN THE FORM OF VERTICAL AND HORIZONTAL TIMBER LOUVRES (NEW) BUT TIMBER IS ALSO USED IN THE TOWER AND THE MARKET PLACE.

## CLIMAX

### THE COOLING TOWER

COLENSO IS DEFINED BY THESE COOLING TOWERS. THEY ARE REGIONAL LANDMARKS AND A MASSIVE POINT OF CURIOSITY FOR THE TOWN.

ONE WILL LINK WITH THE PROPOSED MUSEUM WALK AND ACT AS THE WALK'S TERMINATION POINT.

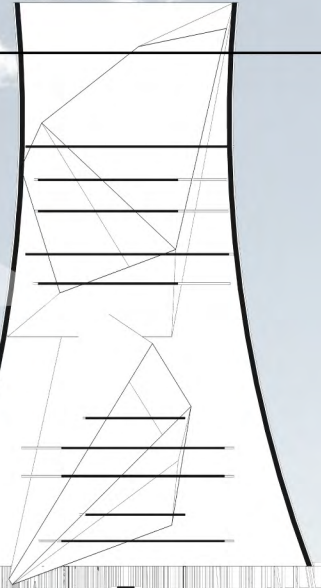
A LARGE STEEL AND TIMBER STRUCTURE IS PROPOSED. IT IS A SHARD THAT CONTRASTS THE FORM AND MATERIALITY OF THE TOWER (EXTRUSION) THAT SERVES AS A VERTICAL GALLERY SPACE AS WELL AS A VENUE FOR THE.

THE EXPERIENCE THIS TOWER OFFERS ACTS AS ONE OF THE MAIN ATTRACTIONS TO THE PARK.

IT CAN ALSO HOUSE ADDITIONAL ACTIVITIES LIKE BUNGER JUMPING, ABSEILING, A VIEWING PLATFORM AND SWINGS.



URBAN  
LANDMARK



ENTRANCE FOLLY

SLOWER PUBLIC  
AXIS

INACTIVE [SERVICE] EDGE. ACTS AS A BACKDROP FOR A PUBLIC EXHIBITION SPACE

PUBLIC AXIS

SOUTH EAST [SECTIONAL] ELEVATION 1-200



**RUIN COURTYARD**  
THIS COURTYARD CONTAINS INDUSTRIAL EXHIBITS FROM THE OLD POWER STATION. IT RELATES TO THE PARK SPONSORED STORES AND THEATRE THAT SURROUND IT. RAISED COURTYARD ALLOWS FOR SEATING ALONG THE WALKWAY.



**CLIMBING COURTYARD**  
THIS COURTYARD FOCUSES ON RECREATION AND RELAXATION WITHIN A SHELTERED ENVIRONMENT. IT PLACES AN EMPHASIS ON THE NATURAL ENVIRONMENT AS IT IS CORE TO THE DESIGN [VOID].



**INTERACTIVE "NATURAL" EXHIBITS**  
ROOF TOP GARDENS SERVE THE OFFICES AS PRIVATE SPACES BUT ALSO THE PUBLIC AS POINTS OF INTEREST. THEY CONTAIN EXHIBITS THAT RELATE TO THE SHOPS BELOW: APHARIES, BAT BOXES, TERRARIUMS ETC. CREATING AN INTEREST IN NATURAL SYSTEMS AND THEIR BENEFITS.

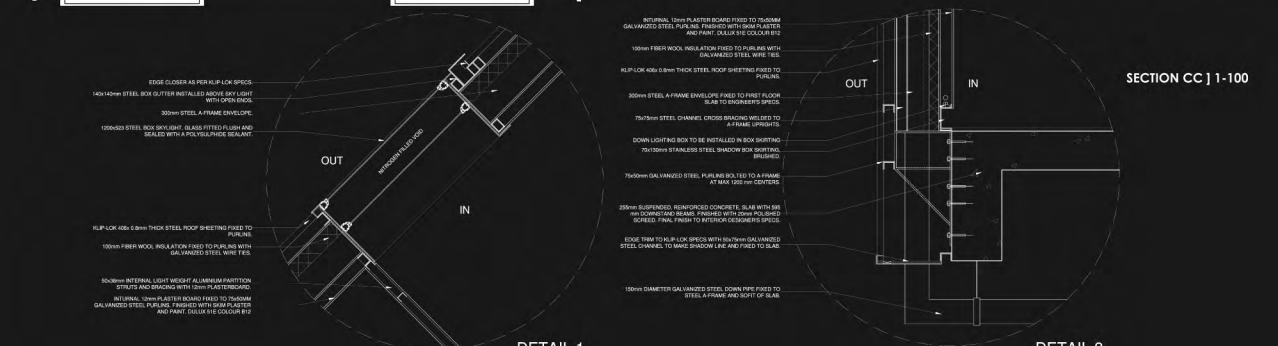
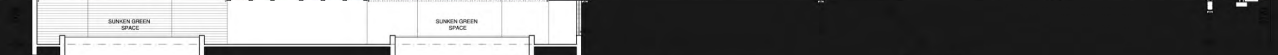
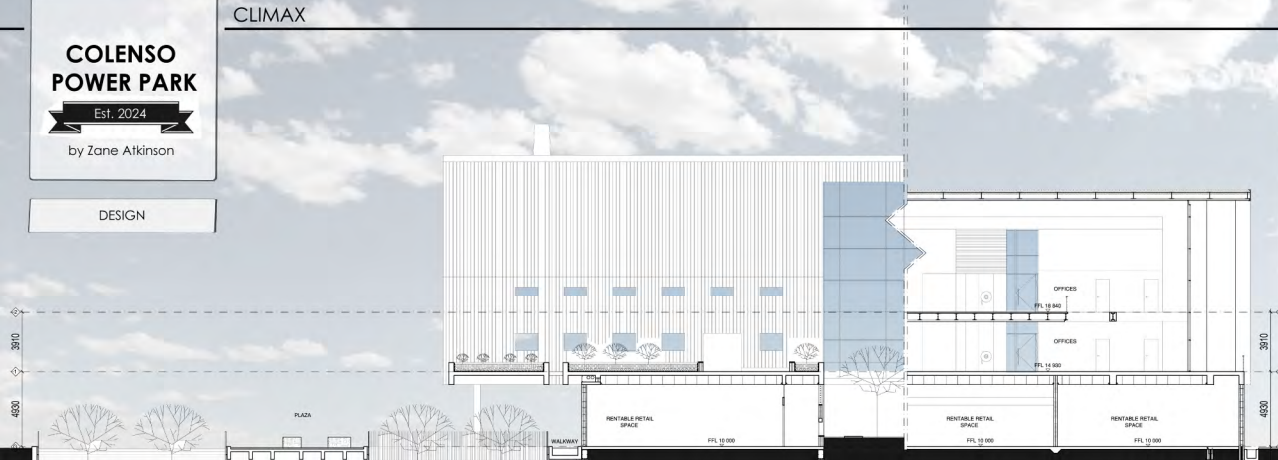
# COLENZO POWER PARK

Est. 2024

by Zane Atkinson

DESIGN

CLIMAX

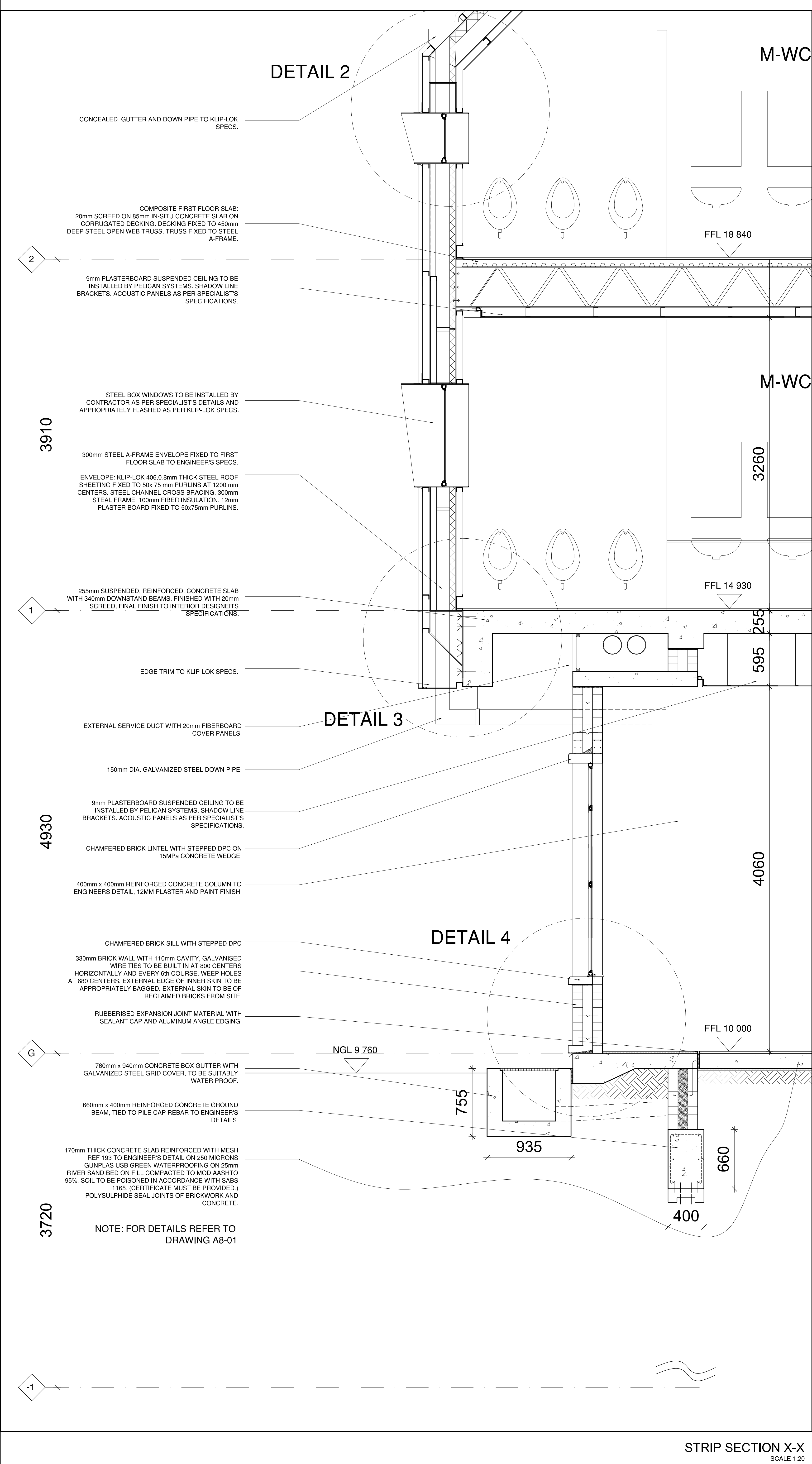


SECTION CC | 1-100

DETAIL 1

DETAIL 3





STRIP SECTION X-X  
SCALE 1:20

No.	REVISION	DATE

**ZA Architect c.c.**

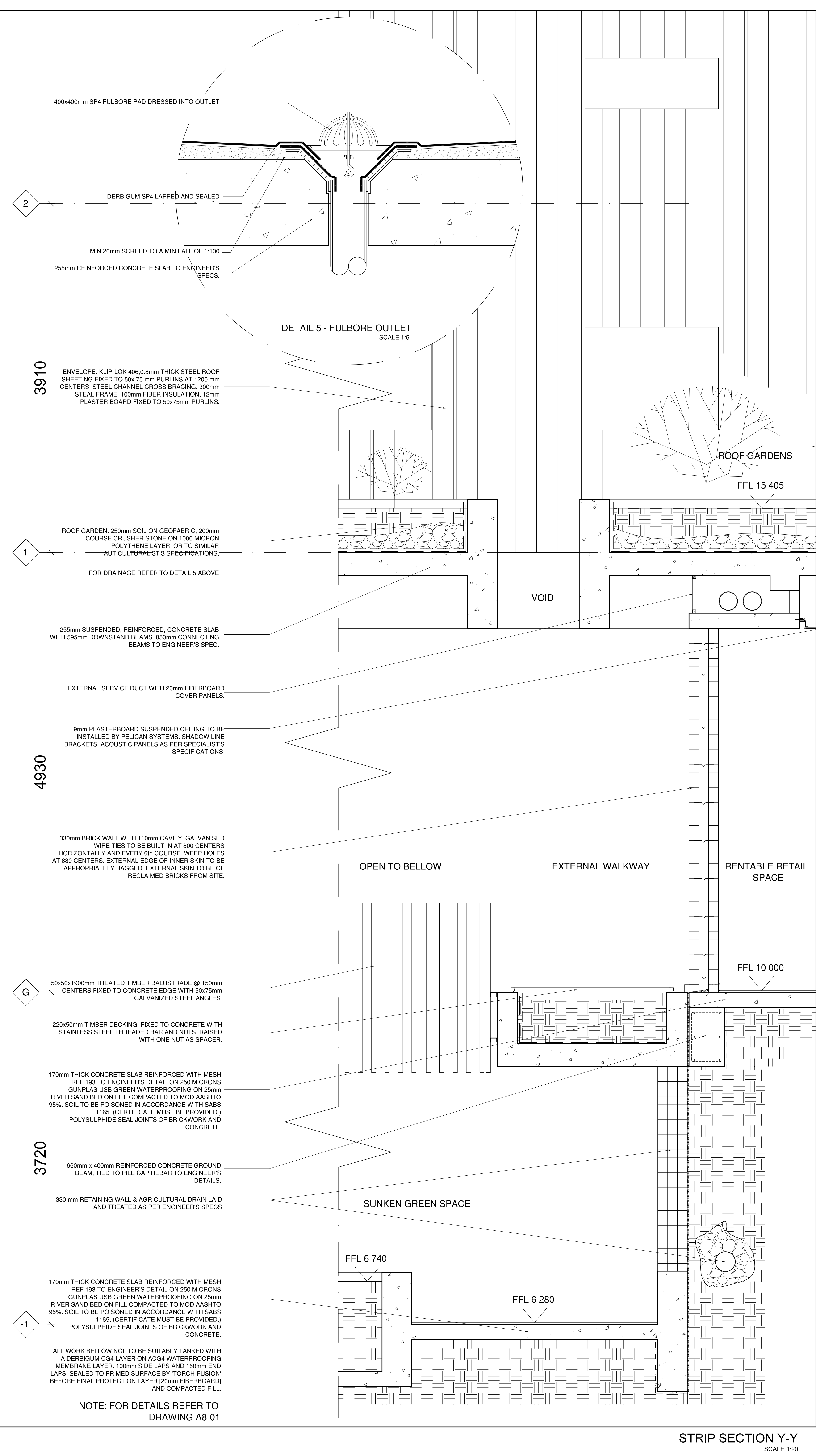
Howard College, Durban, 4001  
Tel: (031) 555-0749 / Fax: (031) 556-0749  
SACAP REG No.: -  
ARCHITECT'S REGISTRATION No.: -  
ARCHITECT'S SIGNATURE: \_\_\_\_\_

project description

**POWER PARK CENTRE, POWER PARK for the DEPT. OF ECONOMIC DEVELOPMENT, TOURISM & ENVIRONMENTAL AFFAIRS KZN in COLENSO**

APPROVED: (CLIENT) \_\_\_\_\_  
CLIENT'S SIGNATURE: \_\_\_\_\_  
CLIENT'S TELEPHONE No.: \_\_\_\_\_

drawing title				
STRIP SECTION				
designed ZA	checked -	scale 1:20		
drawn ZA	date Nov 15	sheet A1		
PROJECT NUMBER	ENQ. No.	DRWG. NUMBER	STATUS	REVISION
01-02		A7-02	C	-
D = DESIGN T = TENDER C = CONSTRUCTION MS = MUNICIPAL SUBMISSION P = PRELIMINARY AB = AS BUILT				



No.	REVISION	DATE

**ZA Architect c.c.**

Howard College, Durban, 4001  
Tel: (031) 555-0749 / Fax: (031) 556-0749  
SACAP REG No.: -  
ARCHITECT'S REGISTRATION No.: -  
ARCHITECT'S SIGNATURE: \_\_\_\_\_

project description

**POWER PARK CENTRE, POWER PARK for the DEPT. OF ECONOMIC DEVELOPMENT, TOURISM & ENVIRONMENTAL AFFAIRS KZN in COLENSO**

APPROVED: (CLIENT)  
CLIENT'S SIGNATURE: \_\_\_\_\_  
CLIENT'S TELEPHONE No.: \_\_\_\_\_

drawing title

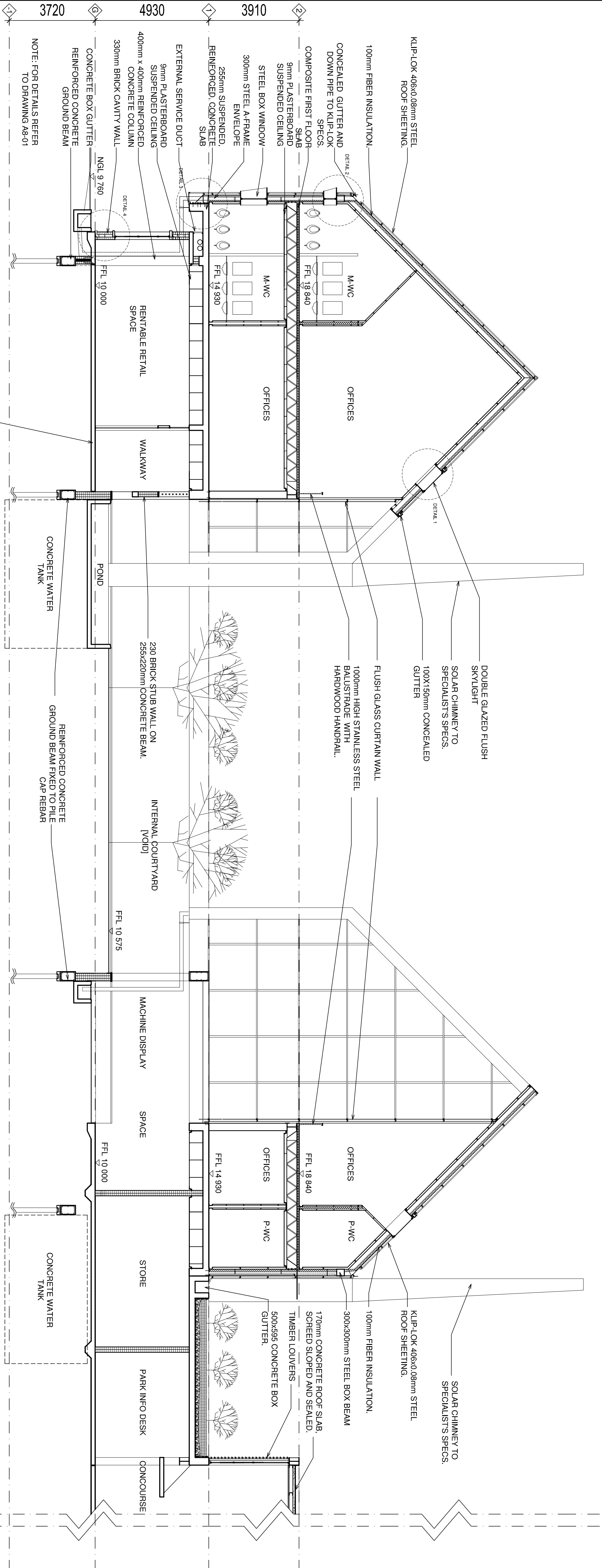
**STRIP SECTION & DETAIL**

designed ZA	checked -	scale 1:20
drawn ZA	date Nov 15	sheet A1

PROJECT NUMBER	ENO. No.	DRWG. NUMBER	STATUS	REVISION
01-02		A7-03	C	-

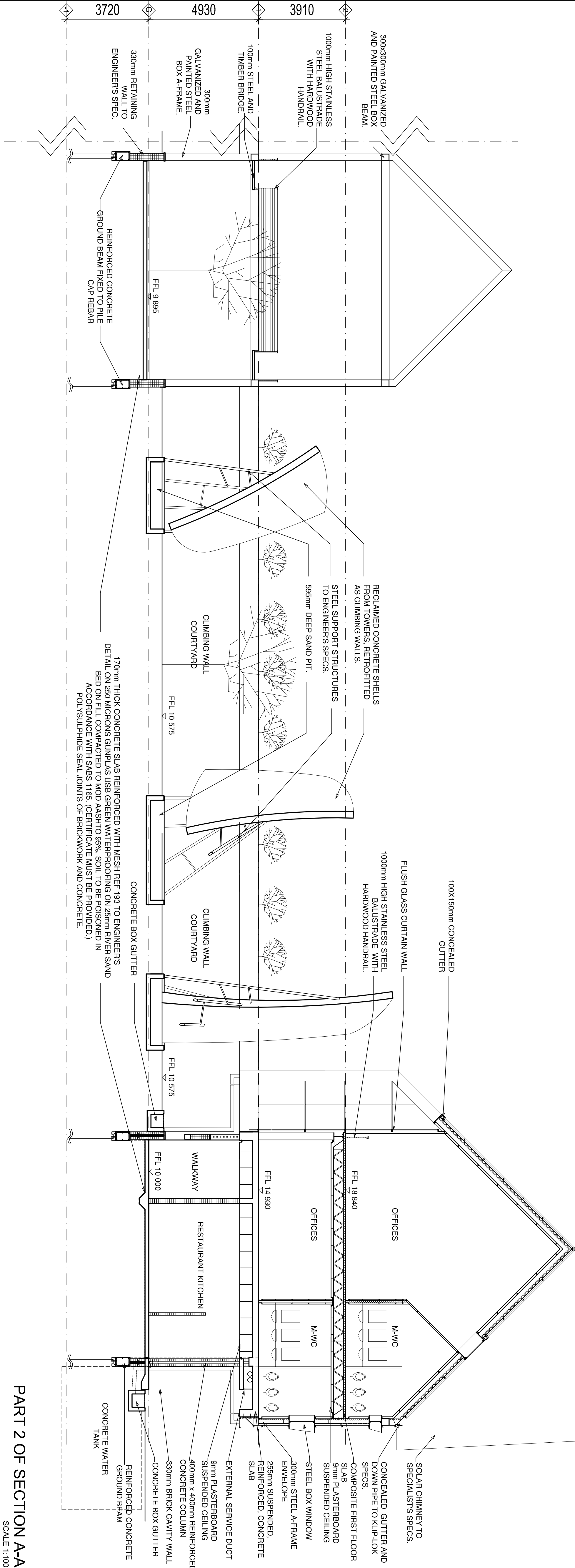
D = DESIGN  
MS = MUNICIPAL SUBMISSION  
T = TENDER  
P = PRELIMINARY  
C = CONSTRUCTION  
AB = AS BUILT

STRIP SECTION Y-Y  
SCALE 1:20



PART 1 OF SECTION A-A  
SCALE 1:100

170mm THICK CONCRETE SLAB REINFORCED WITH MESH REF. 193 TO ENGINEERS DETAIL ON 250 MICRONS GUNPLAS USB GREEN WATERPROOFING ON 25mm RIVER SAND BED ON FILL COMPACTED TO MOD AASHTO 95% SOIL TO BE POISONED IN ACCORDANCE WITH SABS 1165. (CERTIFICATE MUST BE PROVIDED.) POLYSULPHIDE SEAL JOINTS OF BRICKWORK AND CONCRETE.



PART 2 OF SECTION A-A  
SCALE 1:100

No.	REVISION	DATE


ZA Architect c.c.

Havard College, Durban, 4001  
Tel: (031) 555-0748 / Fax: (031) 556-0748  
SACAP REG No.: -

ARCHITECT'S REGISTRATION No.:-

ARCHITECT'S SIGNATURE:

project description

POWER PARK CENTRE, POWER PARK for the  
DEPT. OF ECONOMIC DEVELOPMENT,  
TOURISM & ENVIRONMENTAL AFFAIRS KZN  
in COLENSO

APPROVED (CLIENT)  
CLIENT'S SIGNATURE:  
CLIENT'S TELEPHONE No.:

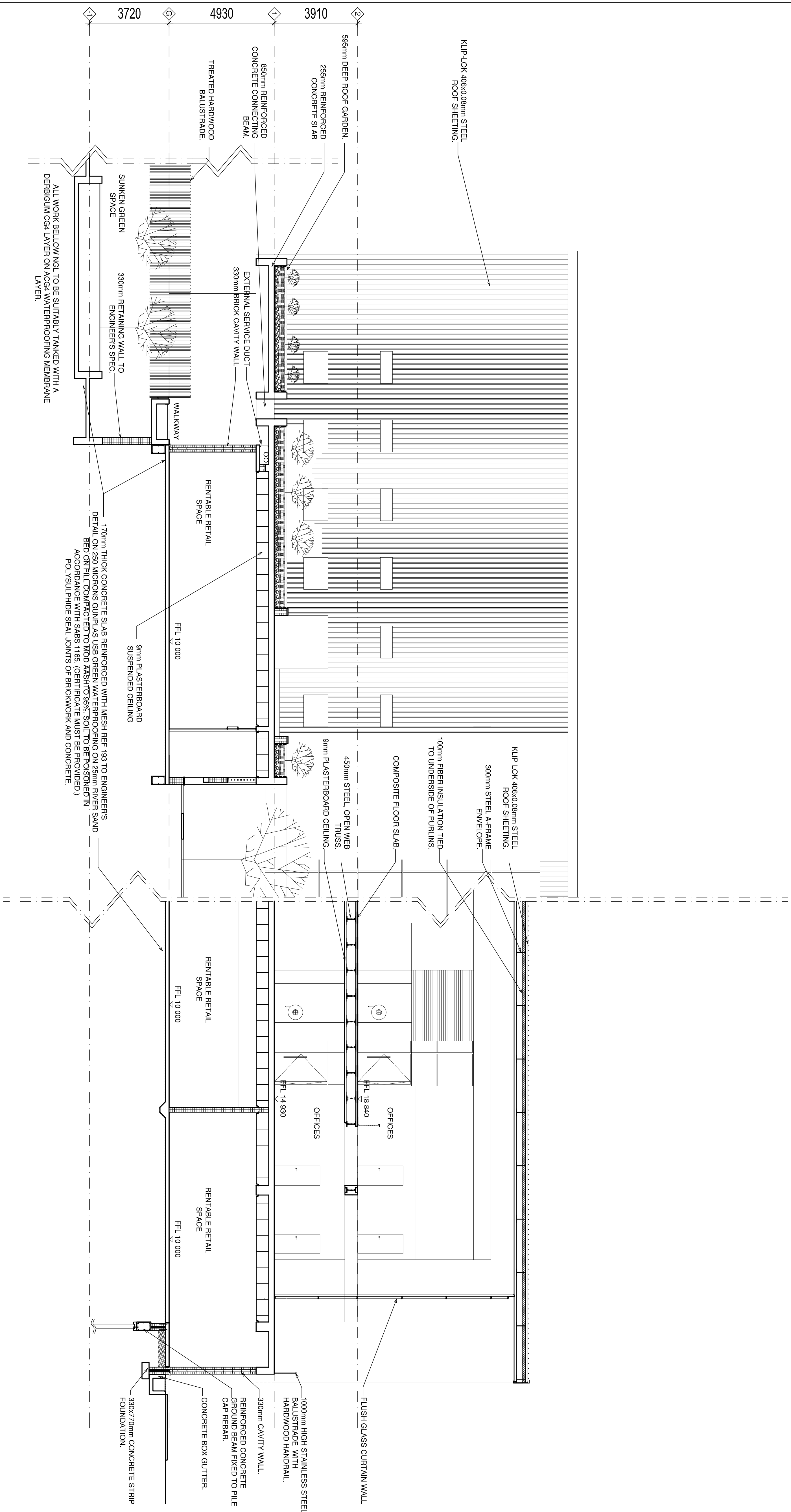
drawing title

PART SECTION A-A

designed ZA	checked -	scale 1:100
drawn ZA	date Nov 15	sheet A1

PROJECT NUMBER	END. No.	DWG. NUMBER	STATUS	REVISION
01-02		A6-01	C	-

D = DESIGN P.A. SUBMISSION P = PRELIMINARY AB = AS BUILT



## SECTION C-C

SCALE 1:100

No.	REVISION	DATE

ZA Architect C.C.

Howard College, Durban, 4001

SACAP REG No.: -

ARCHITECT'S REGISTRATION No.:

ARCHITECT'S SIGNATURE

project descriptor

POWER PARK CENTRE, POWER PARK for the  
DEPT. OF ECONOMIC DEVELOPMENT,  
TOURISM & ENVIRONMENTAL AFFAIRS KZN  
in COLENSO

APPROVED: (CLIENT)

CLIENT'S TELEPHONE No. \_\_\_\_\_

CLIENT'S TELEPHONE NO.:

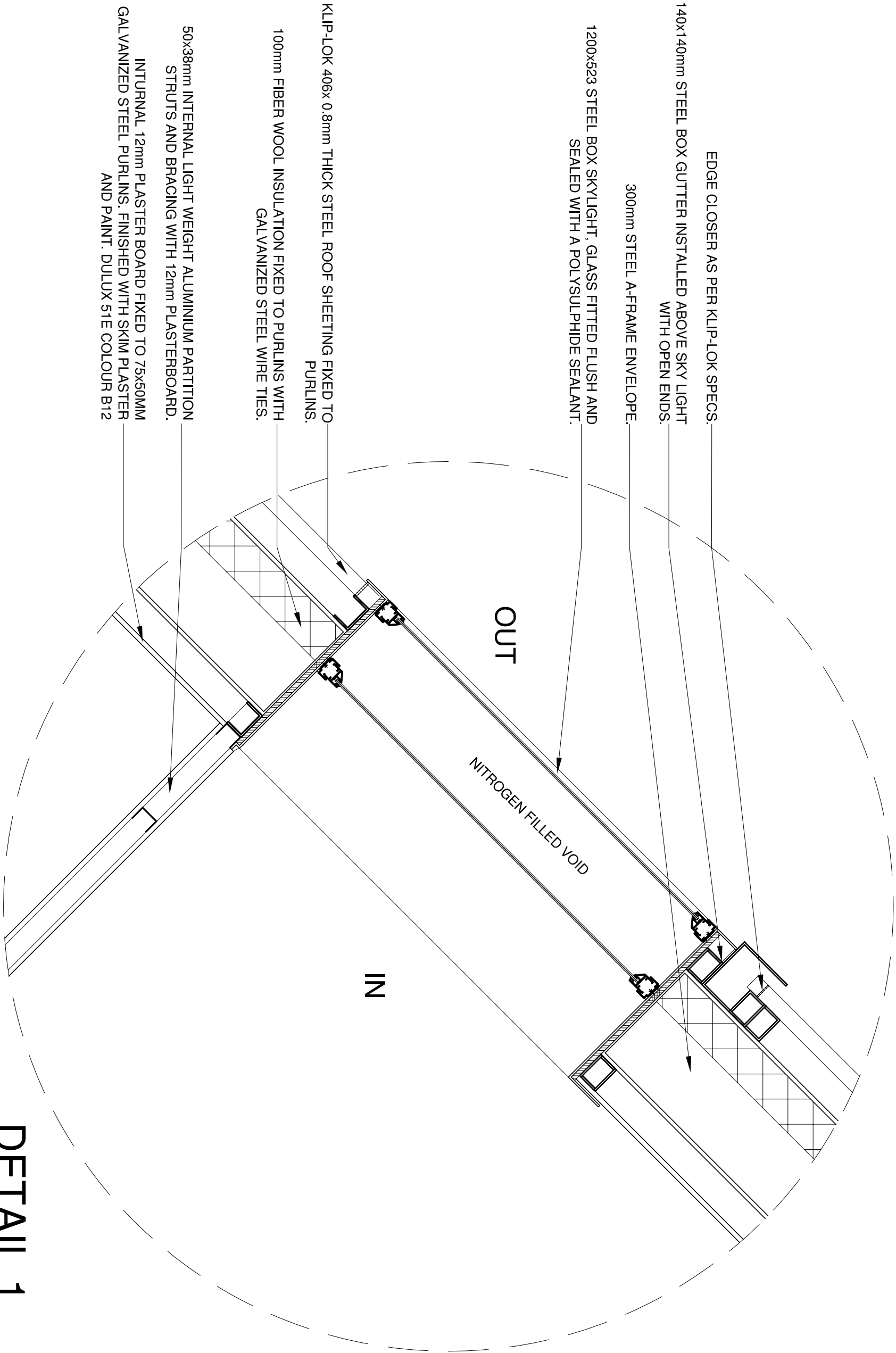
drawing title

## SECTION C-C

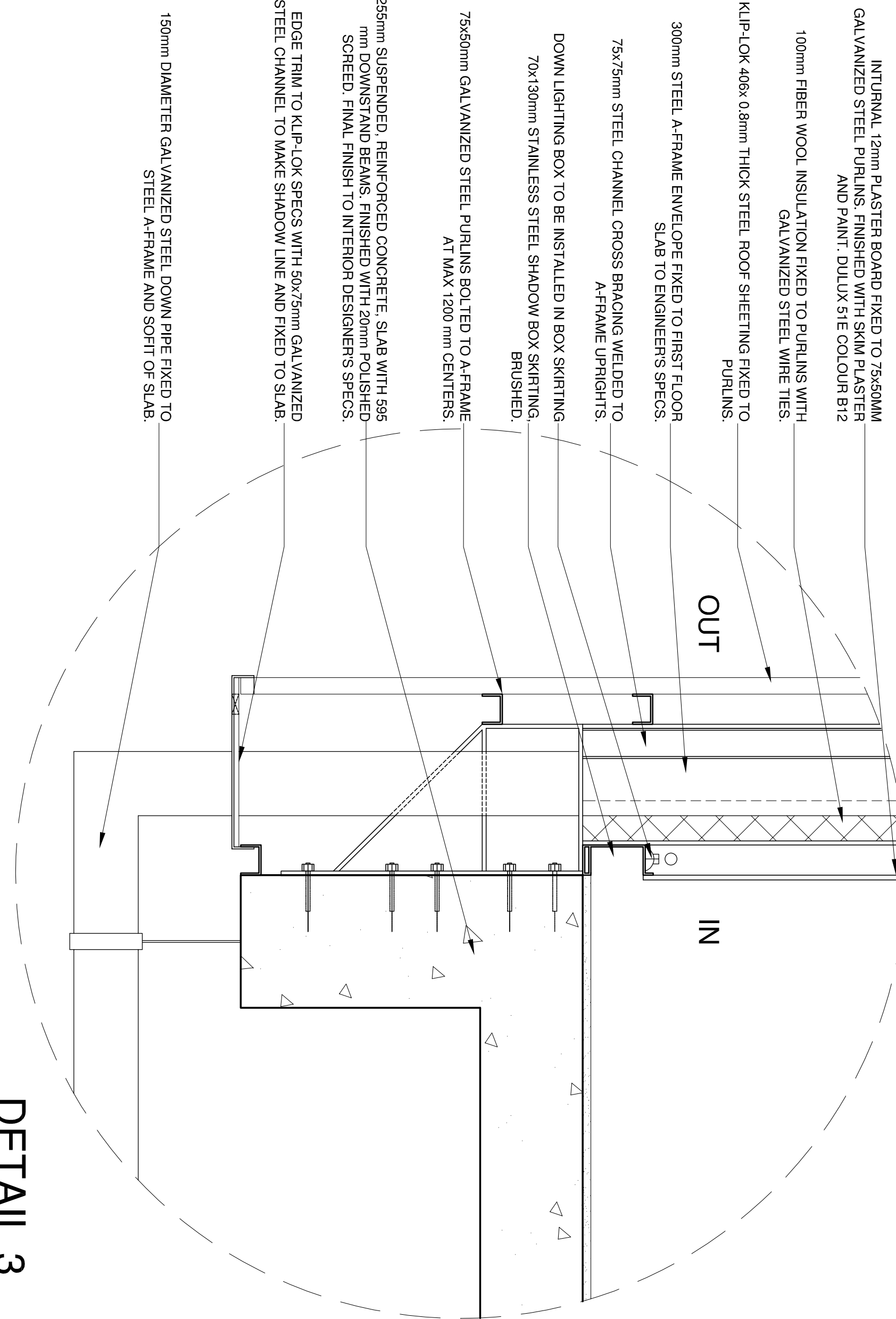
designed ZA	checked -	scale 1:100
drawn ZA	date Nov 15	sheet A1
OBJECT NUMBER	ENG. No.	DRWG. NUMBER
1-02		A6-02
		C
		-
		STATUS
		REVISION

MS = MUNICIPAL SUBMISSION P = PRELIMINARY AB = AS BUILT

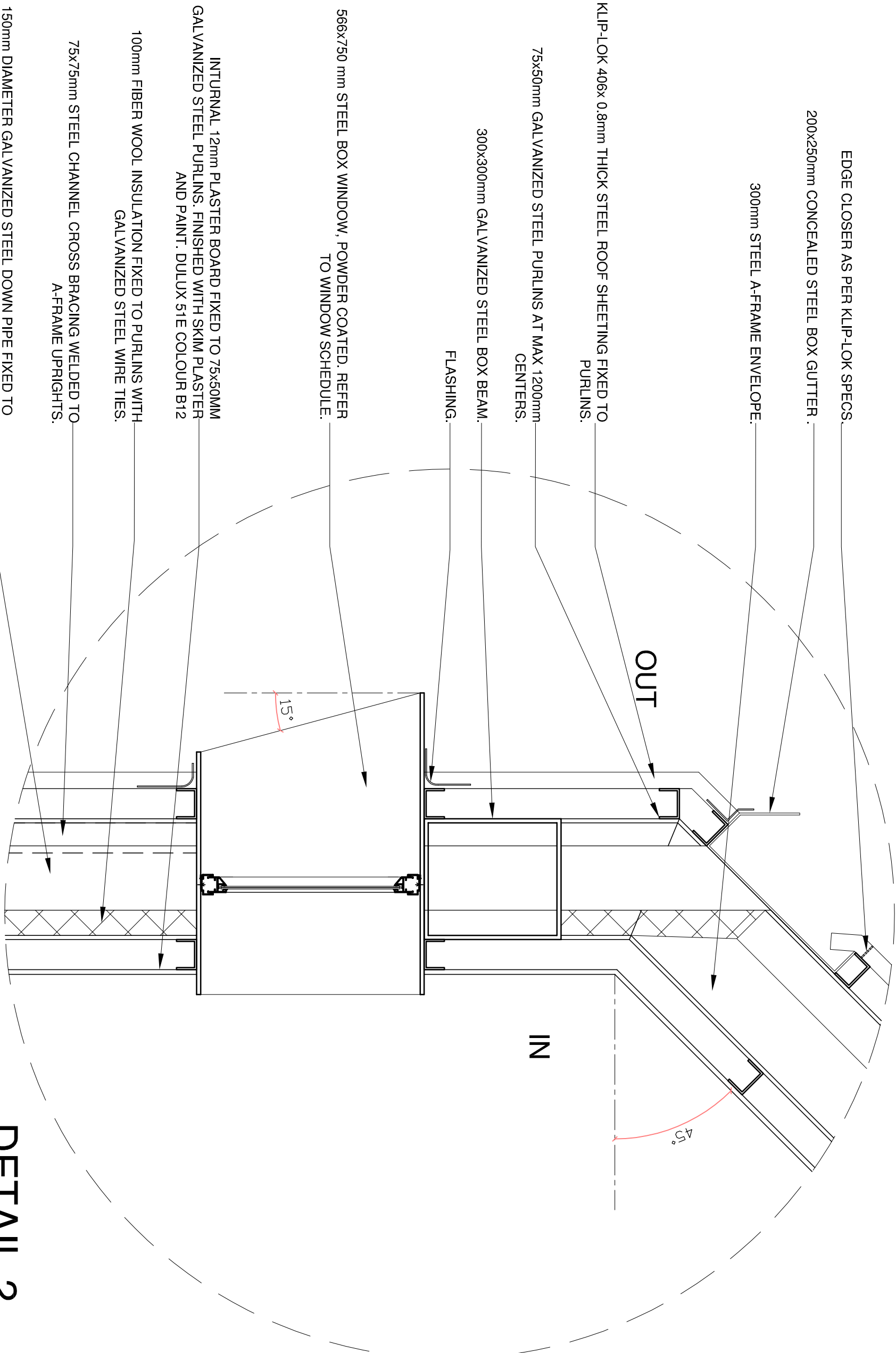




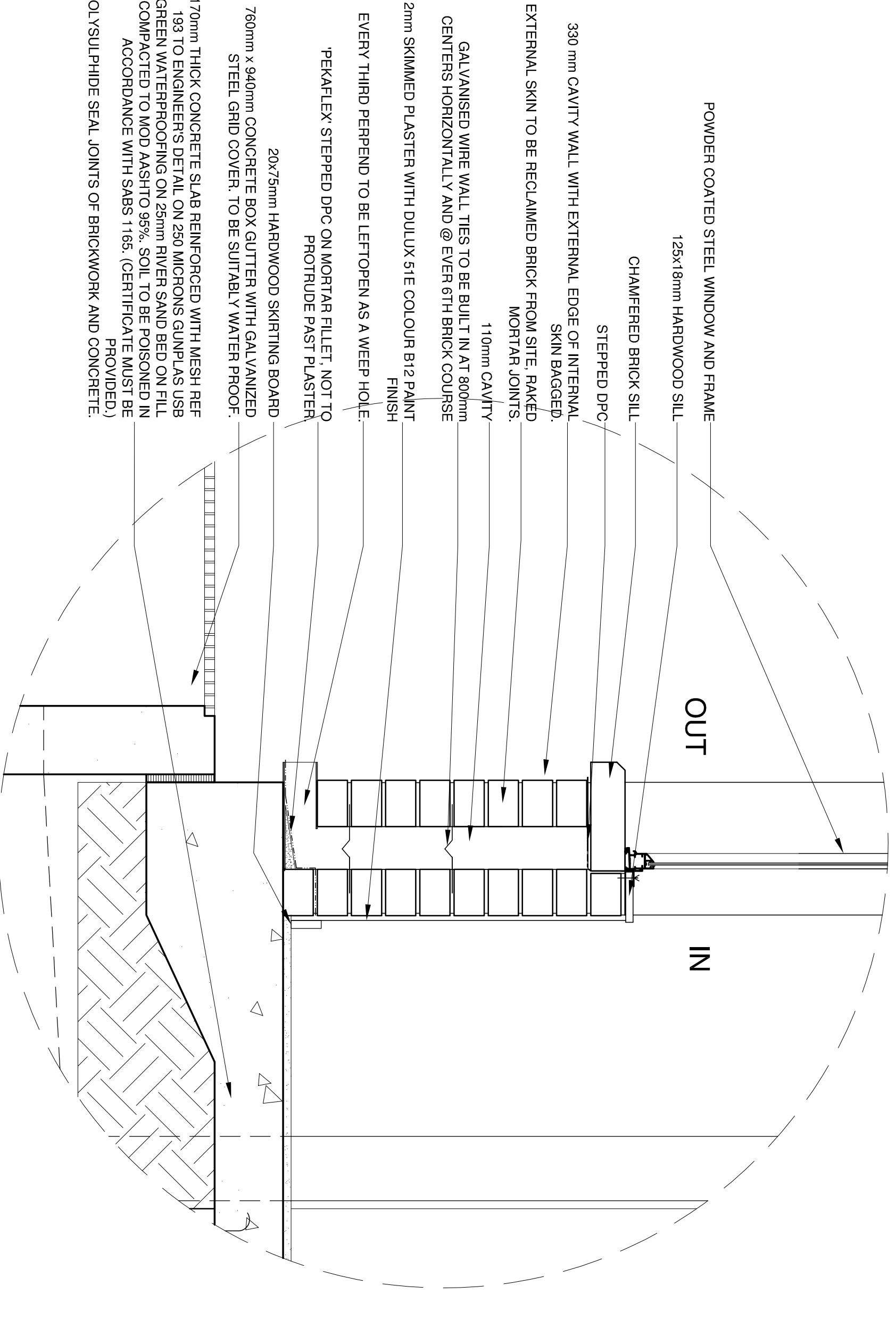
DETAIL 1



DETAIL 3



DETAIL 2



DETAIL 4

No.	REVISION	DATE

<b>ZA Architect c.c.</b>
Howard College, Durban, 4001
Tel: (031) 556-0748 / Fax: (031) 556-0748
SACAP REG No.: -
ARCHITECT'S REGISTRATION No.: -
ARCHITECT'S SIGNATURE: _____

project description	<b>POWER PARK CENTRE, POWER PARK for the DEPT. OF ECONOMIC DEVELOPMENT, TOURISM &amp; ENVIRONMENTAL AFFAIRS KZN in COLENSO</b>
APPROVED (CLIENT)	_____
CLIENT'S SIGNATURE:	_____
CLIENT'S TELEPHONE No.:	_____

drawing title

DETAILS

designed ZA	checked -	scale 1:10		
drawn ZA	date Nov 15	sheet A1		
PROJECT NUMBER	END. No.	DRAW. NUMBER	STATUS	REVISION
01-02	A8-01	C	-	-

D = DESIGN  
P = PRELIMINARY  
A8 = AS BUILT

T = TENDER  
C = CONSTRUCTION  
AB = AS BUILT

## **CHAPTER 4**

### **POST DESIGN**

#### **4.1 INTRODUCTION**

This chapter is the concluding chapter for the design report; it reflects on some of the design decisions and why they were made. It also reflects on the design project as a whole in a rather subjective manner; being critical of the resolved design and how well it has responded to the research.

#### **4.2 TECHNICAL DISCUSSION**

When one looks back at the finished design there are several pragmatic elements that were done with good reason; even though those reasons may not be apparent.

The first issue for discussion is the structural resolution of the design.

The design is made up of a layered frame and envelope structure; the heavy first floor slabs, which carry the weight of the expansive roof gardens as well as the office structure, are, supported by the primary concrete frame. The concrete beams and columns sit on a pile foundation; this has been done due to the heavy water and clay content of the soil. The skin of the ground floor is a brick concertina wall that is not load bearing as it is made up of reclaimed brick from the site.

When one moves up from the first floor slab there is a change in the structure, it is still a frame but to increase the span while decreasing weight a steel frame was chosen. The steel frame is mostly concealed within the shed like envelope of the first and second floors; this is to give it a clean finish. The resulting envelope is 460mm thick which provides ample space for insulation and services; this also creates the deep reveals required for adequate solar control.

The two structural systems were chosen for theoretical reasons as well as their practical applications; the two systems are meant to oppose one another and help create a legible juxtaposition. It is this juxtaposition that creates the narrative of the design.

The second issue for discussion is the choice of materials used in the design.

The material choices were briefly outlined in the design pages and it shows that the design has layers of material expression; once again this is meant to support the design narrative.

The lower level being made out of rustic materials that reflect the ruined nature of the site as well as the industrial function of the site while upper levels are more polished and refined. One could have made the upper level a pure white aluminium cladding but this would have been too devoid of the agricultural and industrial context; so galvanised sheet metal was chosen. This layering of materials is also quite a logical approach as it is layered such that the heavier, more monolithic, materials are on the ground and the lighter materials above.

The use of timber in the design was not a part of the initial design as it does disrupt the pure narrative expression; but the fact that there was a large amount of timber on site meant that it had to be incorporated in the design. The re-use of the timber is a part of the design concept which states that one must find the value of that which is on the site. The majority of the timber was used for solar control mechanism and in the construction of the informal market roof.

The sustainable systems within the design are the last issue for discussion and are made up of the passive heating/cooling system and the water treatment system. Both the use of solar chimneys and bioswales have many precedents which mean that they would be easily achievable on site. How effective the actual designs of the

systems are is debatable but with the aid of the appropriate consultants they should be able to operate at an acceptable level.

#### **4.3 REFLECTION & CONCLUSION**

The final design is less of a conclusive park design as the park aspect has moved into the urban design framework. This has meant that the findings within the research document which spoke of a narrative architecture, phytoremediation and critical dystopia has had to be captured, mostly, within a single building. The Park Centre has been successful in terms of being a functional building as well as an expressive one, in terms of narrative.

One of the key points that came out of the research was the need for subtle narrative as opposed to overt narrative; this has been achieved through simple methods.

- Re-use where ever possible.
- The highlighting of existing structures through repurposing and contrast.
- The layering of both structure and material.
- The use of recognisable tropes or forms.
- The creation of public spaces.

Once again it is difficult to truly asses the success of a design as it has not been built and, as is often the case, if it were to be done all over again it would be different. All that can be said is that it has followed the requirements of the research, the client and the site as best as it could. That said the design seems like it would be successful; it seems like it might be a good place to inhabit and take part in exciting events. It seems like it has something more to it than its functions let on and it seems like it could achieve some form of rejuvenation within the town of Colenso.

## References

---

### Web

Eskom, 2006, 'Colenso Power Station', viewed 10 July 2014, from <http://heritage.eskom.co.za/heritage/colenso.htm>

Maloti-drakensberg, 2013, 'KwaZulu-Natal Tourism Master Plan', viewed 17 November 2014, from <http://www.maloti-drakensberg.co.za/cableway/documents/Tourism-Master-Plan-KZN-Presentation-to-cabinet-May-2013.pdf>

## **Appendices**

---

**Site Photos taken on the 25 July 2014 by Author.**











