TOPOGRAPHICAL SITE MICRO ANALYSIS

SAN CRISTOFORO AREA

MILANO

Internship report done by
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ENVIRONMENTAL AND SITE CHARACTERISTICS

TOPOGRAPHICAL SITE MICRO ANALYSIS

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Contents

Every site, natural or man-made, is to some degree unique, a connected web of things and activities. That web imposes limitations and offers possibilities.

- Kevin Lynch and Hack 1984

INTRODUCTION

This project aims to cover all steps to delve more deeply into the site and its context, parts, and components (San Cristoforo area- Milano). This is the stage that we can define as *knowledge* and is pivotal in the whole design process. It is the time when designers investigate a site and its surroundings to understand the place that they will attempt to transform or conserve as it is. Several site visits, public available data, and application of correct methodological technique for improving information and combining data to compose the knowledge of the area and its surroundings. The site was observed in ecological terms, that is, as a system or organisms - humans and non-humans - interacting with one another and their environments, including those beyond the project boundary.

A total knowledge of the place is practically unachievable, and is not realistic to know everything of a place and of its connected webs, However we as architects and urban designers should look ultimately for a reasonable knowledge that will allow us to understand data and information well enough to begin the design. The tools adopted are based on specific circumstances and also was considered variables as the time available for accomplishing the task, the information available, and the type of the designed commissioned.

Direct contact with the site is crucial experience. Even if complete information is available in the form of pictures from several diverse points of view, detailed reports, meticulous surveying, analyses, and sophisticated elaborations, the visit to the site presents a decisive event in the design process. During the site visit, the observer should be receptive to signals coming from the place: its context can reveal its component parts, such as sound, colors, smells, shapes, combinations, and expressions. This is called the *sense of place (or genius loci)*. Such insight enables the designer to direct the plan toward unexpected and otherwise unforeseeable destinations.

The experience of urban designers, landscape architects, and architects reveal the importance of the visit and its determining role in the design process. The site visit also provides the moment when preconceptions falter and new ideas take shape. Exploring the genius loci has challenged generations of urban analysts.

LOCATION

The orientation of the site plays a very important role in setting of the building. When combined with the wind direction and sun path, would give a good idea how the design should be oriented, and in this case is totally positive.

N


ITALY, MILAN
SAN CRISTOFORO
EX INDUSTRIAL AREA
TOTAL FLOOR AREA
211027m²

REGIONAL CLIMATE

The average temperature of the area has been studied, monthly average temperature have been determined, and also the fluctuations - all of them play important role to the design process.

WEATHER DATA SUMMARY

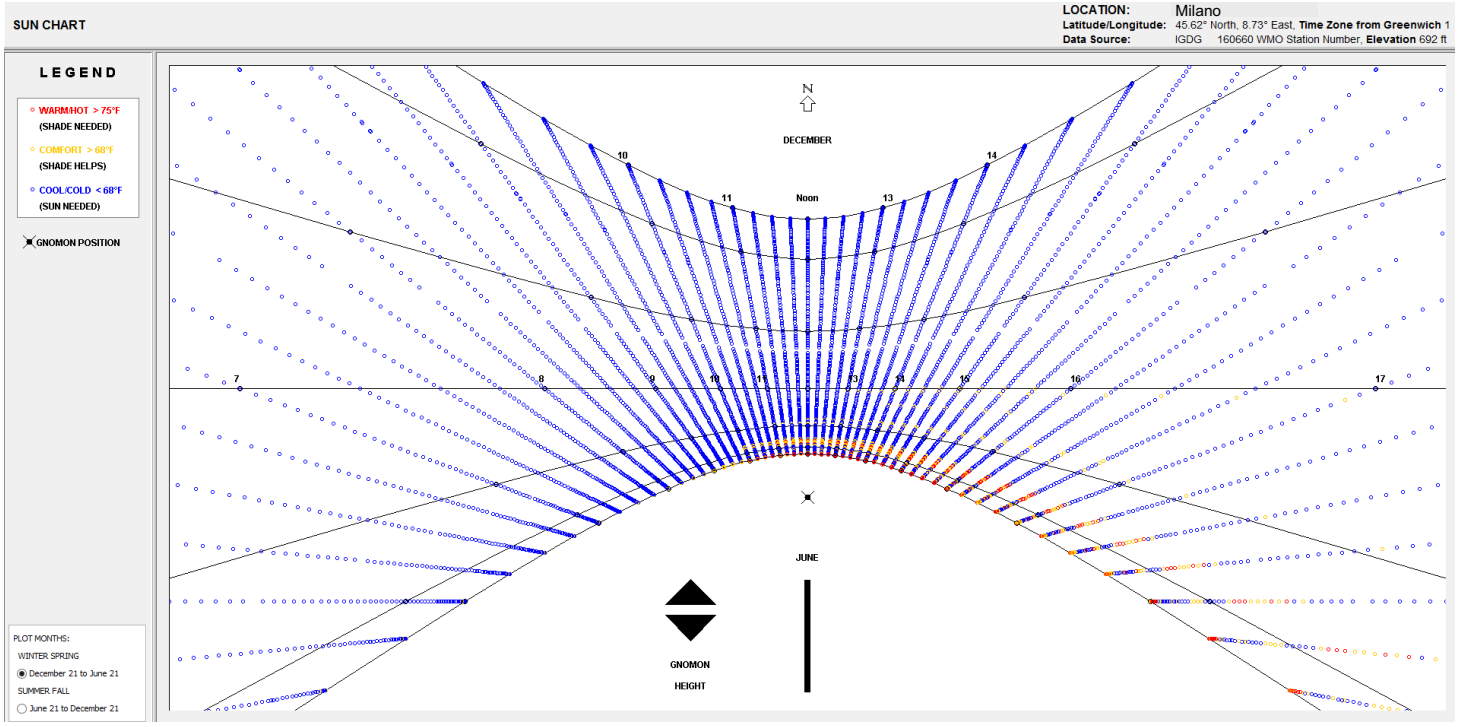
LOCATION: **Milano-Malpensa, -, ITA**
Latitude/Longitude: 45.62° North, 8.73° East, **Time Zone from Greenwich** 1
Data Source: IGDG 160660 WMO Station Number, **Elevation** 692 ft

MONTHLY MEANS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Global Horiz Radiation (Avg Hourly)	29	41	64	88	104	110	116	101	81	54	29	23	Btu/sq.ft
Direct Normal Radiation (Avg Hourly)	9	30	42	60	67	74	85	76	59	31	14	9	Btu/sq.ft
Diffuse Radiation (Avg Hourly)	25	28	40	48	55	55	53	49	45	38	24	20	Btu/sq.ft
Global Horiz Radiation (Max Hourly)	80	112	200	238	271	305	283	257	235	153	78	60	Btu/sq.ft
Direct Normal Radiation (Max Hourly)	63	154	215	233	255	275	255	231	240	167	103	89	Btu/sq.ft
Diffuse Radiation (Max Hourly)	56	77	96	109	117	119	117	109	97	83	62	48	Btu/sq.ft
Global Horiz Radiation (Avg Daily Total)	259	409	755	1179	1537	1711	1754	1417	1014	587	270	203	Btu/sq.ft
Direct Normal Radiation (Avg Daily Total)	88	301	501	812	992	1150	1288	1062	735	343	129	83	Btu/sq.ft
Diffuse Radiation (Avg Daily Total)	229	284	477	643	826	856	810	683	566	416	224	178	Btu/sq.ft
Global Horiz Illumination (Avg Hourly)													footcandles
Direct Normal Illumination (Avg Hourly)													footcandles
Dry Bulb Temperature (Avg Monthly)	31	36	43	51	59	66	71	68	64	52	43	35	degrees F
Dew Point Temperature (Avg Monthly)	26	26	33	40	46	58	59	56	53	44	40	31	degrees F
Relative Humidity (Avg Monthly)	81	70	75	69	67	77	70	69	70	76	89	87	percent
Wind Direction (Monthly Mode)	170	30	200	110	50	120	20	140	70	150	170	270	degrees
Wind Speed (Avg Monthly)	2	3	4	3	4	2	2	3	3	3	1	1	mph
Ground Temperature (Avg Monthly of 3 Depths)	46	40	38	38	43	50	56	62	64	63	59	53	degrees F

source - Climat consultant 6

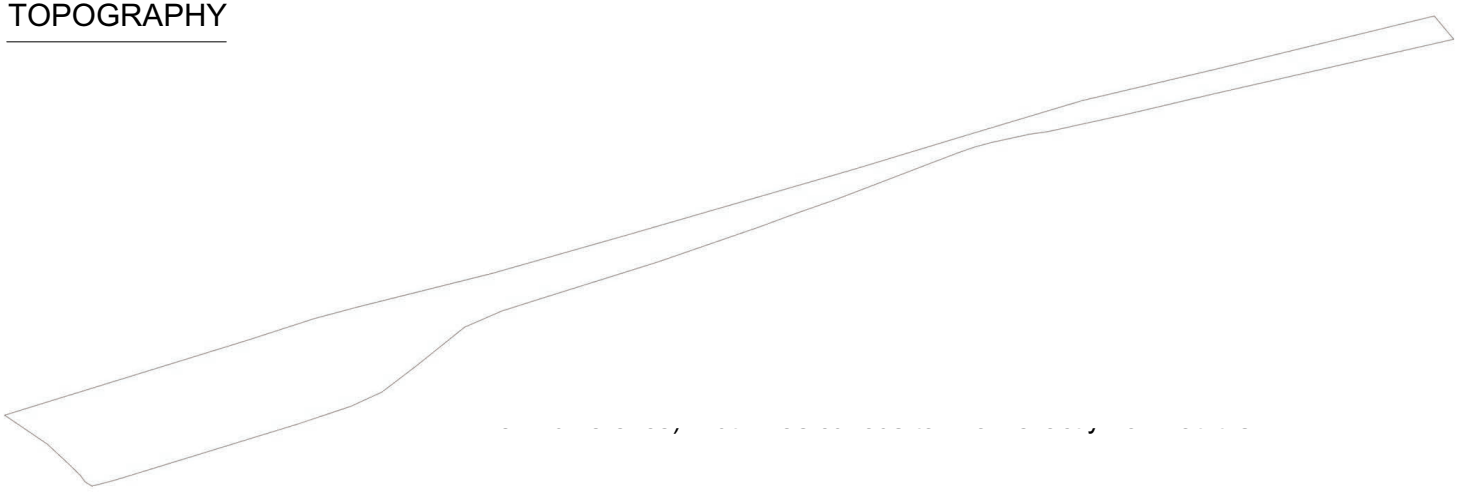
Sun Chart

The sun path direction tells one which will be the side from which the maximum heat will be coming, especially in the afternoons. In warmer climates, the design will try to reduce the amount of incident sunlight so as to reduce the heat intake to a minimum. The lesser surface area of the building which is exposed to the sun, lesser will be the conductive heating. In colder climates, the design will try to maximise the amount of sunlight incident on the building so as to have maximum warmth as possible.

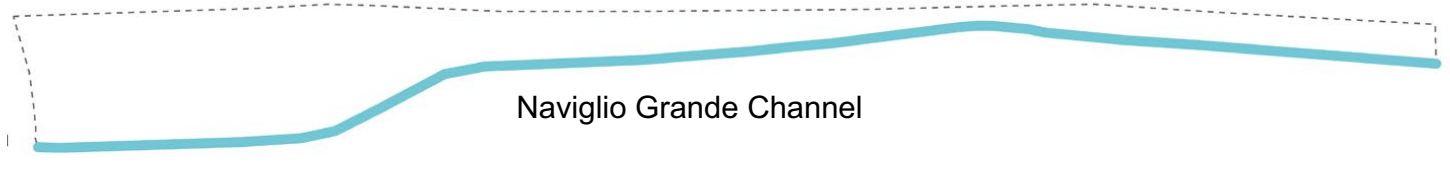


source - Climat consultant 6

TOPOGRAPHY

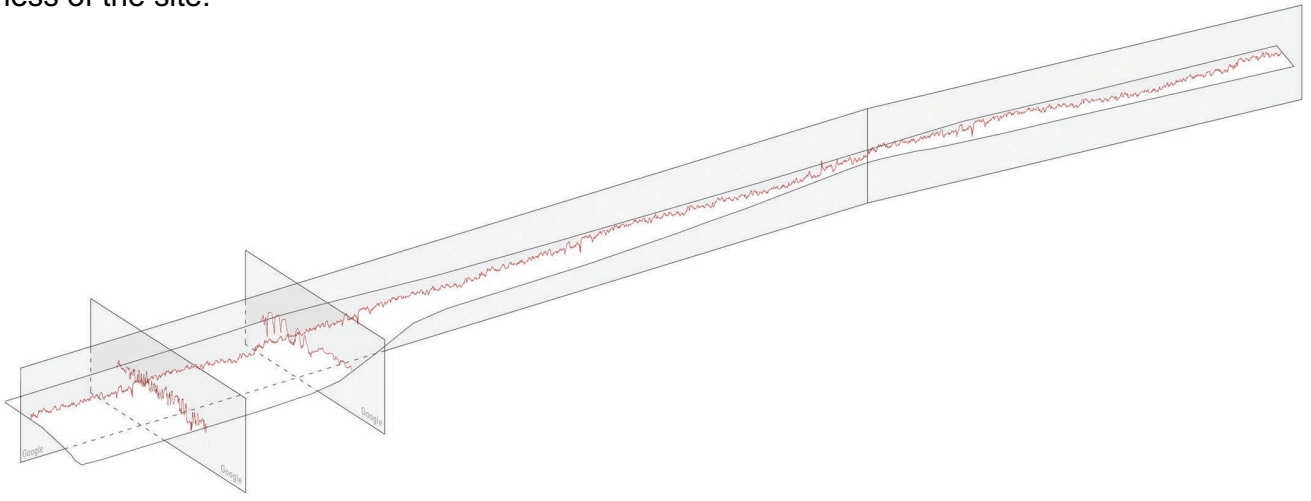


Topography refers to the slope and level of the land – whether the land is flat and plain, or whether it is sloping? During the site visit a detailed map was design and sections were created to show better the dynamic and rhythm of the site. Very important was to check out the stability of the slopes – whether the slopes are solid enough to permit construction on it. The zone is almost flat (up to 3m. difference) and allows different kind of construction. Also the smooth slopes could play key role and can be challenging for the designers.



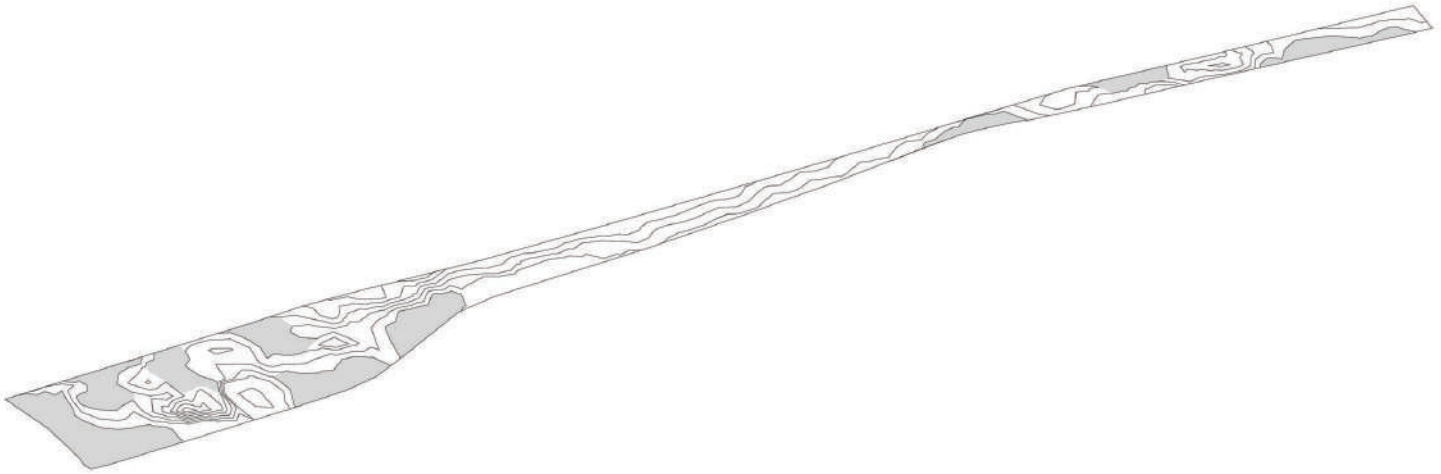
TOPOGRAPHY

Couple of sections using Google Earth Pro through the site, where the section is shown more like a heart rate pulse. This could inspire to enter in much deeper investigations and understand the so called rhythm of a place. We are talking about Topography but also interested and focused on the dynamics and calmness of the site.



TOPOGRAPHY

The a site is sloping, the exact slope can be interpreted from a detailed Contour map. The contour locations and spacing of contours will play a big role in the siting of the building. It is always better to design buildings along with the contours, integrating it into the design to reduce unnecessary cutting and filling of soil. A Landscape model is build where each horizontal line is equal to 20 cm. difference.



A place is a space which has a distinctive character. Since ancient time the genius loci, or "spirit of place," has been recognized as the concrete reality man has to face and come to terms with in his daily life. Architecture means to visu-alize the genius loci and the task of the architect is to create meaningful places where he helps man to dwell. . . . A place is something more than abstract location. We mean a totality made up of concrete things having material sub-stance, shape, texture and colour. Together these things determine an "environmental character," which is the essence of place. In general a place is given as such a character or "atmosphere." A place is therefore a qualitative, "total" phenomenon, which we cannot reduce to any of its properties, such as spatial relationships, without losing its concrete nature out of sight

- Christian Norberg-Schulz

INFRASTRUCTURE FACILITIES

This refers to the services present in the location. The major things that have been considered are the water supply, drainage connection, waste disposal, electricity supply etc. These are important while planning the zoning in the site.

Pedestrian bridge

Crossing the Grand Naviglio channel Connecting the site with the South part of the city. The Naviglio Grande is the most important of the Milan “navigli”.

INFRASTRUCTURE FACILITIES

High way road passing above the area.

The road is cutting the site
and also serving it with platform.

Its the main artery for mobility service if the site will be regenerated and vehicles system is composed.

Consist of platform, 2 lines in any direction, pedestrian path from both sides and point where the ram could be jointed in the traffic system (crossroad).

There is not visual contact from the bridge while passing with vehicle, Only pedestrians could see the site and the view is partly.

INFRASTRUCTURE FACILITIES

Ramp - connection between the site and the city.

The only infrastructure tool that could allow vehicles to go inside the area.

Pedestrian passage on the sites.

Big enough to host 2 lines, one in any direction.

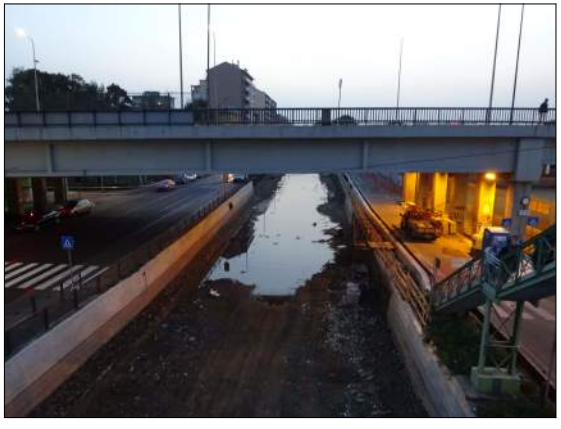
Secure with fences and maintained in good condition.

INFRASTRUCTURE FACILITIES

Pedestrian bridge crossing the Grand Naviglio canal.

Connecting the site with the South part of the city.

The structure can also load and serve the channel vessels.



INFRASTRUCTURE FACILITIES

Pedestrian bridge crossing the Grand Naviglio channel.

Connecting the site with the South part of the city.

New human intervention.
Done between 2014 - 2015.

Steel structure.

INFRASTRUCTURE FACILITIES

Pedestrian bridge crossing the Grand Naviglio channel.

Connecting the site with the South part of the city.

Stone structure.

INFRASTRUCTURE FACILITIES

The Naviglio Grande

The most important of the Milan “navigli”.

- Irrigation

- Transportation

- Commerce

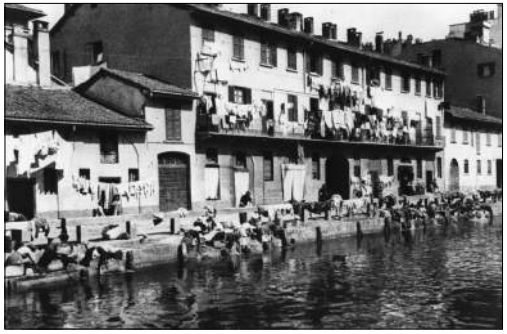
- Agriculture

- Area for relax

- Sport and many other activities
The route is almost entirely tarred and suitable for all kinds of cyclists.

INFRASTRUCTURE FACILITIES

The Naviglio Grande is a canal in Lombardy, northern Italy, joining the Ticino river near Tornavento (23 km south of Sesto Calende) to the Porta Ticinese dock, also known as the Darsena, in Milan. It drops 34 m over 49.9 km. It varies in width from 22 m to 50 m from Tornavento to Abbiategrasso, dropping to 15 m between there and Milan. Initially carries 63 m^3 per second, 116 outlets take water to irrigate 500 square kilometres leaving the canal 12 m wide.



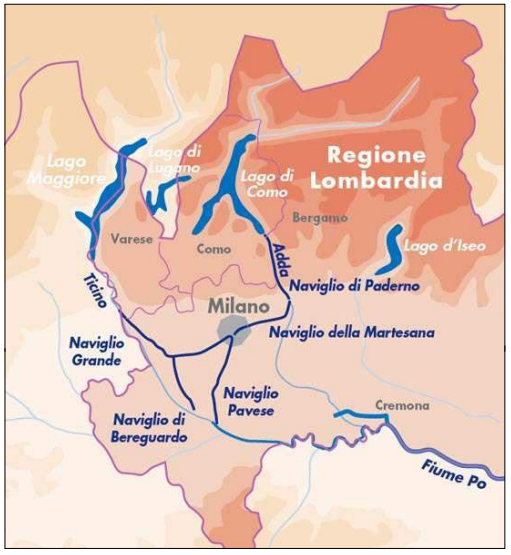
Probably originating as a ditch dug in 1157 between Abbiategrasso and Landriano as a defense against Frederick Barbarossa, it was one of the largest post-medieval engineering projects, allowing development of commerce, transport and agriculture.

Prisoners from Turbigo were put to work in 1239 to increase the carrying capacity of the canal.

In 1258, the Naviglio Grande reached Milan. New taxes were levied to continue the digging, and although the work stopped again following opposition from the citizens and clergy, the whole canal was navigable from 1272, when the deepening and widening of the canal bed was completed by Giacomo Arribotti and the canal reached the bridge of Sant'Eustorgio (now Porta Ticinese).

INFRASTRUCTURE FACILITIES

Although intended mostly for irrigation, pontoons called cobbie quickly began using the canal to take salt, grain, wine, manufactured goods, fabric, tableware, manure and ash upriver to Lake Maggiore and Switzerland, bringing back livestock, cheese, hay, coal, lumber, sand, marble and granite.



The small lake of Sant'Eustorgio was linked to the Fossa Interna of Milan using a new system of two locks to control the water level, thereby allowing boats to reach Piazza Santo Stefano. This was to allow the canal to be used in transporting stone and marble for the Duomo, whose construction started in 1386. This confirmed the canal to be the most valuable form of transport of Milan, and proved that the network could be expanded to serve the whole region, especially in transferring troops rapidly between defensive castles.

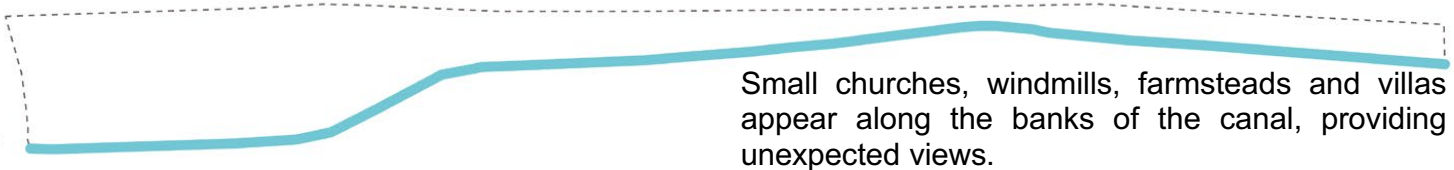
Between 1830 and the end of the century, traffic averaged 8,300 boats of all sizes coming and going, carrying 350,000 tons per year. It peaked again during the second world war – with Allied planes bombing road and rail, water transport again became useful for transporting goods. During the sixties, the Fossa Interna was covered over and on March 30th 1979 the last cargo of sand was unloaded at the Darsena. Since then the canal has been used only for its original purpose, irrigation.

INFRASTRUCTURE FACILITIES

Recently the Istituto per i Navigli has been campaigning for the return of navigation on the canal. The project, called From Switzerland to the Sea promotes the restoration of the canal as part of a long distance waterway linking Lake Maggiore (partly in Switzerland) to Venice (Italy).

- Possibilities
- Potentialities
- Interact with the landscape
- Events and dynamic program

Designed by the great Leonardo, this canal diverts part of the water of the Ticino river into the very centre of the old city, to the ancient port. Crossed by lovely bridges, surrounded by restaurant and bars and art exhibitions, it's bustling with people of all ages.



Small churches, windmills, farmsteads and villas appear along the banks of the canal, providing unexpected views.

INFRASTRUCTURE FACILITIES

Stazione San Cristoforo

The station is served by the line S9 of the Milan suburban railway service.

Regional trains from Milan to Mortara.

All this trains are operated by the lombard railway company Trenord.

There is visual contact with the site from the station.

INFRASTRUCTURE FACILITIES

Aldo Rossi Unfinished building

CONSTRUCTION YEAR	1983
Abandonment Year	1983

Dimensions	over 1000 m^2
Floors	4
Intended use	Transportation
Property	public
Condition	ruins

LOCALLY AVAILABLE RESOURCES

Illegal agriculture and vegetation process.

- Water.

- Agriculture.

- Vegetation.

- Electricity.

- Infrastructure connections.

- Small structures.

- Human traces and interaction with the landscape.

LOCALLY AVAILABLE RESOURCES

Buffer green zone between the channel and the site. The green wall stop the visual linkage to the site and also creates present environmental condition through the channel. The green belt have become home for animals and other wild representatives of the nature. This is sign for the uniqueness and evident that the virgin island can exist in the vibrant megapolis .

All kind of station present on the site is not maintained by anyone. Different types of trees and bushes are growing and living alone and undisturbed from the human presence, sign that the soil and water are not contaminated and suitable for vegetation.

LOCALLY AVAILABLE RESOURCES

Underground channel going trough the site.

The channel is part of
Fiume Lambro Meridionale.

Joins river PO In South.

Artificially created to irrigate the North lands of Milan.

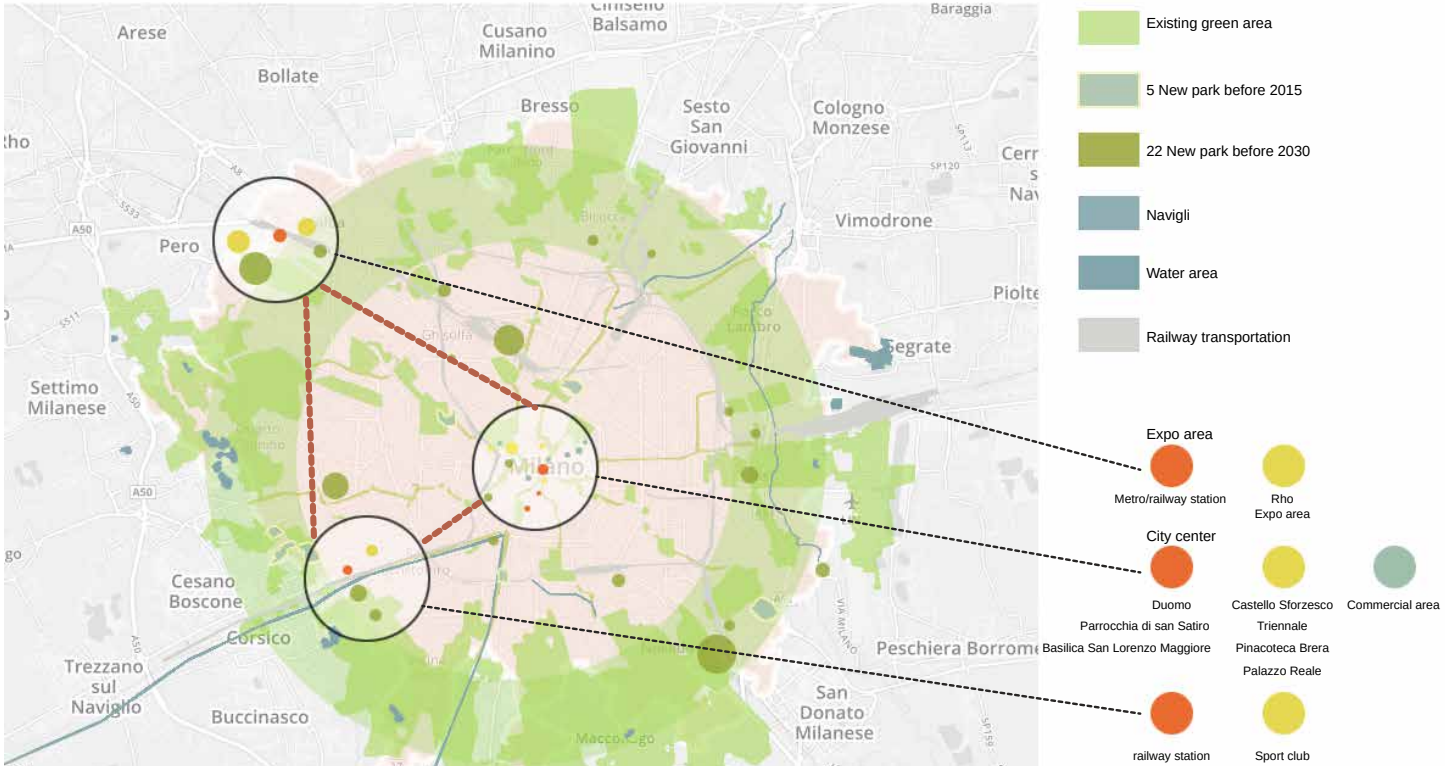
It starts from Varese (North) but its visuality is disconnected in the city.

46 km long.

There are many lands and agricultural fields that are dependant from this water. Unfortunately along the channel are positioned many factories which are polluting the water.

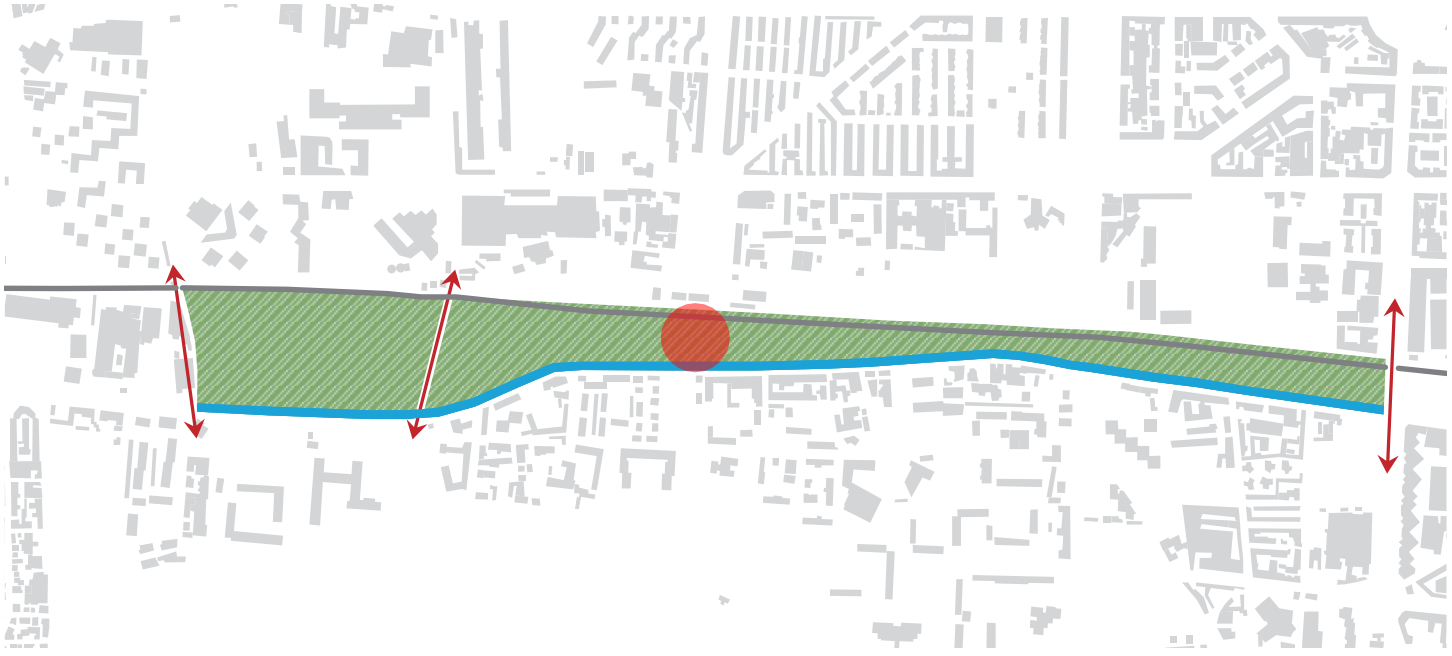
LOCALLY AVAILABLE RESOURCES

There are plans to revitalize the quality of water installing cleaning plant and phytodepuration fields north of the city. Also integration it in the green belt of Milan, playing fundamental role to create the longest, urban green zone in Europe.



The urban area is composed not only of solids and voids but also of sounds, smells,lights , and feelings tied to the presence or absence of people - activities that are carried out or, alternatively, their absence.

VISION LINES



The dynamic of the landscape and existing vegetation limit the visual lines from many views. The existing visual linkages are present as shown in the key map.

VISION LINES

From San Cristoforo station

The only point where visual linkage is present on ground level.

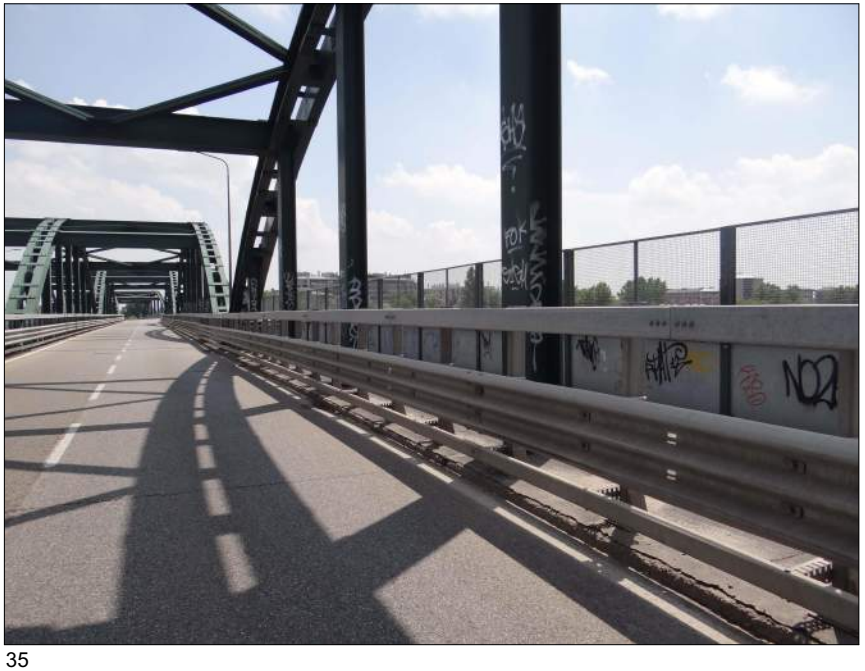
The linkage is from and to the site, there is no physical border to stop the view and is pont where the voice from trains is the least.

Interesting place for physical connection with the site, because is transportation hub and there is already a infrastructure tunnel underneath the rails.

VISION LINES

From high way bridge

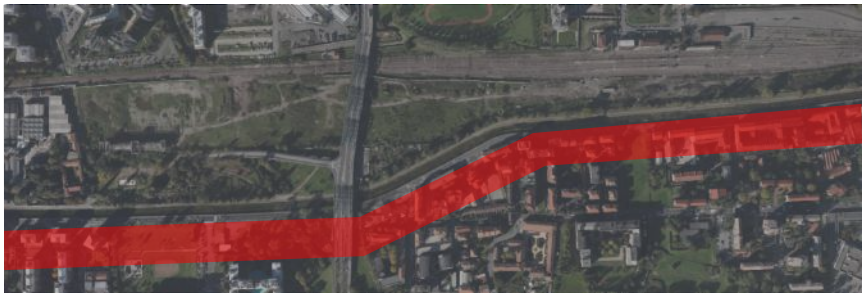
The visual linkage from the bridge to the site is stopped by the steel structure and to see something passing by car is impossible.The feeling passing by car through the bridge is like passing above a river, but you will never understand what is under you.



Pedestrian can enjoy the view from above but somewhere is not possible at all.

There is space for bikes and pedestrian on sites of the bridge, and the pats are divided from the car lines with steel structure.

VISION LINES



From South

Almost everywhere the visual contact is broken by the green wall which is continuous along the Grand Naviglio. The wall is reinforced somewhere with steel structure / wall / which serve also as sound barrier.

In many places there are some openings which allows visual connection with the site, but physical contact is impossible.

VISION LINES

From North

Visual contact with the site is percent almost everywhere.
there is wall which serve as sound, view and physical contact with the site, but it is not continuous and damaged in many places.

Train station and lines are positioned in the North part of the site. They are isolating the zone but the border is not solid and high and you can feel the open space as well as enjoy it from outside.

MOBILITY OF CARS

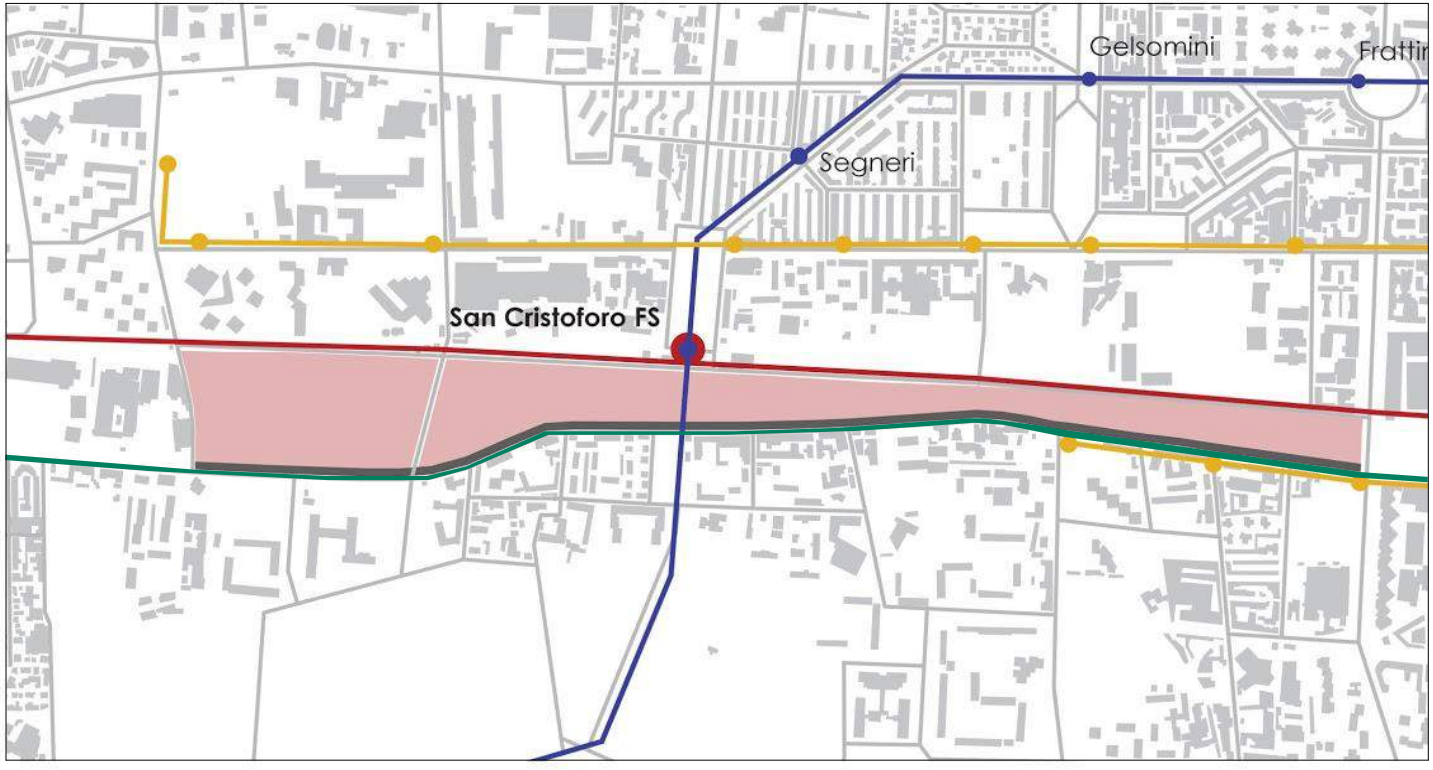
Rail lines
Existing car infrastructure

EXISTING SPORT FACILITIES

Site area

Sport fields

PUBLIC TRANSPORT



S9 railway line
MM4 metro
Tram lines
Bus

VEGETATION

Trees

The vegetation consist of all the trees, flora and fauna present on the site.
Typical vegetation for region is present. The stage of growth is different and vary from place to place in the site area.

There are many different types and plant communities of vegetation and also the way of growing is different. The natural vegetation present on the site is very important.

The type of plants which can be observed on the site can be summarized in 2 main categories;
- native
- adaptive plants

The place can be useful for solving many of the existing problems in the area.

There is lack of different activity and also this place could become tool to upgrade and increase the level of hospitality and create fast connections through the `island`. Planting and designing new vegetation is also possible, this will increase the level of comfort and pollution will be treated in positive way.

VEGETATION

Low plants and bushes

Small to medium-sized woody plant are present almost everywhere. It is distinguished from a tree by its multiple stems and shorter height, usually under 6 m tall. Plants of many species are growing randomly, depending on their growing conditions. Small, low shrubs, generally less than 2 m tall, such as lavender, periwinkle and small garden varieties.

VEGETATION

Agricultural plants

Cultivation of animals, plants, and other life forms for food products used to sustain and enhance human life. For plants, this requires some form of irrigation, and such is present on the site. Presence of human activity and suitable soil for growing different types of vegetation.

However this is not form of modern farming, and sustainable agriculture but allows local people to grow and plant their needs in natural way wright into the center of the megapolis.

VEGETATION

Natural plants

Native plants indigenous to the area. This includes plants that have developed, occur naturally, or existed for many years in the site (trees, flowers, grasses, and other plants).

They have adapted to limited environment, harsh climate and specific soil conditions. On the other hand natural plants play fundamental role for the insects and animal life seen in the area.

KIND OF SPACE

South-western urban outskirts of Milan.

The area, formerly part of San Cristoforo suburban railway station, is now involved in a urban redevelopment process and indicated in the new Master Plan of Milan.

Powerful and historical project site. Open space and only one bridge that create shelter.

Not possible to go inside the site, it can only be observed from outside.

Partly accessible / private property /
There is infrastructure to host pedestrian and cars mobility.

Its visually connected to the surrounding buildings, however a railway wall and wall (high plantation) next to the channel stop the visual linkage to the site from North and South.

From the East and West the visual connection is also interrupted by existing buildings and vegetation.

Visual connection is present from the station to the site and partly from South side looking to the area.

LEVEL OF HOSPITALITY

The place has great potential, it`s location and current situation makes it oasis in the urban megapolis.

The historical channel next to the site with its pedestrian paths has become important part of the milanese.

The existence of high trees and continuous vegetation makes the site pleasant place for inhabitants and visitors.

Fast connections to public transport.

Easy accessible.

Part of the Milan green circle.

Strategic place for future development in many directions.

PRESENCE OF HANDMADE THINGS

Low level of human intervention

Unfinished skeleton of public building (Aldo Rossi).

Agricultural plantations.

Infrastructure facilities.

Temporary structures.

Small buildings (light structure).

LEVEL OF USEFULNESS

The area at the moment is not used by anyone, few people interact with the site partly.

There are some interventions and works going on site but bigger part of the zone is free and no one use it.

Having a walk among San Cristoforo area next to the Grand Naviglio channel has gain equal importance as visiting Duomo.

There are people run, relax, enjoy and use in many ways the site almost all the time during the day.

Level of human presence.
Depending on climate conditions the human activity vary.
Daily - pick hours - after 17:00 till 21:30

Night - the site walks are alive and full of people doing different activities at night.

The high way passing above the site is busy and one of the most crowded in this part of the city.

No vision linkage with the site if you drive, only pedestrian can observe the area from above.

The site visit helps the designer understand what that place means for those who live there. To listen is useful because it is the art of stealing, of taking, of capturing: it is bare-faced robbery, with a noble goal. We often chat with the clients or the inhabitants of the place, and I return home with my sheets of notes and sketches: the list of the stolen property. Going around, hands in pockets and nose in the air in order to absorb, is the art of listening, because also places speak and too often the architect does not listen to them. The places speak, people speak. . . . It is necessary to listen to the thin voices, the silent and weak voices; to capture the essence of the things implies a training in listening that is not learned at school, but through life experiences.

- Renzo Piano

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