

DATUM SHIFTING RECORDER

STUDIO 5 - FALSE SUMMITS

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S N 2 1 1 9 2 6 5 6

MA LANDSCAPE ARCHITECTURE

THE BARTLETT SCHOOL OF ARCHITECTURE - UCL



RESEARCH QUESTION

TANGIBLE WAY TO
UNDERSTAND
LANDSCAPE CHANGE

TABLE OF CONTENTS

FIRST EXPLORATION

TANGIBLE RECORDING METHOD

RECORD TANGIBLE PERCEPTION

DATUM SHIFTING STUDY

DEVICE DEVELOPMENT

DATUM SHIFTING COLLECTION

LANDSCAPE DESIGN PROPOSAL

APPENDIX

PHOTOGRAPHY

VIDEO LINK



F I R S T

EXPLORATION

LEVEL CHANGING INVESTIGATION

INVESTIGATION SITE

1. REGENT'S PLACE

Small plaza with steps landscape as a sculpture
0-1 m. Hight for exploration

2 REGENT'S PARK

A large public park contains various types of topography
0-10 m. Hight for exploration
with multiple landscape features

3 TOWER BRIDGE

A tall iconic architecture which can explore the transition
between ground level and connecting bridge
0-40 m. Hight for exploration

4 MORE LONDON PLACE

Waterfront plaza with modern landscape design
0-10 m. Hight for exploration
surrounded by high rise and man-made landscape



REGENT'S PLACE 1 M.

REGENT'S PARK 0 M.



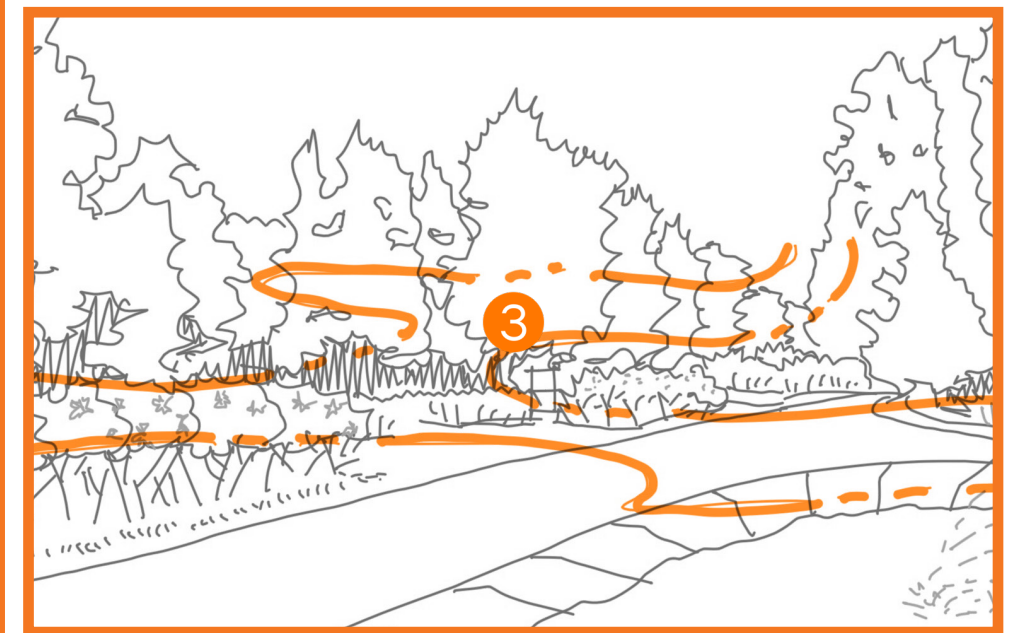
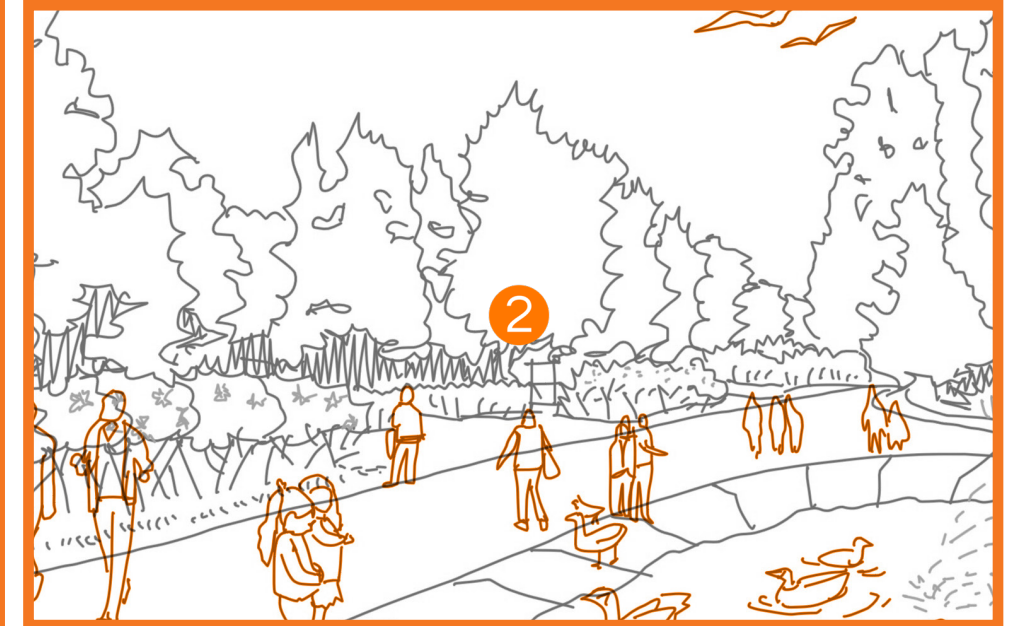
REGENT'S PARK 10 M



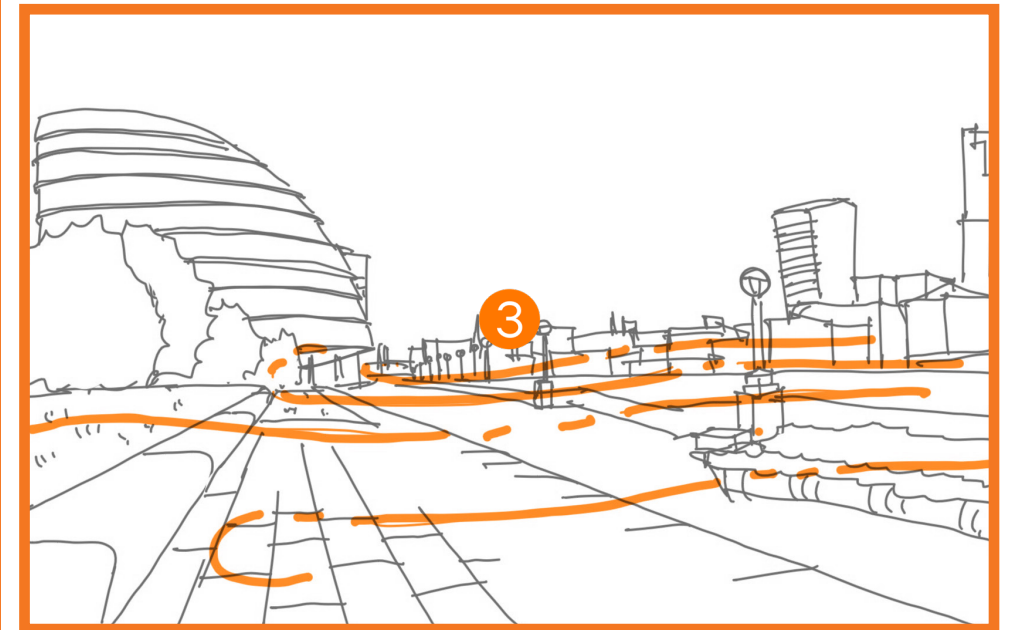
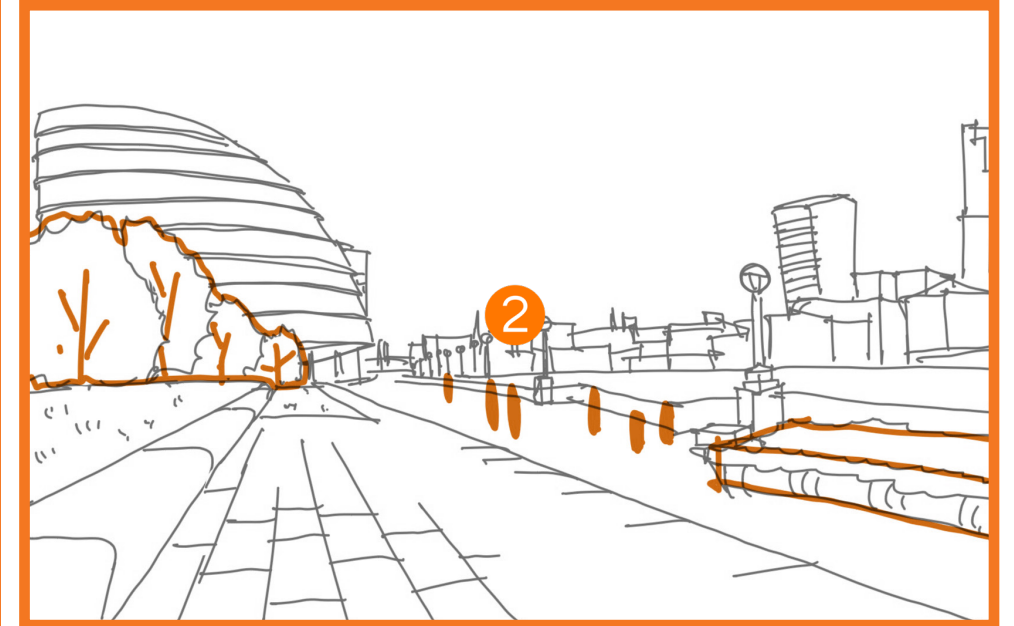
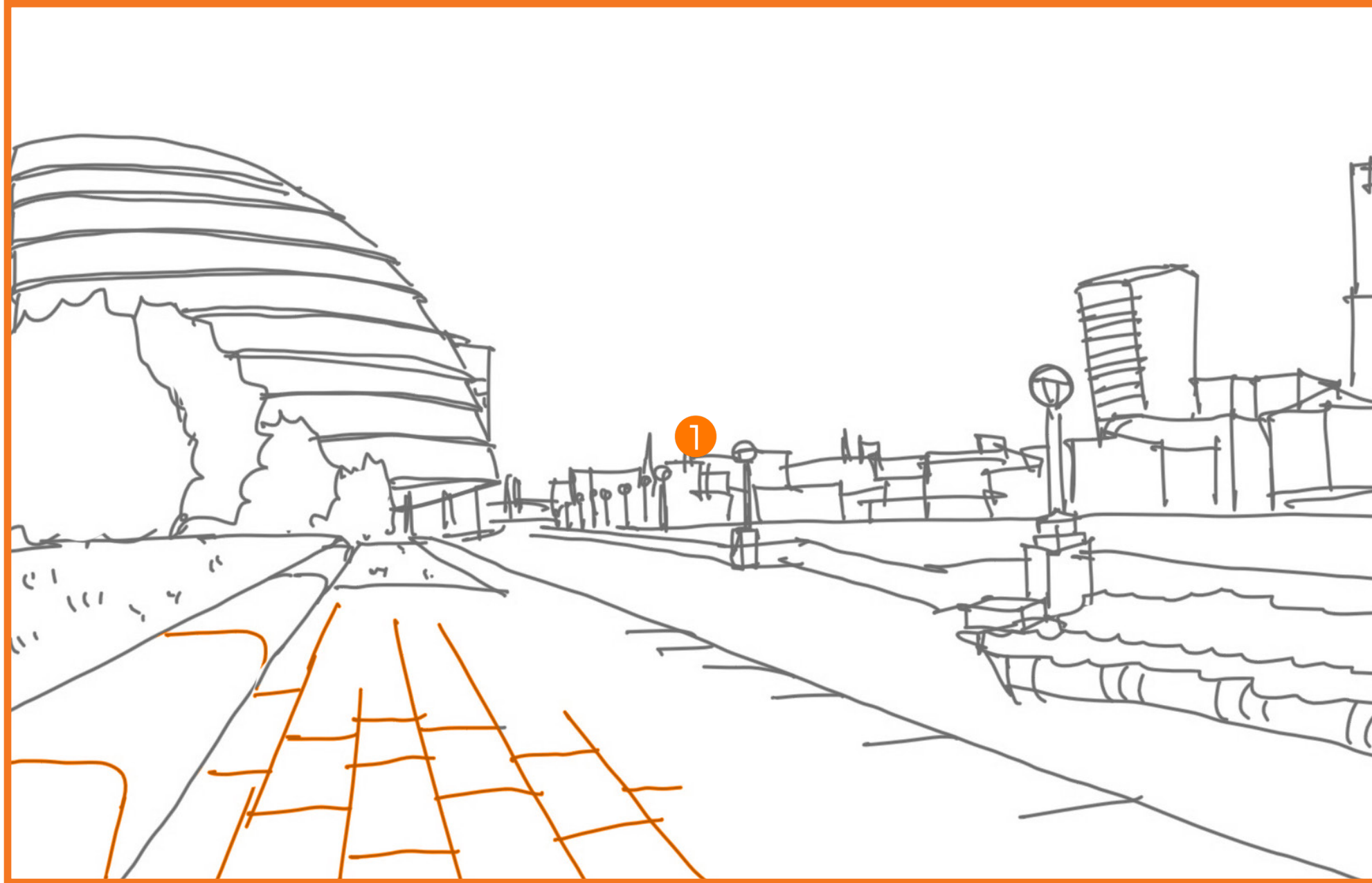
TOWER BRIDGE 64 M.

MORE LONDON PLACE 10 M.

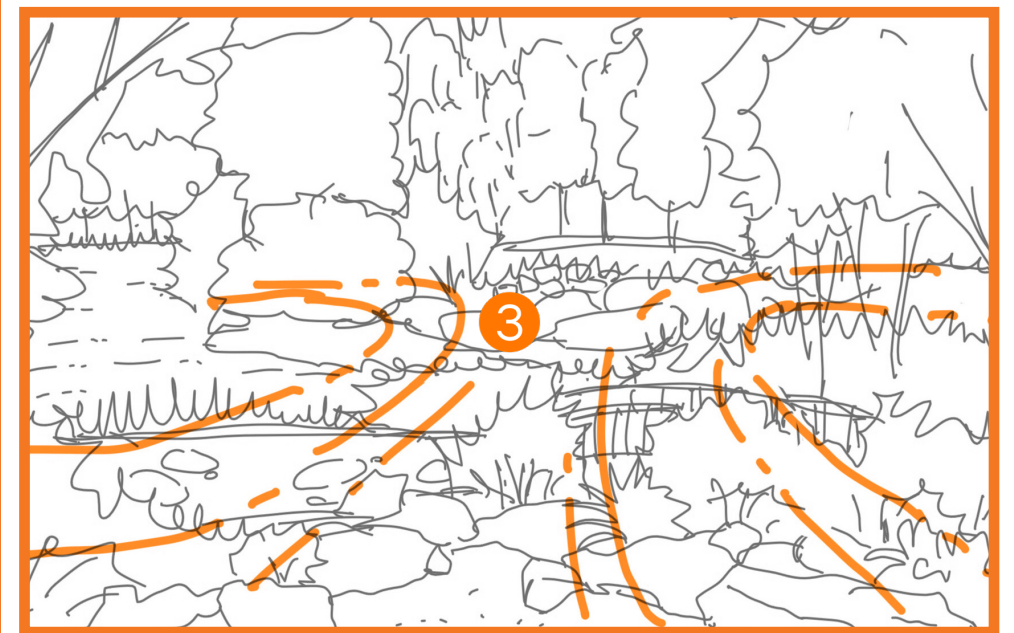
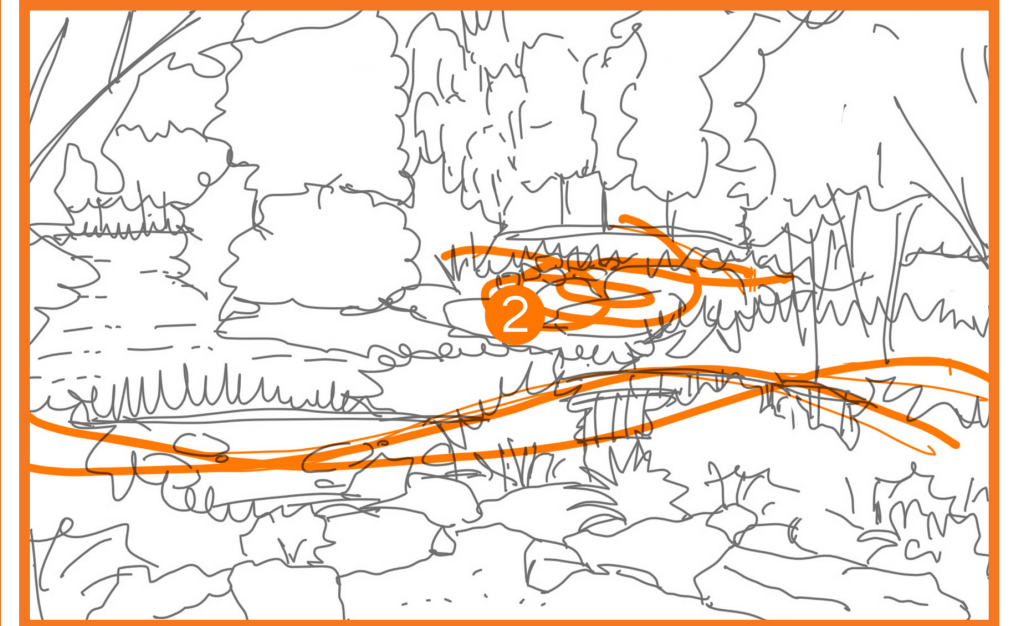
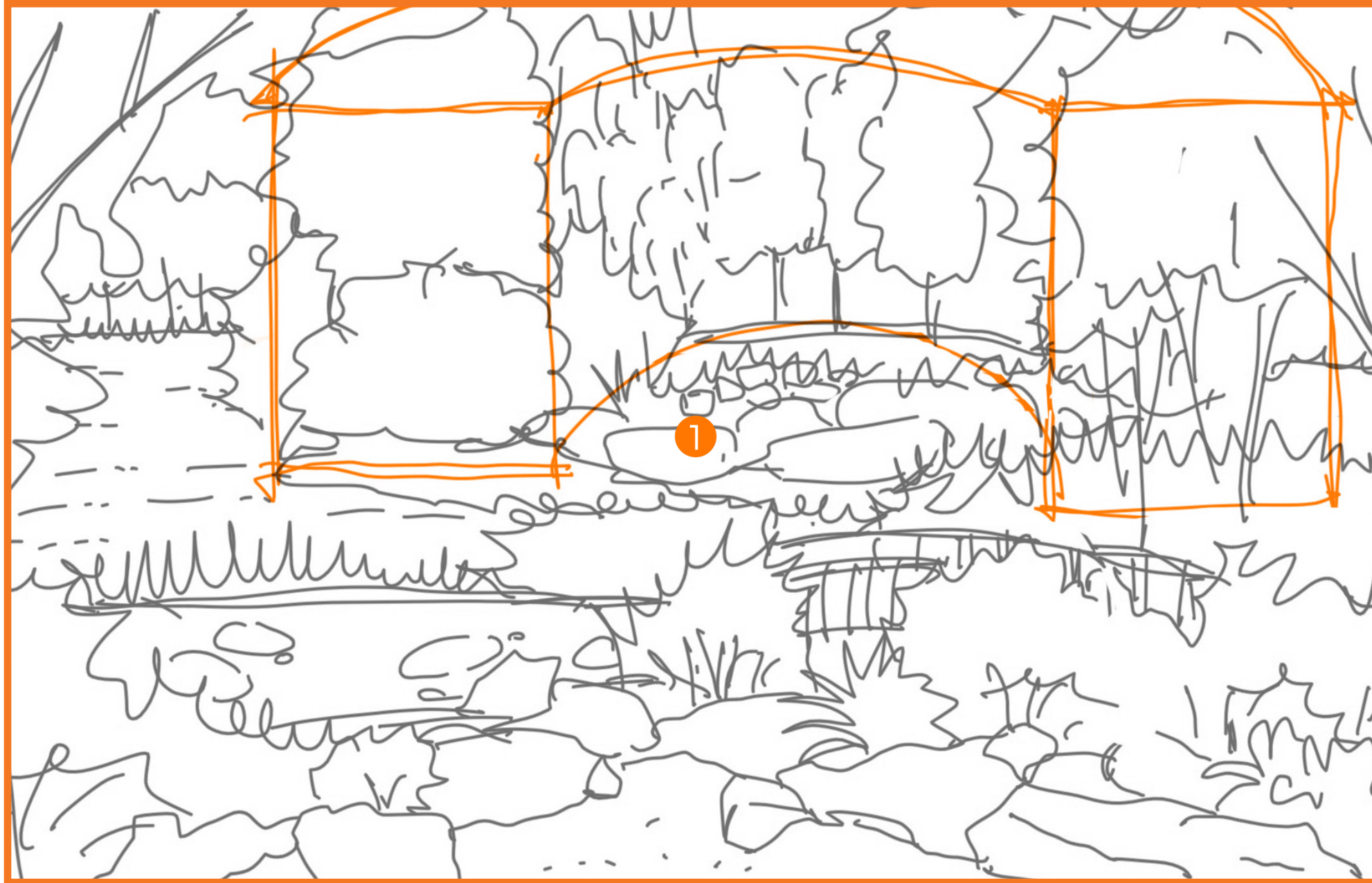
GROUND LEVEL



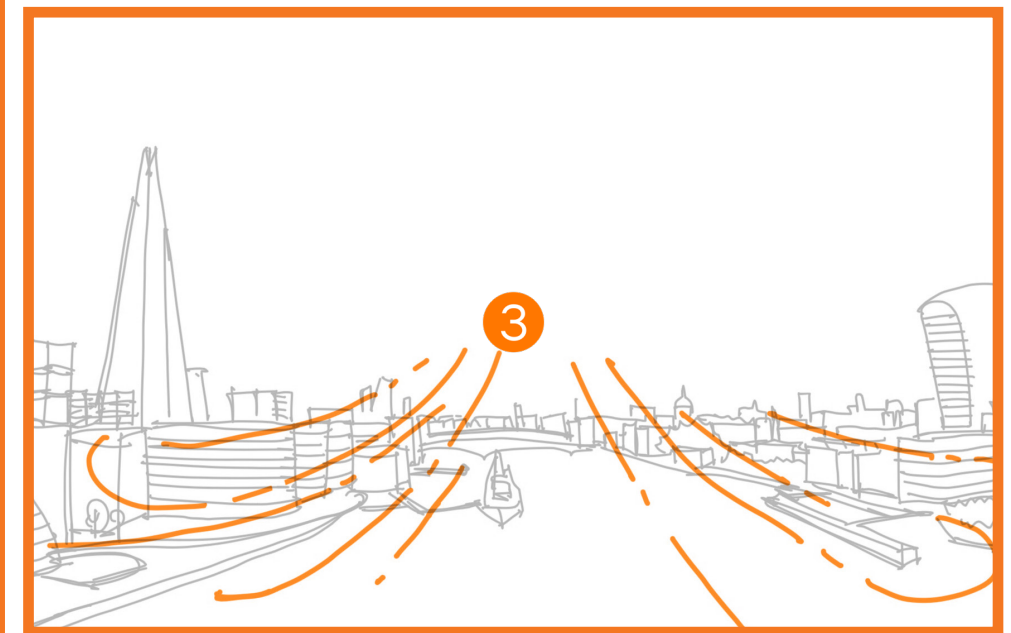
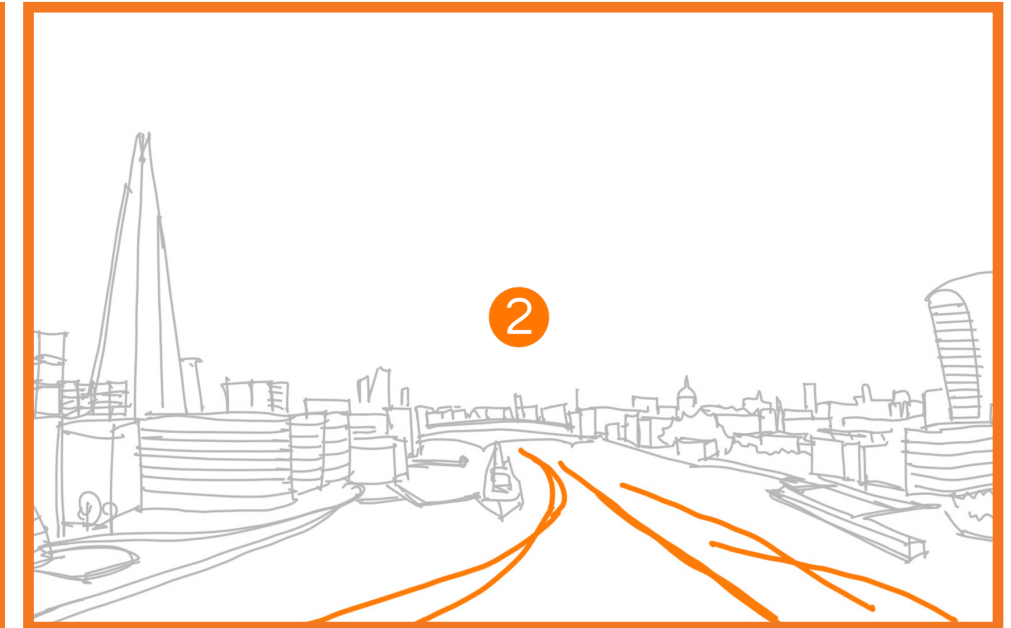
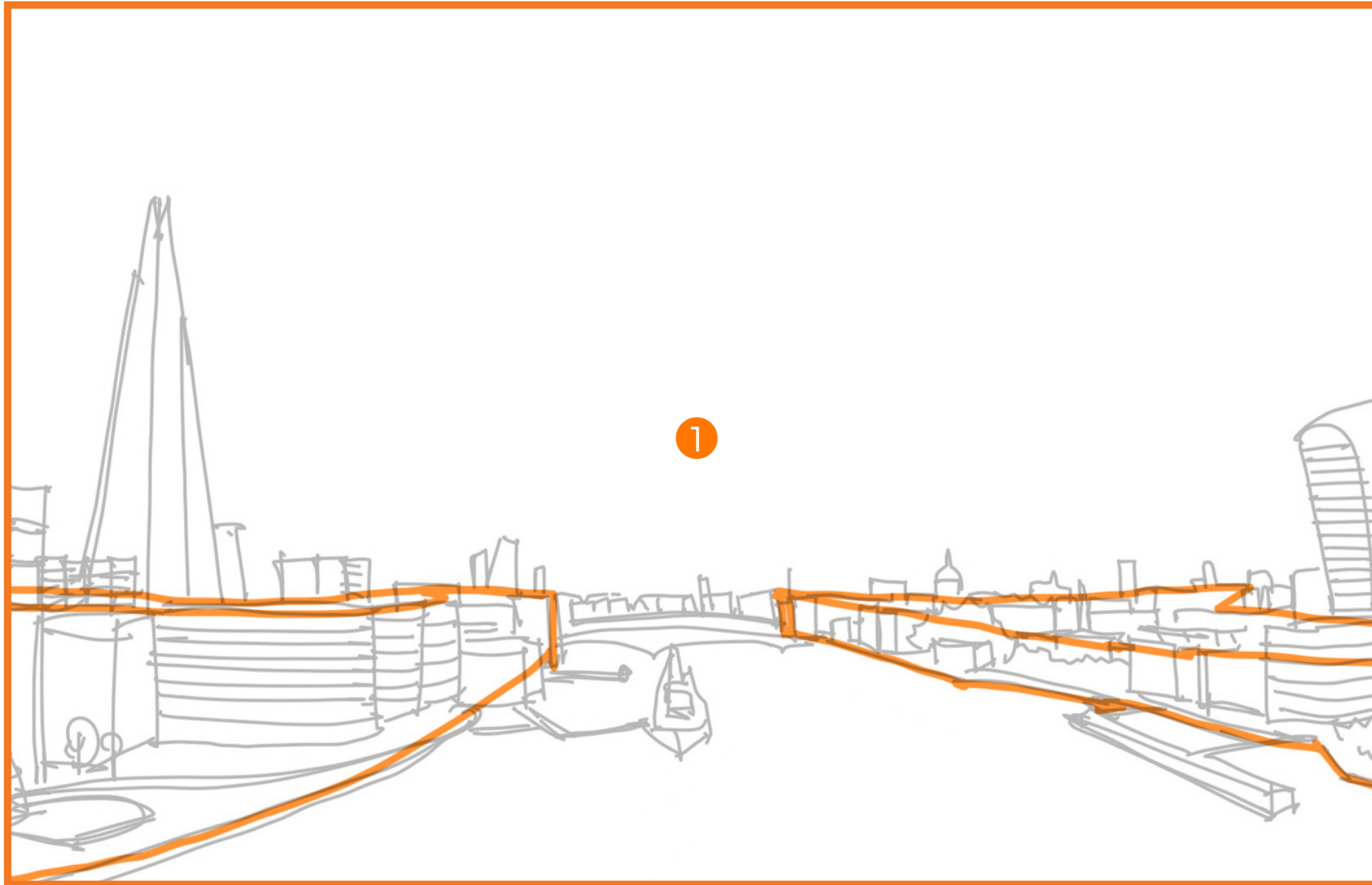
- ① HIGH DETAILS PERCEIVABLE
- ② BEING A PART OF PEOPLE SURROUND
INTERACTIVE WITH WILDLIFE AND LANDSCAPE ELEMENTS
- ③ AIR FLOW SLOW AND NO SPECIFIC DIRECTION



- ① ONLY NEARBY DETAILS VISIBLE
- ② LONG DISTANCING PEOPLE SURROUND
SEE LANDSCAPE ELEMENTS WHICH LOWER THAN 2 M. AS A CONCEPTUAL MASS
- ③ AIR FLOW STRONGER FROM OPENSOURCE [RIVER THAMES]



- ① RECONIZE LANDSCAPE COMPONENTS AS A FLOW
UNABLE TO NOTICE DETAILS OF A LANDSCAPE
- ② NO LONGER BEING PART OF A LANDSCAPE
PERCIEVE PEOPLE AS A FLOW OF PEOPLE
- ③ AIR FLOW TO OPEN SPACE



- ① RECONIZE LANDSCAPE COMPONENTS AS A FLOW
UNABLE TO NOTICE DETAILS OF A LANDSCAPE
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- ③ AIR FLOW TO OPEN SPACE [RIVER THAMES]

HIGH VISUALIZATION STUDY DIAGRAM

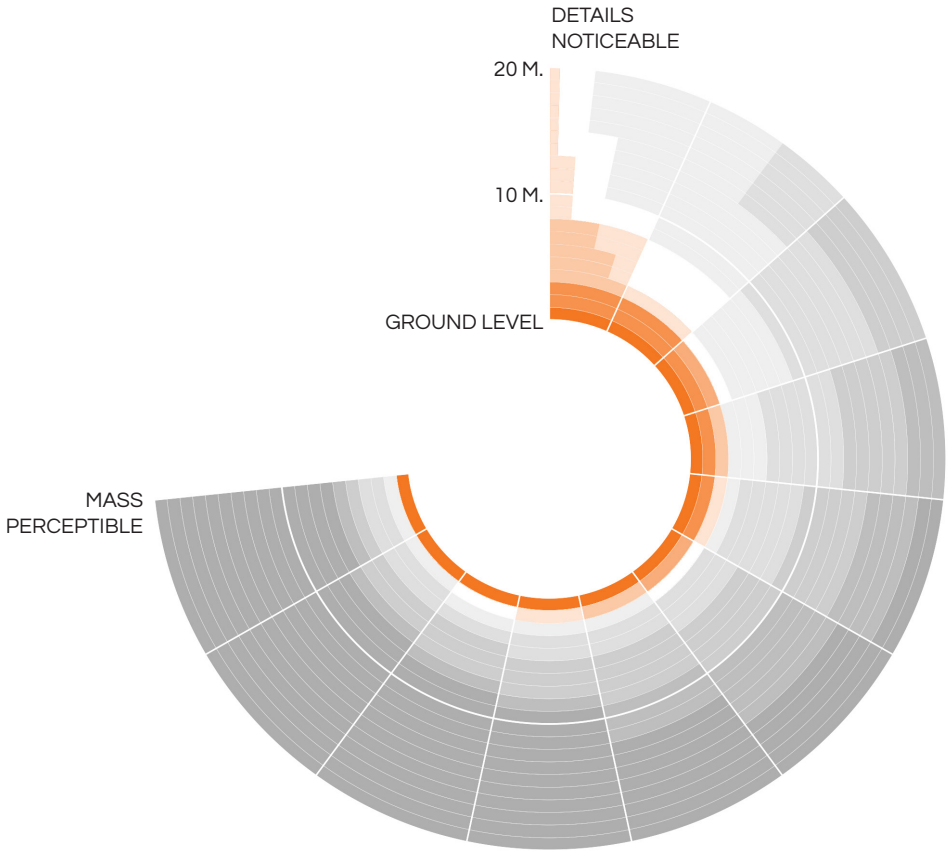


FROM THE DIAGRAM,

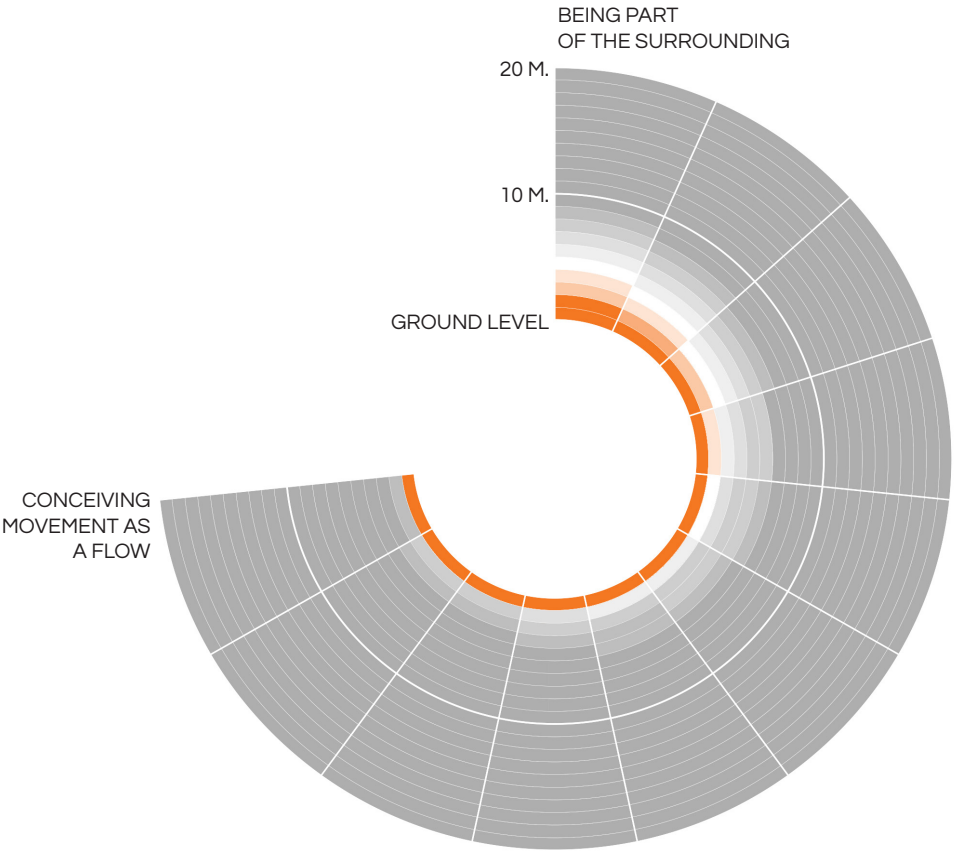
THE RELATIONSHIP BETWEEN **CONCEPTUAL MASS** PROJECTION, NOTICEABLY OF **FLOW**, AND FEELING OF **DISTANCING** INCREASE IN THE SAME PATTERN WITH DIFFERENT RANGE.

WHILE DETAIL NOTICEABLE AND BEING PART OF SURROUNDING EMERGE ONLY FEW LEVEL NEAR BY GROUND LEVEL.

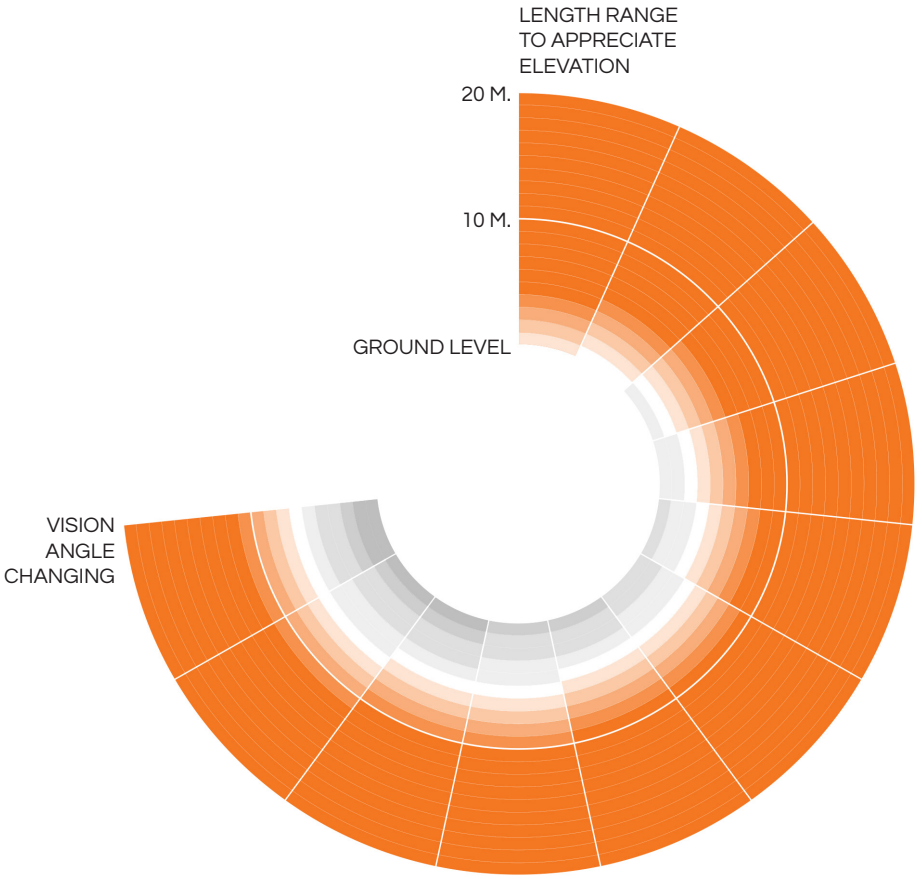
THE PERCEPTION OF OBJECT ELEVATION ALSO CAN PERCIEVE ONLY FEW LEVEL NEARBY THE LOCATION OF OBJECT'S HIGHT.



● DETAILS NOTICEABLE
● CONCEPTUAL MASS PERCEPTIBLE



● BEING PART OF THE SURROUNDING
● CONCEIVING MOVEMENT AS A FLOW



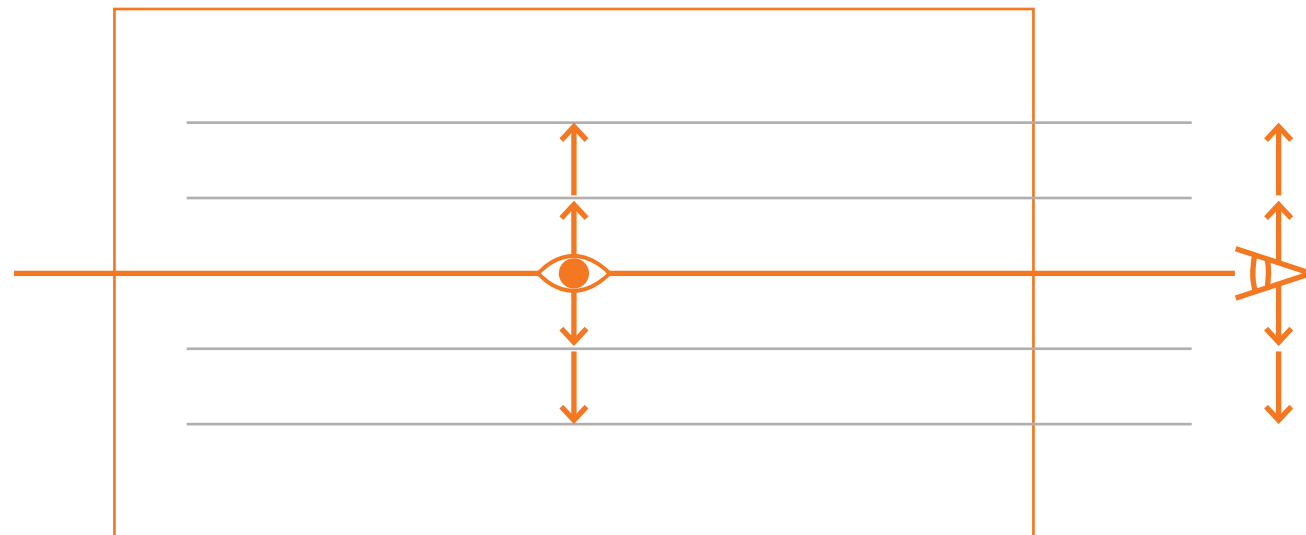
● LENGTH RANGE TO APPRECIATE ELEVATION
● VISION ANGLE CHANGING



TANGIBLE RECORDING METHOD

EYE SIGHT THROUGH LEVEL CHANGING

PHOTOGRAPHY FRAME



HUMAN EYE LEVEL (NORMAL EYE VIEW)
DATUM IS CHANGING IN
VERTICAL DIRECTION
REGARDING TO LEVEL CHANGE

EYE'S LEVEL IS DIFFERENT **RELY ON** THE
DATUM LEVEL.

HUMAN'S EYE VIEW IS ASSUME AS NORMAL
EYE SIGHT WHICH HAS THE DATUM LINE
APPROXIMATELY 1.6 M.

BIRD'S EYE VIEW IS THE TERM OF HAVING DATUM
AT MORE THAN 2 M. HIGHT

BIRD'S EYE VIEW IS THE TERM OF HAVING DATUM
AT LOWER THAN 1 M. HIGHT

UNDERSTANDING VISION
IN A LANDSCAPE



BIRD'S EYE LEVEL
THE VISION IN HIGH LEVEL

BIRD'S EYE VIEW DATUM LEVEL



BIRD'S EYE VIEW
ANGLE TOWARD
THE FOUNTAIN

HUMAN EYE VIEW DATUM LEVEL



LOWER EYE LEVEL
IN A RIVER

DOG'S EYE VIEW DATUM LEVEL

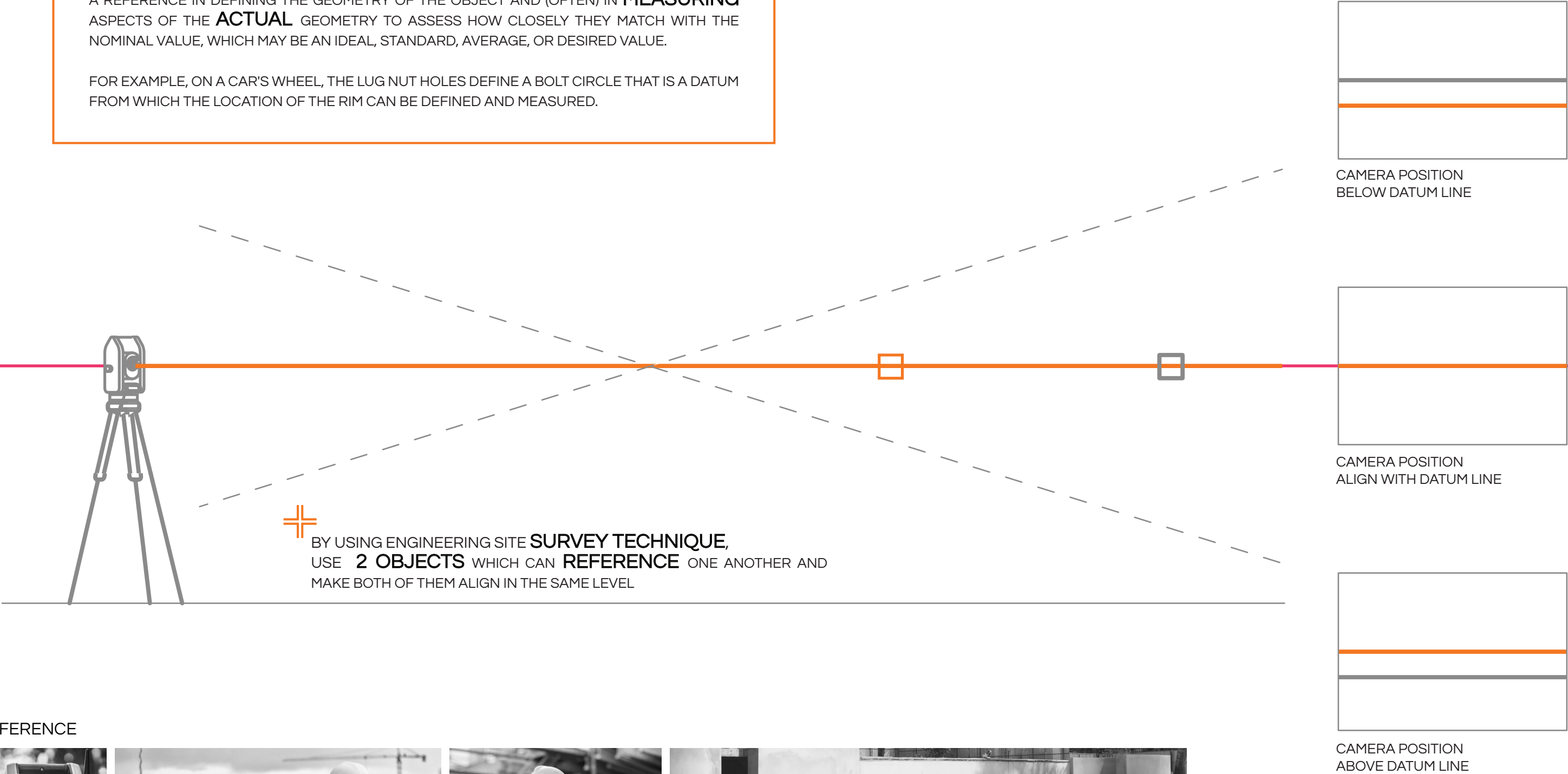


DOG'S EYE LEVEL
THE VISION IN LOW LEVEL



A **DATUM REFERENCE** (OR JUST DATUM) IS SOME IMPORTANT PART OF AN OBJECT—SUCH AS A POINT, LINE, PLANE, HOLE, SET OF HOLES, OR PAIR OF SURFACES—THAT SERVES AS A REFERENCE IN DEFINING THE GEOMETRY OF THE OBJECT AND (OFTEN) IN **MEASURING** ASPECTS OF THE **ACTUAL** GEOMETRY TO ASSESS HOW CLOSELY THEY MATCH WITH THE NOMINAL VALUE, WHICH MAY BE AN IDEAL, STANDARD, AVERAGE, OR DESIRED VALUE.

FOR EXAMPLE, ON A CAR'S WHEEL, THE LUG NUT HOLES DEFINE A BOLT CIRCLE THAT IS A DATUM FROM WHICH THE LOCATION OF THE RIM CAN BE DEFINED AND MEASURED.

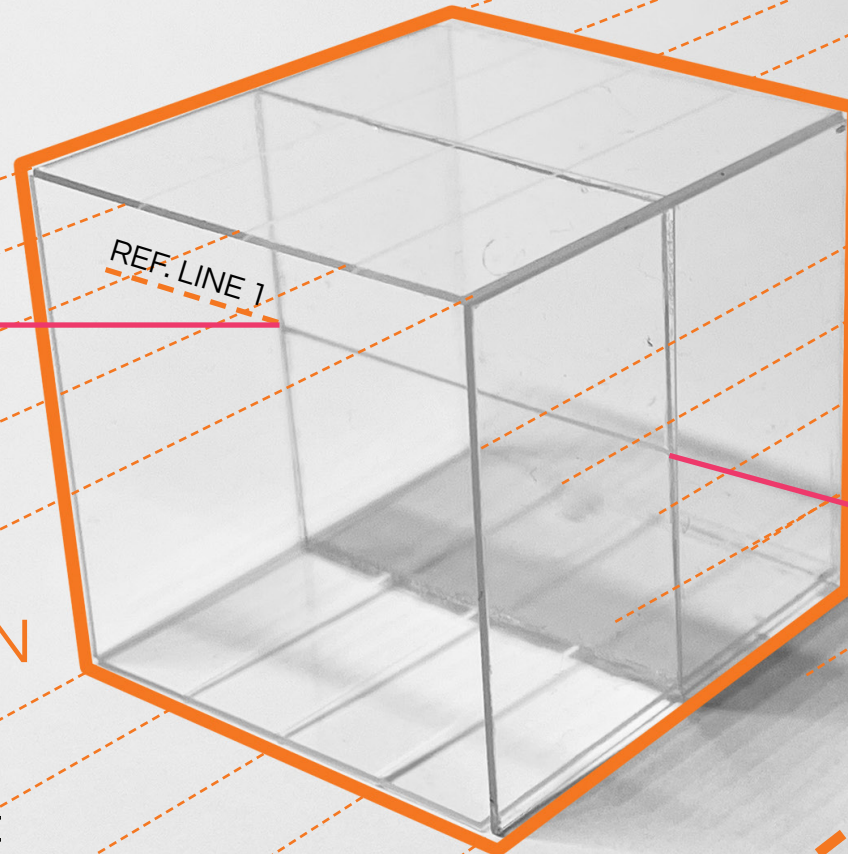


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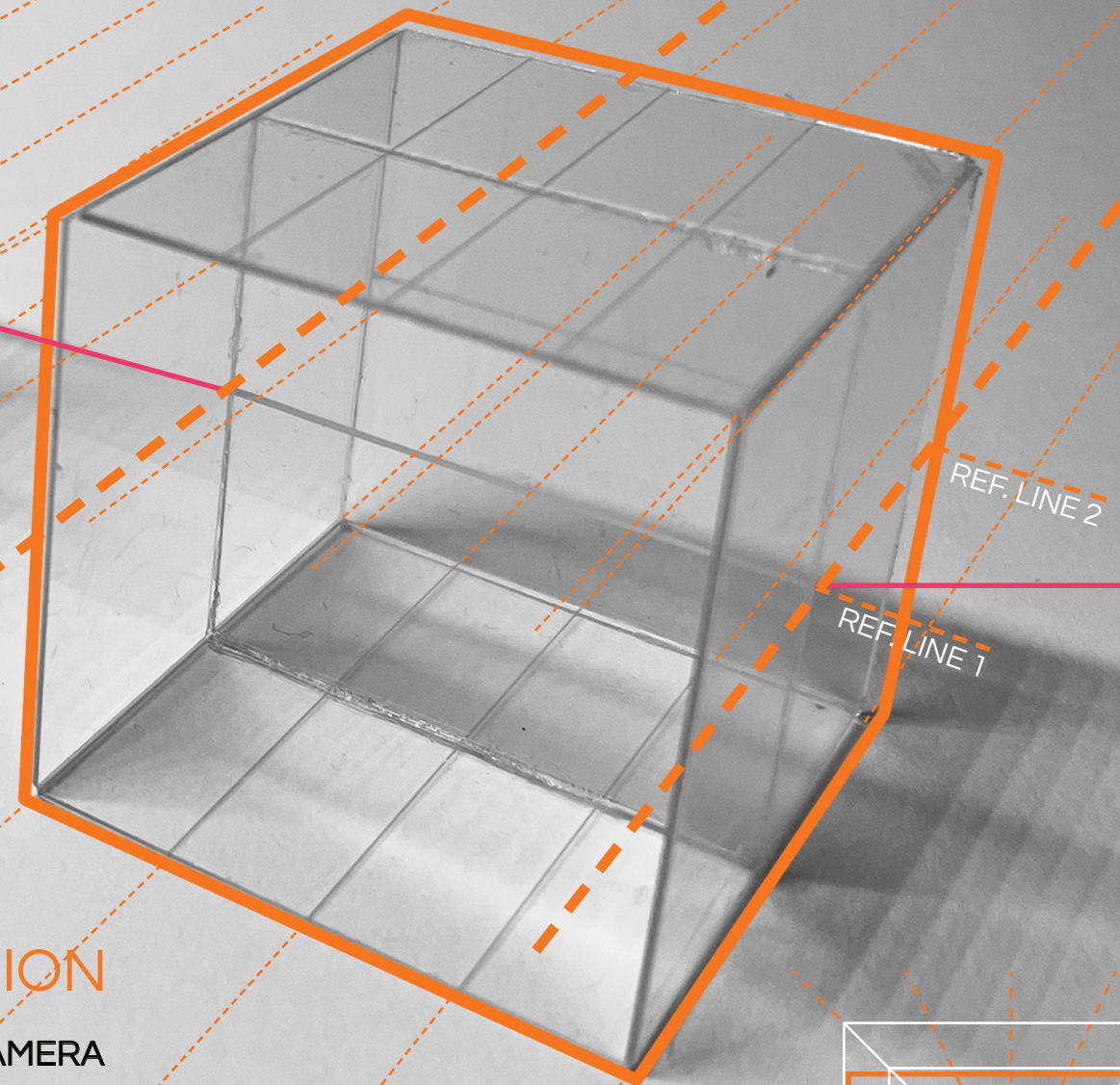
FIRST VERSION

USE BY ATTACHING TO THE CAMERA
WITH **1 VERTICAL LINE** AND
HORIZONTAL LINES WHICH ARE
UNABLE TO REFERENCE



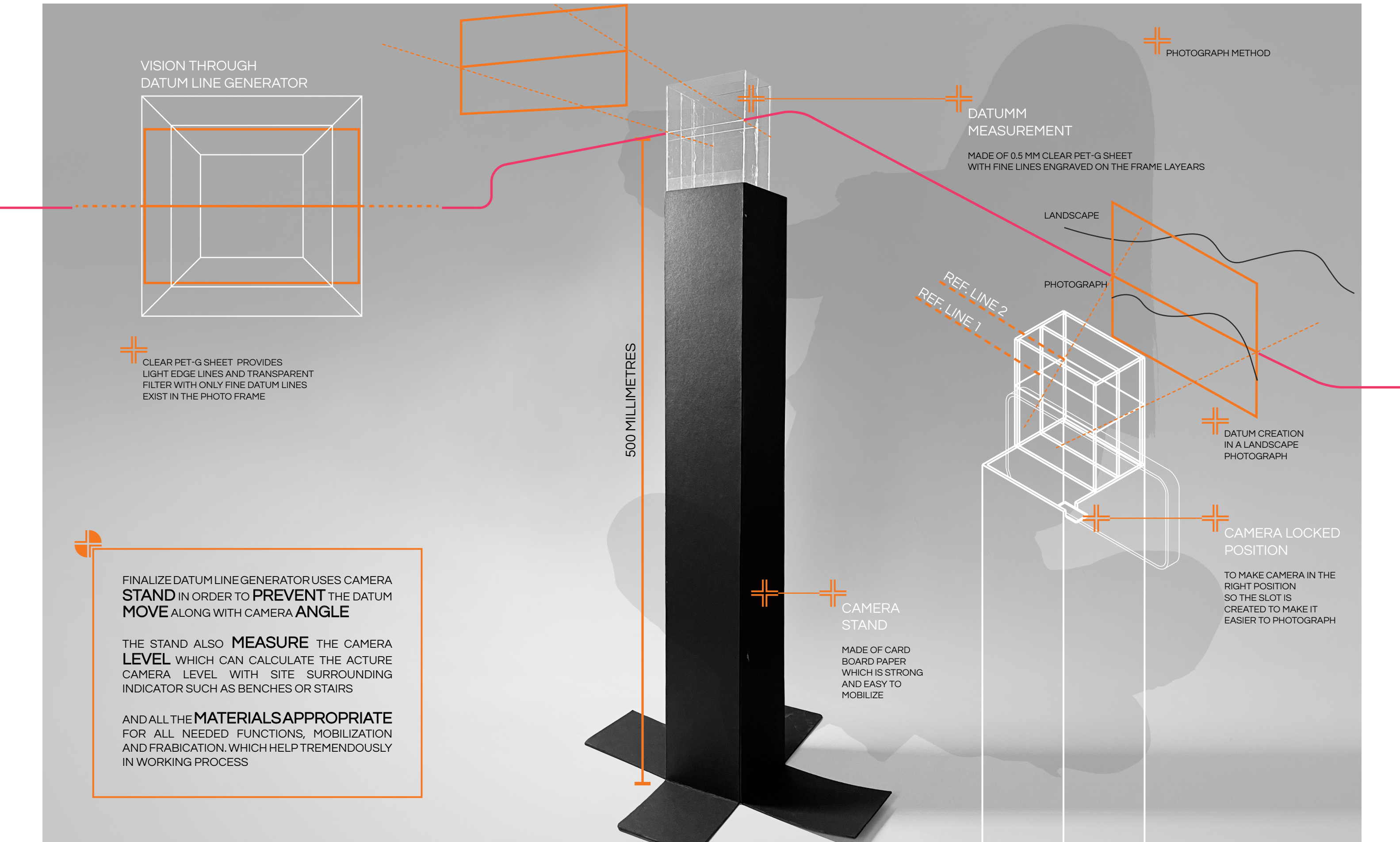
SECOND VERSION

ATTACHING TO THE CAMERA
UNABLE TO REFERENCE BECAUSE
THE DATUM MOVE ALONG WITH CAMERA ANGLE
WITH **2 VERTICAL LINES**
WHICH **ENABLE TO REFERENCE** AND
HORIZONTAL LINES WHICH ARE UNNECESSARY



DEVELOPMENT OF THE **DEVICE** WHICH CAN
COLLECT TANGIBLE PERCEPTION
OF LEVEL SHIFTING IN LANDSCAPE

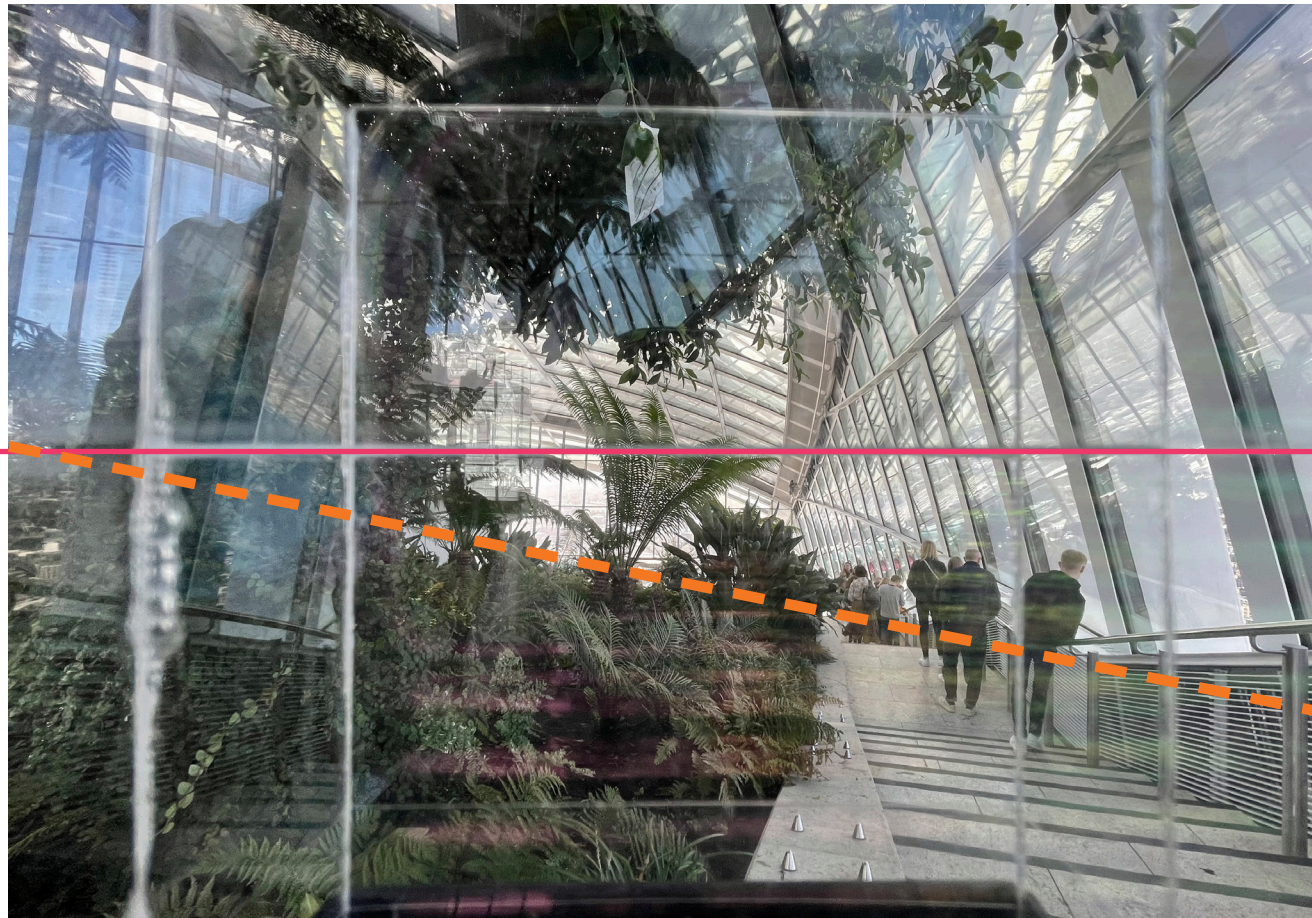
FINAL DATUM LINE GENERATOR



ON-SITE FINAL DATUM LINE GENERATOR



PHOTOGRAPH FROM
DATUM LINE GENERATOR



DEVICE USAGE
ON SITE



MAKE SURE THAT TWO
DATUM LINES ON SCREEN
IS OVERLAPING



ON-SITE USAGE TO COLLECT PHOTOGRAPHY IS
SIMPLE AND CONSUME LESS THAN 3 MINUTES
PER PICTURE BUT **GENERATE** QUALITY AND
TANGIBLE RESULTS FOR FURTHER
ELEVATION **ANALYSIS**.



R E C O R D

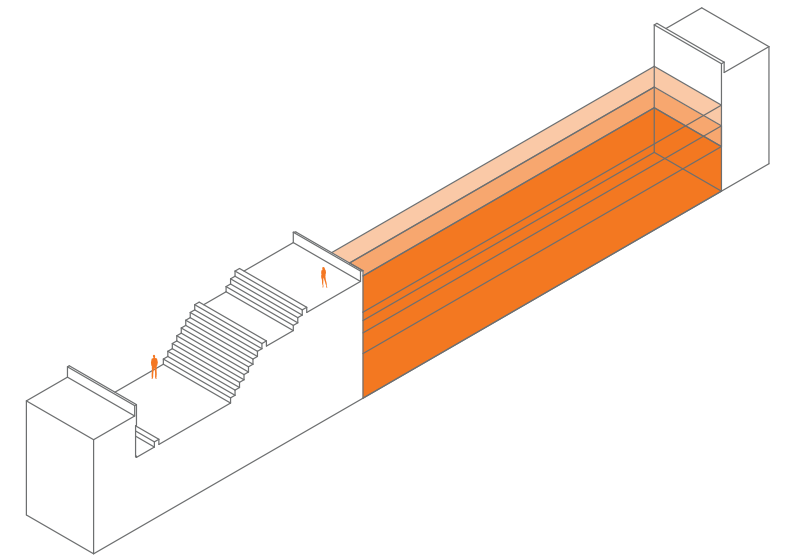
TANGIBLE

PERCEPTION

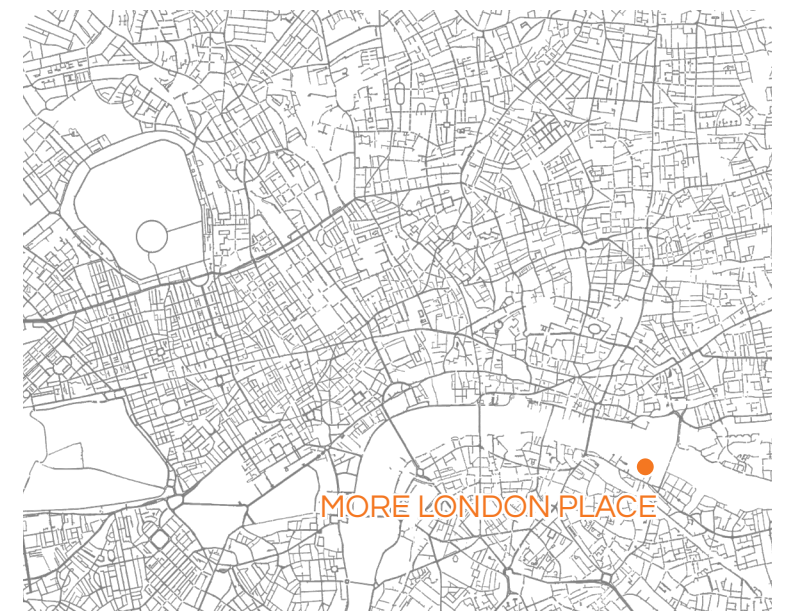
MORE LONDON PLACE



WATERFRONT LANDSCAPE DESIGN WITH **COMPLEX ELEVATION** PROVIDES A VARIETY OF LEVEL REFERENCE AND VERTICAL LANDSCAPE ELEMENTS TO **ANALYSE DATUM CHANGE PERCEPTION.**

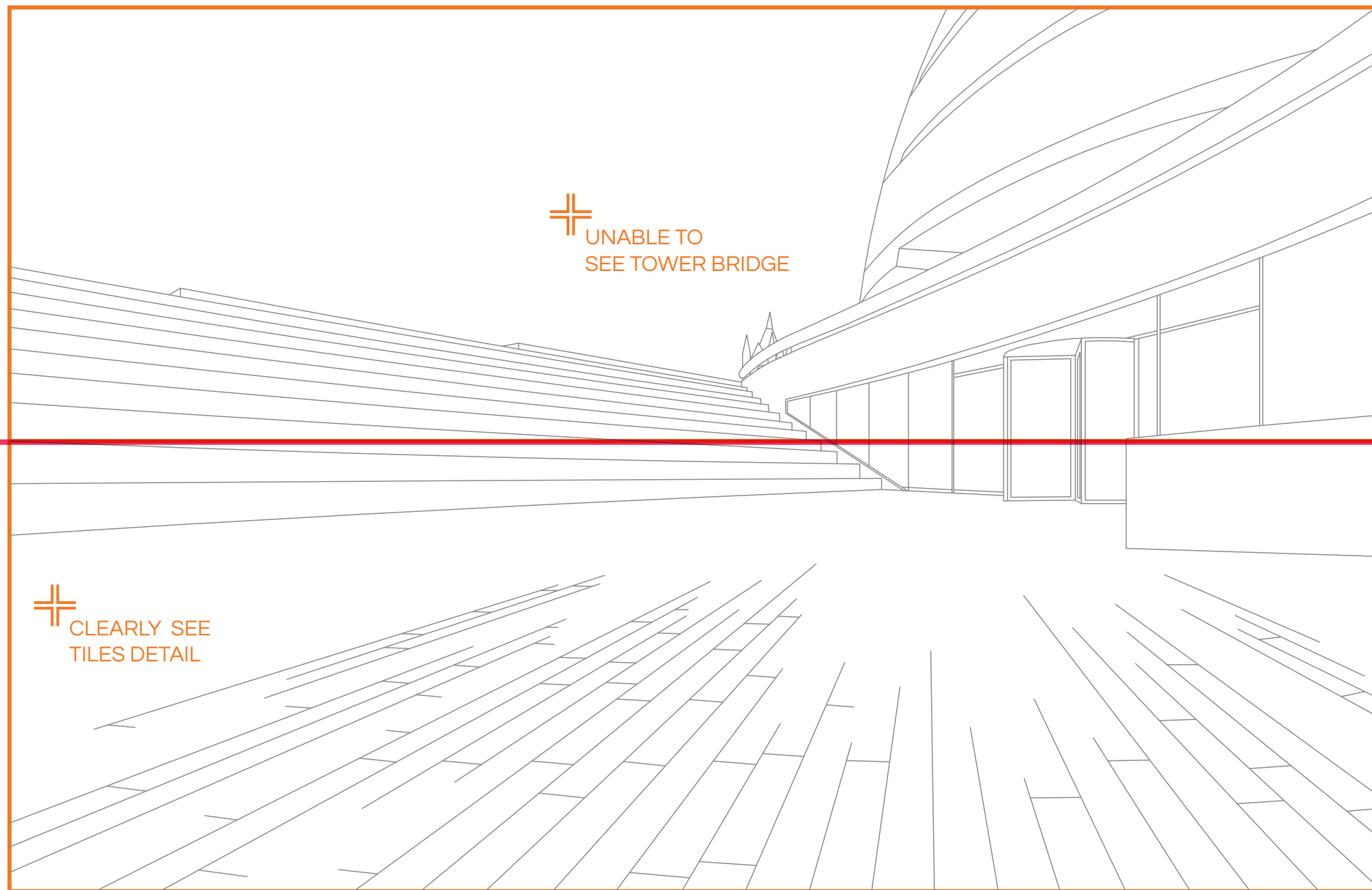


OVERALL AREA SECTION



SITE LOCATION

MORE LONDON PLACE



ABOVE DATUM LINE

BELOW DATUM LINE



0.5 M. HIGHT

NEARBY **DETAILS** ARE
CLEARLY VISIBLE

FURTHER **LANDSCAPE
ELEMENTS** ARE ABLE
TO HIDE BEHINE CLOSER
VERTICLE LANDSCAPE
ELEMENTS

CITY HALL

TOWER BRIDGE

THAMES RIVER

AMPHITHEATER

REFERENCE

PAGE 6

GROUND LEVEL



0.5 M. HIGHT
1.5 M. HIGHT
2.5 M. HIGHT
3.5 M. HIGHT
4.5 M. HIGHT

STUDIO 5 FALSE SUMMITS



0.5 M. HIGHT

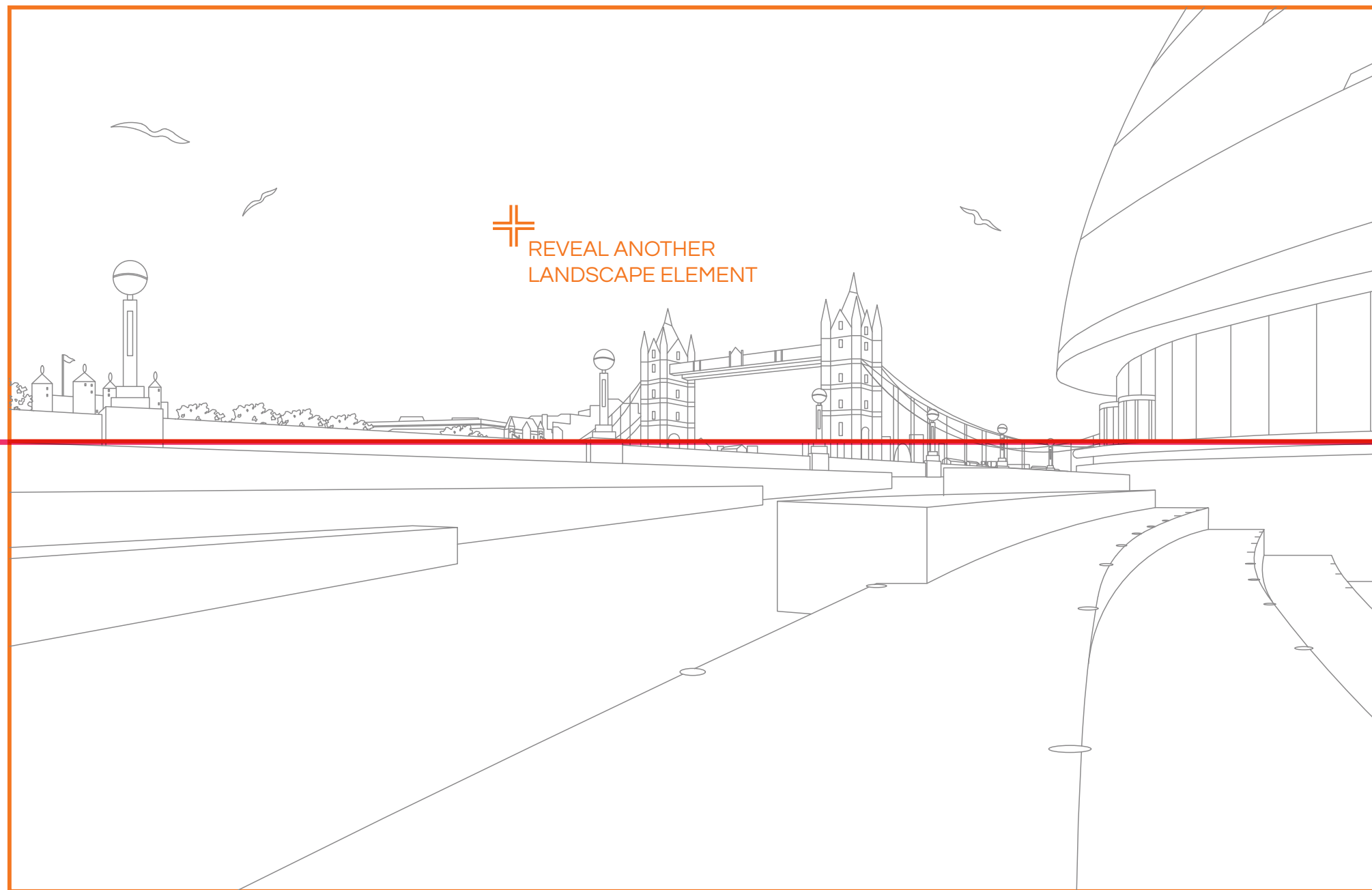
1.5 M. HIGHT

2.5 M. HIGHT

3.5 M. HIGHT

4.5 M. HIGHT

5.5M.



ABOVE DATUM LINE

BELOW DATUM LINE



5.5 M. HIGHT

LOWER DETAILS ARE UNABLE TO SEE

THE **LANDSCAPE ELEMENTS** POSITION HAVE **SHIFT** BY LOWER AMPHITHEATER AND HIGHER TOWER BRIDGE

CITY HALL

TOWER BRIDGE

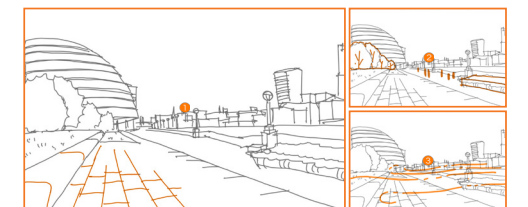
THAMES RIVER

AMPHITHEATER

REFERENCE

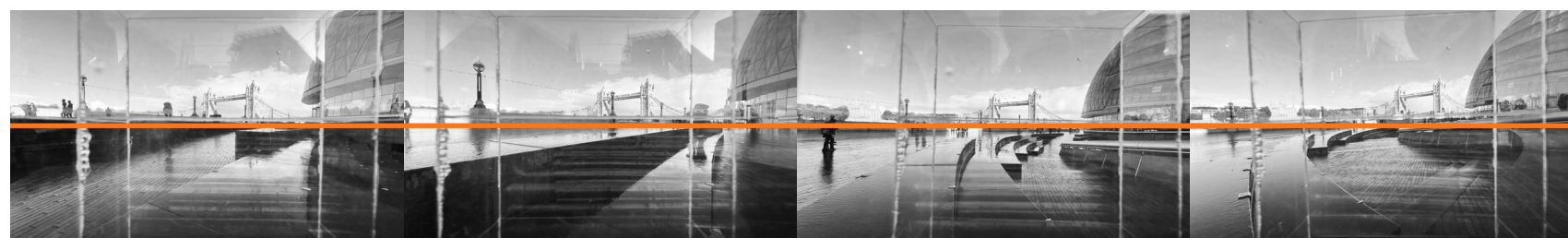
PAGE 7

3 M. HIGHT LEVEL



01 MAIN ENTRY DETAIL (VIEW 1)
02 DETAIL OF THE PEOPLE'S AMPHITHEATER
03 DETAIL OF THE PEOPLE'S AMPHITHEATER (VIEW 2)
04 DETAIL OF THE PEOPLE'S AMPHITHEATER (VIEW 3)

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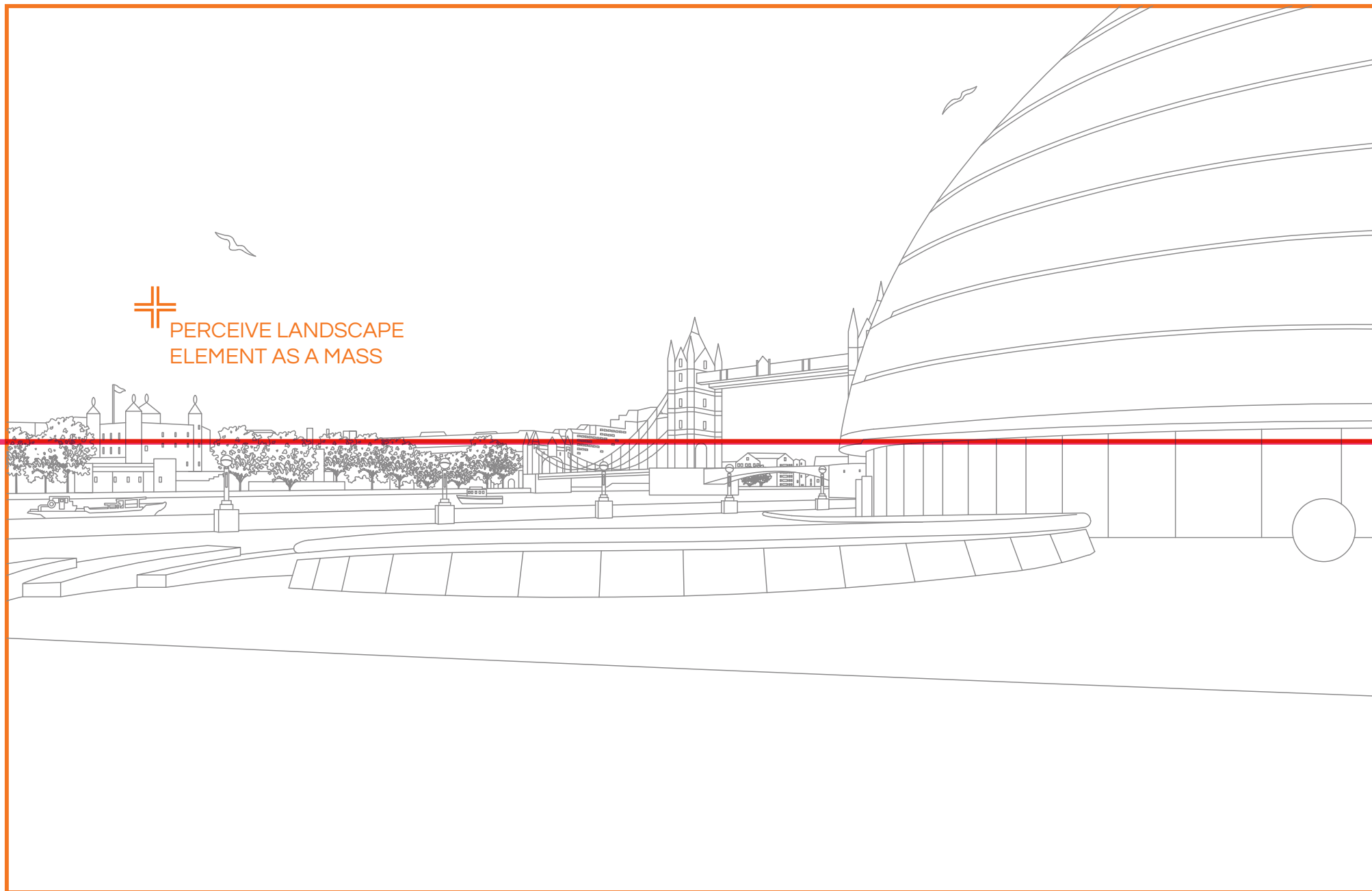
5.5 M. HIGHT

6.5 M. HIGHT

7.5 M. HIGHT

8.5 M. HIGHT

9.5M.



+

PERCEIVE LANDSCAPE
ELEMENT AS A MASS

ABOVE DATUM LINE

BELOW DATUM LINE



9.5 M. HIGHT

NO FURTHER DETAILS
ARE **NOTICIEABLE**

PEOPLE AND VEHICLES
ARE MOVING AS A FLOW.

ALL OF **LANDSCAPE
ELEMENTS** ARE ABLE
TO BE **PERCEIVED** AS A
CONCEPTUAL **MASS**

CITY HALL

TOWER BRIDGE

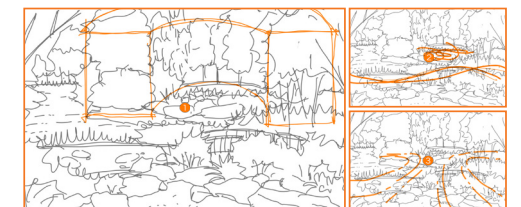
THAMES RIVER

AMPHITHEATER

REFERENCE

PAGE 8

10 M. HIGHT LEVEL



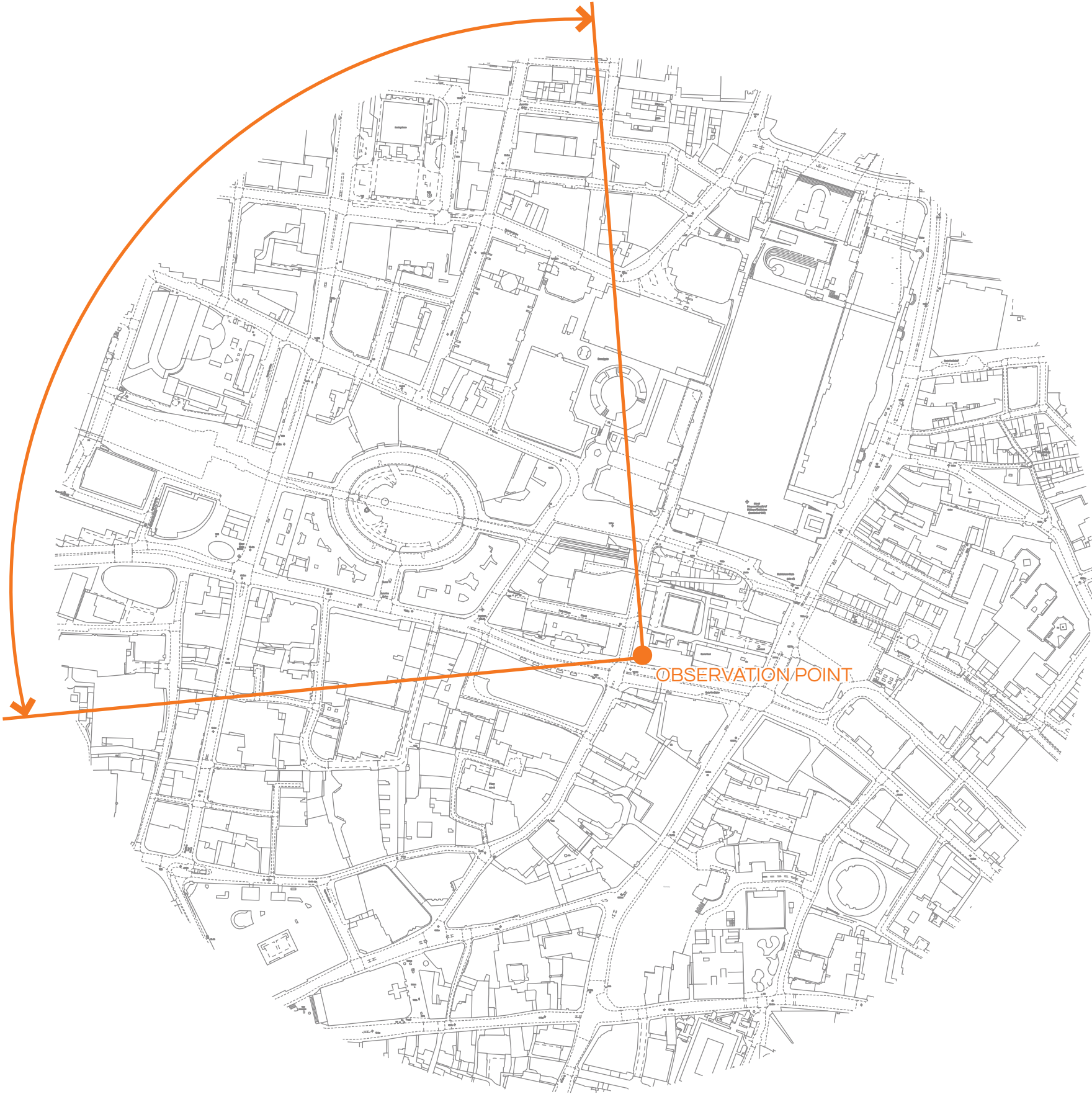
○ INDICATES LANDSCAPE ELEMENTS AS A MASS
○ INDICATES LANDSCAPE ELEMENTS AS A MASS
○ INDICATES LANDSCAPE ELEMENTS AS A MASS
○ INDICATES LANDSCAPE ELEMENTS AS A MASS

STUDIO 5 FALSE SUMMITS - PERSPECTIVE SKETCHES

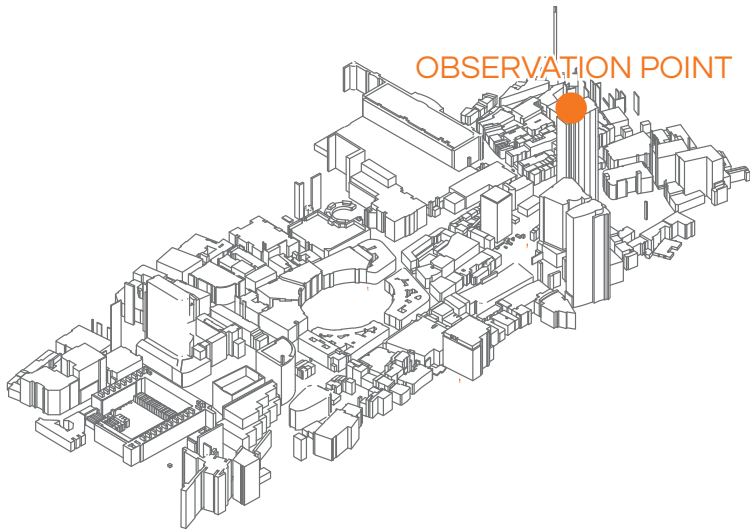


9.5 M. HIGHT

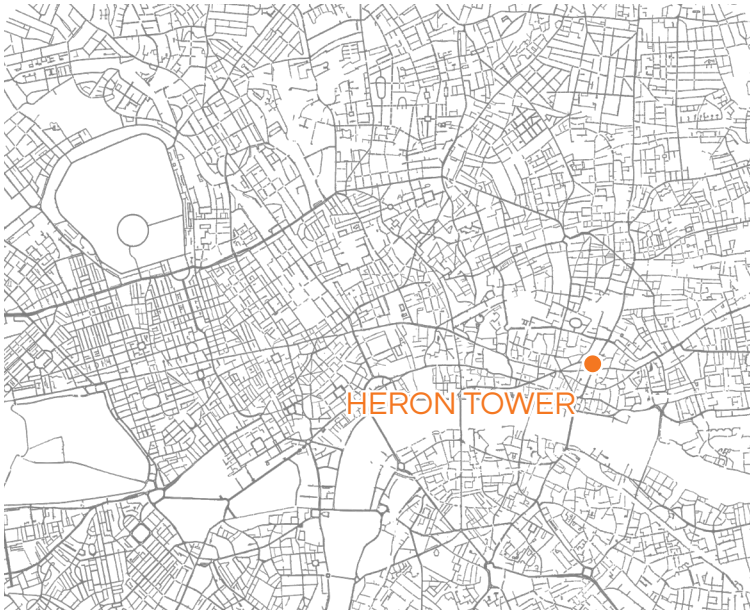
HERON TOWER



SKYSCRAPER WITH **EXTREMELY HIGH** ELEVATION PROVIDES A WIDE RANGE OF HIGHT TO EXPLORE THE LANDSCAPE CHANGE AND STUDY LANDSCAPE **PERCEPTION** IN MULTIPLE HIGHT.

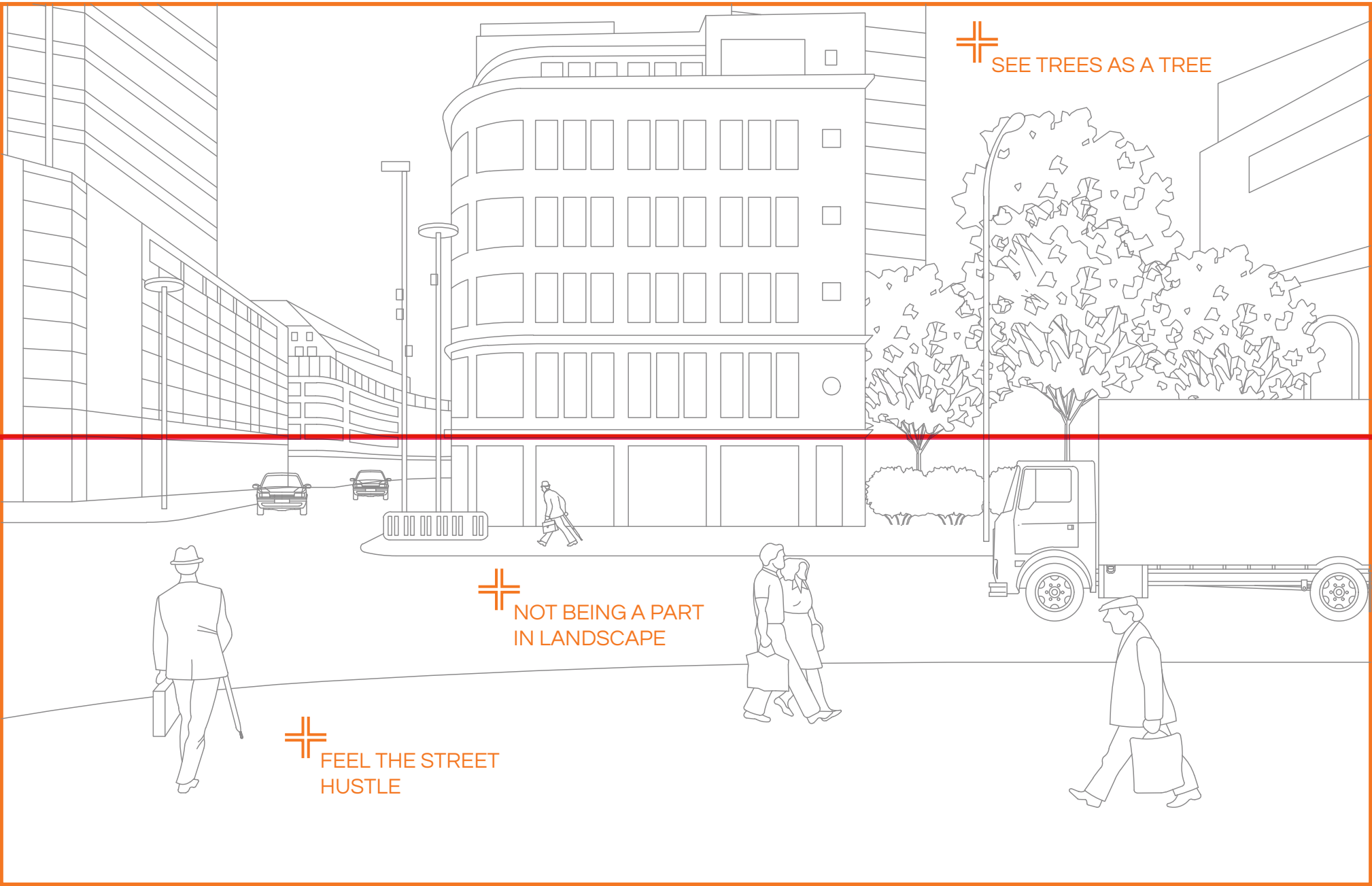


OVERALL AREA SECTION



SITE LOCATION

HERON TOWER



ABOVE DATUM LINE

BELOW DATUM LINE

FINSBURY CIRCUS GARDEN

DASHWOOD HOUSE

BISHOPSGATE

PAVEMENT

3 M. HIGH

LOWER DETAILS ARE UNABLE TO SEE

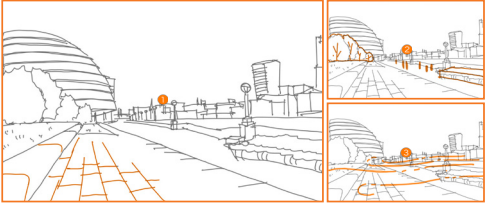
FEEL THE DISTANCE, NOT BEING A PART OF PEOPLE ON THE STREET.

OVERALL LANDSCAPE ELEMENTS STILL CAN BE IDENTIFIED AS IT BE.

REFERENCE

PAGE 7

3 M. HIGH LEVEL



01 STREET SCENE DETAIL VIEW
02 STREET SCENE DETAIL VIEW
03 STREET SCENE DETAIL VIEW
04 STREET SCENE DETAIL VIEW



3 M. HIGH

4 M. HIGH

5 M. HIGH

6 M. HIGH

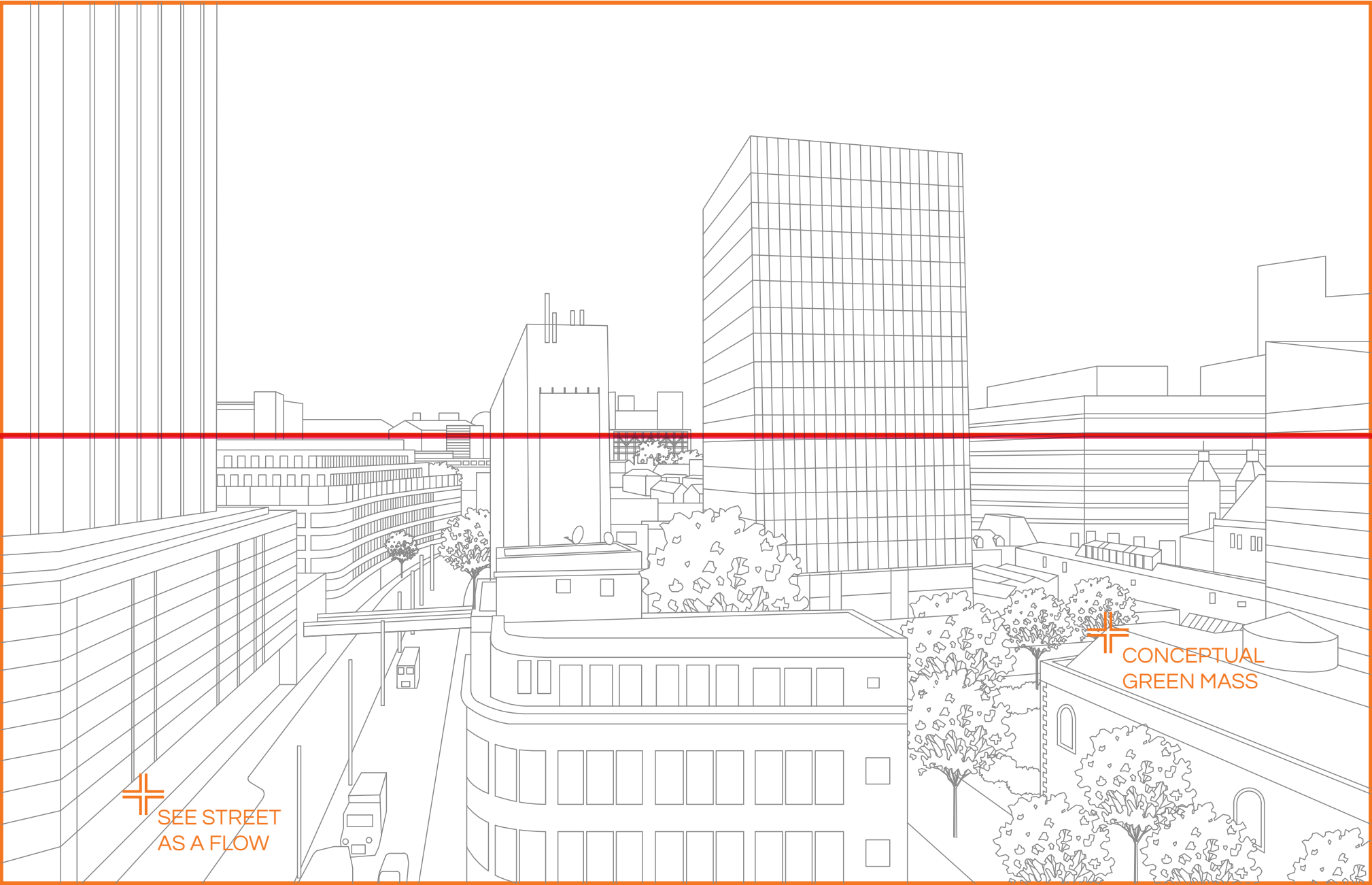
7 M. HIGH

8 M. HIGH

9 M. HIGH



HERON TOWER



22 M. HIGHT

NO FURTHER DETAILS
ARE NOTICEABLE

PEOPLE AND VEHICLES
ARE MOVING AS A **FLOW**.

ALL OF **LANDSCAPE**
ELEMENTS BECOME
PERCEIVED AS A
CONCEPTUAL MASS

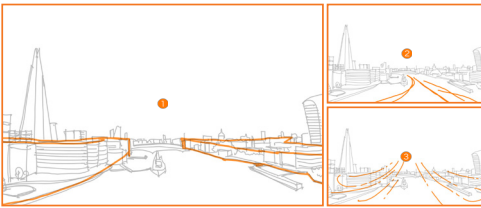
FINSBURY CIRCUS
GARDEN

DASHWOOD HOUSE

REFERENCE

PAGE 9

BIRD'S EYE LEVEL



BISHOPSGATE

PAVEMENT



17 M. HIGHT

18 M. HIGHT

19 M. HIGHT

20 M. HIGHT

21 M. HIGHT

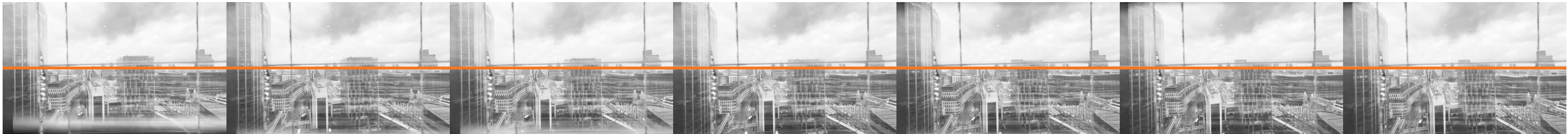
22 M. HIGHT

23 M. HIGHT

HERON TOWER



52 M. HIGHT 53 M. HIGHT 54 M. HIGHT 55 M. HIGHT 56 M. HIGHT 57 M. HIGHT 58 M. HIGHT



45 M. HIGHT 46 M. HIGHT 47 M. HIGHT 48 M. HIGHT 49 M. HIGHT 50 M. HIGHT 51 M. HIGHT



38 M. HIGHT 39 M. HIGHT 40 M. HIGHT 41 M. HIGHT 42 M. HIGHT 43 M. HIGHT 44 M. HIGHT

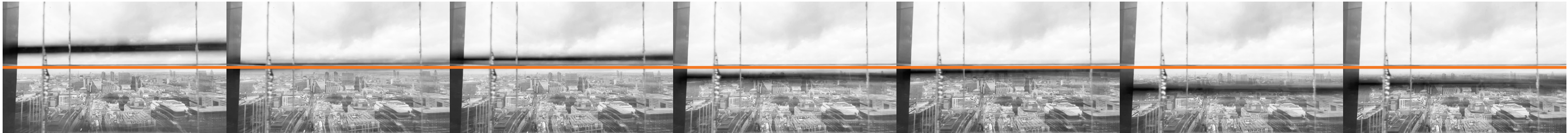


31 M. HIGHT 32 M. HIGHT 33 M. HIGHT 34 M. HIGHT 35 M. HIGHT 36 M. HIGHT 37 M. HIGHT



24 M. HIGHT 25 M. HIGHT 26 M. HIGHT 27 M. HIGHT 28 M. HIGHT 29 M. HIGHT 30 M. HIGHT

HERON TOWER



87 M. HIGHT 88 M. HIGHT 89 M. HIGHT 90 M. HIGHT 91 M. HIGHT 92 M. HIGHT 93 M. HIGHT



80 M. HIGHT 81 M. HIGHT 82 M. HIGHT 83 M. HIGHT 84 M. HIGHT 85 M. HIGHT 86 M. HIGHT



73 M. HIGHT 74 M. HIGHT 75 M. HIGHT 76 M. HIGHT 77 M. HIGHT 78 M. HIGHT 79 M. HIGHT



66 M. HIGHT 67 M. HIGHT 68 M. HIGHT 69 M. HIGHT 70 M. HIGHT 71 M. HIGHT 72 M. HIGHT



59 M. HIGHT 60 M. HIGHT 61 M. HIGHT 62 M. HIGHT 63 M. HIGHT 64 M. HIGHT 65 M. HIGHT

HERON TOWER



ABOVE DATUM LINE

BELOW DATUM LINE



100 M. HEIGHT

NO FURTHER DETAILS
ARE **NOTICIEABLE**

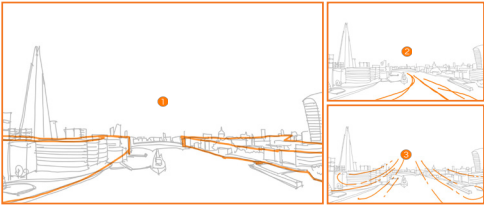
PEOPLE AND VEHICLES
ARE MOVING AS A **FLOW**.

ALL OF **LANDSCAPE**
ELEMENTS ARE ABLE
TO BE **PERCEIVED** AS A
CONCEPTUAL **MASS**

THE PERCEPTION IN
LANDSCAPE AFTER 5 M.
HIGHT IS ALL SIMILAR

REFERENCE PAGE 9

BIRD'S EYE LEVEL



FINSBURY CIRCUS
GARDEN

DASHWOOD HOUSE

BISHOPSGATE

PAVEMENT



94 M. HEIGHT 95 M. HEIGHT 96 M. HEIGHT 97 M. HEIGHT 98 M. HEIGHT 99 M. HEIGHT 100 M. HEIGHT

HERON TOWER



122 M. HIGHT 123 M. HIGHT 124 M. HIGHT 125 M. HIGHT 126 M. HIGHT 127 M. HIGHT 128 M. HIGHT



115 M. HIGHT 116 M. HIGHT 117 M. HIGHT 118 M. HIGHT 119 M. HIGHT 120 M. HIGHT 121 M. HIGHT



108 M. HIGHT 109 M. HIGHT 110 M. HIGHT 111 M. HIGHT 112 M. HIGHT 113 M. HIGHT 114 M. HIGHT



101 M. HIGHT 102 M. HIGHT 103 M. HIGHT 104 M. HIGHT 105 M. HIGHT 106 M. HIGHT 107 M. HIGHT

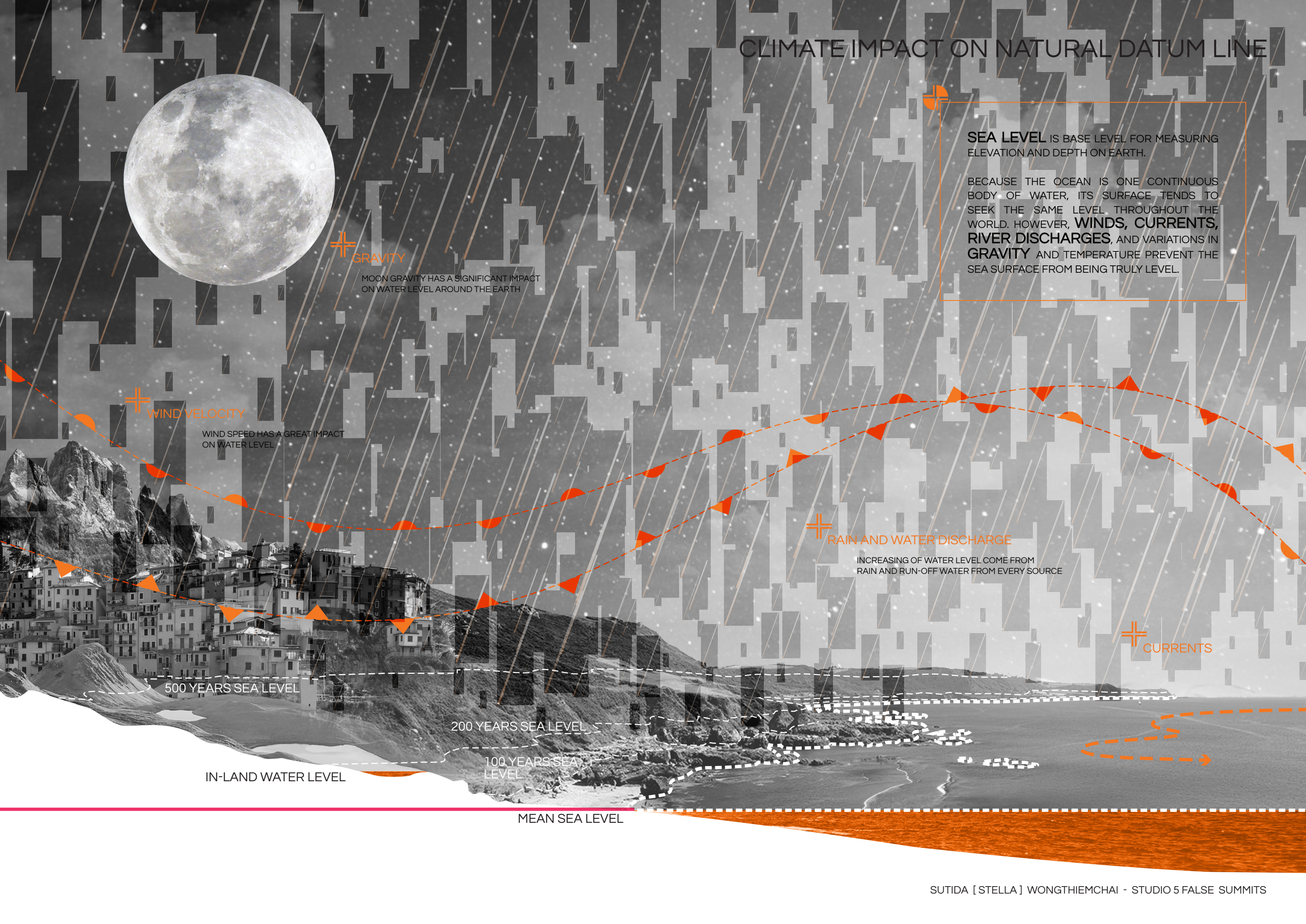
THE DATUM LINE CREATES THE ABILITY TO RECORD
SHIFTING IN VERTICAL DIRECTION
OF VISIBLE LANDSCAPE ELEMENTS
THROUGH DATUM LINE



DATUM SHIFTING

S T U D Y

CLIMATE IMPACT ON NATURAL DATUM LINE



SEA LEVEL IS BASE LEVEL FOR MEASURING ELEVATION AND DEPTH ON EARTH.

BECAUSE THE OCEAN IS ONE CONTINUOUS BODY OF WATER, ITS SURFACE TENDS TO SEEK THE SAME LEVEL THROUGHOUT THE WORLD. HOWEVER, **WINDS, CURRENTS, RIVER DISCHARGES**, AND VARIATIONS IN **GRAVITY** AND TEMPERATURE PREVENT THE SEA SURFACE FROM BEING TRULY LEVEL.

GRAVITY

MOON GRAVITY HAS A SIGNIFICANT IMPACT ON WATER LEVEL AROUND THE EARTH

WIND VELOCITY

WIND SPEED HAS A GREAT IMPACT ON WATER LEVEL

RAIN AND WATER DISCHARGE

INCREASING OF WATER LEVEL COME FROM RAIN AND RUN-OFF WATER FROM EVERY SOURCE

CURRENTS

500 YEARS SEA LEVEL

200 YEARS SEA LEVEL

100 YEARS SEA LEVEL

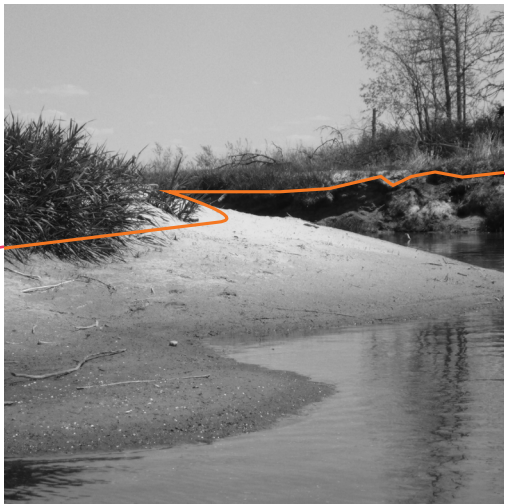
IN-LAND WATER LEVEL

MEAN SEA LEVEL

DATUM LINE SHIFTING RECORD



RIVER, FIORDLAND



RIVER BANK



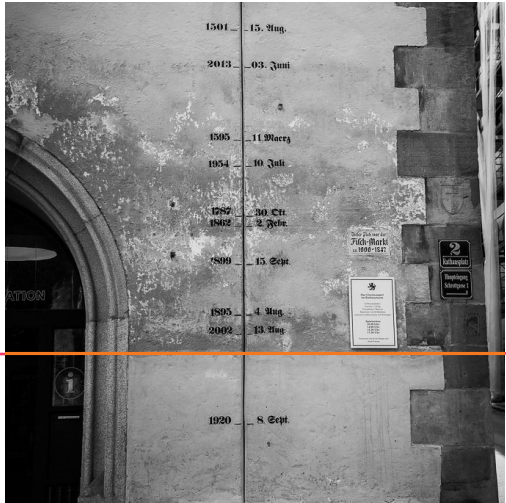
GRAND CANYON, ARIZONA



LAKE, NAKORN NAYOK



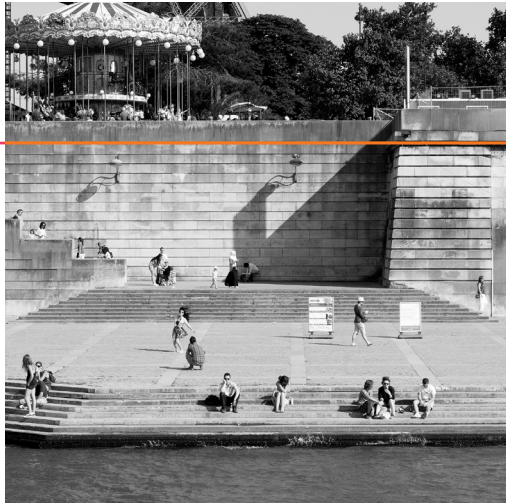
BEACH, SONGKLA



FLOOD RECORD, DANUBE



RIVER THAMES, LONDON



SEINE, PARIS



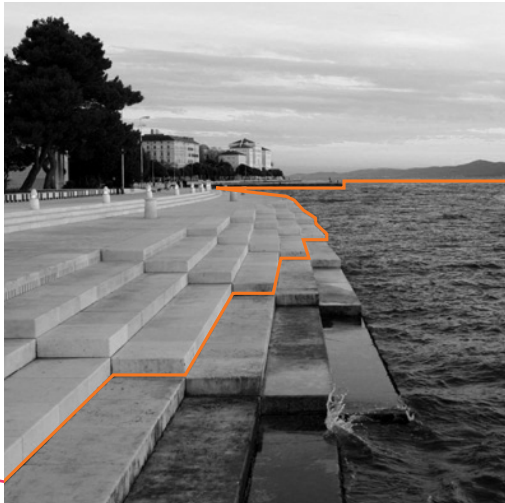
RIVER THAMES, LONDON



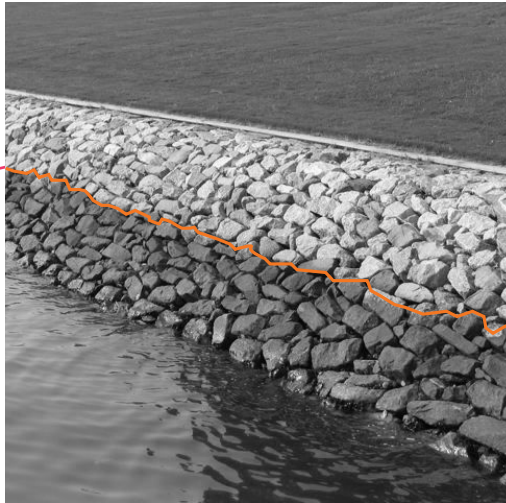
SUBURB, CHUMPON



DAM, SYDNEY



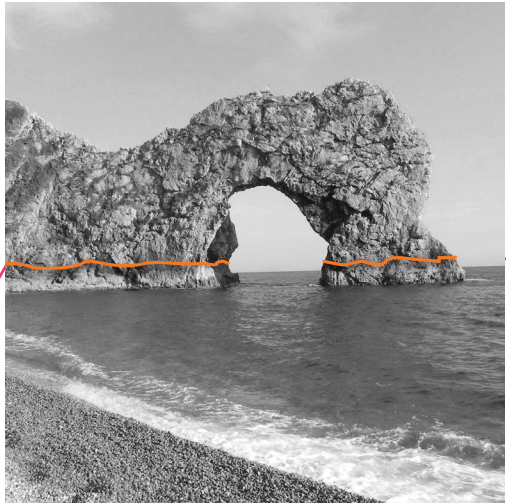
SEA ORGAN, ZADAR



RIVER, RUTLEDGE



COASTAL LANDSCAPE, QATAR



DURDLE DOOR, DORSET

GLOBAL WARMING AND DATUM CHANGE



SOURCE : NASA'S GODDARD SPACE FLIGHT CENTER/PO.DAAC, NOAA CLIMATE.GOV



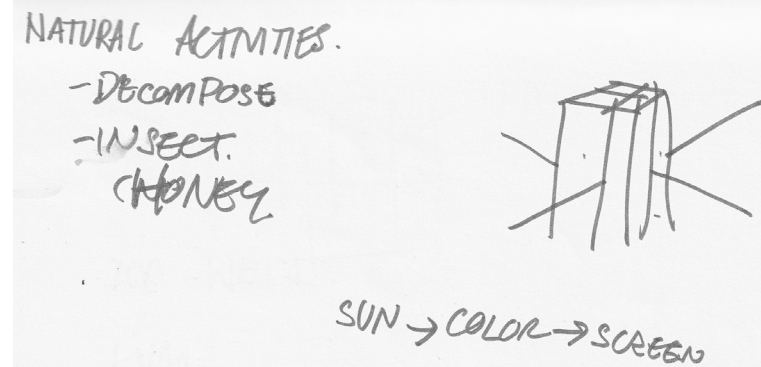
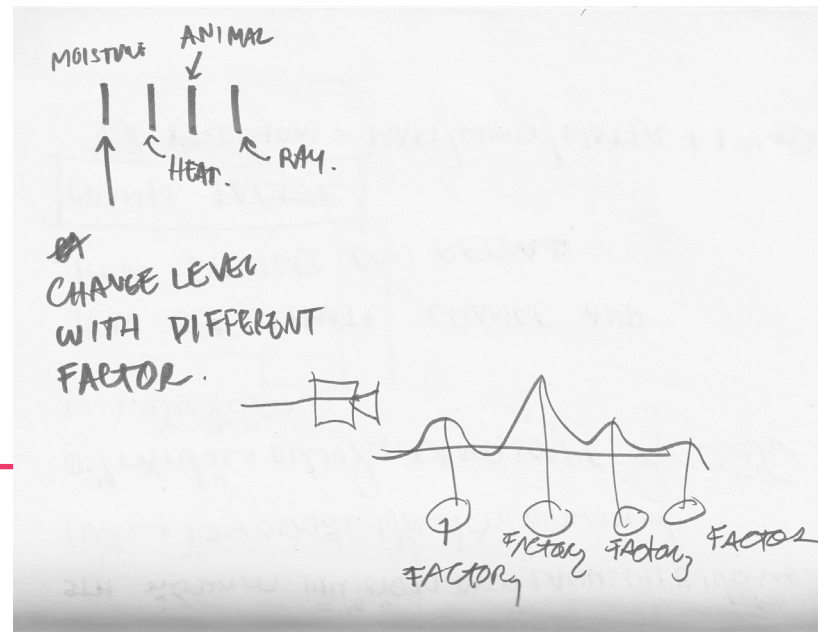
DATUM LINE ALWAYS SHIFTING

**BUT RARELY NOTICEABLY
IN SMALL TIME FRAME**



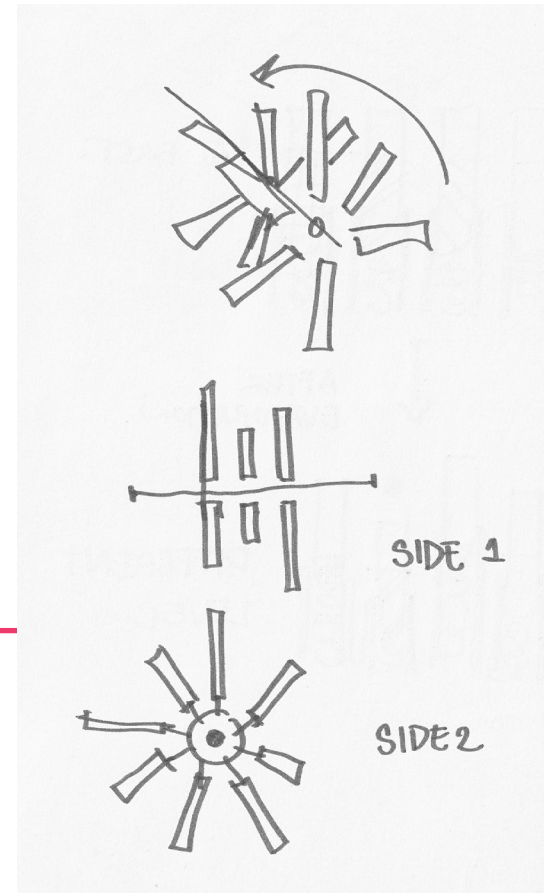
DEVICE DEVELOPMENT

SHIFTING FACTORS TRANSFORMATION



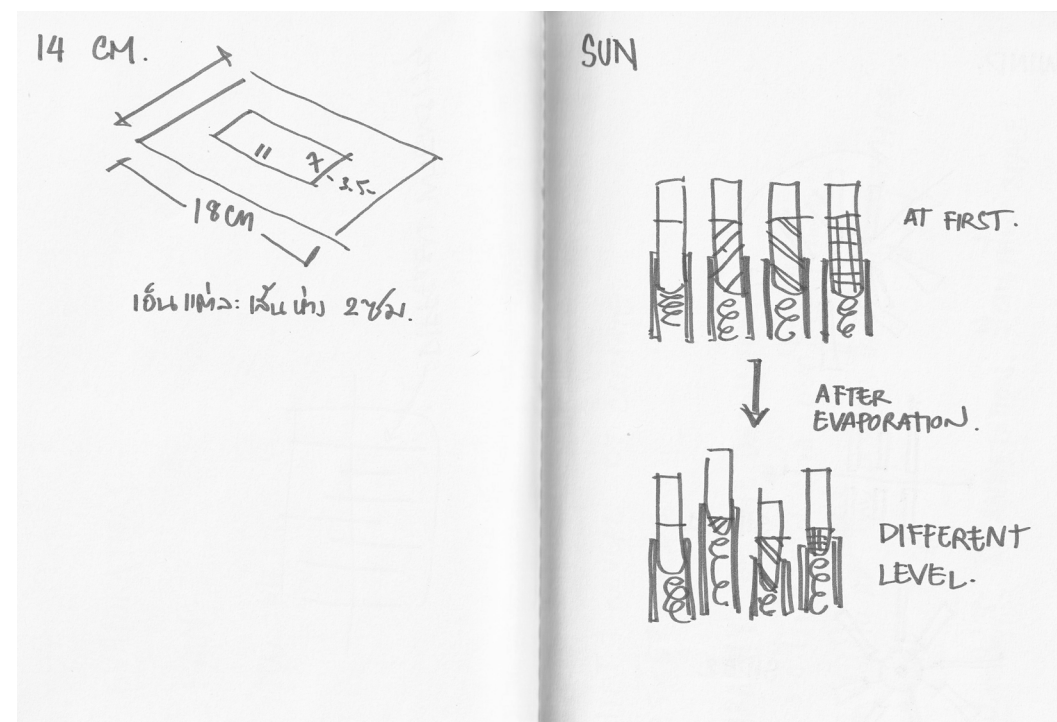
DEVICE EXPLORATION

THE SKETCH OF CONDITION CONCERN AND THE JUCTION WHICH ALLOW SHIFTING MOTION



DEVICE EXPLORATION RESPONDING TO WIND FORCE

THE ROTATION CREATE SHIFTING MOVEMENT IN ONE SIDE AND ROTATION IN ANOTHER SIDE.



DEVICE EXPLORATION RESPONDING TO EVAPORATION RATE

EACH SOLVENT HAS DIFFERENT EVAPORATION RATE. THEREFORE, AFTER A SHORT PERIOD OF TIME, SOLVENT'S LEVELS WILL BE VARY AND LOAD WHICH ARE IMPACTED BY GRAVITY WILL BE DIFFERENT. HENCE THE SHIFTING MOTION WILL APPEAR

THE STUDY OF NATURAL DATUM CHANGING LEAD TO THE RESEARCH QUESTION WHICH IS

HOW TO GENERATE THE THANGIBLE WAY TO UNDERSTAND LANDSCAPE CHANGE

THUS, THE SHIFTING TRANSFORMATION FACTOR IS ESSENTIAL FOR DEVELOP THE DEVICE WHICH IS CAPABLE OF RECORDING AND **MAKE SOMETHING INVISIBLE VISIBLE.**

BEGINNING WITH MULTIPLE SKETCHED WHICH EXPLORE THE IDEA OF TRANSFORMING VARIOUS FACTOR GENERATES THE UNDERSTANDING OF DEVICE POSSIBILITY AND POTENTIAL OF DEVELOPMENT IN EACH FACTOR.

MATERIAL RESPONDING TO DATUM SHIFTING



BOAT

MAN-MADE FLOATABLE DEVICE WHICH TAKE ADVANTAGES FROM NATURAL FACTORS SUCH AS WIND AND WATER CURRENTS.



BUOY

MAN-MADE DEVICE WHICH USING ARCHIMEDES' PRINCIPLE TO DESIGN MADE OF MULTIPLE MATERIALS BUT FLOATING ON THE WATER



CORK

NATURAL MATERIAL WITH 0.25 RELATIVE DENSITY, WHICH MEANS 75% OF OVERALL MASS IS FLOATING



WOOD

NATURAL MATERIAL WITH POSITIVELY BUOYANT AROUND 50% OF ITS MASS



STONE

NATURAL MATERIALS WITH NEGATIVELY BUOYANT TOTALLY SINK



WATERMELON

NATURAL MATERIAL WITH NEUTRALLY BUOYANT



ALUMINUM

METAL WITH NEGATIVELY BUOYANT BUT NOT TOTALLY SINK

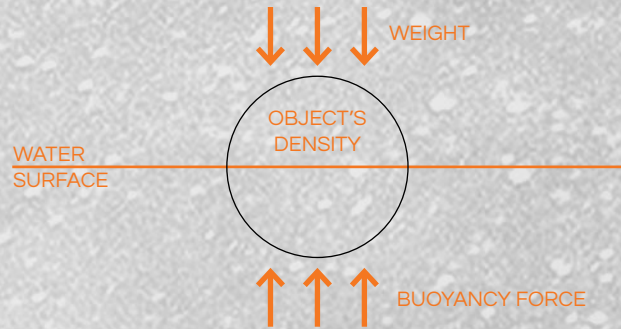


ARCHIMEDES' PRINCIPLE

PHYSICAL LAW OF BUOYANCY, THE PRINCIPLE STATES THAT THE **BUOYANCY FORCE** ON AN OBJECT IS EQUAL TO THE **WEIGHT** OF THE FLUID DISPLACED BY THE OBJECT, OR THE **DENSITY** OF THE FLUID MULTIPLIED BY THE SUBMERGED VOLUME TIMES THE GRAVITATIONAL ACCELERATION

- DENSITY IS THE RATIO OF MASS TO VOLUME
- BUOYANT FORCE IS THE UPWARD FORCE A FLUID EXERTS ON AN OBJECT

WHEN BUOYANT FORCE IS GREATER OR EQUAL TO OBJECT'S WEIGHT, THE OBJECT WILL FLOAT



WHEN **DATUM** SHIFTS, **FLOATING MATERAILS** SHIFT ALONG.

PROCESS EXPLORATION



DEVICE IN NORMAL STAGE

ALL THE PILLARS ARE ARRAY IN EQUAL LEVEL REFERENCING BY A REFERENCE DATUM LINE.

THE MATERIALS ARE CONSIST OF BIRCH, WALNUT, MAPLE AND MAHOGANY WOOD WHICH ARE NATURAL MATERIALS AND CLEAR ACRYLIC WHICH IS MAN-MADE MATERIAL.



DEVICE ON ROUGH TERRAIN IN AN ELEVATION VIEW

THE HIGHT OF EACH PILLAR IS DEFFERENT FROM EACH OTHER, EFFECTED BY THE LOWER TERRAIN.



AFTER HAVING THE RESEARCH QUESTION, PRODUCING A DEVICE TO EXPLORE HOW CAN PEOPLE NOTICE THE DATUM SHIFTING IS VITAL.

BY USING DIFFERENT MATERIALS WHICH HAVE **VARIOUS SPECIFIC GRAVITY** AND HAS A REFERENT DATUM LINE, THIS DEVICE IS ABLE TO CREATE **MULTIPLE HEIGHT** OF PILLARS **WHEN FLOATING** OR ATTACHING INTO **ROUGH TERRAIN**.

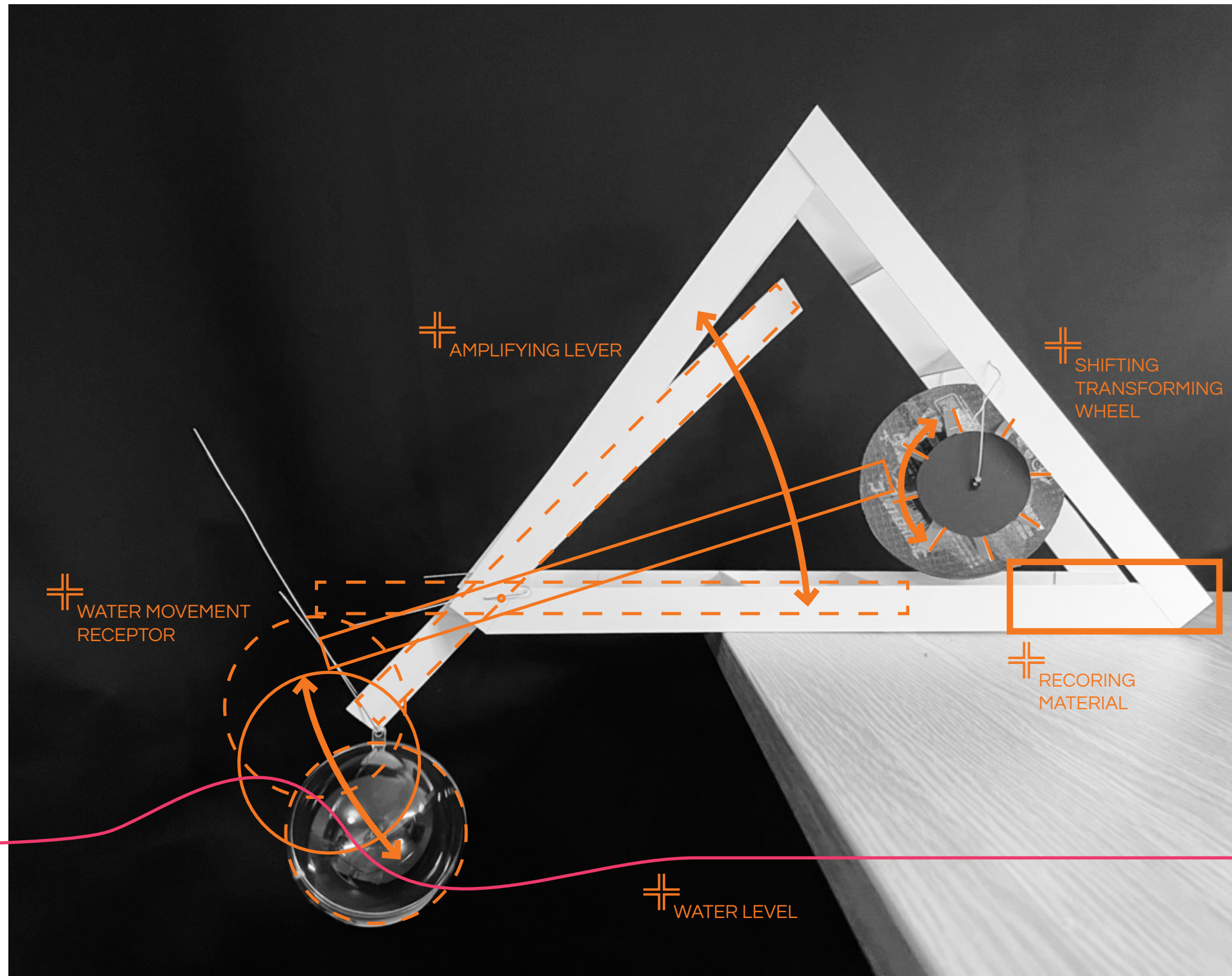
HOWEVER, THIS EXPLORED MODEL STILL HAS **LIMITATION** IN **RECORDING** THE DATUM SHIFTING MOVEMENT AND IT **RESPONSE** TO EVERY LANDSCAPE TYPE AND CLIMATE **SIMILARLY**. THUS, THIS MODEL IS NO LONGER DEVELOP. BUT THE MATERIALS CONCERN AND SHIFTING MOTION STILL IN USE IN LATER DESIGNED PROTOTYPE.



DEVICE ON ROUGH TERRAIN IN PERSPECTIVE

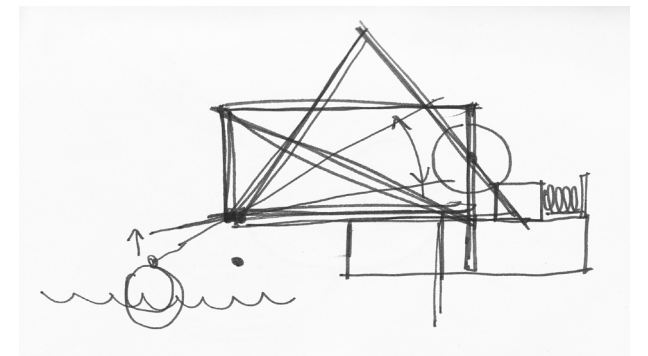
IN PERSPECTIVE, IT CAN LEAN IN DIFFERENT ANGLE ALSO

PROTOTYPE VERSION 1 MECHANISM STUDY



SURFACE WAVE FREQUENCY AMPLIFIER

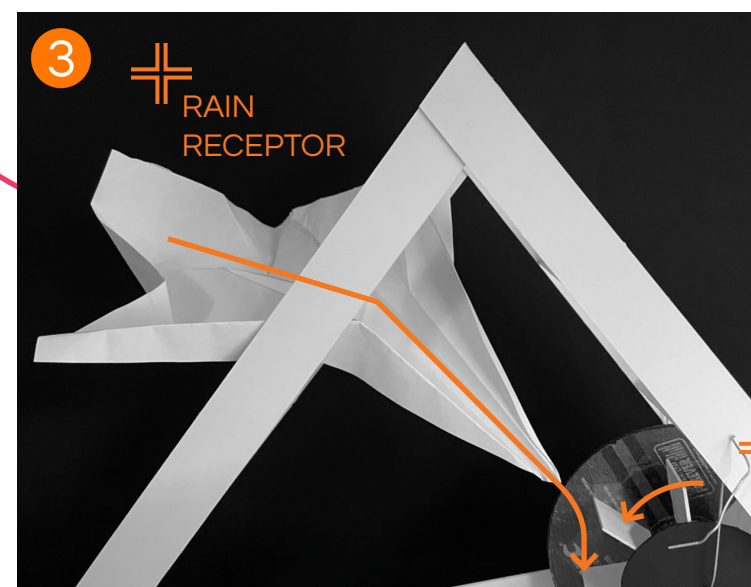
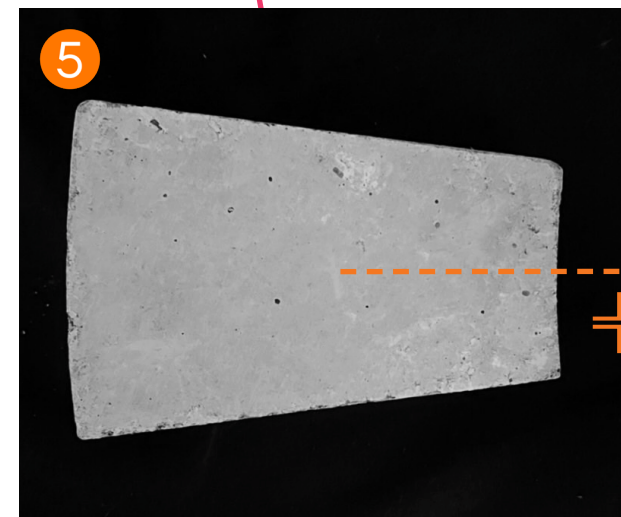
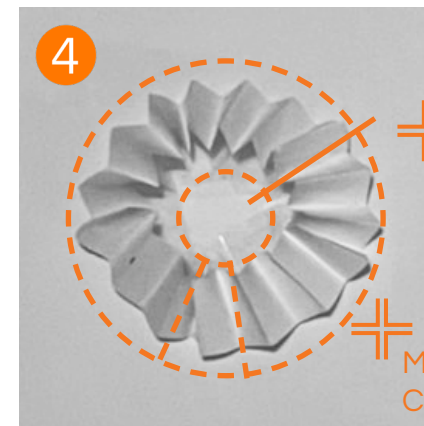
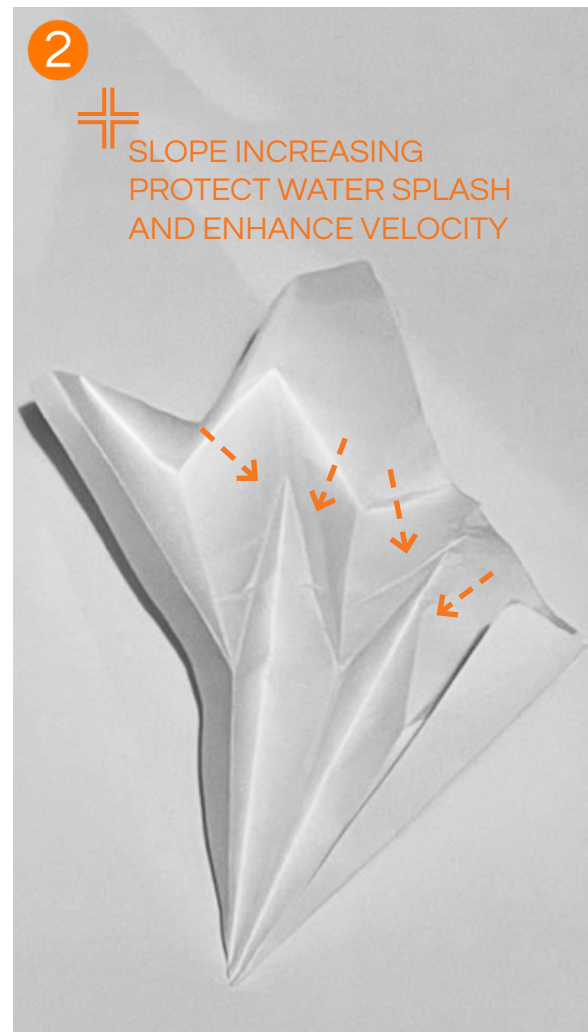
DATUM SHIFTING IS RARELY NOTICIBLY BECAUSE IT IS SMALL HOWEVER, THE MOVEMENT CAN BE **AMPLIFY** BY USING **LAW OF LEVER** AND CREATE A VISUAL **RECORD** BY TRANSFORMING THE VERTICAL SHIFTING INTO THE ROTATION MOVEMENT WHICH ATTACH WITH THE **WHEEL** AND MAKE THE WHEEL **ENGRAVED** THE RECORDING MATERIAL.



IN ORDER TO GENERATE **VIVID MARK** ON THE RECORDING MATERIAL, THE MATERIAL REQUIRE TO MOVING TOWARD THE WHEEL BY ITSELF. THEREFORE, THE **SPRING** IS ADDED IN THE BACK OF THE RECORDING MATERIAL AND **PUSH** IT TO THE WHEEL GRADUALLY.



PROTOTYPE VERSION 1 COMPONENTS STUDY



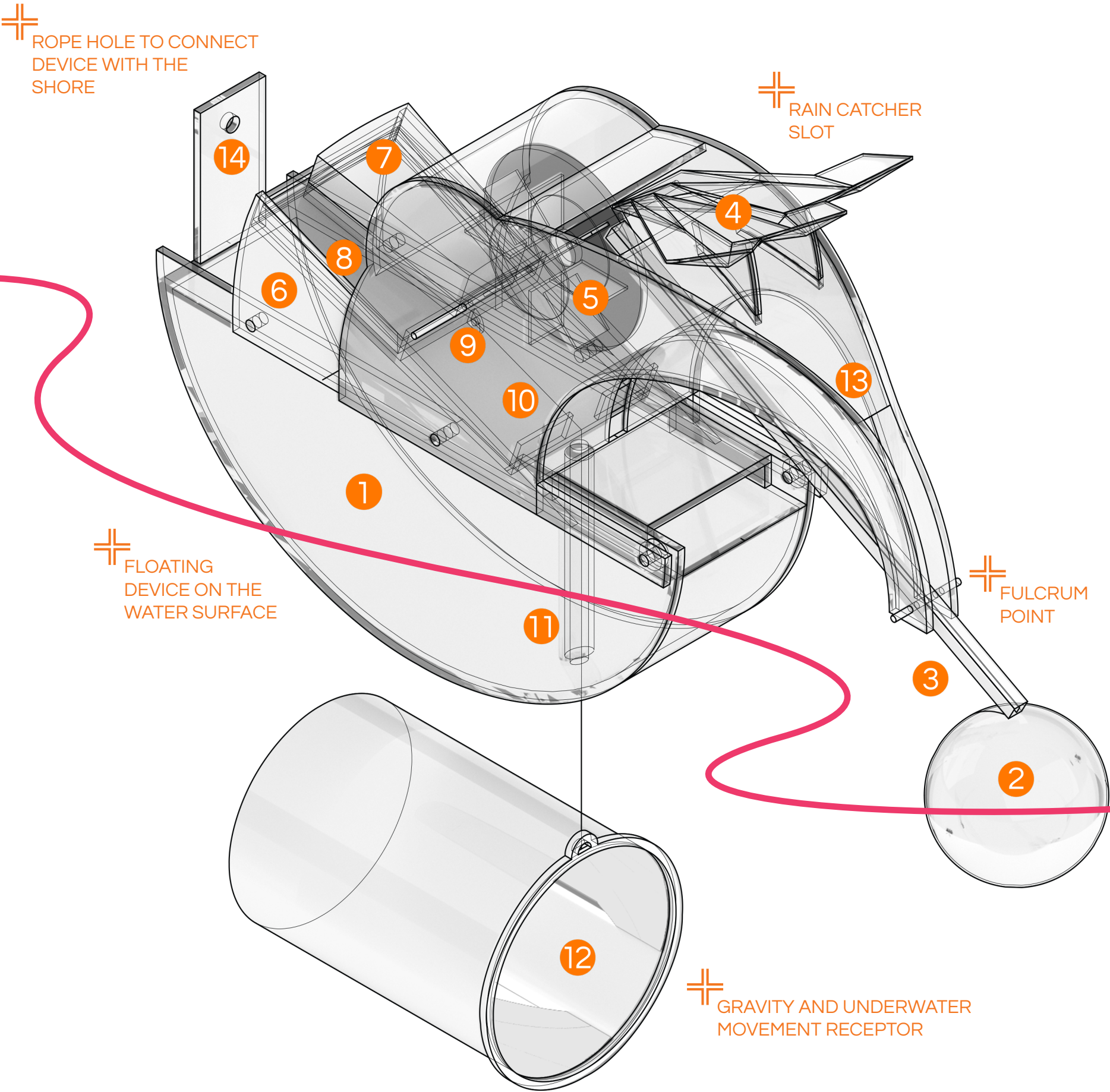
COMPONENT **DESIGN** IS INSPIRED BY THE **NATURAL SHIFTING FACTORS** RESEARCH.

IN THE PREVIOUS DEVICE EXPLORATION, THE FIRST ISSUE IS DEVISE RESPONDING TO VARIOUS LANDSCAPE AND CLIMATE CONDITION. SO THE DESIGN MECHANISM WAS DESIGNED TO MAKE A REACTION TO SURFACE WATER MOVEMENT. **ONGROUND WATER DISCHARGE** IS ALSO ANOTHER FACTOR. THEREFORE, THE WATER RECEPTOR PART WAS CREATED TO COLLECT WATER DISCHARGE.

THE SECOND ISSUE IS **RECORDING METHOD**. BECAUSE THE COLLECTION OF RECORDING WILL BE IN **MULTIPLE PIECES**. THE DESIGN WHICH CONCERN ABOUT HOW IT WILL LOOK LIKE IN THE **COLLECTION** IS ESSENTIAL. AFTER FORM EXPLORING, THE CIRCULAR SHAPE IS SUITABLE FOR COLLECT PIECES IN A COLLECTION AND MAKE THE RECORDING ENGRAVE INTO A PATTERN OF THE CIRCULAR RING.

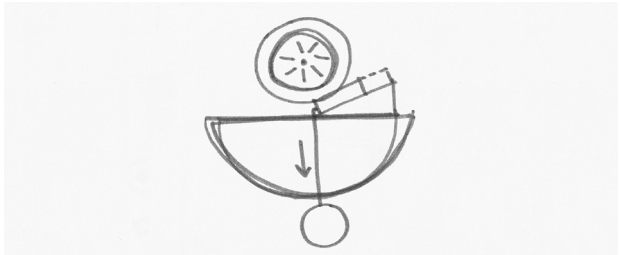
1. THE FORM STUDY OF AMPLIFYING WATER VELOCITY
2. THE DEVELOPMENT FORM OF AMPLIFYING WATER VELOCITY AND PROTECTION THE LOSS OF WATER SPLSH
3. THE RECORDING METHOD OF WATER DISCHARGE TO THE FIRST PROTOTYPE DEVICE
4. THE COLLECTION IN A CIRCULAR SHAPE WITH MULTIPLE EN-GRAVED CHANNEL
5. RECORDING MATERIAL PROTOTYPE FABRICATED BY CASED PLASTER WHICH IS SENSITIVE TO AN ENGRAVING ACTION.

PROTOTYPE VERSION 2



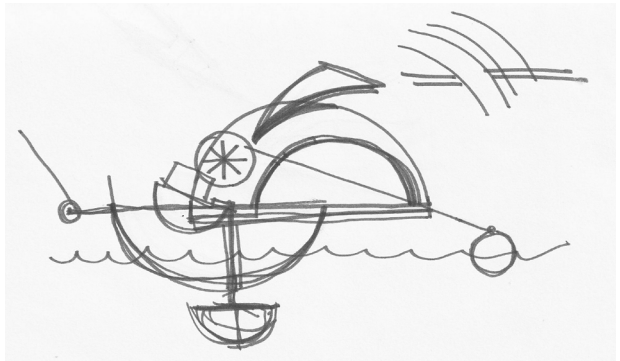
THE SECOND VERSION **IMPROVE** RECORDER **MATERIAL MOVING** MECHANISM BY **USING GRAVITY** WHICH IS ONE OF DATUM CHANGING FACTOR IN NATURE.

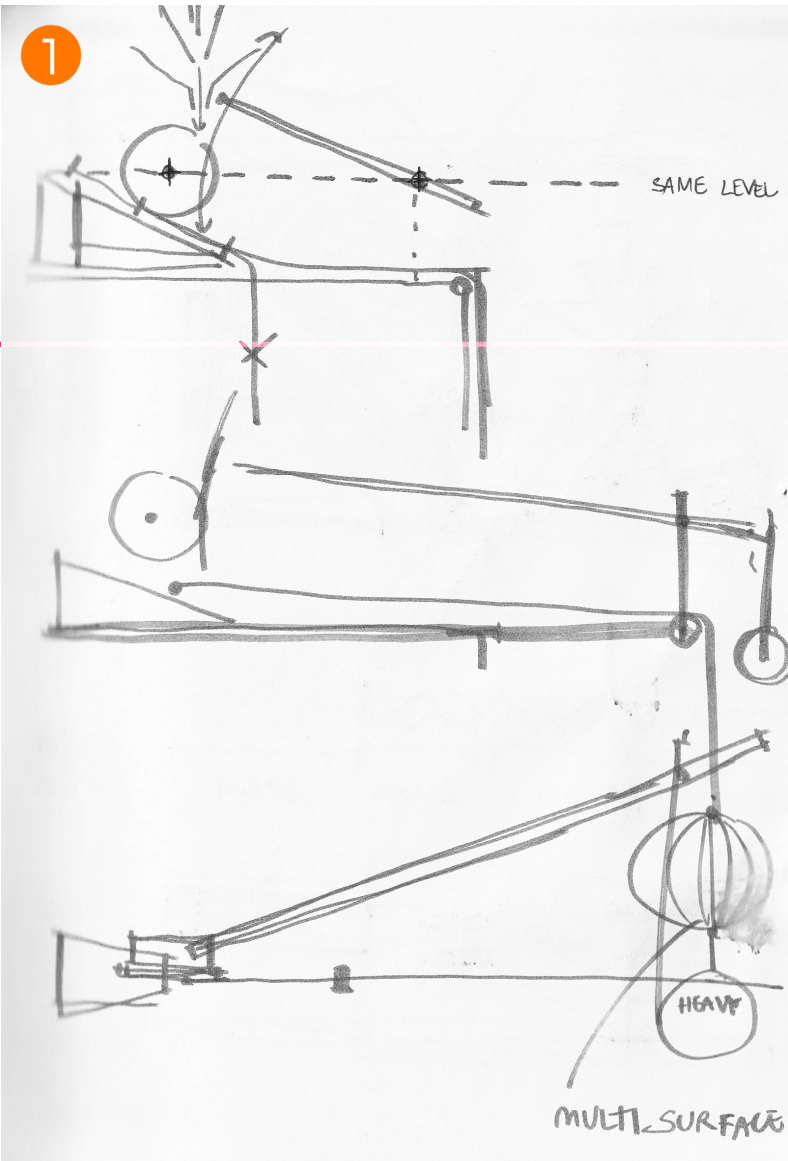
THE FIRST VERSION REQUIRES DIFFERENT LEVELS BETWEEN DEVICE BASE AND WATER SURFACE. HENCE, THE SECOND VERSION SOLVES THIS PROBLEM BY MAKING THE **WHOLE DEVICE FLOAT** AS A BOAT.



FOR THIS VERSION, THE **APPEARANCE** WAS DESIGNED BY DEVELOPING THE DEVICE AS ONE OBJECT, INSPIRED BY BIRD'S FORM. HOWEVER, THE **FRABRICATION** PROCESS BECAME SIGNIFICANT **DRAWBACK** FOR THIS VERSION.

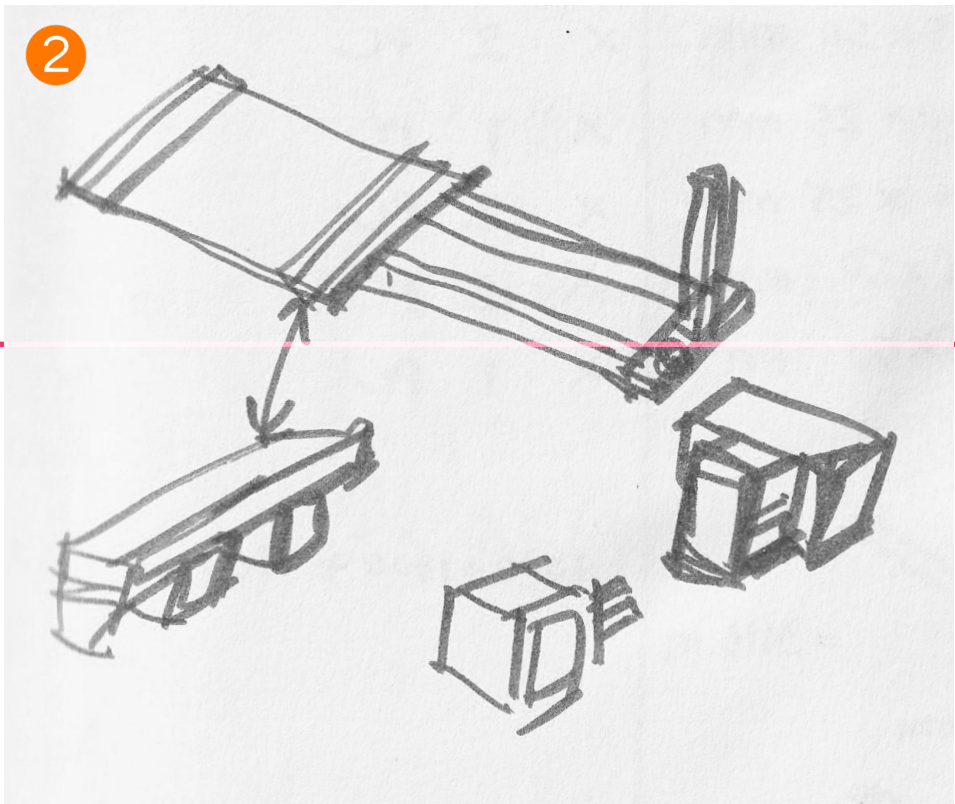
- 1. FLOATING SHIP
- 2. DATUM SHIFTING RECEPTOR
- 3. AMPLIFY ROD
- 4. RAIN COLLECTOR
- 5. MARKING SAW
- 6. SLIDE PLATFORM USING GRAVITY FORCE
- 7. RECORDING MATERIAL
- 8. SLIDING MATERIAL TRAY
- 9. PULLING ROPE POINT
- 10. ROPE
- 11. ROPE SLOT
- 12. GRAVITATING OBJECT
- 13. AMPLIFY ROD CONTROL
- 14. ROPE HOLDING POINT





✚ DEVICE REQUIREMENT STUDY

THE SKETCH OF MAIN STRUCTURE WHICH REQUIRE LONG LENGHT FROM RECORDING POINT TO BUOY FULCRUM POINT



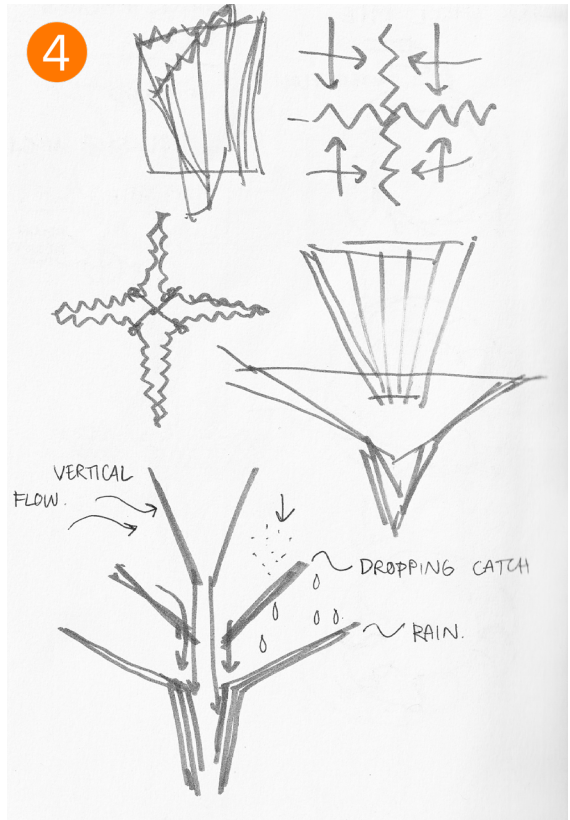
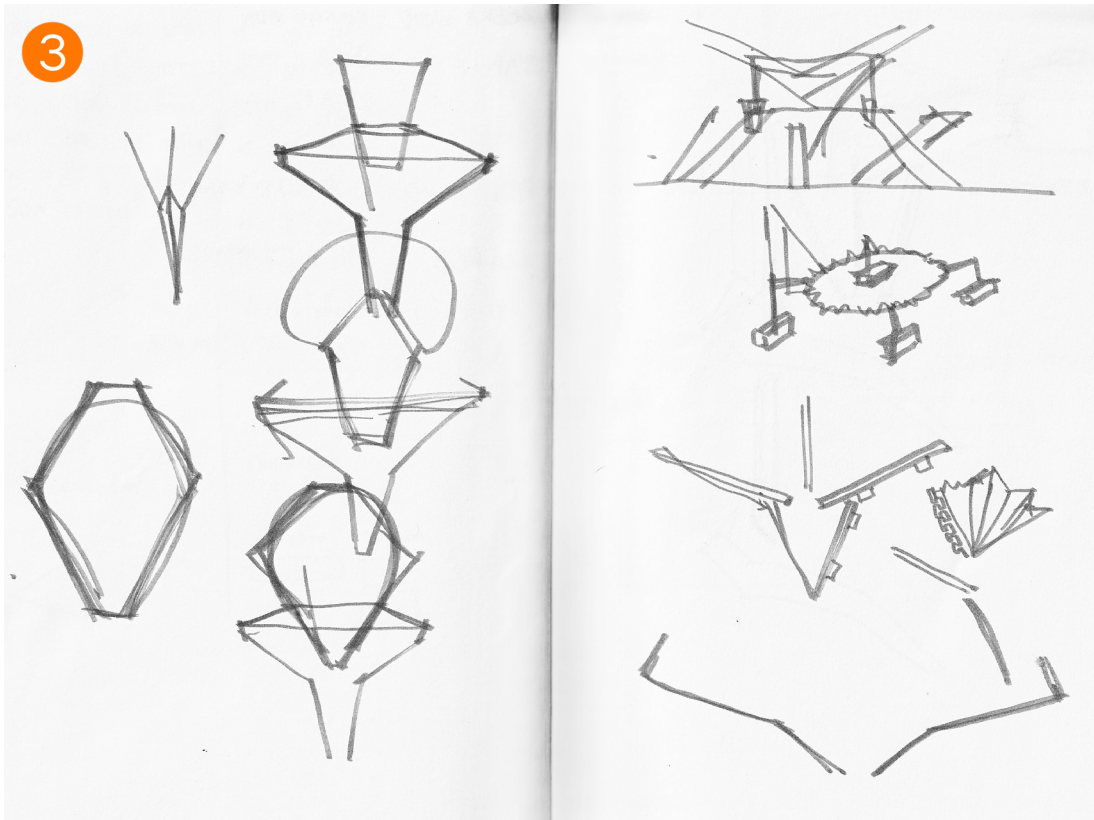
✚ JUNCTION DESIGN

EACH PARTS IS NECESSARY TO DISMANTLING AND REASSEMBLY HENCE, IT SHOULD BE AS SIMPLE AS POSSIBLE

FABRICATION METHOD IS BASED ON 6 FACTORS, CONSISTS OF THE **REASSEMBLY ABILITY**, STRENGTH, FUNCTIONS, PROVIDED EXSISTING **MANUFACTURING TECHNOLOGY**, MATERIALS AND BUDGET.

THE SKETCHES DEPICT THE STRUCTURE DESIGN WHICH HAS DIFFERENCES IN REQUIREMENTS.

- 1. DEVICE MAIN SYSTEM'S STRUCTURE DESIGN
- 2. JUNCTION DESIGN FOR REASSEMBLY
- 3. RAIN CATCHER FORM STUDY
- 4. MIST CATCHER FORM STUDY



✚ RAIN AND MIST RECEPTOR DESIGN

THE MOST COMPLEX PART OF THE DEVICE WHICH HAS UNIQUE FORM WHICH IS ESSENTIAL TO EXPLORE VARIOUS ALTERNATIVE

MATERIAL SELECTION

WOODEN MATERIALS COMPONENT

THE DEVICE MAKING MATERIALS, SOME PIECES HAVE A UNIQUE PROFILE OR A SMALL BEND BECAUSE IT IS OF-CUT WOODS.

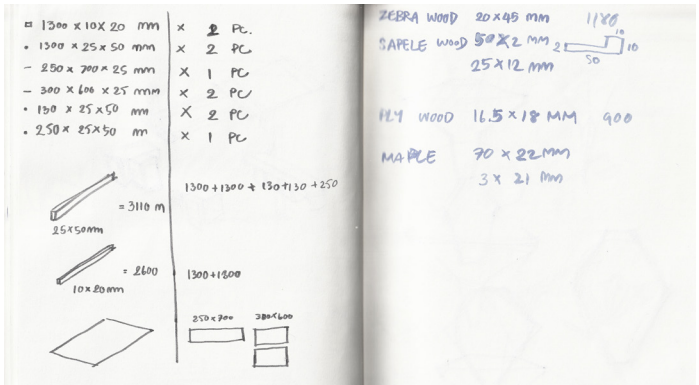


TO MAKE THIS DEVICE **ENVIRONMENTAL FRIENDLY**, MATERIAL SELECTION IS ALSO IMPORTANT TO ACHIEVE THIS OBJECTIVE.

TIMBER WHICH IS **RENEWABLE** AND **DECOMPOSABLE** BECOMES A GREAT ALTERNATIVE, ESPECIALLY **OFF-CUT** TIMBER FROM A LUMBER MERCHANT AND MAKE IT **FULLY UTILIZE**.

THE DESIGN PROCESS BEGINS WITH DRAFT MODEL AND PRIMARY MATERIAL REQUIREMENT. NEXT IS SELECT THE LEFT-OVER WOODS WHICH MATCH OR HAVING A GOOD POTENTIAL TO USE FROM A TIMBER STORE.. AFTER HAVING THE RAW MATERIALS, THE DEVICE DESIGN IS NECESSARY TO ADJUST ACCORDINGLY.

- 1. LIME WOOD -TILIA VULGARIS
- 2. 18 MM. MELAMINE FACED MDF SHEETS
- 3. ZEBRANO- MICROBERLINIA BRAZZAVILLENSIS
- 4. SAPELE - ENTANDROPHRAGMA CYLINDRICUM



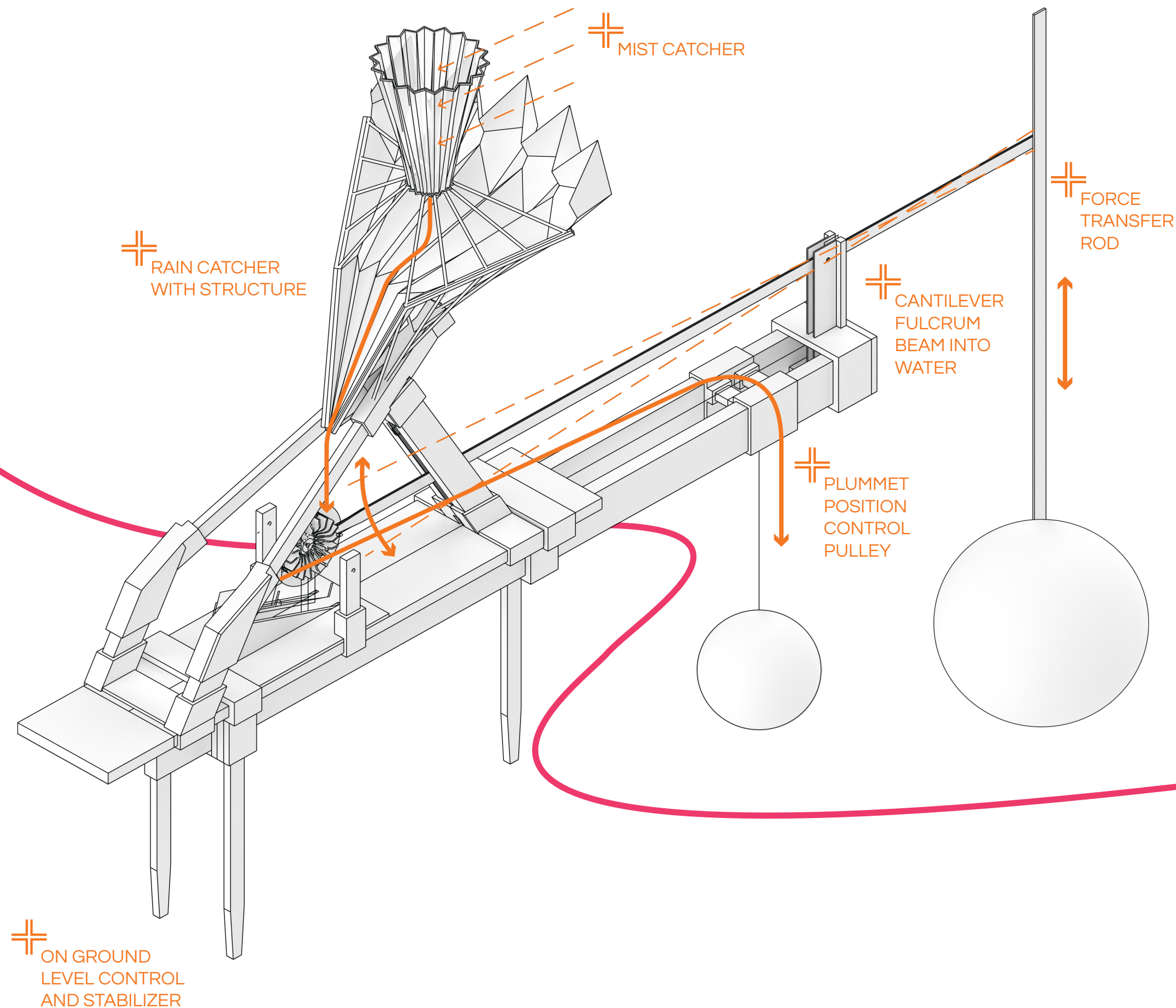
DRAFT OF MATERIAL SELECTION

THE LIST OF TIMBER WHICH USE FOR DEVICE FABRICATION

TIMBER MERCHANT WAREHOUSE

SURVEY PROCESS OF LEFT-OVER TIMBER IN THE WAREHOUSE

PROTOTYPE VERSION 3



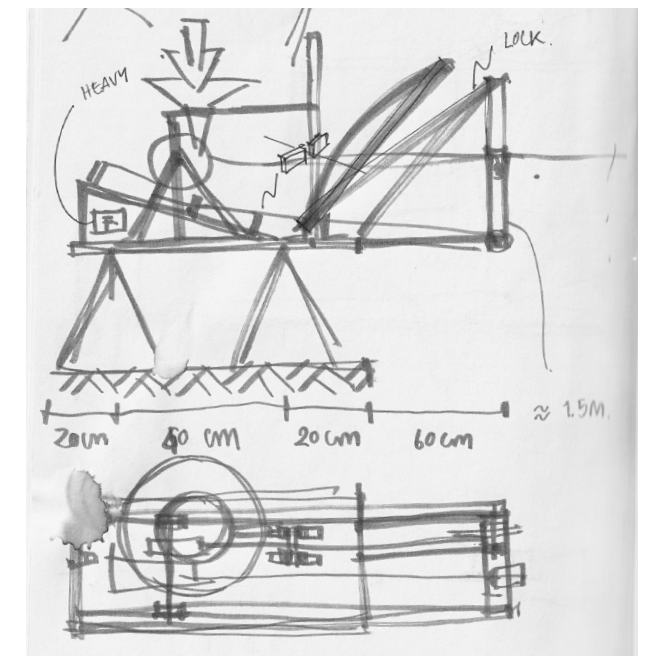
THE **PREVIOUS** VERSION, WHICH IS FLOATING BOAT ON THE WATER, HAS A POSSIBILITY TO MAKE RECORDING PART **UNSTABILIZE**. AS THE CONSEQUENCE, IT IS UNABLE TO RECORD PRECISE DIFFERENCES BETWEEN EACH LOCATION. HENCE, THIRD VERSION HAS ADDITIONAL **LEGS** TO **SOLVE HEIGHT REQUIREMENT** FROM THE FIRST VERSION AND PROVIDE STABLE LOCATION FOR RECORDING PROCESS.

THE **CANTILEVER BEAMS** ARE APPLIED FOR **EXTEND** DATUM SHIFTING **FULCRUM POINT** INTO WATER AREA AND PRODUCE A FUNCTIONAL AMPLIFICATION OUTCOME.

FORCE TRANSFER ROD USE TO TRANSFER THE WATER SURFACE SHIFTING MOVEMENT TO AMPLIFYING ROD.

PLUMMET POSITION CONTROL PULLEY GENERATE SUITABLE POSITION FOR PLUMMET TO DROP INTO THE WATER

ADDITIONAL **MIST CATCHER** PROVIDE THE POSSIBILITY ON CATCH MOISTURE IN **VARIOUS CLIMATE TYPES**



THE SKETCHES SHOW THE FIRST DRAFT IDEA OF PROTOTYPE VERSION 3 WITH REQUIRED STRUCTURE.

FABRICATION

**FABRICATION
PROCESS,** SOME
PARTS WERE **SIMPLIFY**
TO MAKE IT **STRONGER**
, USING **LESS TIME** AND
BUDGET TO BUILD. SOME
SPECIAL STRUCTURES
REQUIRE 3D PRINTING
TO PRODUCE A SPECIFIC
FORM.

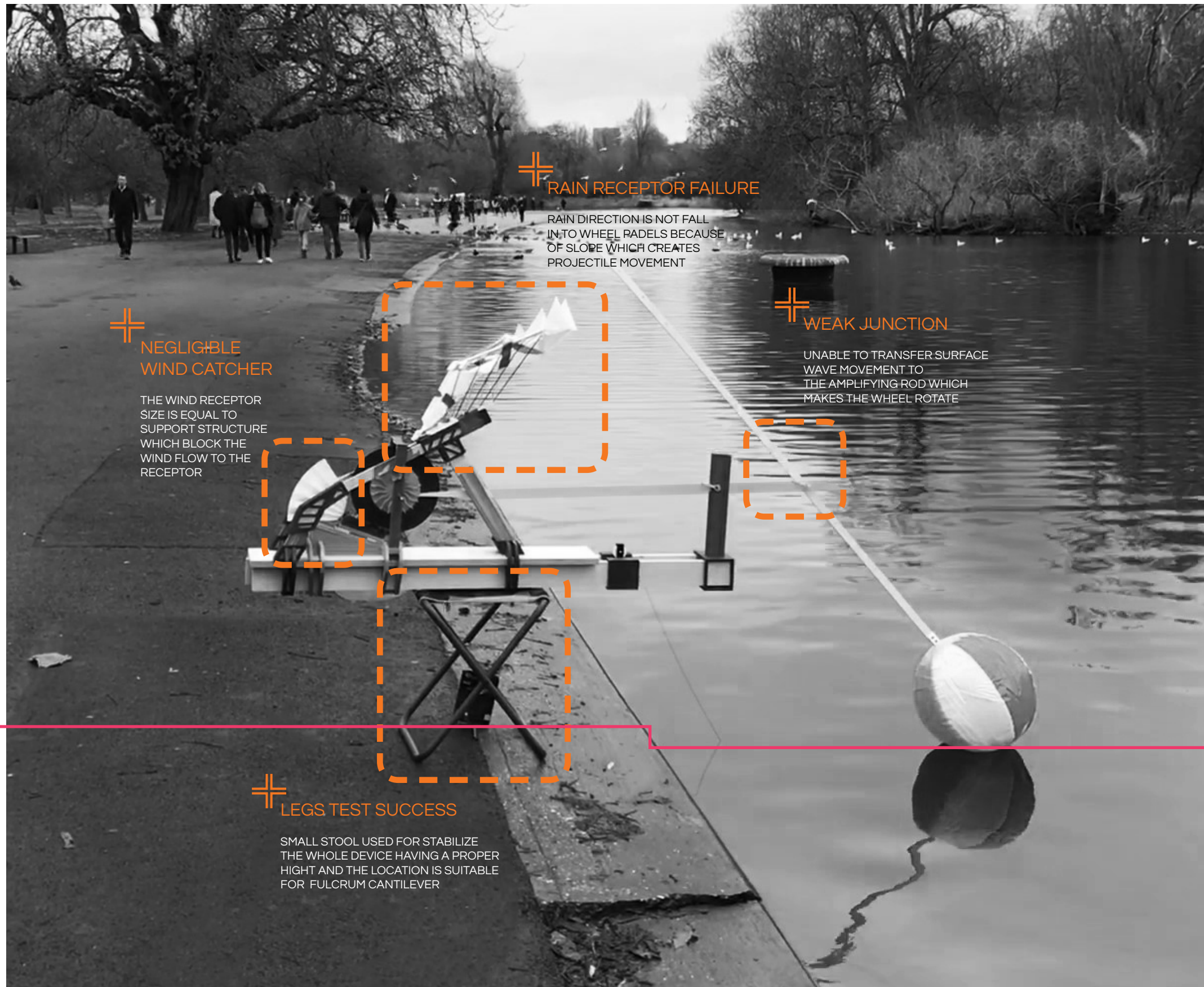
THE MOST CHALLENGE OF
STRUCTURE DESIGN IS THE
JUNCTIONS WHICH
CAN **DISMANTLING**
AND **REASSEMBLY** TO
MULTIPLE LOCATIONS



DEVICE'S COMPONENTS

ALL PARTS WHICH ASSEMBLY
INTO THE DEVICE

PILOT TESTING



PILOT TESTING AIMS TO UNDERSTAND THE DEVICESYSTEM, **OBSERVE** HOWITWORKAND **SEEKING FOR ERRORS** IN LANDSCAPE SETTING. THIS MODEL USING THE DEVICE WHICH ALMOST COMPLETE BUT SOME PARTS STILL UNDER FRABRICATION DEVELOPMENT.

THE RESULT OF THIS PILOT TEST, MAIN SYSTEM OPERATES SUCESSFULLY. SOME PARTS REQUIRE FURTHER DEVELOPMENT WHICH INCLUDING,

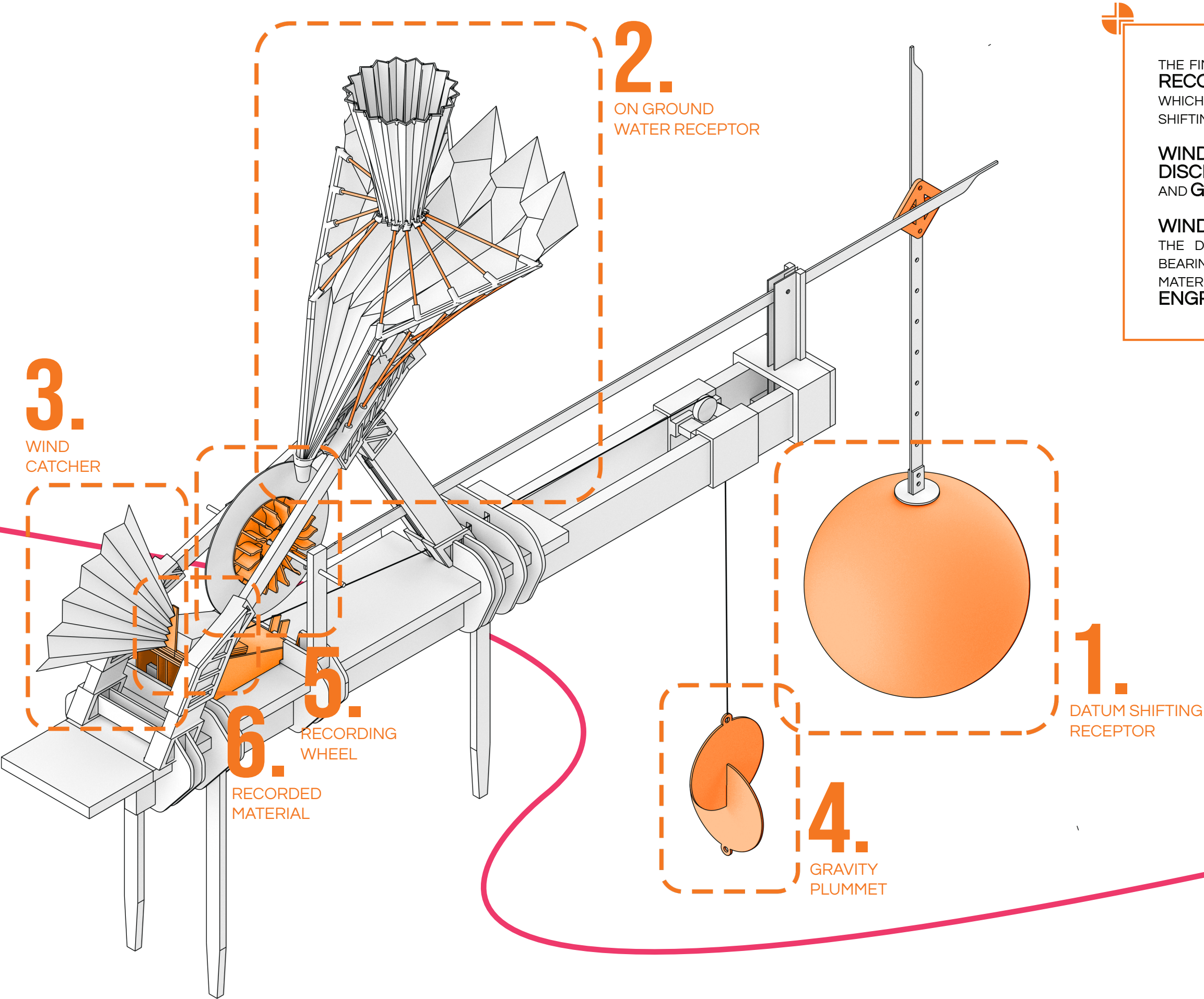
RAIN RECEPTOR **FUNNEL** TO ADJUST THE FLOW DIRECTION.

ADDITIONAL ADJUSTABLE **RIGID JUCTION** IS NECESSARY FOR FLOATING BUOY ROD.

EXTEND WIND CATCHER **RECEPTOR** FOR WIND CATCHING.

AND FINALLY FINISH ALL THE FABRICATION.

FINAL DATUM SHIFTING RECORDING DEVICE

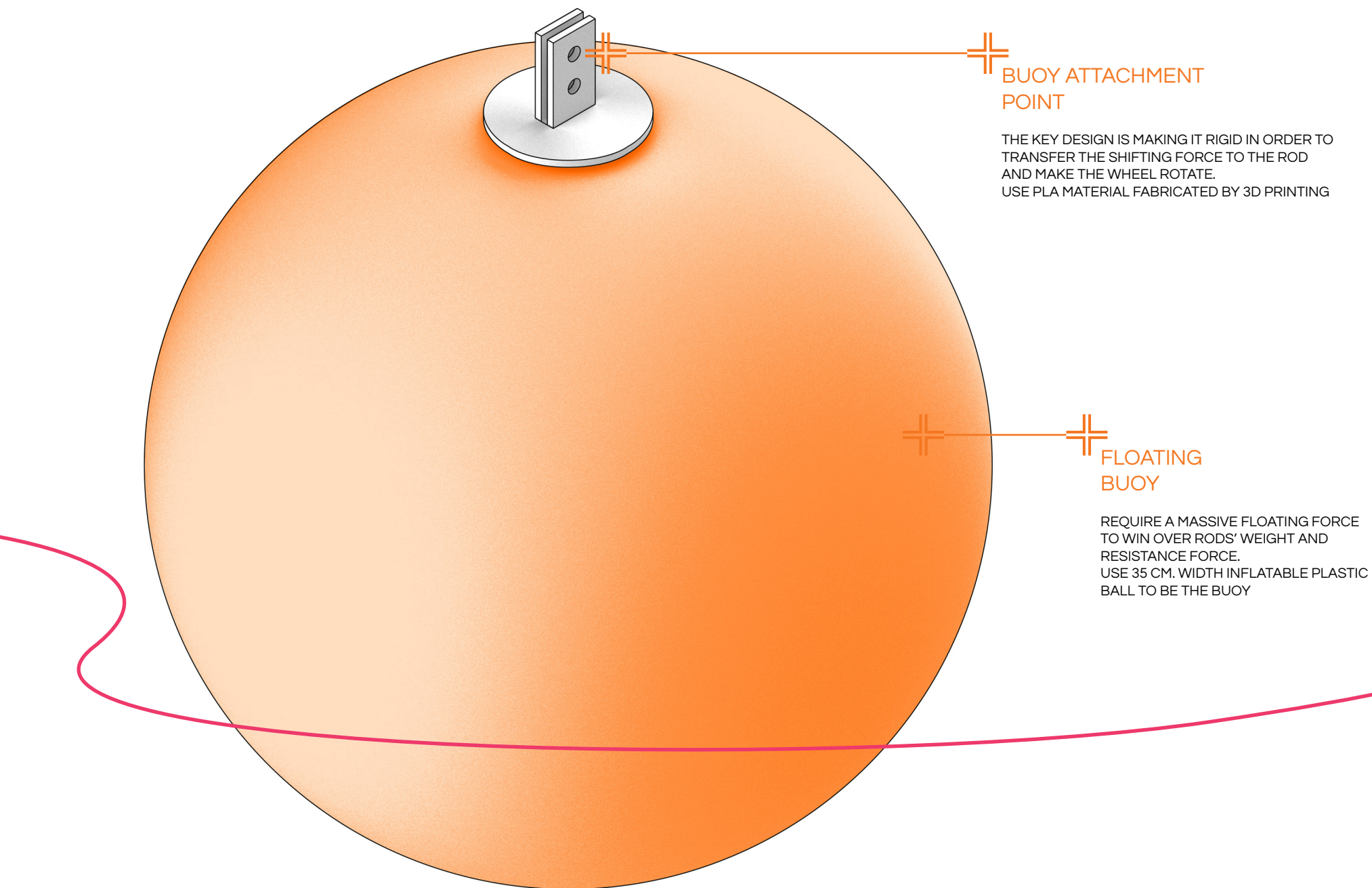


THE FINAL DEVICE DESIGN HAS THE ABILITY TO **RECORD ALL NATURAL FACTORS** WHICH HAVE IMPACTS ON NAURAL DATUM SHIFTING.

WINDS, CURRENTS, WATER DISCHARGES FROM THE CLIMATE, AND GRAVITY

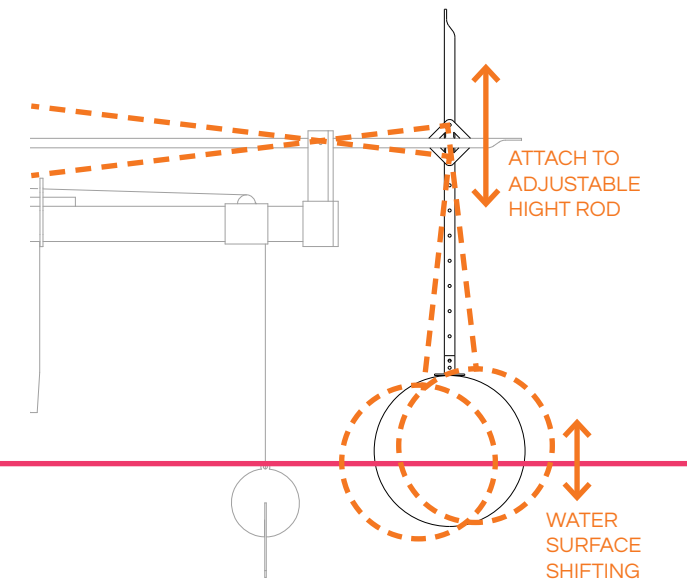
WIND CATCHER ADDING COMPLETE ALL THE DATUM SHIFTING FACTORS. TURNTABLE BEARING WHICH ATTACHS UNDER RECORDING MATERIAL'S TRAY CREATE **DISSIMILAR ENGRAVED** PATTERN.

DATUM SHIFTING RECEPTOR



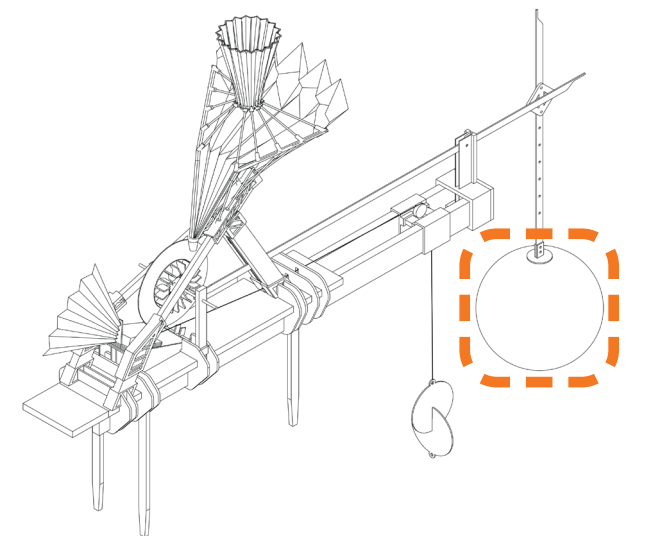
USING A **FLOATING BUOY** WHICH PUSH THE ROD SHIFTING IN VERTICLE DIRECTION AS THE DATUM SHIFTING RECEPTOR

BECAUSE THE RELATIONSHIP BETWEEN WATER LEVEL AND GROUND LEVEL IS VARY, BUOY HOLDING ROD IS NECESSARY TO **ADJUSTABLE** TO EVERY **DISTANCE**.



THE **PERPENDICULAR JUNCTION** IS ESSENTIAL TO BE **RIGID** TO TRANSFER THE DATUM SHIFTING FORCE. THE BUOY MOVEMENT WOULD BE SWING IN SMALL SCALE BUT IT STILL CONTAIN VERTICLE MOVEMENT.

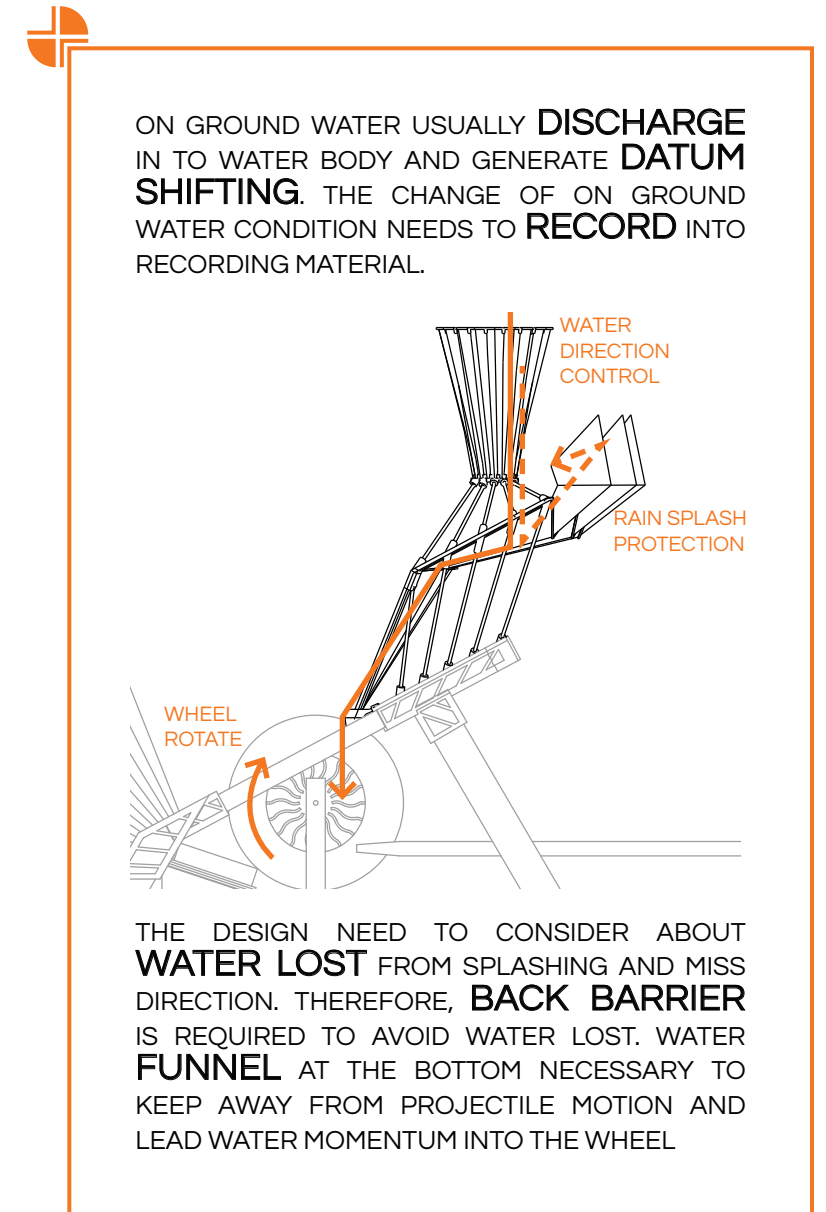
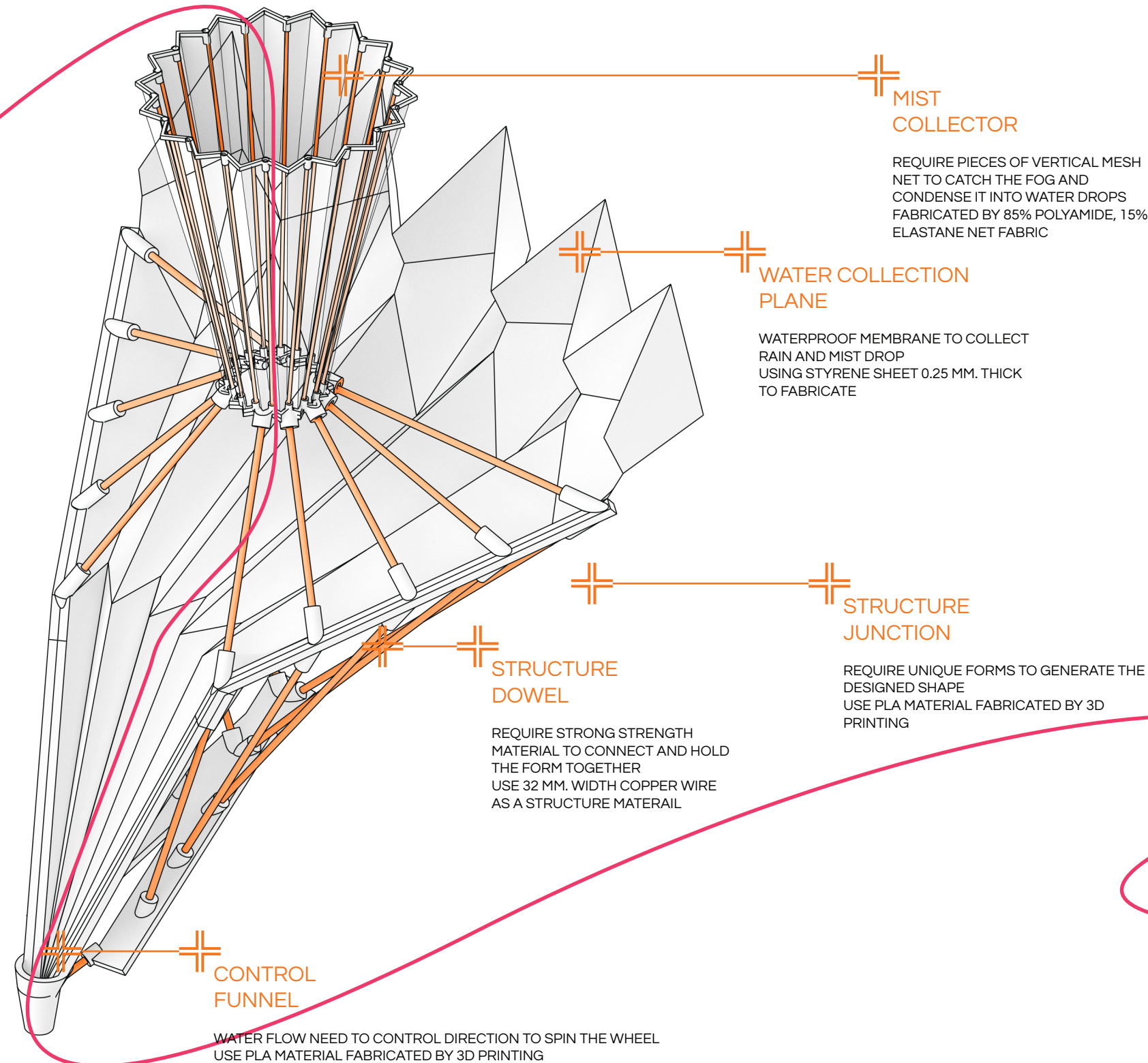
MECHANICAL COMPONENT LOCATION



REFERENCE



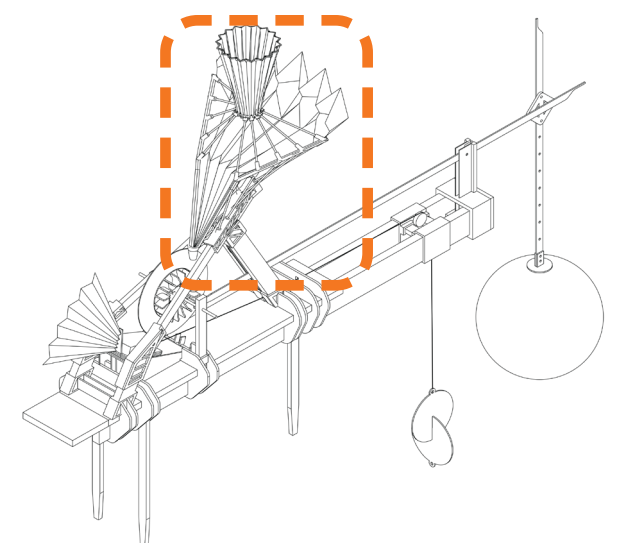
ON GROUND WATER RECEPTOR



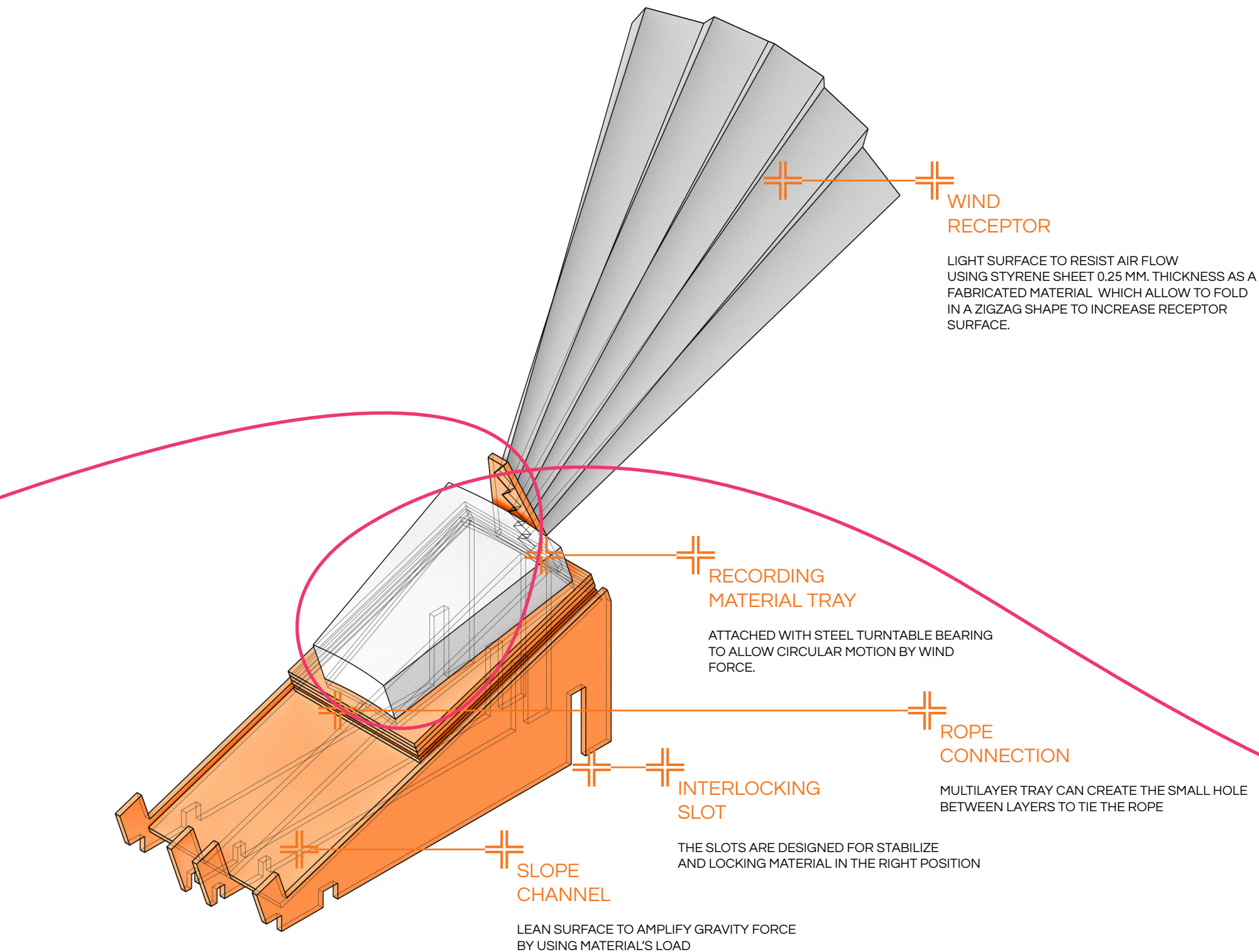
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MECHANICAL COMPONENT LOCATION



WIND CATCHER

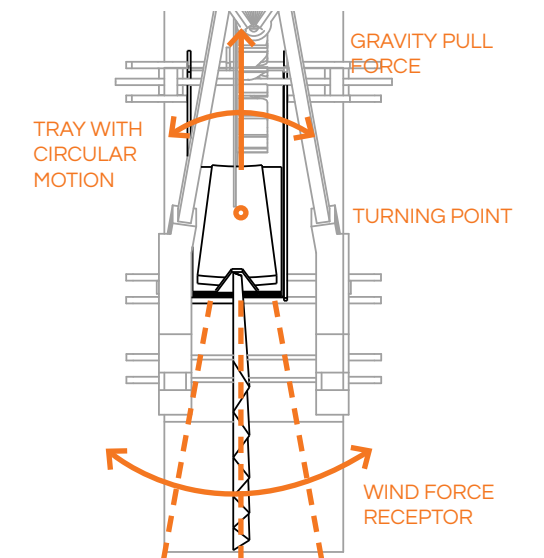


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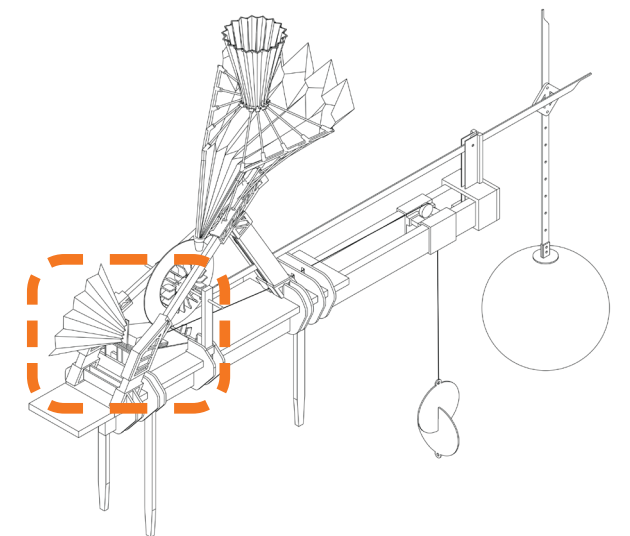
WIND IS ANOTHER FACTOR WHICH IMPACTS ON DATUM SHIFTING PROCESS.

TO PRODUCE DISSIMILAR ENGRAVED PATTERN FOR AN ENGRAVED MARK. ROTATE MOTION IS SELECTED TO WIDEN THE ENGRAVED GROOVE. THE MORE DYNAMIC WIND, THE MORE **WIDER GROOVE** AND **DIFFERENT ANGLE** IN EACH CLIMATE CONDITION.

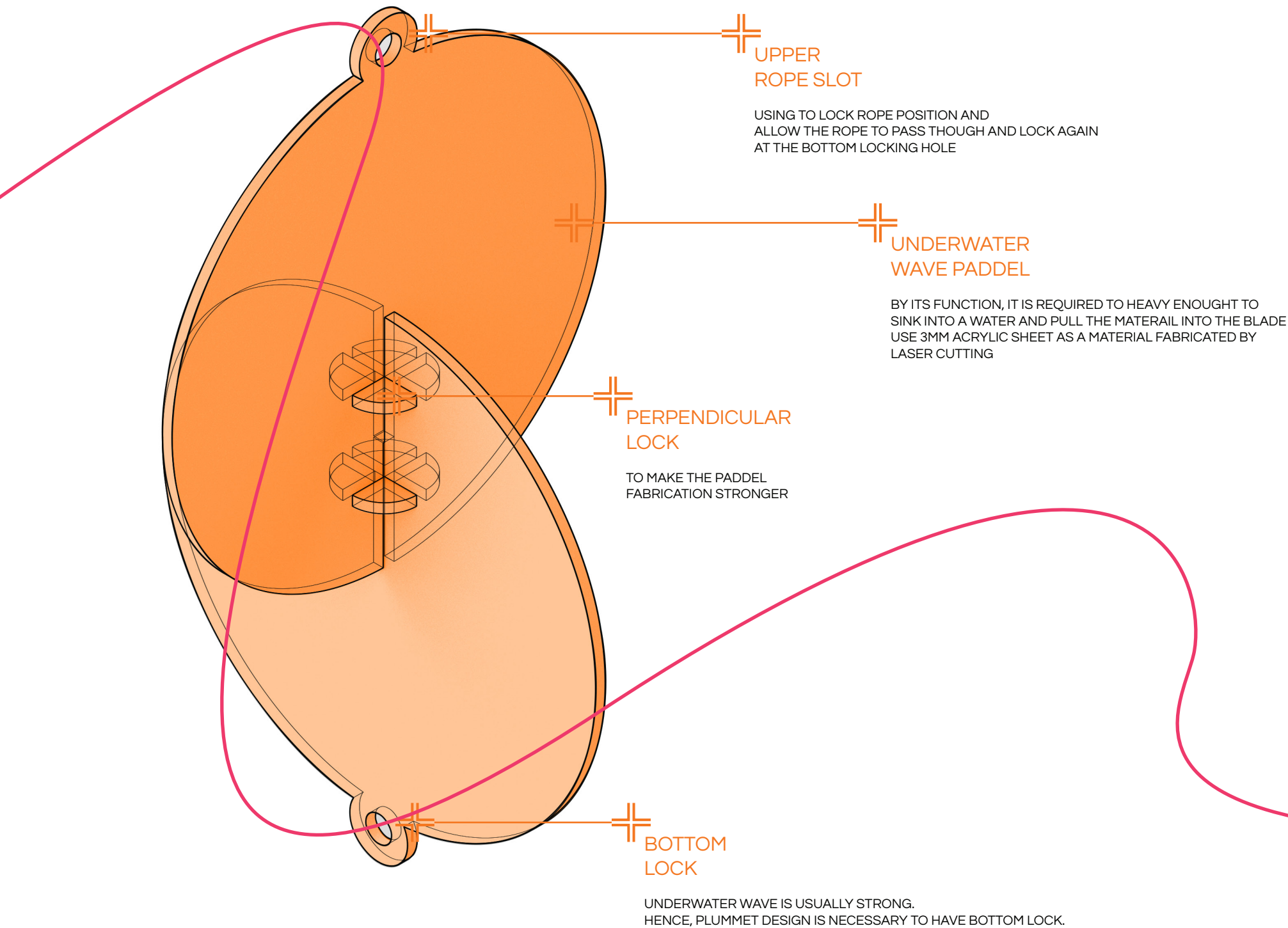


MATERIAL TRAY IS ONE OF THE SIGNIFICANT COMPONENT WHICH AMPLIFYS ENGRAVED GROOVE BY USING **GRAVITY** FORCE AND MAKING A **LONGER MARK**.

MECHANICAL COMPONENT LOCATION

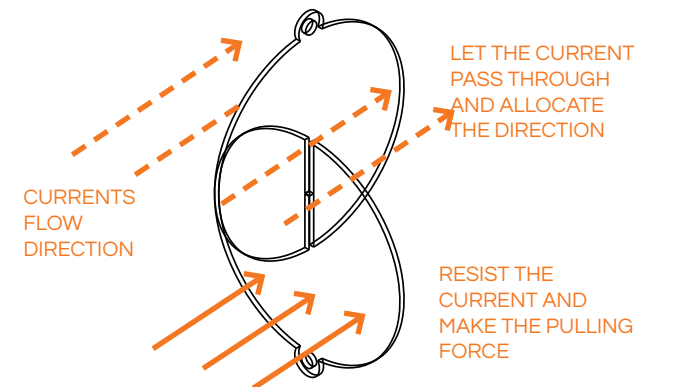


GRAVITY PLUMMET



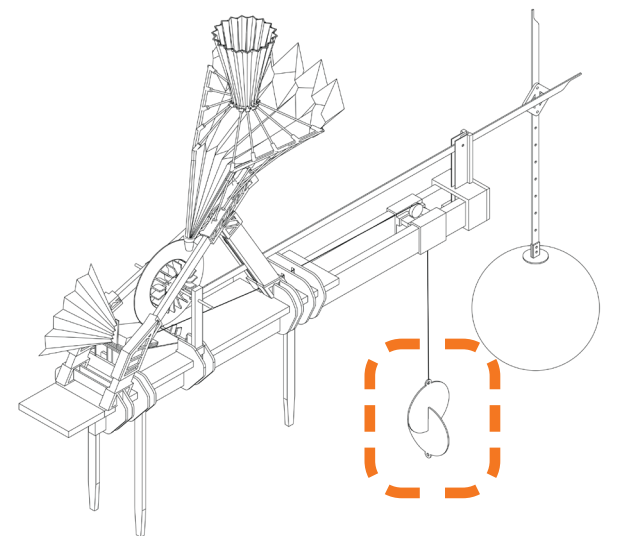
GRAVITY PLUMMET HAS TWO ROLE. FIRSTLY TO **PULL** THE RECORDING MATERIAL PASS **THROUGH** THE **BLADE** BY USING GRAVITY FORCE AND ENGRAVE **LONG GROOVE**. SECONDLY, MEASURING THE CURRENTS AND **INCREASE PULLING FORCE**.

BOTH GRAVITY AND CURRENTS ARE PARTS OF NATURAL FACTORS WHICH HAS AN IMPACT ON NATURAL DATUM LINE.

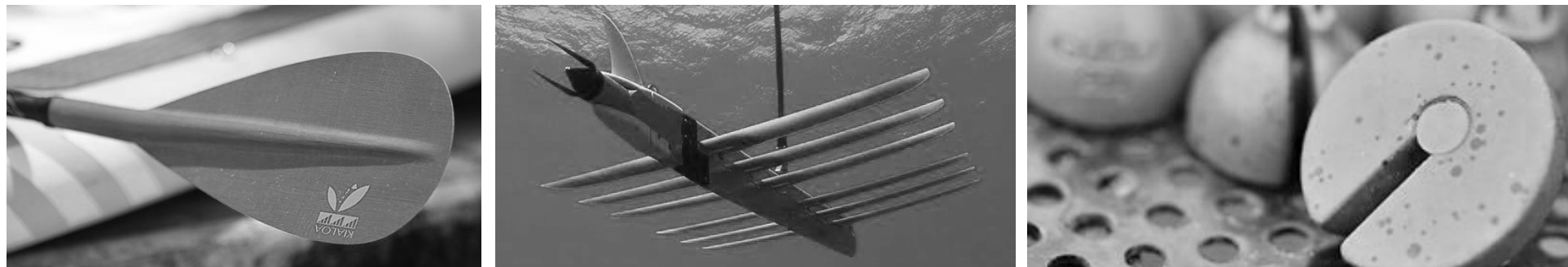


THE **PLUMMET'S SHAPE** IS VITAL TO RESPOND TO EVERY ANGLE CURRENT MOTION. THEREFORE, PLUMMET SHAPE IS DESIGNED IN **PERPENDICULAR** FLAT PADDEL. THE FIRST ONE IS FOR **MEASURING** THE CURRENT **DIRECTION** AND ROTATE IN PARARELL POSITION, WHILE ANOTHER ROTATE INTO PERPENDICULAR DIRECTION **AND** ANOTHER MEASURE THE UNDERWATER **CURRENTS**.

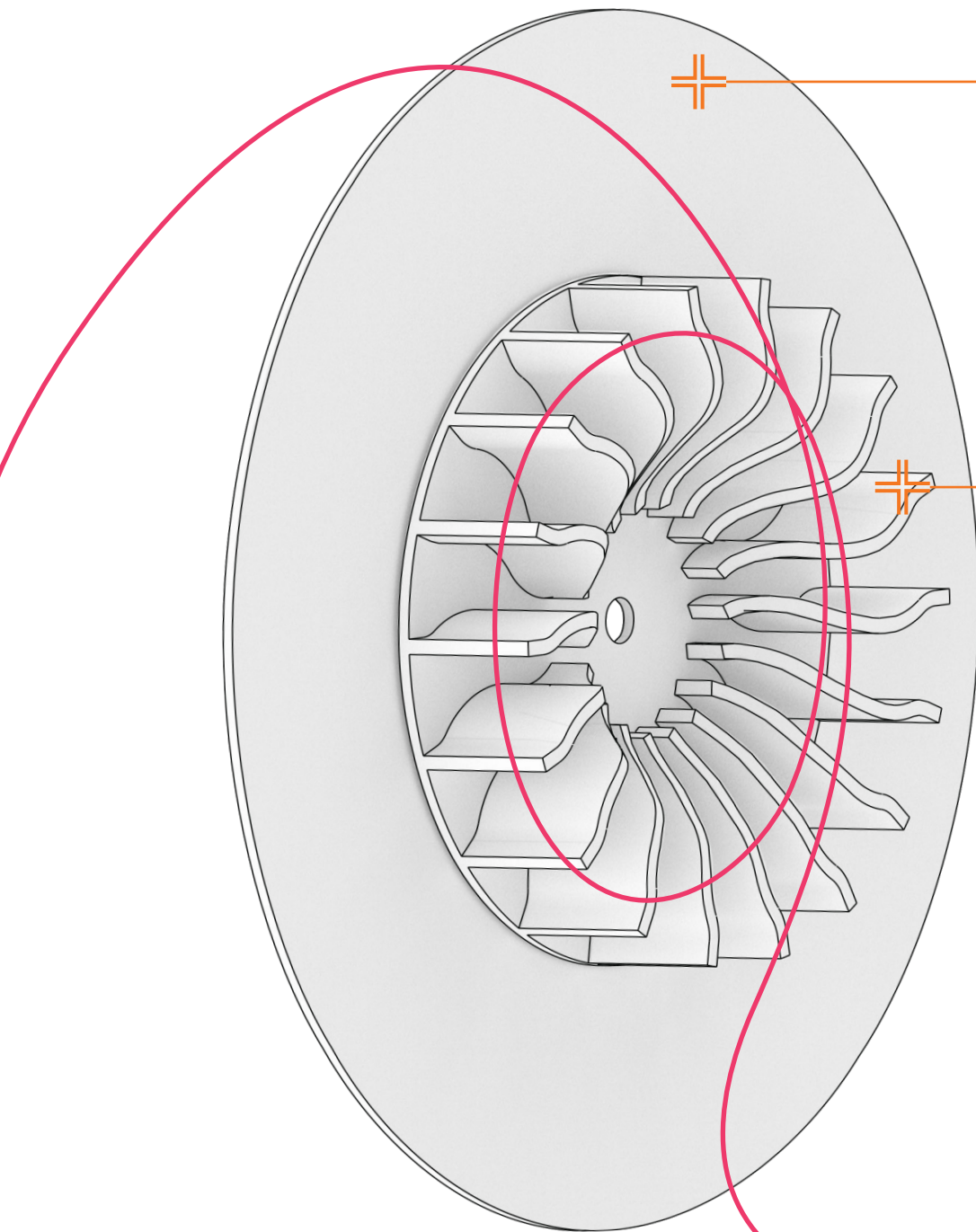
MECHANICAL COMPONENT LOCATION



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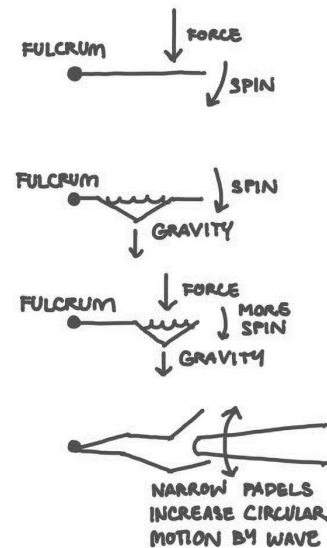
POWER TRANSFORMATION WHEEL



MARKING EQUIPMENT

MARKING EQUIPMENT'S MATERIAL SHOULD HARDER THAN RECORDING MATERIAL AND ENDURE TO MULTIPLE USE. IN ADDITION THE WIDTH OF MARKING EQUIPMENT SHOULD THICK ENOUGH TO MAKE THE ENGRAVED MARK VISIBLE EASILY. HENCE, METAL CUTTING DISC BECOME A GOOD ALTERNATIVE FOR MARKING EQUIPMENT, BECAUSE OF ITS ORIGINAL USAGE. METAL CUTTING DISC IS MADE OF ALUMINUM OXIDE, SILICON CARBIDE OR A MIXTURE OF ALUMINUM OXIDE AND ZIRCONIUM

THE WHEEL

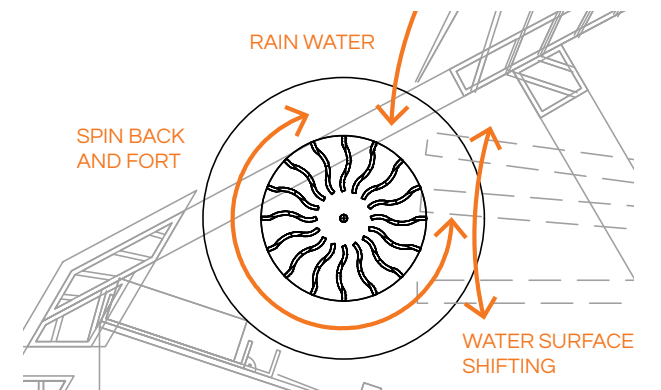


THE WHEEL PABELS IS DESIGNED BASED ON THE ENGINEERING DESIGN RESEARCH. AND SELECT THE SUITABLE FORM WHICH AMPLIFY THE SPINNING WITH BOTH MOTION SOURCE

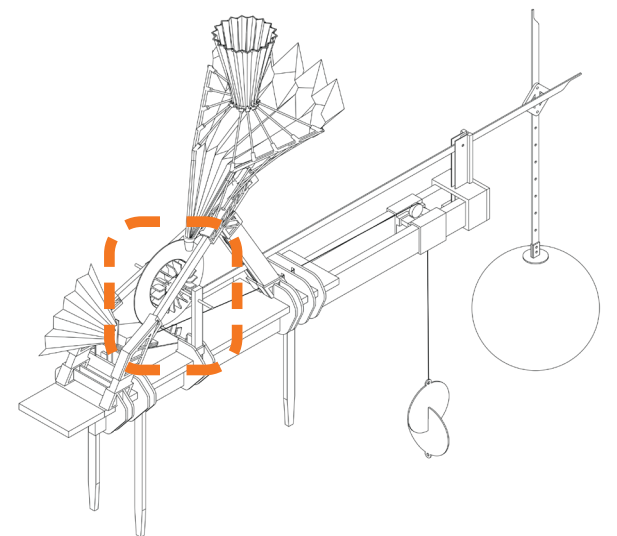
THE MOVEMENT OF THIS WHEEL HAS CLOCKWISE AND COUNTERCLOCKWISE DIRECTIONS.

WATER SHIFTING FORCE GENERATES CLOCKWISE AND COUNTERCLOCKWISE ROTATION. BECAUSE THE WATER DYNAMIC HAS HIGH FREQUENCY AND PROVIDE THE SHIFTING MOTION IN EVERY CLIMATE. THUS, THE WAVE BECOMES THE **TYPICAL SOURCE** OF WHEEL MOVEMENT. RAIN **WATER FLOW FORCE** GENERATES, **ANOTHER SOURCE** OF MOTION ONLY CLOCKWISE ROTATION TO CREATE MORE WHEEL MOVEMENT.

ALTHOUGH THE DIRECTION OF 2 SOURCE ARE DIFFERENT, THE **CLIMATE CONDITIONS** WILL **CONDUCT** THE **MAIN** ROTATING MOTION **DIRECTION**. WHILE ANOTHER ONE WILL BE SUBORDINATE.



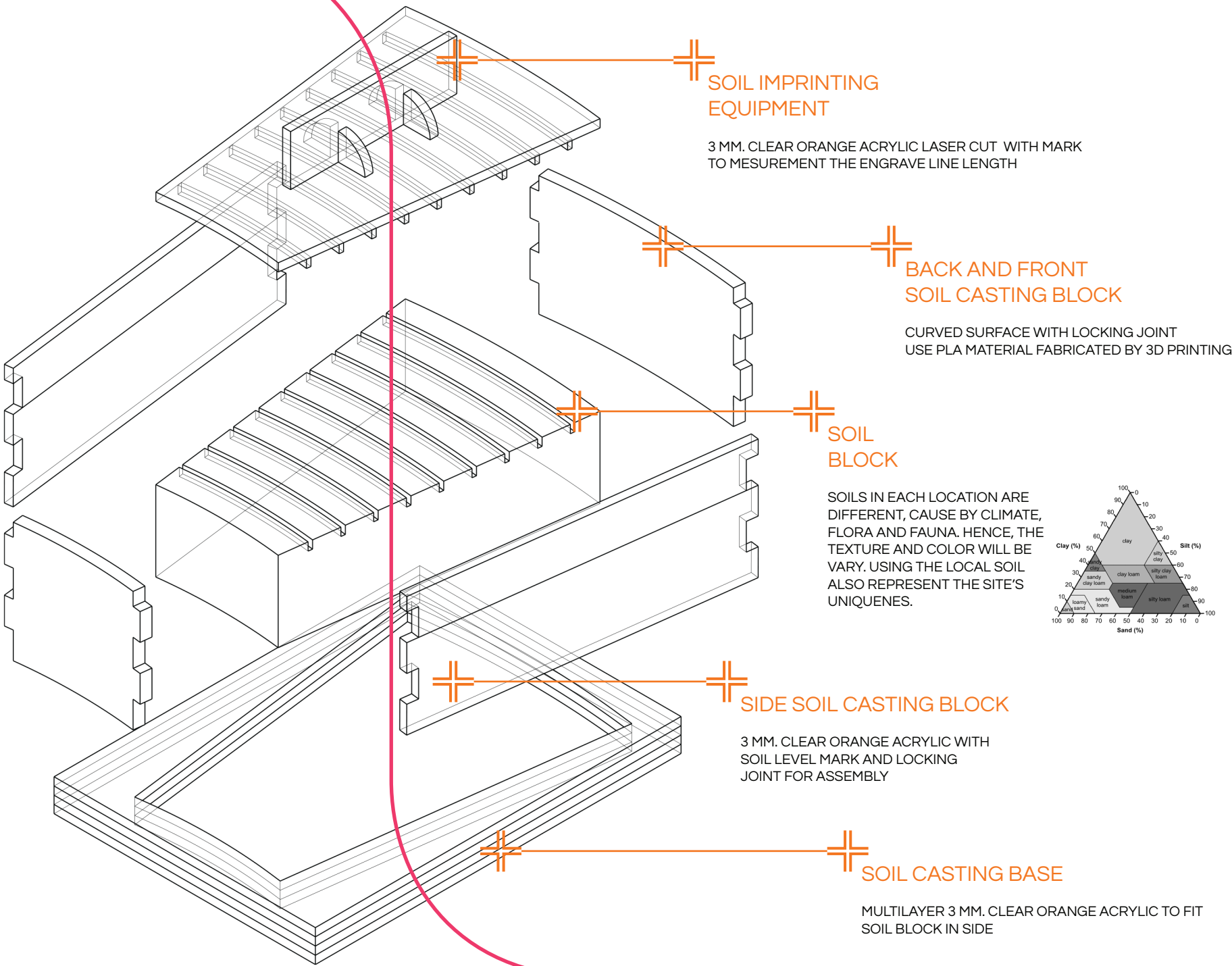
MECHANICAL COMPONENT LOCATION



REFERENCE



RECORDING MATERIAL



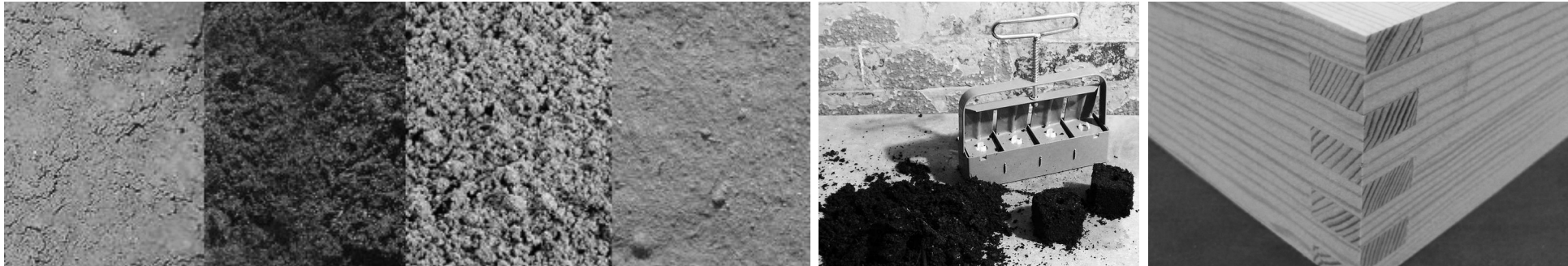
EXISTING SOIL IS THE MATERIAL WHICH SELECTED TO BE A RECORDER IN ORDER TO CONTAIN SITE **UNIQUENESS**.

THE PROPERTY OF SOIL IS SUITABLE FOR BE A RECORDING MATERIAL BECAUSE IT IS **FORMABLE** , CAN BE **DISPOSED** IN THE SITE AFTER RECORDING **WITHOUT CONTAMINATION**.

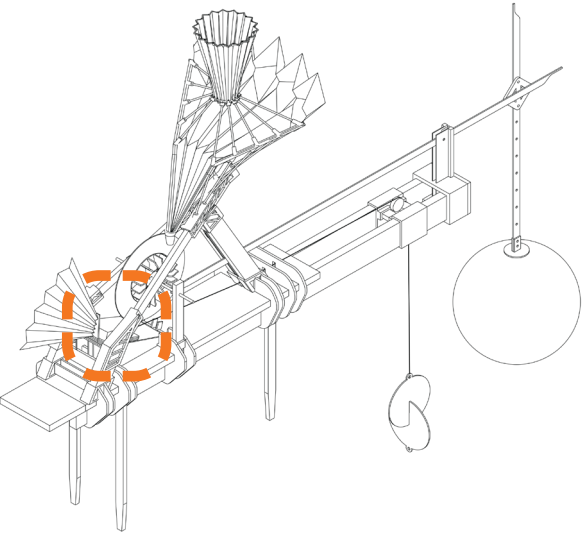
THE SOIL REQUIRED THE **BLOCK** TO PRODUCE THE DESIGNED SHAPE. SOIL PROPERTY IS TYPICALLY LOOSE, THEREFORE, THE **JOINT** NEED TO **RELEASE** TO REMOVE THE SOIL **AFTER PRESSING** TO PREVENT SOIL BREAKING APART. THE MATERIAL OF THE BLOCK IS REQUIRED TO BE SMOOTH TO AVOID SOIL STICK TO THE MOLD.



REFERENCE



MECHANICAL COMPONENT LOCATION





DATUM SHIFTING RECORDS

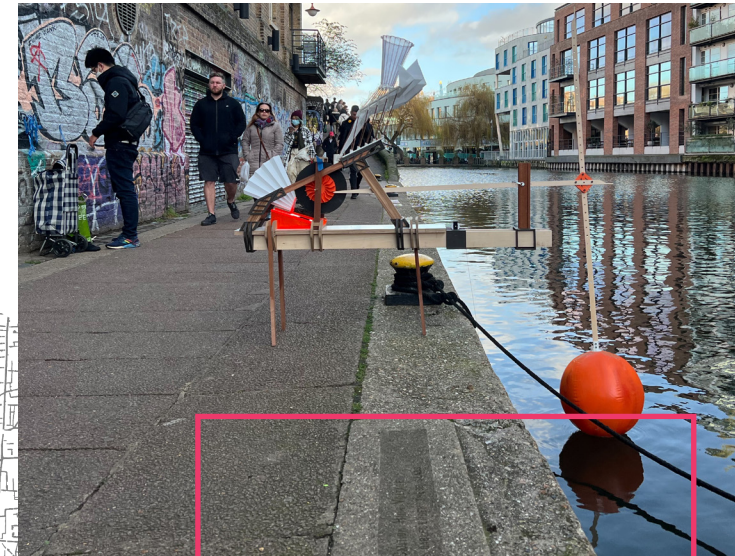
DEVICE OPERATION ON-SITE



BOATING LAKE THE REGENT'S PARK

THE WATERBODY IS CLOSE
WATER SYSTEM WHICH
FLOWING WITHIN THE LAKE.

THE LANDUSE IS A PUBLIC PARK
WHICH CONTAINS WILDLIFE
HABITATS



REGENT CANAL CAMDEN MARKET

THE WATERBODY IS A CANAL
WHICH CONNECTS TO
MULTIPLE LOCATION.

THE LANDUSE IS A BOAT DOCK.



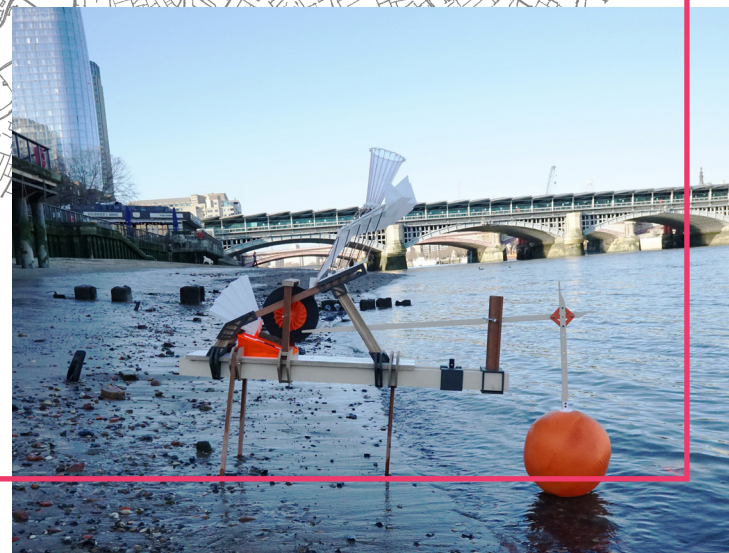
REGENT CANAL GRANARY SQUARE

THE WATERBODY IS A CANAL WHICH
CONNECTS TO MULTIPLE LOCATION.

THE LANDUSE IS A MULTIPURPOSE PLAZA.



SITE LOCATIONS HAVED BEEN CONSIDERED
BY **SURROUNDING LANDUSE** AND
WATER BODY TYPES WHICH WILL
GENERATE THE DIFFERENT RESULTS.

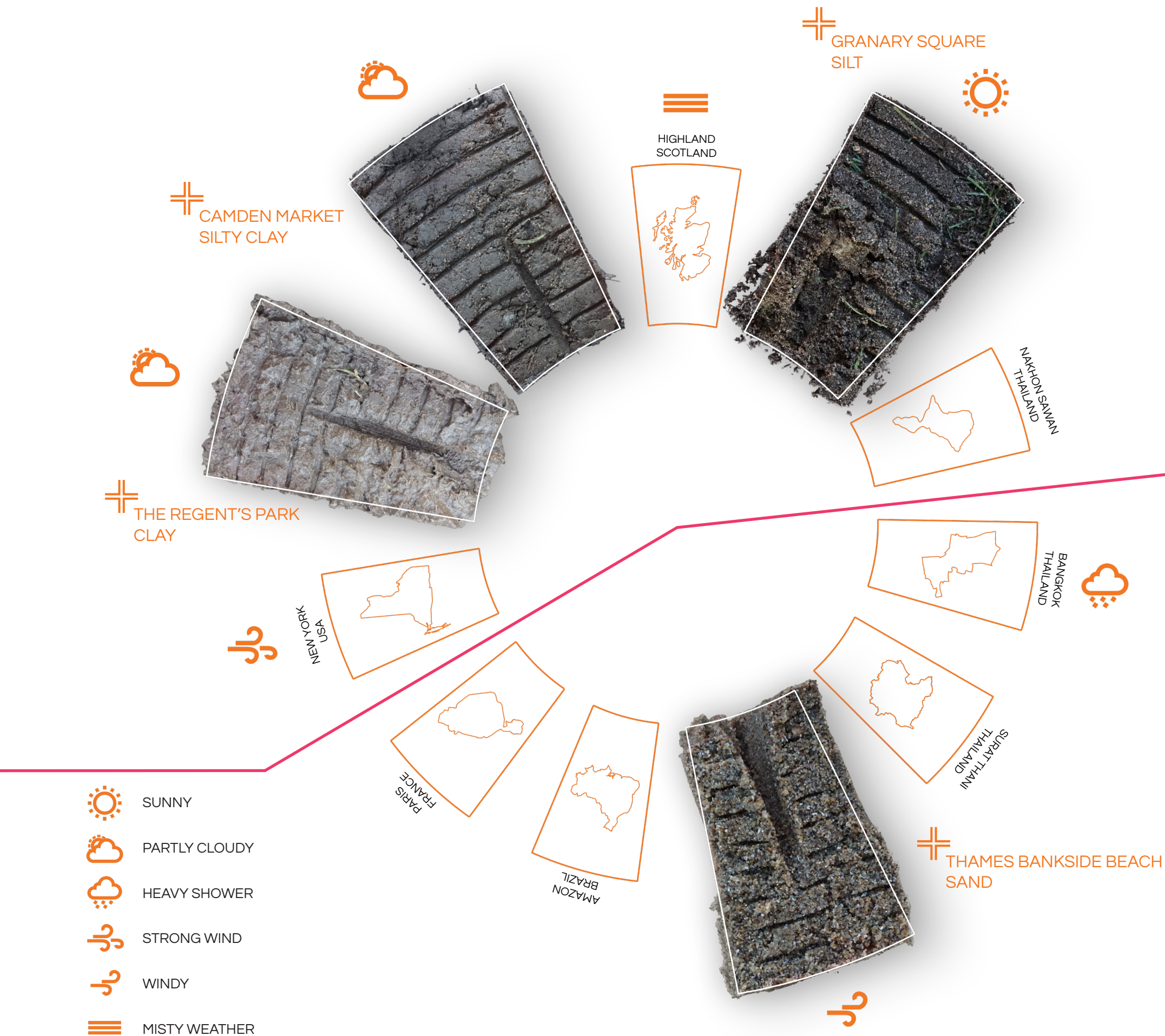


RIVER THAMES BANKSIDE BEACH

THE WATERBODY IS THE GREAT RIVER OF LONDON
WHICH COLLECTS WATER FROM LARGE WATERSHED

NATURAL AREA, NO PARTICULAR LANDUSE, PEOPLE
USUALLY WALKING ALONG THE BEACH AS A
RECREATION SPACE.

SOIL BLOCK COLLECTION



THE SITE LOCATIONS ARE IN LONDON WHICH THE CLIMATE IS NOT DIVERSE BUT STILL HAS THE DIFFERENCES. HOWEVER, THE **DISTINCTIVE SOIL TYPES** IS ASTONISHING. FROM THE PHOTOGRAPH, THE SOIL SWATCH OF EACH SOIL TYPE CREATES STUNNING SOIL RECORDING WHEEL.

CAMDEN MARKET
THE WEATHER IN THE RECORDING DAY IS PARTLY CLOUDY. RECORDING SOIL TYPE IS COMPACT SILTY CLAY.

THE REGENT'S PARK
THE WEATHER IN THE RECORDING DAY IS ALSO PARTLY CLOUDY. RECORDING SOIL TYPE IS HIGH MOISTURE CLAY.

THAMES BANKSIDE BEACH
THE WEATHER IN THE RECORDING DAY IS ALSO SLIGHTLY WINDY. RECORDING SOIL TYPE IS HIGH MOISTURE SAND WITH A MIXTURE OF ALLUVIUM..

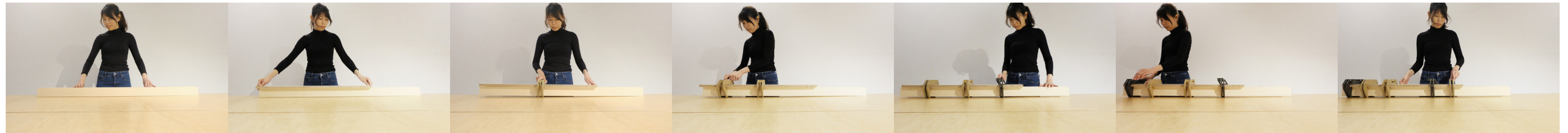
GRANARY SQUARE
THE WEATHER IN THE RECORDING DAY IS SUNNY. RECORDING SOIL TYPE IS SILT WITH A GRASS PARTICLE.

TO MAKE THE DEVICE REACH FULL FUNCTION, IT SHOULD BE EXPOSE TO THE VARIETY OF CLIMATE TYPES, FOR EXAMPLE, MISTY IN SCOTLAND, HEAVY RAIN IN THAILAND OR STRONG WIND IN USA.

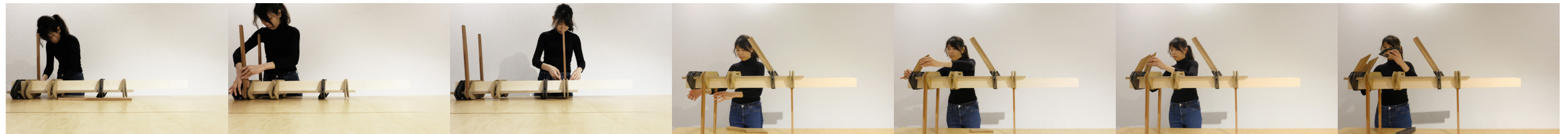


APPENDIX

ASSEMBLY PROCESS



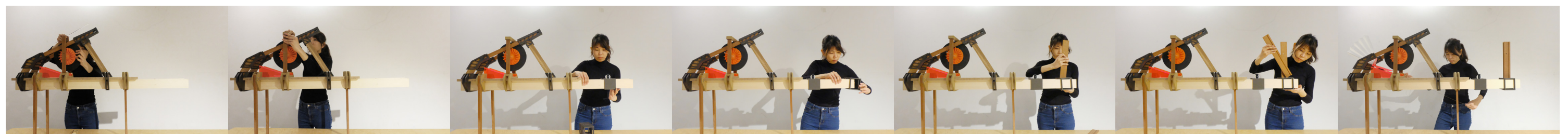
1 2 3 4 5 6 7



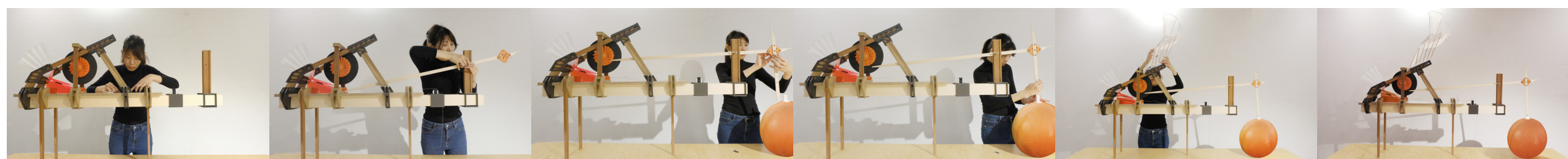
8 9 10 11 12 13 14



15 16 17 18 19 20 21



22 23 24 25 26 27 28



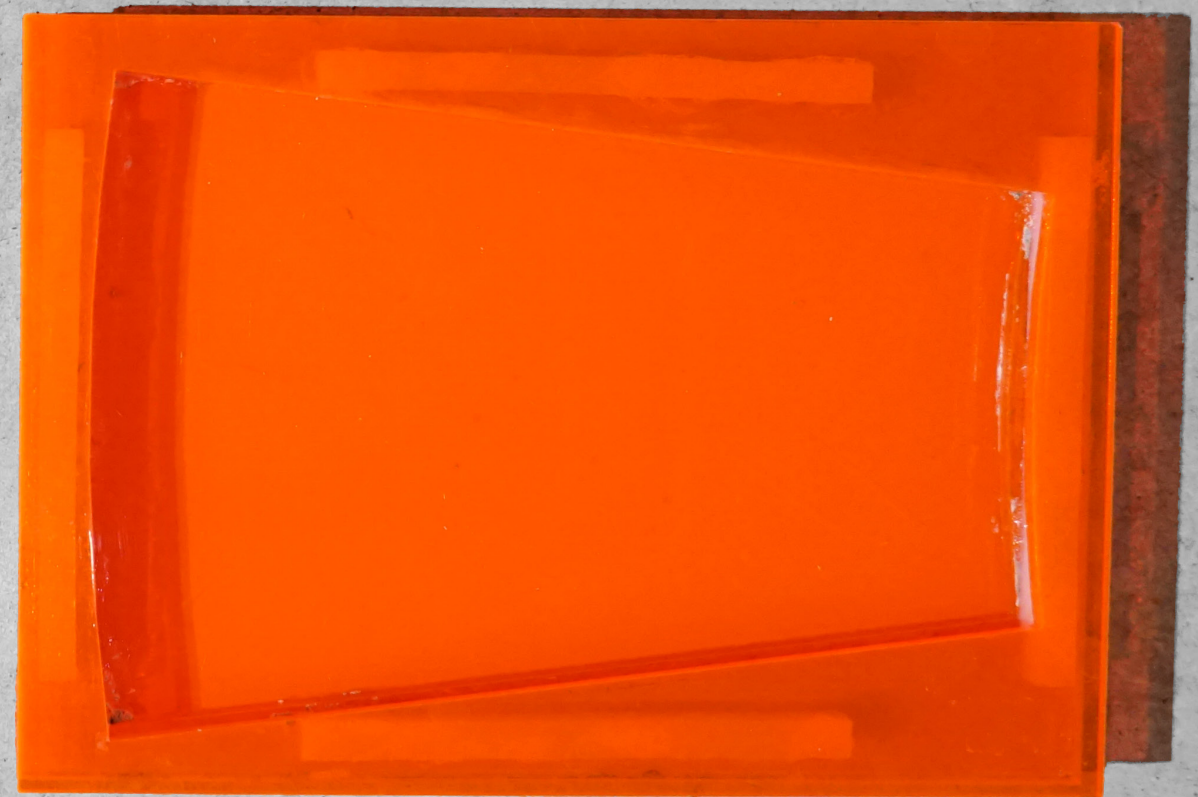
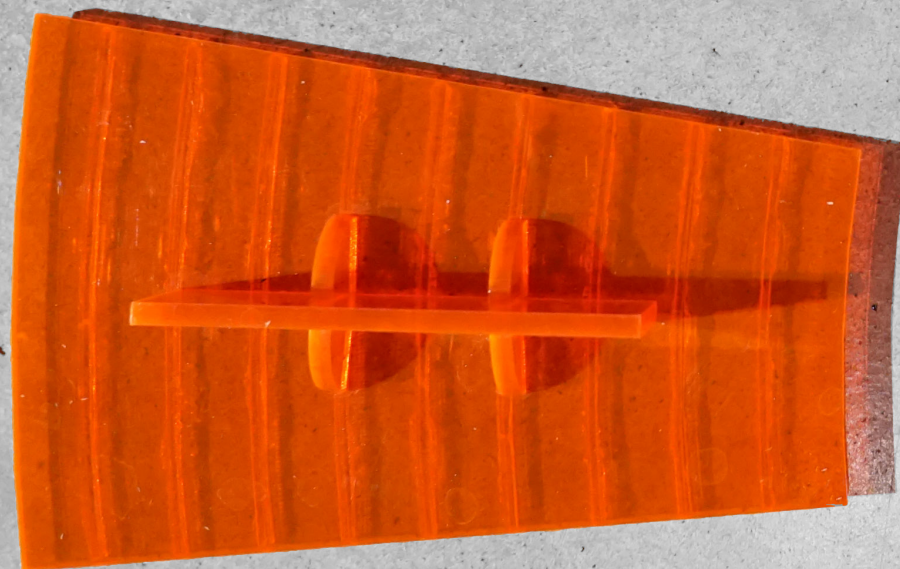
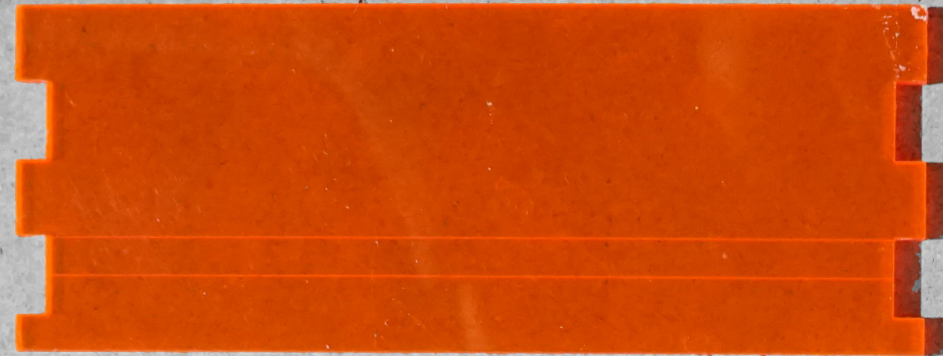
29 30 31 32 33

FINISH

 [HTTPS://YOUTU.BE/ZX2DLANEJMW](https://youtu.be/ZX2DLANEJMW)

SUTIDA [STELLA] WONGTHIEMCHAI - STUDIO 5 FALSE SUMMITS

SOIL BLOCK CASTING EQUIPMENTS



RECORDING SOIL
CASTING BLOCK

ALL EQUIPMENTS WHICH ARE USED
TO COMPACT THE RECORDING SOIL

[HTTPS://YOUTU.BE/J9O273JGUWI](https://youtu.be/J9O273JGUWI)

WATER RECEPTOR



MIST AND RAIN COLLECTOR

THE JUNCTIONS ARE
FABRICATED BY 3D PRINTING
AND COPPER WIRES





