

Master Context Map

Red River Park System_high performance landscape system

NDSU Department of Landscape Architecture | THESIS | May 2012





Master Context Map Defined

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Rural Park System

preventative_highly functional tallgrass prairie wetland ecological parks

1. Wastewater Wetland Park Sub-System

Current wastewater ponds sited on a massive flood zone are replaced with constructed wet tallgrass prairie ponds. Treatment ponds are integrated in a series of wetland retention and detention ponds designed in hierarchical system that filters and remediates water as it flows through the ponds and eventually into nearby rivers and streams

2. West Aquifer Park Sub-System

On a massive flood zone and atop the West Fargo Aquifer, the Sheyenne Diversion Channel is to be removed, replaced with the native wet tallgrass prairie ecosystem. In a report, the Bureau of Reclamation suggested a recharge method for buried aquifers of this type (where recharge sources are unknown), to drill wells. On their recommendation specialized wells are commissioned for design. These wells are then strategically placed near final ponding zones where filtration and remediation stages would assure quality water recharge of the aquifer.

3. Buffalo Aquifer Park Sub-System

Located East and partially atop of the Buffalo Aquifer, on a site of severe flooding, this location maximizes recharge of the aquifer. Vertical infiltration is allowed through sandy zones prior to reaching the clay lined portion of the Red River Basin. Locating the Park upslope to the East of this zone allows collection of surficial water flow. Thus, surficial water flows horizontally downslope into the wetland park where it is filtered and remediated by movement through the system, maximizing water quality as it reaches zones of infiltration.

All three parks feature interwoven trail systems [detail: Ru 2 & 3] and educational components, interpretive, figurative, and literal, potentially with Educational Research Centers located in the parks, sponsored civically, governmentally through University, or through private Environmental organizations. The parks also take advantage of strong prevailing winds in the region, featuring ecologically designed wind-powered electric generators, called 'windstalks'. Windstalks are coupled with below ground hydraulic backup storage device systems, that pump water to an upper storage chamber while wind power is active, then release water to a lower chamber when wind is still [Ru 4b]. The windstalks assimilate aesthetically complimenting the sway of prairie grasses in the wind.

HOLOSCENE | cutsheet ii



Suburban Park System

mitigative_neighborhood park with integrated wetland functions

1. Bridging rural parks to Residential zoning, these suburban parks transition low-structured recreation tallgrass prairie wetland to high-structured recreational neighborhood parks. Here, wet tallgrass prairie is implemented aesthetically into the design of neighborhood parks as low-point water features or integrated bioswales acting for stormwater detention and retention, remediating and filtering pollutants from neighborhood drives and lawns prior to reaching larger water bodies. The trail system hierarchy continues from rural and urban parks, designed to weave and merge, meeting flood levels at grade, maintaining a consistent trailway is always open for route up to the 100yr flood [Su 2c].

2. Neighborhood parks integrate wet tallgrass prairie aesthetically as water features and/or bioswales for stormwater detention and retention, remediating and filtering pollutants from neighborhood drives and lawns prior to piping into larger water bodies.

3. Suburban to urban systems act in the prior, additionally integrating figurative educational components in the form of site furniture, public art, play structures and design form. For instance, a drinking fountain could integrate the design function of an aquifer, a play water feature could mimic the function of a check dam, or a playground structure could feature the deep root system of a prairie grass. All structures strictly adhere to selected material representation for complete congruency of the overall system, adding specific materials per neighborhood, by neighborhood associations to achieve identity. For instance a neighborhood may desire the inclusion of a Blue-Green Interference Coated Stainless Steel and complimentary Arborvitae hedges, or Yellow Fluorocarbon-coated Aluminium and Thornless Honey Locusts. These selections aid in the prevention of monoculture, both horticulturally and thematically.



Urban Park System

interpretive_wet tallgrass prairie functions integrated into highly structured spaces

1. Urban parks highly focus on the integrated interpretive education that tells the story of the Red River Park System. The aim of these interpretive elements is to educate residents on the great utility and service this high-performance landscape system provides them. Locally commissioned public art is designed to figuratively iterate different functions of the system, the water cycle, the journey of water down slope, the function of a prairie plant, the recharge of an aquifer, and so on and so forth. Wet tallgrass prairie is still implemented, often more formalized and structured in the form of bioswales or lining sidewalk or plaza planting beds to complement the downtown aesthetic, while still performing their functional utility.

2. Urban river parks merge the above intention with riparian prairie functions of slope stabilization. Nearer the urban core, these parks implement a higher grade of hard engineering structure, such as that of suspension reinforced caisson anchored flood walls acting as a recreation riverwalk/trail, slope stabilizer, and flood protection for the urban core. As the outer park system, mitigative flood measurements in retention and detention, bioswales, and series of check and control dams regulating agricultural drainage flow, act to lower the flood level of the urban core, it becomes available for structured recreation that reaches down and touches the river.

Red River Fire Festival Annual Community Celebration

Prairie grasses require burning every 3-5years. With a stratigized staggered approach, prairie burning festivals are held annually in celebration of the unique and beautiful Red River prairie landscape.

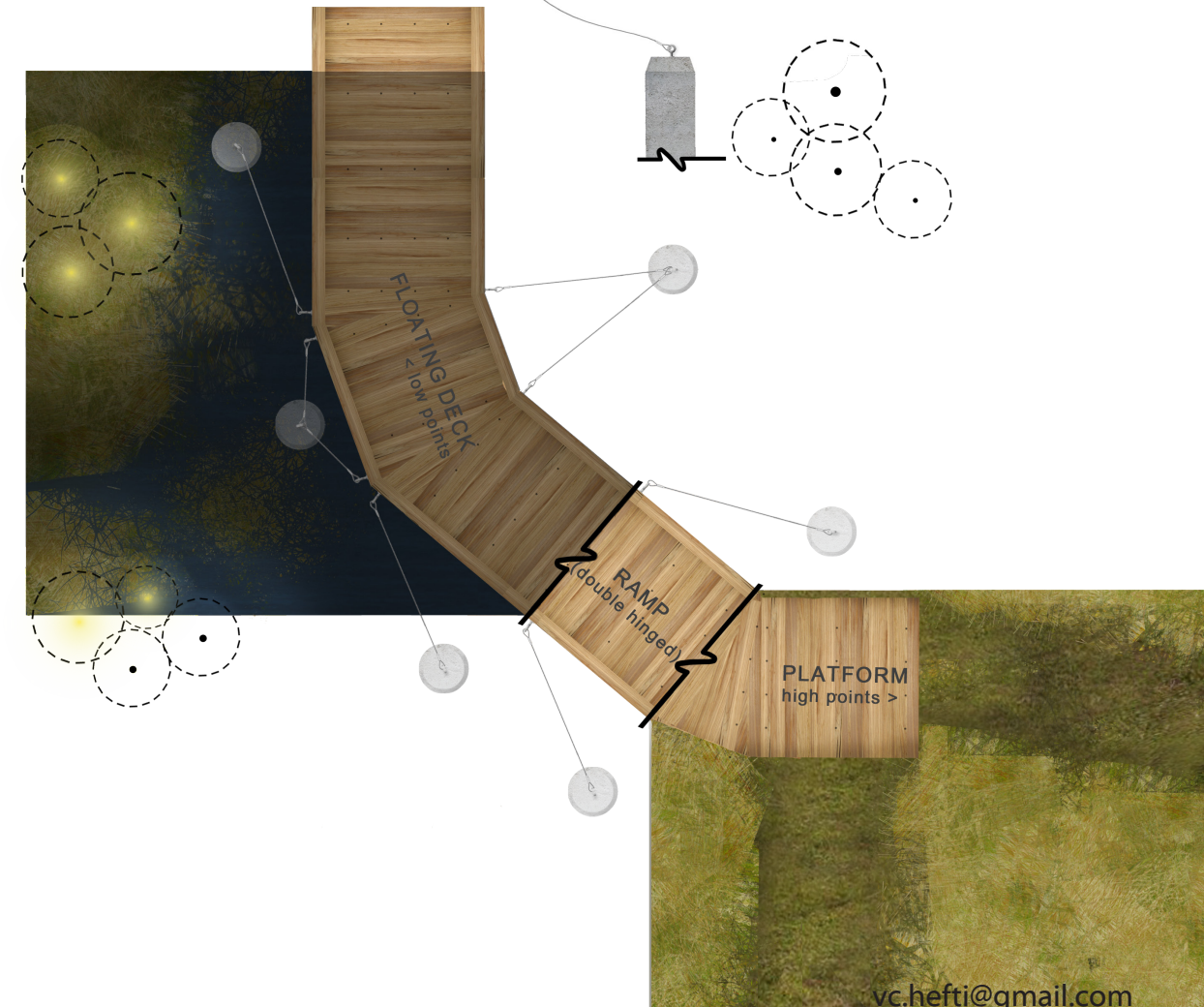
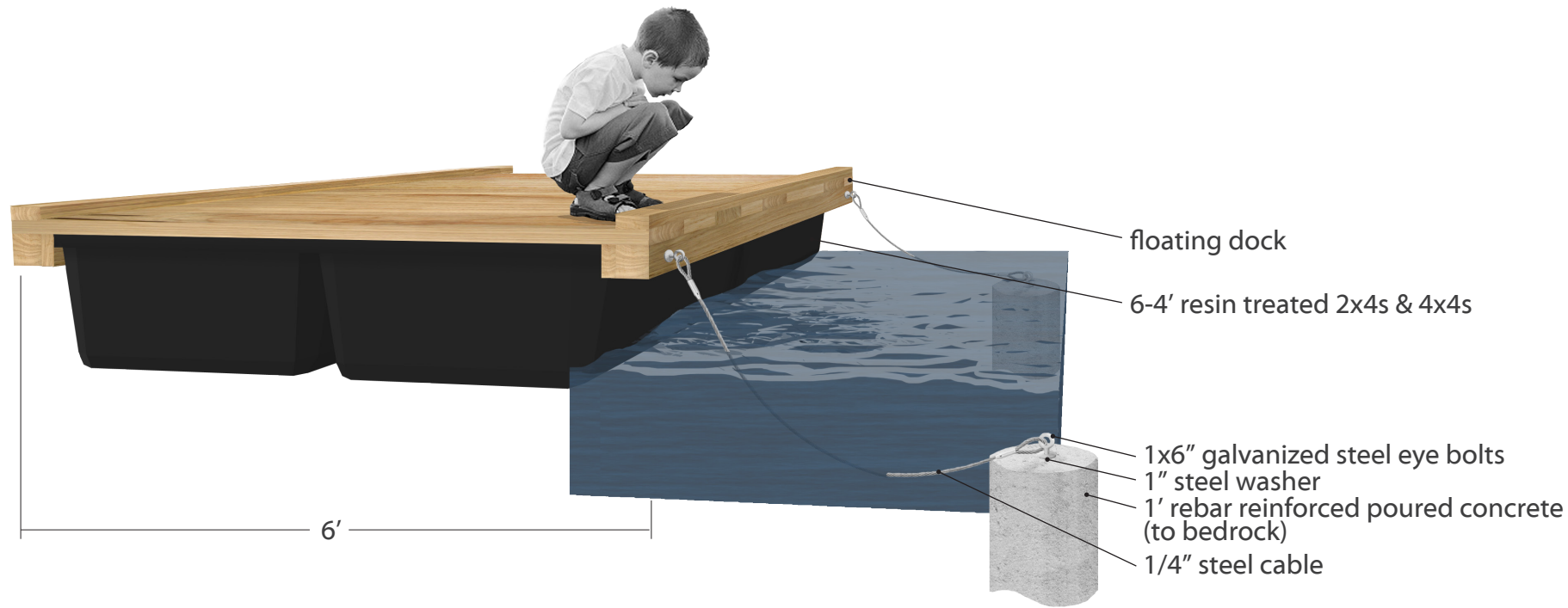
Burning different sectors of the park system every year, creates a civic bonding of the community in an entirely rare and identifying way. These festivals close down the streets of Downtown, creating a pedestrian mall, bringing in markets, music, food, drink, and folly, all in the theme of the 'Red'.

Every year, just when the buds of the Sugar Maple begin to open, this festival turns a once mournful spring that used to drown the city, into a celebratory jubilation of the underlying ecosystems that serves the community with the utmost function and utility.

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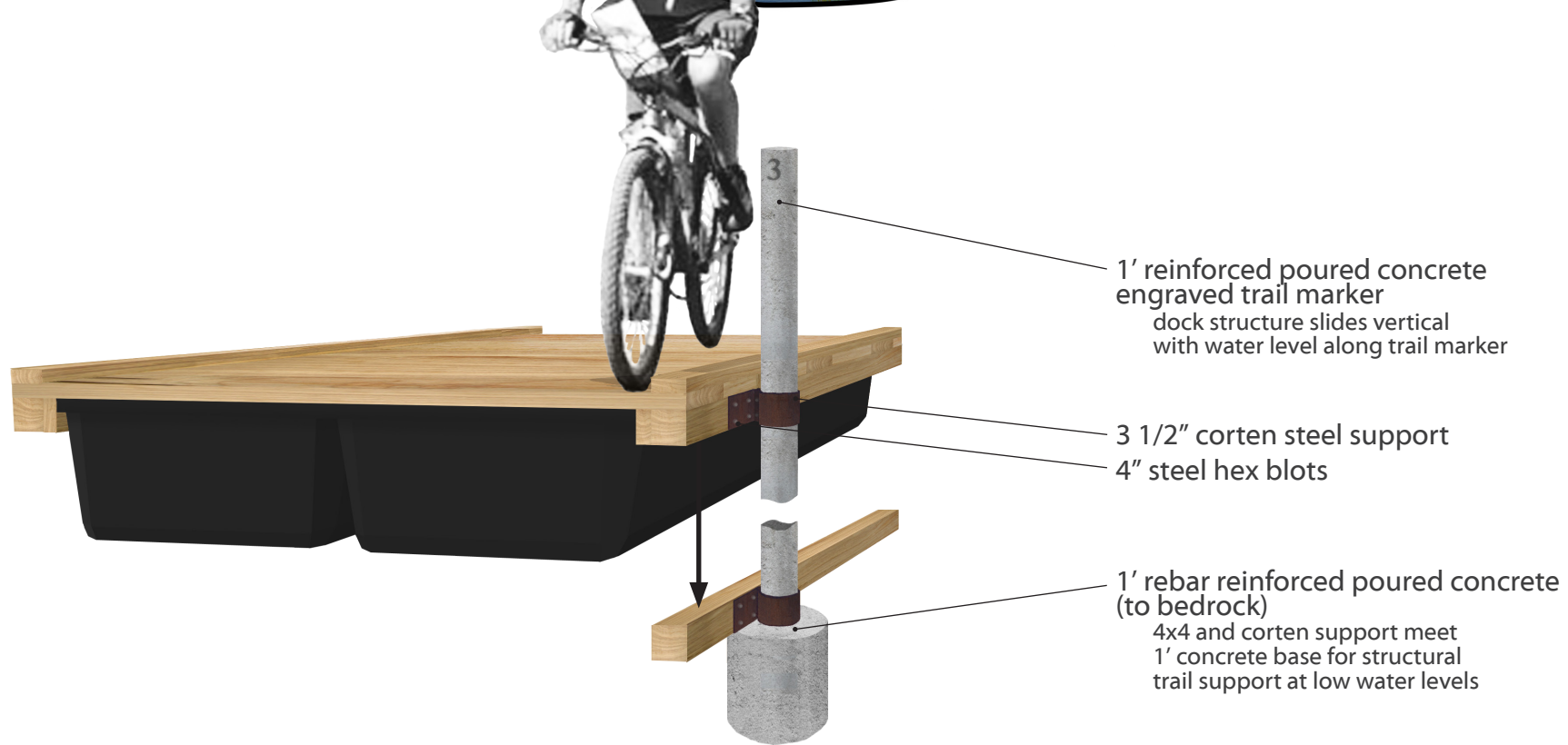
Buffalo Aquifer Park (Rural Sub-system 3)
 preventative_highly functional tallgrass prairie wetland eco-park
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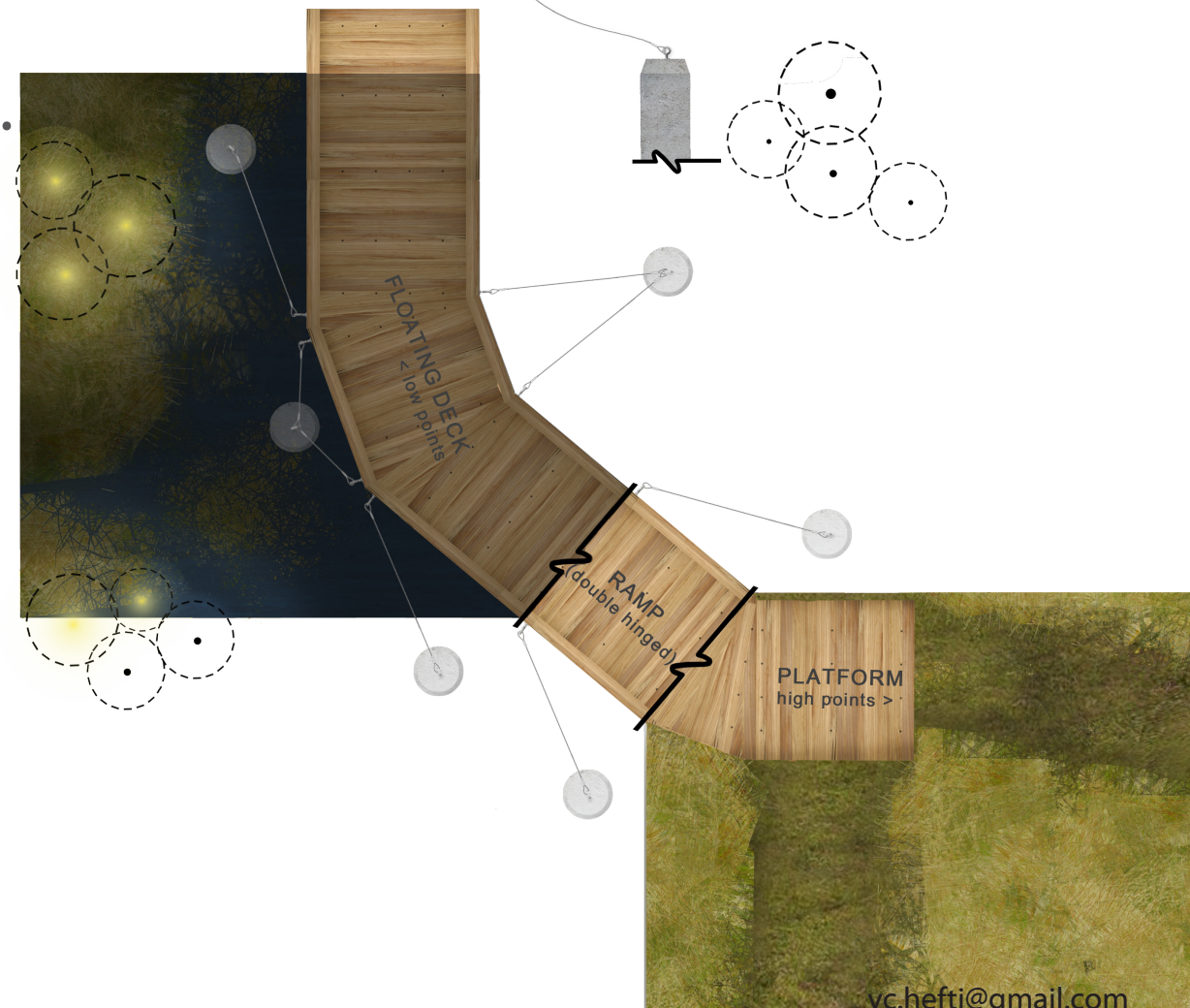
3 FLOATING SUSPENSION BRIDGE (typ.)
b1 n.t.s.



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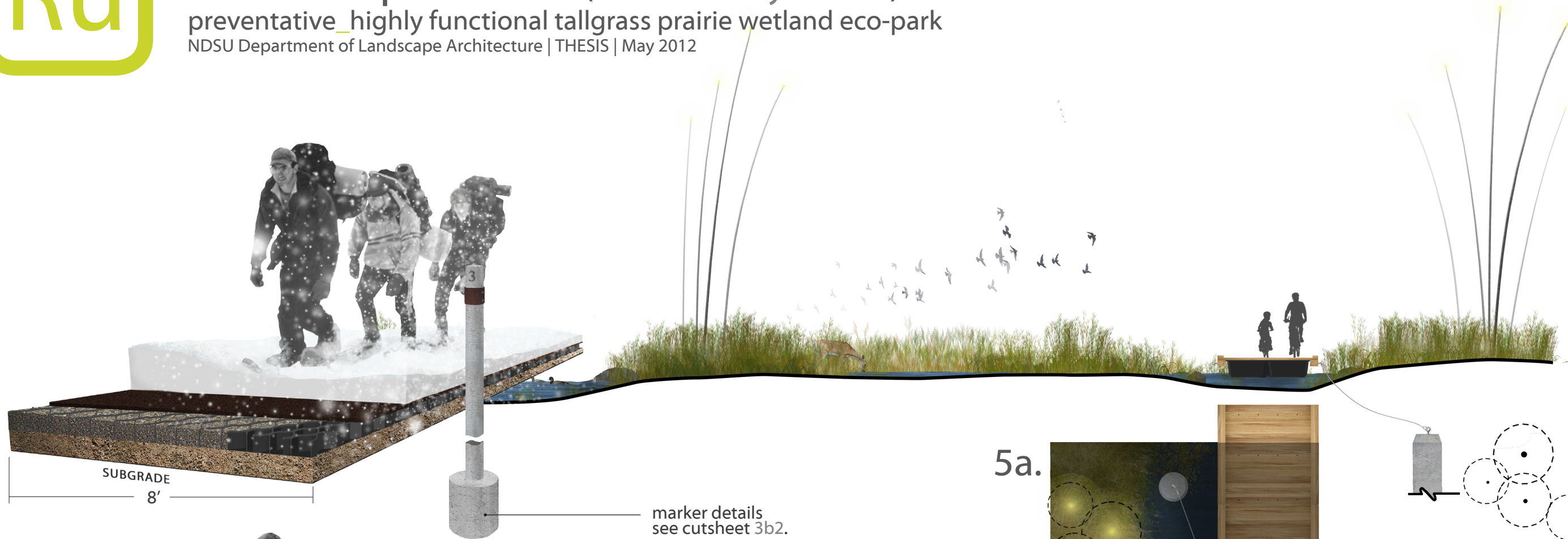
5a.



3 FLOATING SUSPENSION BRIDGE ANCHOR/BASE SYSTEM
 b2 n.t.s.



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SUBGRADE
8'

marker details
see cutsheet 3b2.

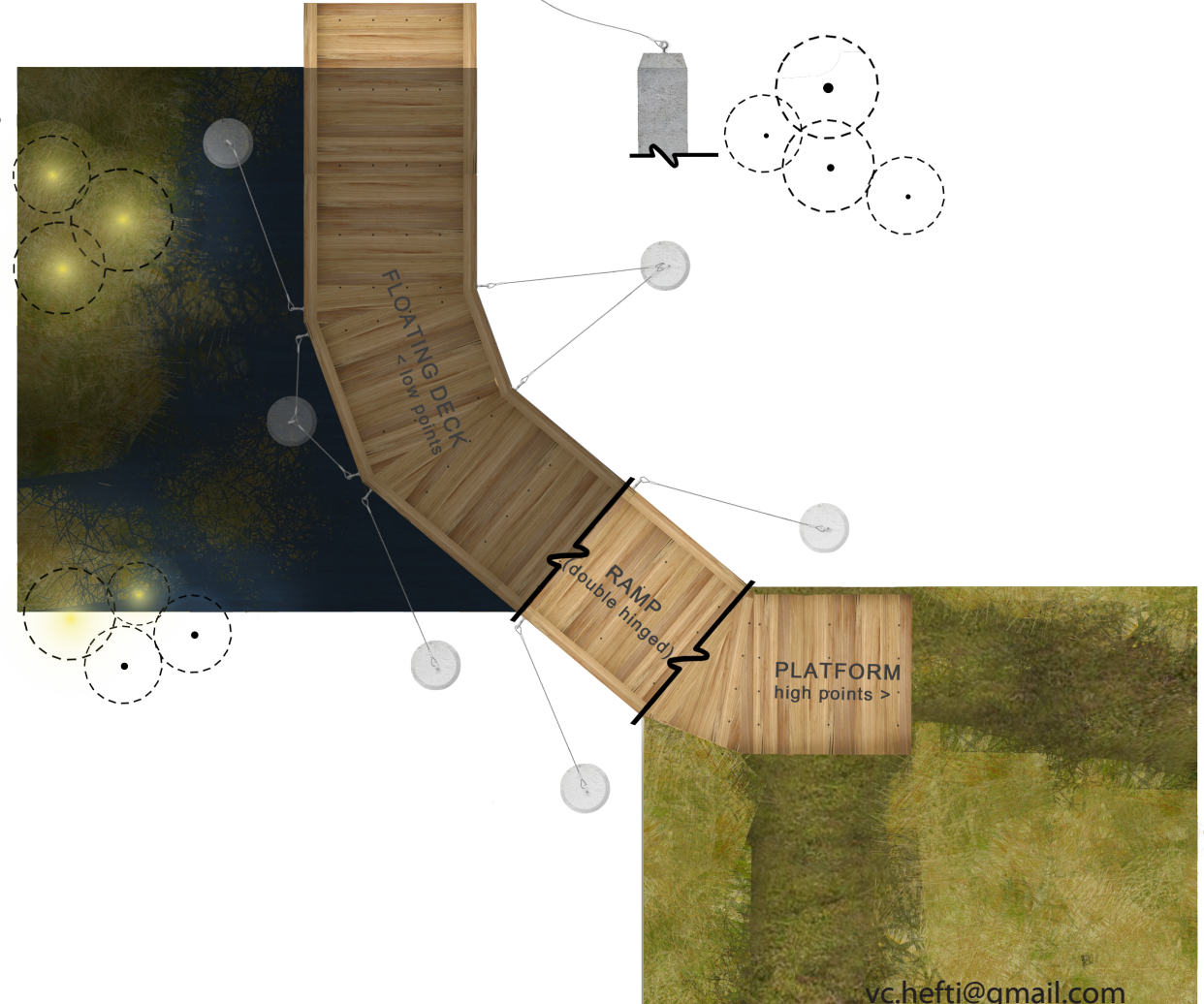


soil bedding
soil/gravel mix infill
geoweb
subbase
geotextile

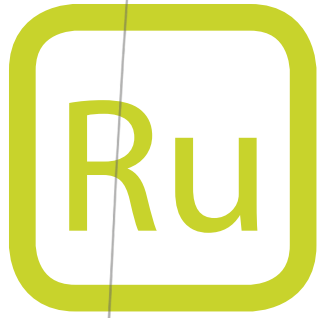
SUBGRADE

2 GEOWEB TRAIL STRUCTURE (typ.)
a1 n.t.s.

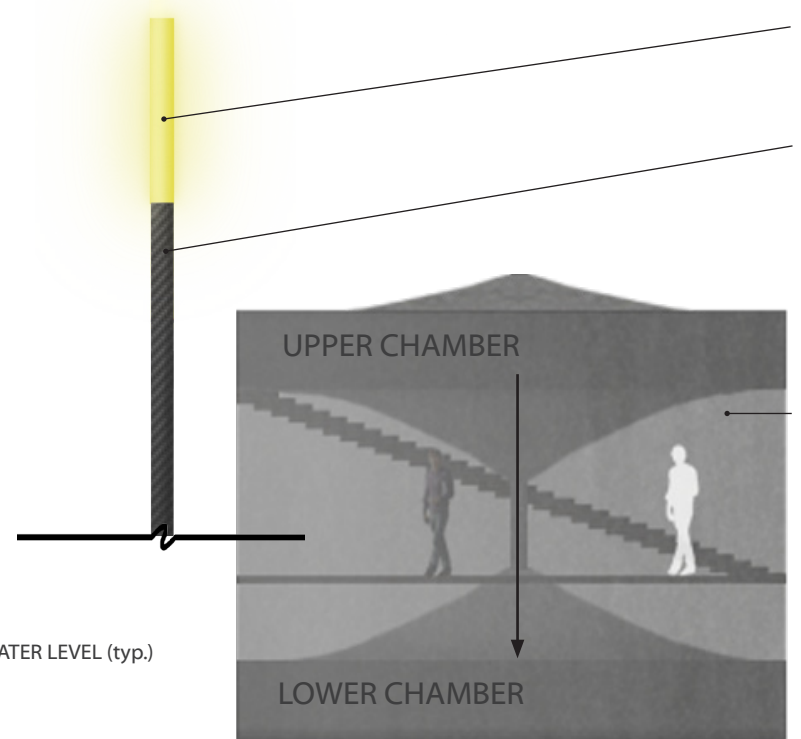
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Buffalo Aquifer Park (Rural Sub-system 3)
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7" max LED lamp;
 positively correlated light intensity
 with wind speed

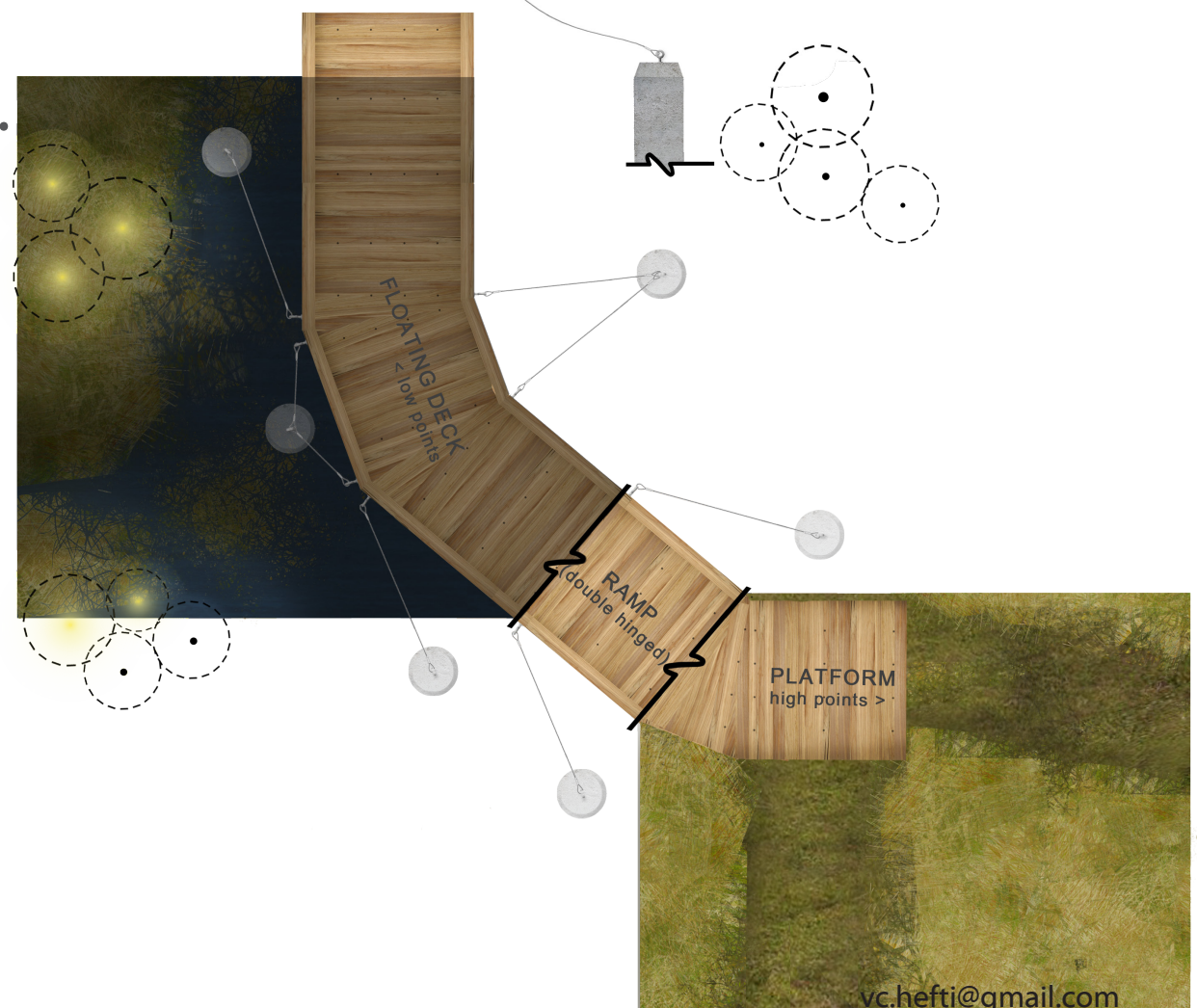
180"x1' diameter (25"x1/4' min) carbon
 fiber reinforced resin poles tapering
 toward the peak to 2" (1"min)

poles contain electrodes between piezoelectric
 ceramic discs. A cable connects every other
 electrode another cable connecting the others.
 When the pole sways, the stack of piezoelec-
 tric disks is compressed, generating a current
 through the electrodes.

20' diameter max concrete chamber
 housing a torque generator that converts the
 kinetic energy of poles into electrical energy
 with an array of current generating shock
 absorbers, using the forced movement of fluid
 through the cylinders.

part of the wind energy goes to power a set of
 pumps that move water from a lower chamber
 to an upper one. This acts as a back up genera-
 tor, allowing water from the upper chamber to
 flow down to the lower chamber, turning the
 pumps into generators.

5a.

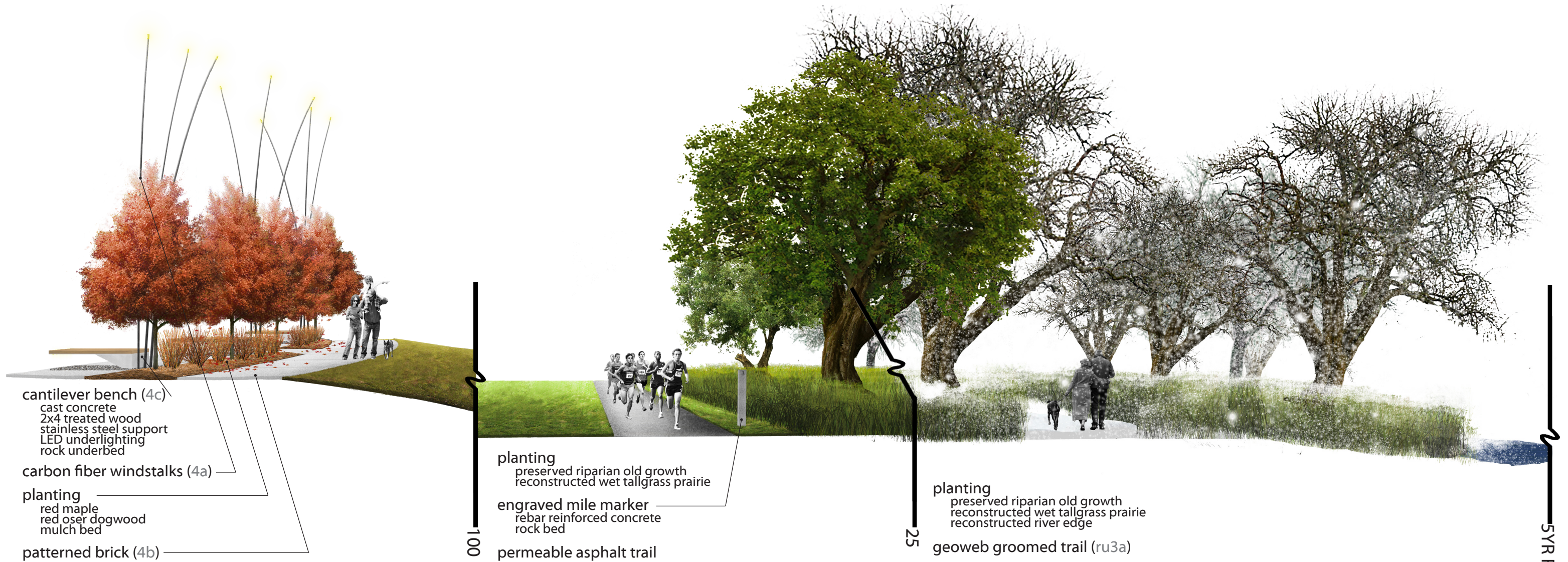


4 WINDSTALK STRUCTURE CONCEPT (typ.)
a1 n.t.s.



Suburban Park Sub-System(1)

mitigative_neighborhood park with integrated wetland functions
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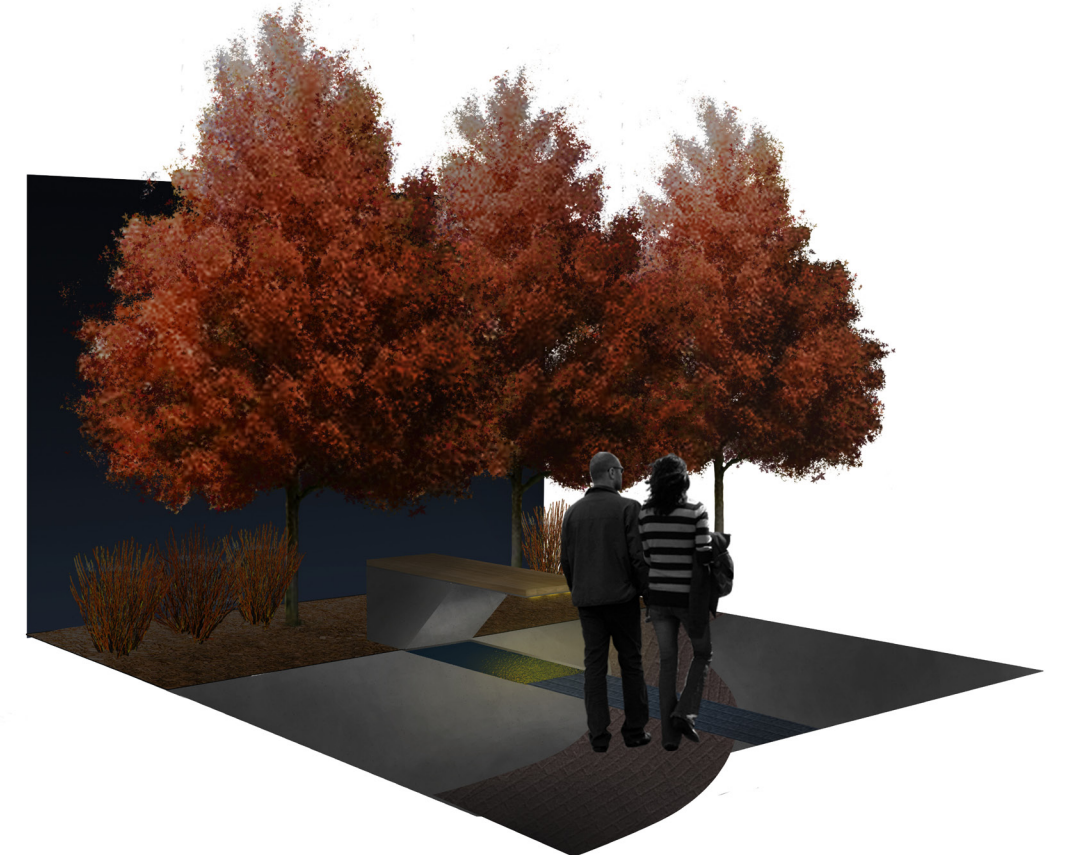
5 SUBURBAN TRAIL SYSTEM (typ.)
b n.t.s.



Suburban Park Sub-System(1)

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high albedo will help melt snow/ice in winter



2 CANTILEVER BENCH (typ.)
 c n.t.s.



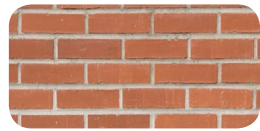
Park System Entry Signage

design standards define and distinguish place identity
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downtown historic marker detail Fargo, ND

urban



brick red/purple hues
maple varieties orange/red/purple fall hues



wood red/orange/yellow
red dogwood red/orange



corten purple/red/orange
big bluestem red/orange fall
purple late summer

rural

Great Plains Microsoft Fargo, ND



rebar reinforced scored concrete

yellow sandstone
mulch and rock groundcover prevents sunspots

The presumption of Fargo is altered when looking under the surface. Fargo has a unique segmented culture of agriculture/education/professional. Visually, I corollate brick revealed through worn concrete downtown. This coupled with the recent trend in downtown revitalization, expresses a tie between those layers and the dual act of preservation of history with forward-thinking integration.

1 ENTRY SIGNAGE (typ.)

n.t.s.

