KEY ELEMENTARY SCHOOL

Sustainable LIFE DESIGNS
HEALTHY COMMUNITIES, BUILDINGS & LAND

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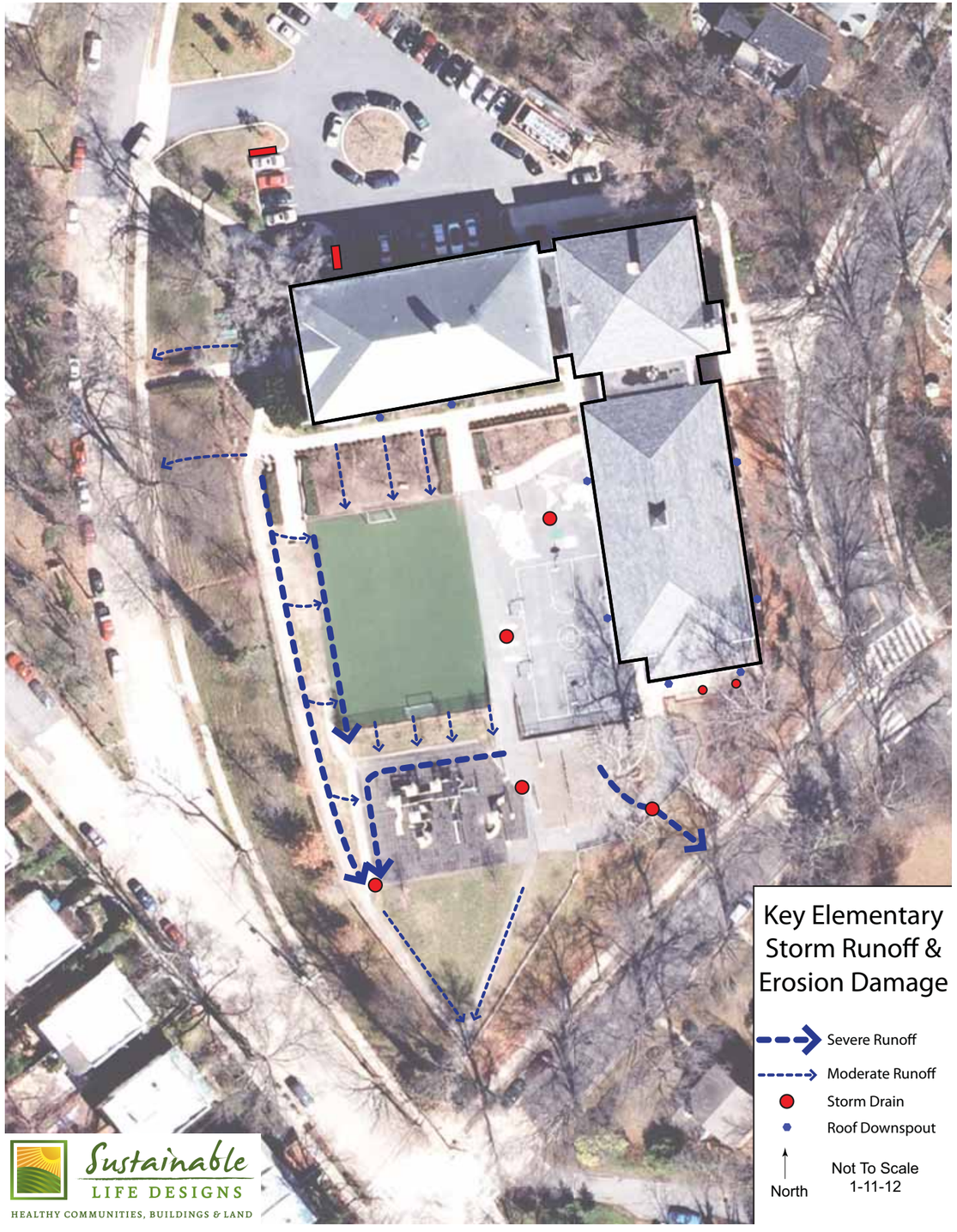
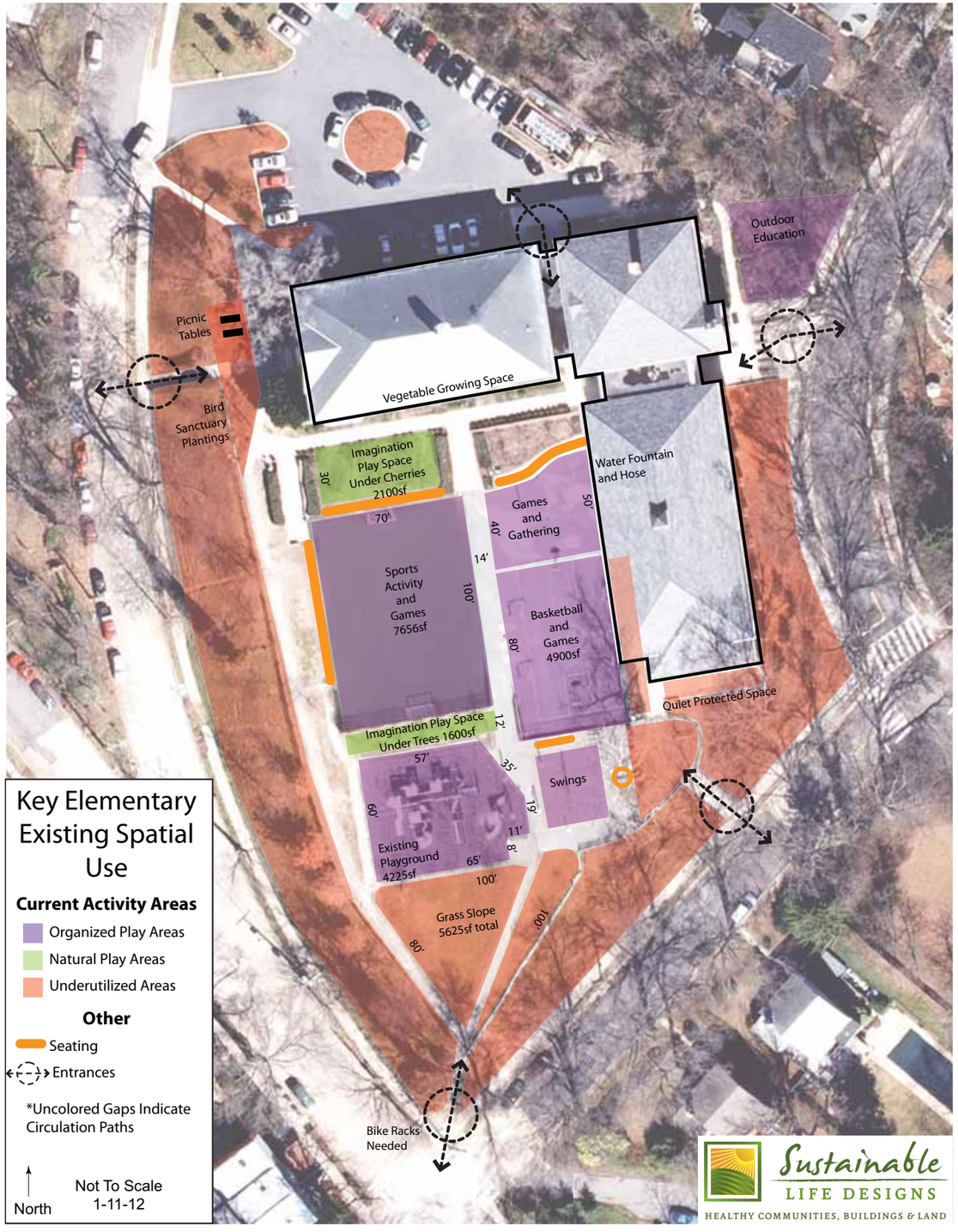
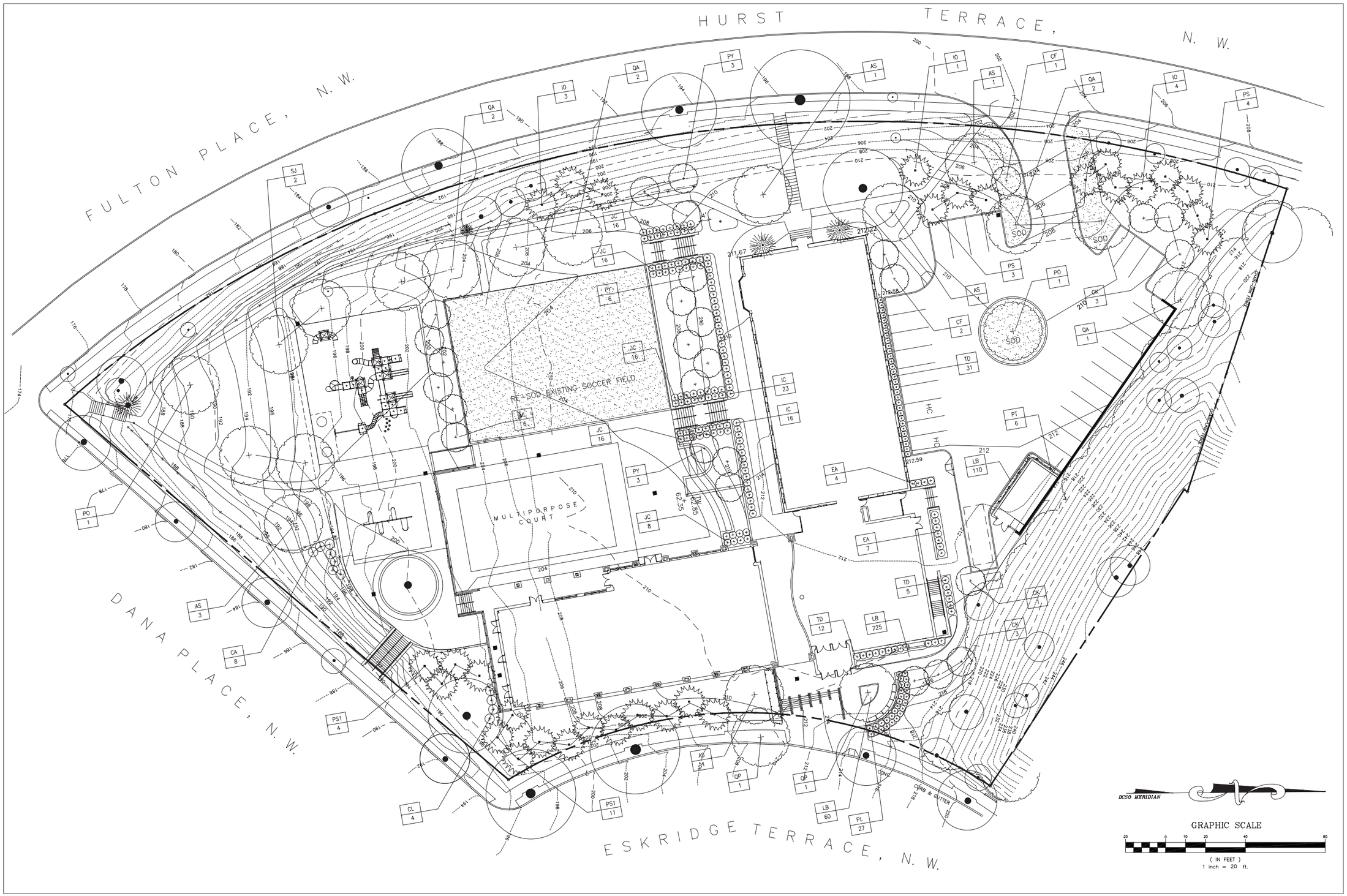
plan view

birds eye


Key Elementary Storm Runoff & Erosion Damage
Severe Runoff
Moderate Runoff
Storm Drain
Roof Downspout
North
Not To Scale 1-11-12
Sustainable LIFE DESIGNS
HEALTHY COMMUNITIES, BUILDINGS & LAND


Picnic Tables
Vegetable Growing Space
Outdoor Education
Bird Sanctuary Plantings
Imagination Play Space Under Cherries 2100sf
30'
70'
Water Fountain and Hose
Games and Gathering
50'
40'
14'
Sports Activity and Games 7656sf
100'
Basketball and Games 4900sf
80'
Quiet Protected Space
Imagination Play Space Under Trees 1600sf
12'
57'
35'
Swings
19'
60'
11'
8'
Existing Playground 4225sf
65'
100'
Grass Slope 5625sf total
80'
100'
Bike Racks Needed
Key Elementary Existing Spatial Use
Current Activity Areas
Organized Play Areas
Natural Play Areas
Underutilized Areas
Other
Seating
Entrances
*Uncolored Gaps Indicate Circulation Paths
North
Not To Scale 1-11-12
Sustainable LIFE DESIGNS
HEALTHY COMMUNITIES, BUILDINGS & LAND


HURST TERRACE, N. W.
FULTON PLACE, N. W.
DANA PLACE, N. W.
ESKRIDGE TERRACE, N. W.
RE-SOD EXISTING SOCCER FIELD
MULTIPURPOSE COURT
SOD
DCSO MERIDIAN
GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

warping and peeling safety surface

breaking play equipment

rust damage and potential hazards

water erosion and foot compaction

excessive stormwater runoff and erosion

excessive stormwater runoff and erosion


trampled slope between field and playground


scouring from runoff


compaction from foot traffic


scouring from runoff and foot traffic


compaction from foot traffic


storm drain by eastern slope


scouring from runoff on eastern slope


collection point for large amounts of runoff

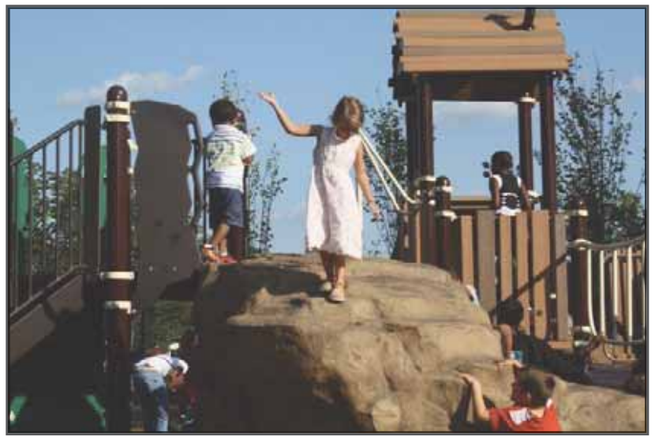
Watkins Elementary play equipment

fun safety surfaces for kids

tree protection and seating

lanes for running

shade structure



Watkins Elementary play equipment

Brent Elementary play equipment

Brent Elementary playground

create your own play

organic shapes

Patrick Daugherty - woven willow

outdoor education - bug habitat

edging for safety surface

natural play elements

learning with water

defining space for gathering

interact with the environment

ampitheater seating

natural play elements

natural play elements

earth mounds as playscape

vegetated coverings and structure

encourage healthy and fun activity

interaction with topography

Watkins Elementary playground

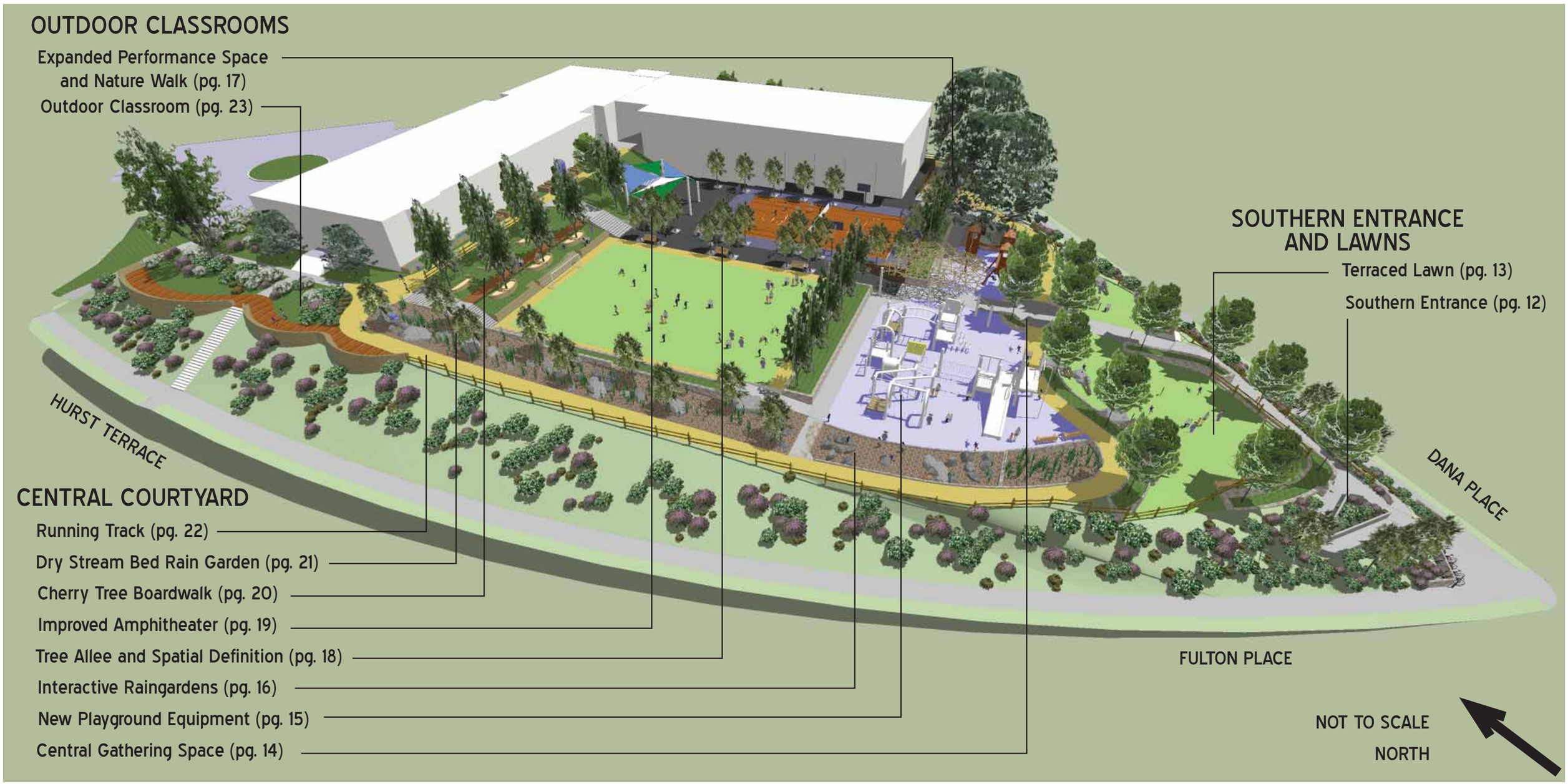
Watkins Elementary rain garden

Our overall design intention is to create a healthy learning environment for Key Elementary School students to Learn, Thrive and Grow. We envision a place where athletic potential, creative expression, and exploration of the natural world forms a healthy foundation for students, teachers and parents to excel together.

Students develop their athletic potential through programmed and spontaneous activities on the sports fields, new tracks, integrated basketball/tennis courts, traditional and developmental play equipment. Creativity and self expression are encouraged through new spaces for theatrical performance, outdoor chalk art, and landscape features shaped by the students imagination. Finally, new and enhanced natural areas allow students to learn about the environment in an outdoor science classroom, interactions with water systems, and a new nature walk / track around the perimeter of the school grounds.

The proposed site improvements build on existing conditions and provide the spaces for individual and group learning and exploration. Through basic changes to the circulation patterns and site grading our design reclaims several underutilized spaces. Retaining walls and interactive slopes build on the existing site topography and create additional areas for learning. This method maximizes the amount of usable space, improves the spatial organization and allows us to manage stormwater runoff more effectively.

The following site plan and images show our final concept design.


OUTDOOR CLASSROOMS
Expanded Performance Space and Nature Walk (pg. 17)
Outdoor Classroom (pg. 23)
SOUTHERN ENTRANCE AND LAWNS
Terraced Lawn (pg. 13)
Southern Entrance (pg. 12)
HURST TERRACE
DANA PLACE
FULTON PLACE
CENTRAL COURTYARD
Running Track (pg. 22)
Dry Stream Bed Rain Garden (pg. 21)
Cherry Tree Boardwalk (pg. 20)
Improved Amphitheater (pg. 19)
Tree Allee and Spatial Definition (pg. 18)
Interactive Raingardens (pg. 16)
New Playground Equipment (pg. 15)
Central Gathering Space (pg. 14)
NOT TO SCALE
NORTH

1) Southern Entrance

- A new southern entrance provides a safe, accessible handicapped entrance to Key School - with improved signage, bicycle racks, stairs, ramp with retaining walls, landing areas and plantings.

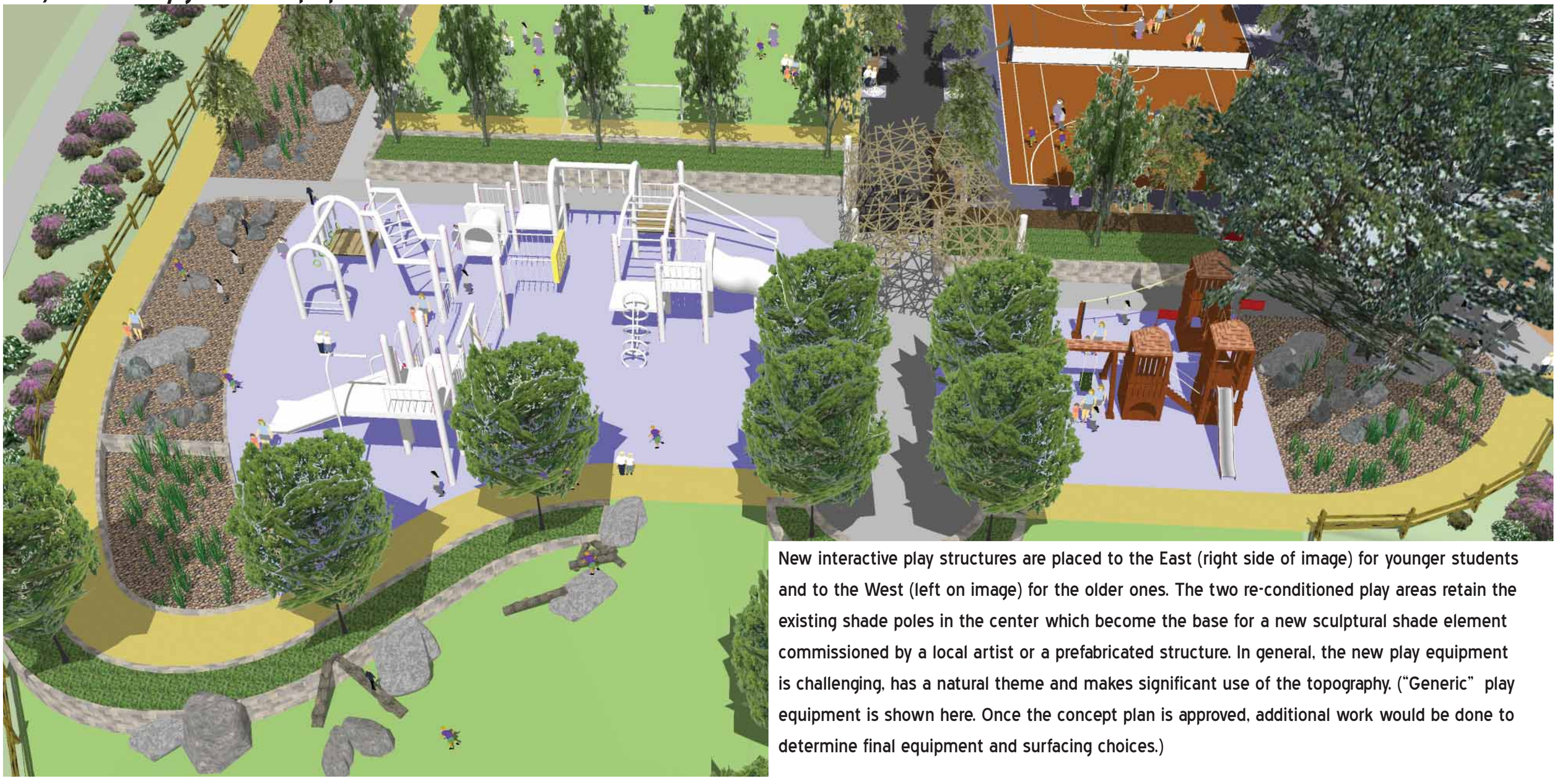
2) Terraced Lawn

- Moving upwards onto the school grounds, a re-graded lawn area of natural turf to the West allows for organized and free-form games and gathering for the older children. To the right another smaller natural lawn area is provided for younger children play or gatherings.

3) Central Gathering Space

- The new entrance peaks at a central gathering point with raised seat planters, additional paths, an overhead sculpture and access points to new play equipment. This central area provides an overlook station for on-duty teachers, connects the surrounding play areas and forms the southern edge of the new track that runs the perimeter of the school grounds. The overhead sculpture would be a simpler and more elegant version of the wooden structure shown here.

4) New Playground Equipment



New interactive play structures are placed to the East (right side of image) for younger students and to the West (left on image) for the older ones. The two re-conditioned play areas retain the existing shade poles in the center which become the base for a new sculptural shade element commissioned by a local artist or a prefabricated structure. In general, the new play equipment is challenging, has a natural theme and makes significant use of the topography. ("Generic" play equipment is shown here. Once the concept plan is approved, additional work would be done to determine final equipment and surfacing choices.)

5) Interactive Raingardens

Natural areas are improved on either side of the new play equipment and become working elements of the school grounds. To the East, the beautiful Sycamore tree is protected by removing additional asphalt, amending the soil and adding a few native plantings. New mulch and portable seating is installed. To the West a new retaining wall emerges on the North - and new rain gardens on the West – which capture and retain rainwater, reduce erosion, are low-maintenance.

6) Expanded Performance Space

- A new, small gathering / performance space is created on the south side of the gym by removing a portion of the railing, installing steps and creating a gathering / 'audience' area covered in natural mulch. Steps double as casual seating in non-performance times. The new perimeter track forms the Southern edge of this area and continues around the building to the East – connecting to the main School entrance.

7) Tree Allee and Spatial Definition

Continuing up the central path, an allee of trees forms a generous, green entrance to the main gathering spaces outside the cafeteria. The medium sized trees (Regal Elms - Ulmus 'Regal', or Heritage River Birches - Betula nigra 'Heritage' - separate the multi-purpose field on the West (Left) and the re-painted / re-surfaced basketball / tennis court to the East (Right). Groupings of four trees further define spaces for gathering and seating. Innovative composting tree pits, art activities and science experiments with local partners could be explored to compost tree leaves and provide an on-going source of revenue for school grounds maintenance.

8) Improved Amphitheater

The existing amphitheater on the North side of the basketball / tennis courts are improved with better shading, seating, safety surfacing at the ground level and plantings. The largest and closest of the shade poles will be removed, larger poles added to the top of the seats and existing shade sails righted (low to high) to correct shading problems. Additional shade sails would also be installed. Some of the amphitheater seating steps will be modified - decreasing their depth and height - to increase the ease of use, seating capacity and making the seats more comfortable for children. A thin layer of safety surfacing, with a slight thickening near the shade poles, will define this area along with a few simple plantings.

9) Cherry Tree Boardwalk

The multi-purpose field surface will be reviewed by an artificial turf expert, and re-conditioned / re-placed as needed. A new interactive boardwalk / seating area will be installed above the field – built around the existing Cherry trees – to retain soils, provide interactive planting areas for digging close to the existing garden areas and have perimeter fencing. Clumps of tough ornamental grasses with soft textures, new seating elements, and narrow stairs will connect this area to the field below.

10) Dry Stream Bed Rain Garden

New plantings and rain gardens will be designed and installed on the West edge of the multi-purpose field. Casual seating will form the base, while a transition from more traditional plantings and soils at the top to structured containment areas towards the bottom. Edging will be of clean finished concrete with rounded edges while the lower – inaccessible parts of the rain gardens would be planted with bulrushes, other native plants and top dressed with 1-2" of pea sized rock and some larger smooth river stone.

11) Running Track

The existing track at the Western edge of the school grounds will be removed and replaced with a new 6-8' wide running surface. Upon further development, a track surface will be laid and be marked with two lanes of 3-4' each, lines for straight sprints and distance markings along two loops.

12) Outdoor Classroom

An improved outdoor science classroom with natural habitats for insects, butterflies, birds, amphibians, and plant interactions will be created in the North West corner of the site. The basic plant palette will include native species from a forest edge to maximize wildlife. New areas will be created by removing and reorienting existing plantings, and new retaining walls or decking. Two rain barrels with interactive, artistic downspouts will be installed by the vegetable boxes with science testing equipment placed nearby. Other rainbarrels or raised planters here, near the back trailers and on the East side of the school building provide opportunities for students to learn about water quality and quantity.

Southern Entrance

Central Gathering Space

Western Rain Garden

Terraced View of Lawn

Tree Allee and and Sports Court

This concept design attempts to maximize the educational opportunities for the school grounds within the existing constraints of the site. General DCPS guidelines are listed as text below, with new activity areas shown on image.

SITE EVALUATION CRITERIA

SITE SIZE CHAPTER 3: SCHOOL SITE

Design Guidelines 2009

District of Columbia Public Schools 3101 - 10

D. ELEMENTARY SCHOOL SITE UTILIZATION SPECIFICATIONS (cont.)

400 STUDENTS - MINIMAL

Building Footprint (multi-story) 60,000 GSF @ 60% 36,000 SF 0.82 AC

(multi-story) 60,000 GSF @ 70% 42,000 SF 0.96 AC

(one story) 60,000 GSF @ 100% 60,000 SF 1.37 AC

Playground Pre-K-5 (See Note 1) 18,000 SF 0.41 AC

Parking and Drives (See Note 2)

Visitor parking - 7 cars 2,520 SF

Staff (21 teachers + 16 additional) x 2/3 = 24 8,640 SF

Parents drop-off 3,500 SF

Service/mechanical yard 7,300 SF

Bus drop-off (3) - (See Note 3) 0 SF__ 21,960 SF 0.49 AC

Play Field

One multipurpose/soccer field (360' x 195') 70,200 SF 1.61 AC

Outdoor Learning Area (See Note 4) 4,000 SF 0.09 AC

Subtotal @ 60% @ 70% @ 100%

148,975 SF = 3.42 AC 155,073 SF = 3.56 AC 172,933 SF = 3.97 AC

Greenspace (20%)

(See Note 5) 29,795 SF = 0.68 AC 31,014 SF = 0.71 AC 34,586 SF = 0.79 AC

Grand Total 178,790 SF = 4.10 AC 186,087 SF = 4.27 AC 207,519 SF = 4.76 AC

Note 1: This area is based on 50 SF per student; allows for hard surface play area and a softsurface play equipment area for each playground. Paved area includes 1 basketball court.

Note 2: This estimate of area is based on 360 SF per car for parking. The area includes a drop-off/pick-up zone for cars and a service/mechanical drive.

Note 3: The bus drop-off is a widened lane with tapers within the right-of-way and is not included in site acreage estimate.

Note 4: The outdoor learning area may contain a nature area, amphitheater, gazebo or tables to act as an outdoor classroom for 64 students.

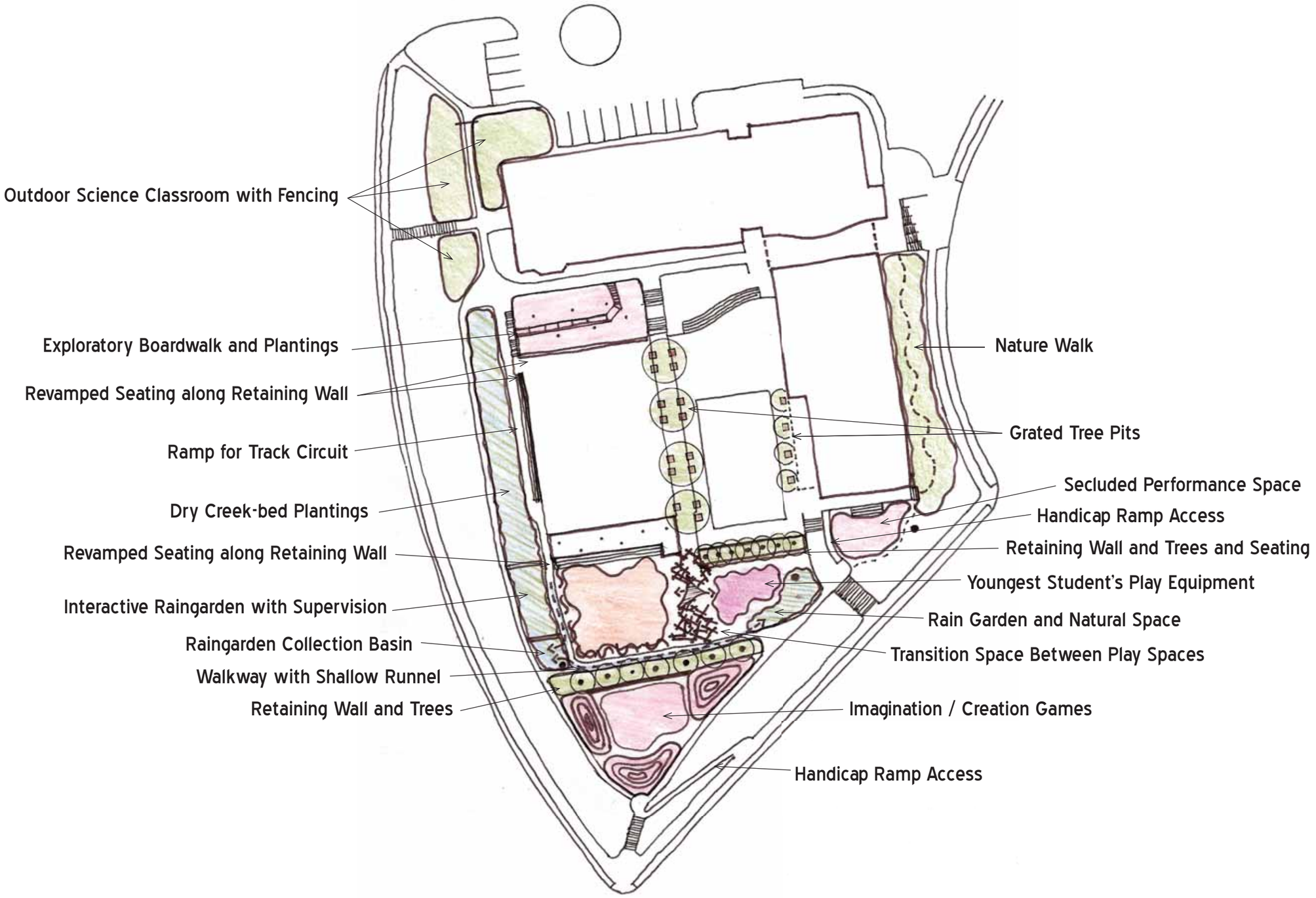
Note 5: 20% of the site square footage requirements as greenspace ensures adequate space for separation of the various elements located on each site. This number may increase to accommodate grade change across a site.

Key Elementary School - Preliminary Construction Estimates based on Concept

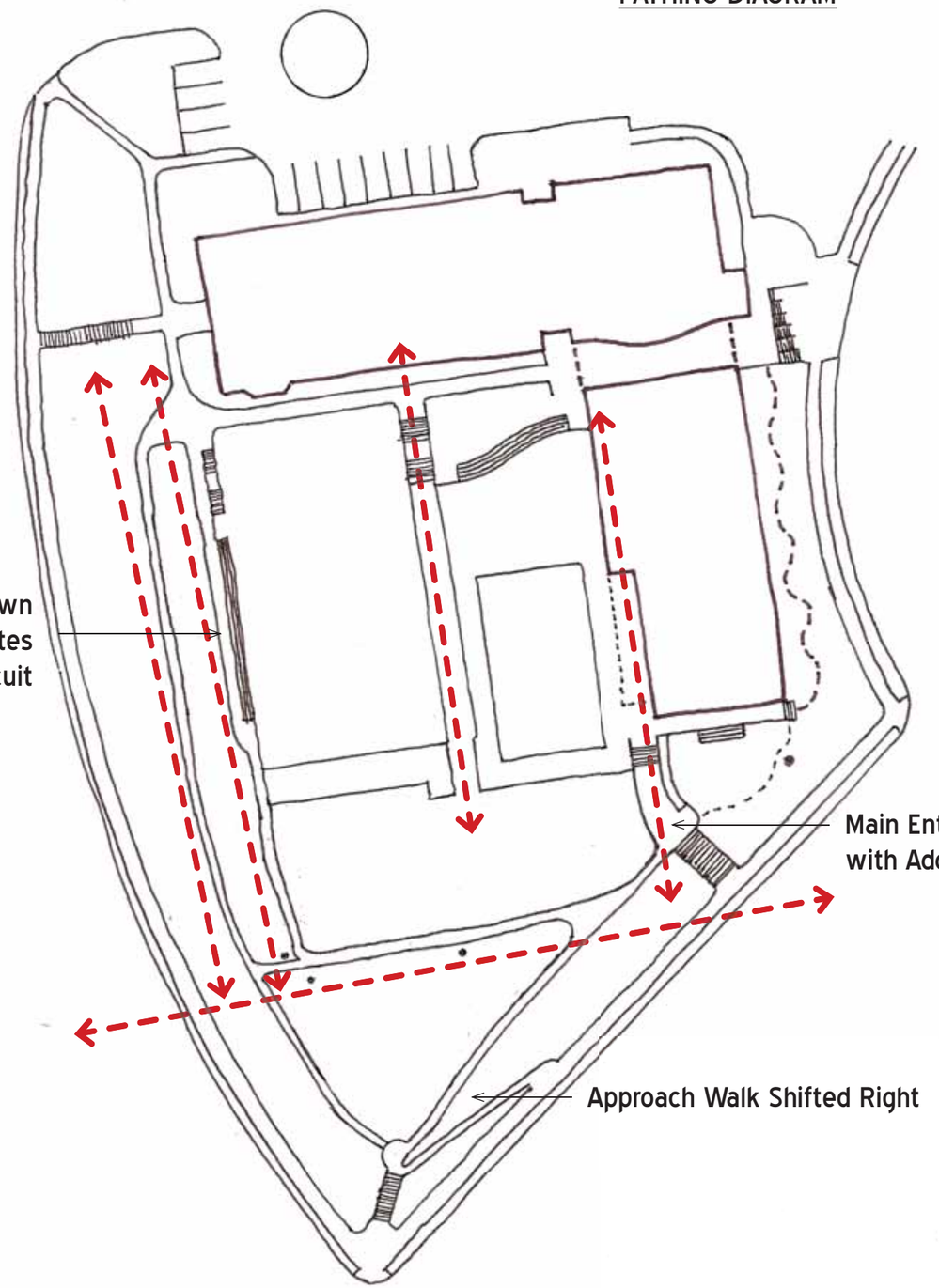
We have calculated initial costs for the improvements shown in this report to be $1.5 - $2 million dollars. This is based on preliminary estimates below and will need to be revised during the design development process.

Item Description	CSI	Quantity	Unit	Unit	Extension
General Requirements	**01**				
General Contractor (mobilization, facilites, electricity, communication, etc . .)					$10,000
G.C. Overhead		1	$1,002,469	0.12	$120,296
G.C. Profit		1	$1,002,469	0.10	$100,247
Survey		4	acre	2,000.00	$8,000
Landscape Design		1	$1,002,469	0.12	$120,296
Civil Engineering		1	$1,002,469	0.10	$100,247
Sub-total					**$449,086**
Site Work	**02**				
Soil and site stabilization		300	L.F.	10.00	$3,000
Temp. gravel roadway (From p-lot or SE hill)					$15,000
Wash down and curb/ utility bridges		4	unit	700.00	$2,800
Saw cutting concrete		400	L.F.	3.50	$1,400
Concrete Demo. - NW sidewalks (4-6" concrete)		880	sq.ft.	8.00	$7,040
Concrete Demo. - Southern stairs (12" concrete with re-inforcements)		200	sq.ft.	25.00	$5,000
Prepare for re-use on-site as base material (Haul off-site for re-use if not cost effective.)		27	C.Y.	220.00	$5,940
Saw cutting asphalt		200	L.F.	2.00	$400
Asphalt Demo. (walkways, tree pits, gardens, other - 3" asphalt)		424	S.Y.	7.00	$2,968
Prepare for re-use on-site with new asphalt (Haul off-site for re-use if not cost effective.)		45	C.Y.	175.00	$7,875
Trenching/ footing excavation (medium material)		700	C.Y.	3.85	$2,695
Hand excavation (2' deep - medium clay)		60	C.Y.	80.00	$4,800
Hand excavation (backfill foundation - 6" lifts)		60	C.Y.	25.00	$1,500
Hand excavation (compaction)		60	C.Y.	30.00	$1,800
Bulk excavation		600	C.Y.	5.75	$3,450
Remove one shade sail post		1	unit	2,000.00	$2,000
Remove wood fencing (set aside for re-use)		500	L.F.	1.31	$655
Tree cutting, clearing, re-planting and re-use (Two at Southern entrance. Two at top of hill below play equipment. Four smaller ones in West Raingarden area. 3 Holly's at theatre. Re-plant smaller trees on-site where possible, harvest wood use for benches and sculptures.)		11	each	750.00	$8,250
Grading (W. Track, Raingardens, lawn areas) ?					$50,000
Base course for walkways (Prepare and roll sub base - average)			S.Y.		$0
Base course for play areas (Primarily use exg. asphalt - Some new preparation and rolling of sub base -			S.Y.		$0
Base course for walkways (4" bank run gravel)		1,050	S.Y.	3.50	$3,675
Base course for play areas (4" bank run gravel)			S.Y.	3.50	$0
Rain gardens per sq. ft. including soils, stones,		6,116	sq.ft.	50.00	$305,800
Topsoil for ares besides raingardens		1,200	C.Y.	25.00	$30,000
Boulders (1,500 lb. - Edges of lawn area, under		10	each	500.00	$5,000
Trees		50	each	500.00	$25,000
Shrubs		100	each	100.00	$10,000
Perrenials & ground covers		4,000	S.F.	10.00	$40,000
Sod		4,800	S.F.	1.00	$4,800
Sub-total					**$560,848**

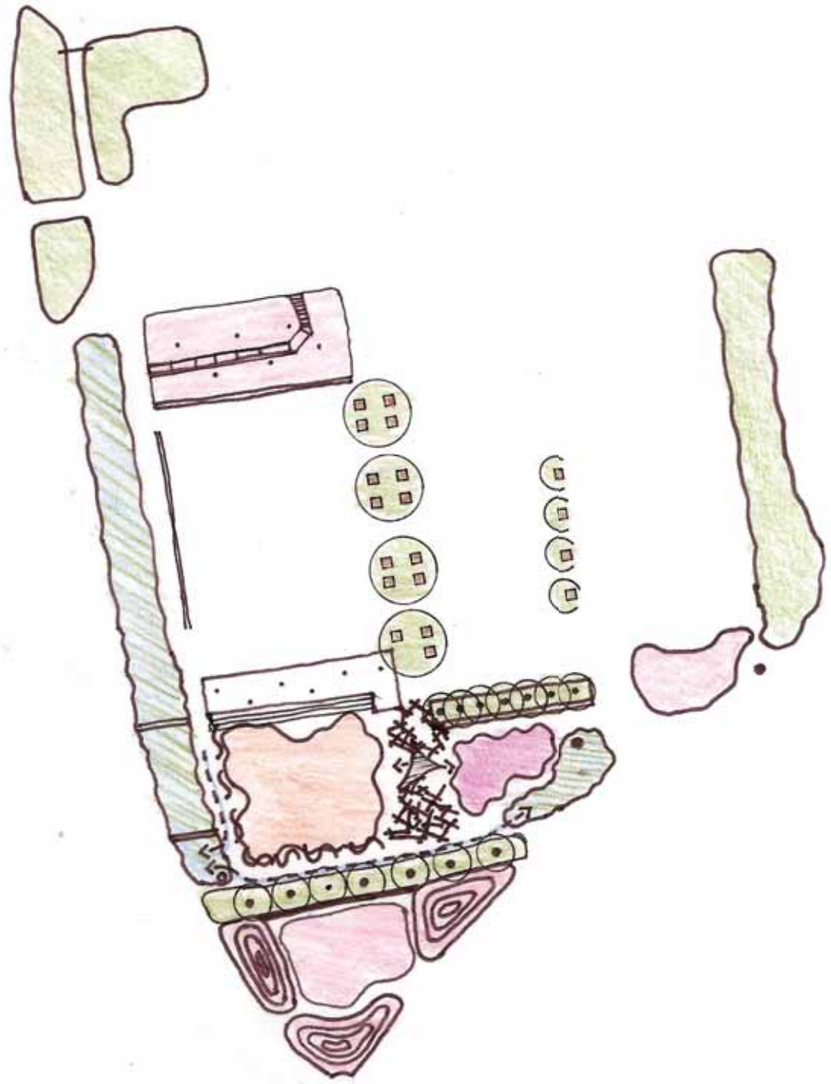
Concrete	**03**				
Concrete retaining wall with rebar, tie backs and spreader footer. Average height 6' with 2.5 feet exposed above grade		700	L.F.	110.00	$77,000
Colored concrete (for exposed areas)					
Textured concrete (for exposed areas)					
S. Ramp		50	S.Y.	75.00	$3,750
S. Stairwell		50	S.Y.	200.00	$10,000
Base (6") for walkways		1,050	S.Y.	44.75	$46,988
Sub-total					**$46,988**
Masonry	**04**				
Flagstone caps for seat walls and retaining walls		700	L.F.	15.00	$10,500
Sub-total					**$10,500**
Metals	**05**				
Stair and ramp railings		300	L.F.	110.00	$33,000
Shade sail posts (New)		3	Each	750.00	$2,250
Sub-total					**$35,250**
Wood & Plastics	**06**				
Wooden boardwalk above Multi-purpose field (Treated wood, Black Locust and Trex).		350	S.F.	30.00	$10,500
Wooden decks at Science area (Treated wood, Black Locust and Trex).		350	S.F.	30.00	$10,500
Wooden seating for seat walls		70	L.F.	25.00	$1,750
Fencing (Split Rail Installed)		763	L.F.	50.00	$38,150
Wooden entrance sculpture near play equipment by local artist		1	Each	########	$50,000
Sub-total					**$60,900**
Finishes	**09**				
Ext. Painting					
P.I.P. Surface (2-5 yrs.)		1,287	S.F.	10.00	$12,870
P.I.P. Surface (5-12 yrs.)		4,583	S.F.	11.00	$50,413
P.I.P. Surface (Ampitheater)		800	S.F.	10.00	$8,000
P.I.P. for small running track surface		3,000	S.F.	8.00	$24,000
Sub-total					**$95,283**
Furnishings	**12**				
Play equipment (2-5 yrs.) (Note: Estimates based on quote for recommended items from Sparks at Play. PTA/DCPS might choose other vendor.)					$30,000
Play equipment (5-12 yrs.)					$76,000
Install play equipment (2-5 yrs.)					$11,000
Install play equipment (5-12 yrs.)					$27,000
New triangular shade sails (9') for ampitheater (Cost if re-using exg. is not poss.)		9	Each	250.00	$2,250
Tree grate covers		23	Each	900.00	$20,700
Benches (Wooden - similar to existing under Cherry		15	Each	750.00	$11,250
Benches (Large wooden logs at edges of lawn areas)		3	Each	5,000.00	$15,000
Sub-total					**$193,200**
Mechanical (Plumbing)	**15**				
Raingarden Underdrains (PVC)		200	L.F.	20.00	$4,000
Downspout alterations		2	Each	250.00	$500
Rainbarrels / cisterns / science water activity table / wetland aquarium planter (NW science area)		1	Each	5,000.00	$5,000
Rainbarrels / cisterns / raingarden planters (East track / science area)		1	Each	########	$25,000
Sub-total					**$9,500**
Total Construction Costs					**$1,002,469**
Total General Req. + Construction Costs					**$1,451,555**

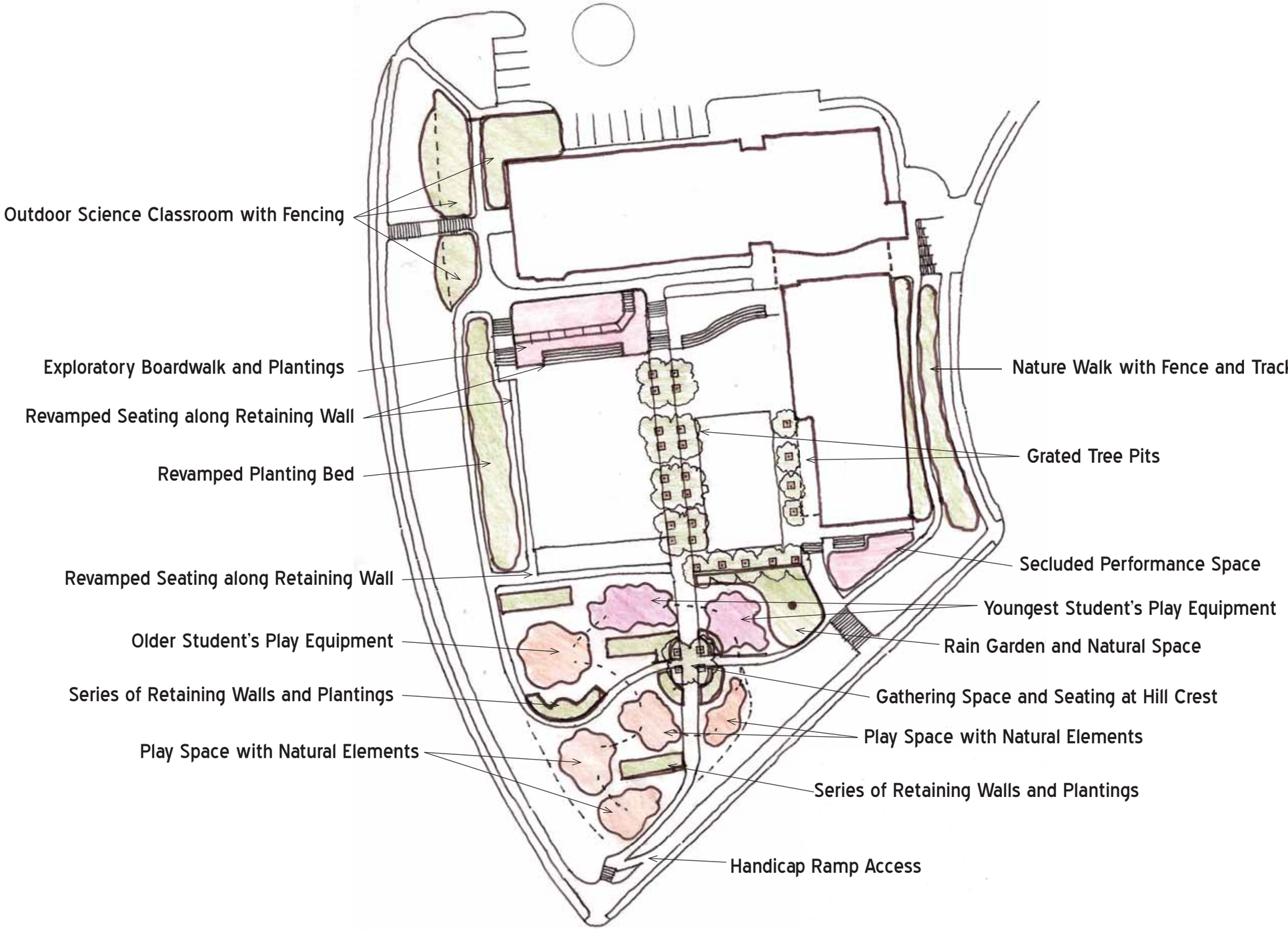

Outdoor Science Classroom with Fencing
Exploratory Boardwalk and Plantings
Revamped Seating along Retaining Wall
Ramp for Track Circuit
Dry Creek-bed Plantings
Revamped Seating along Retaining Wall
Interactive Raingarden with Supervision
Raingarden Collection Basin
Walkway with Shallow Runnel
Retaining Wall and Trees
Nature Walk
Grated Tree Pits
Secluded Performance Space
Handicap Ramp Access
Retaining Wall and Trees and Seating
Youngest Student's Play Equipment
Rain Garden and Natural Space
Transition Space Between Play Spaces
Imagination / Creation Games
Handicap Ramp Access

PATHING DIAGRAM

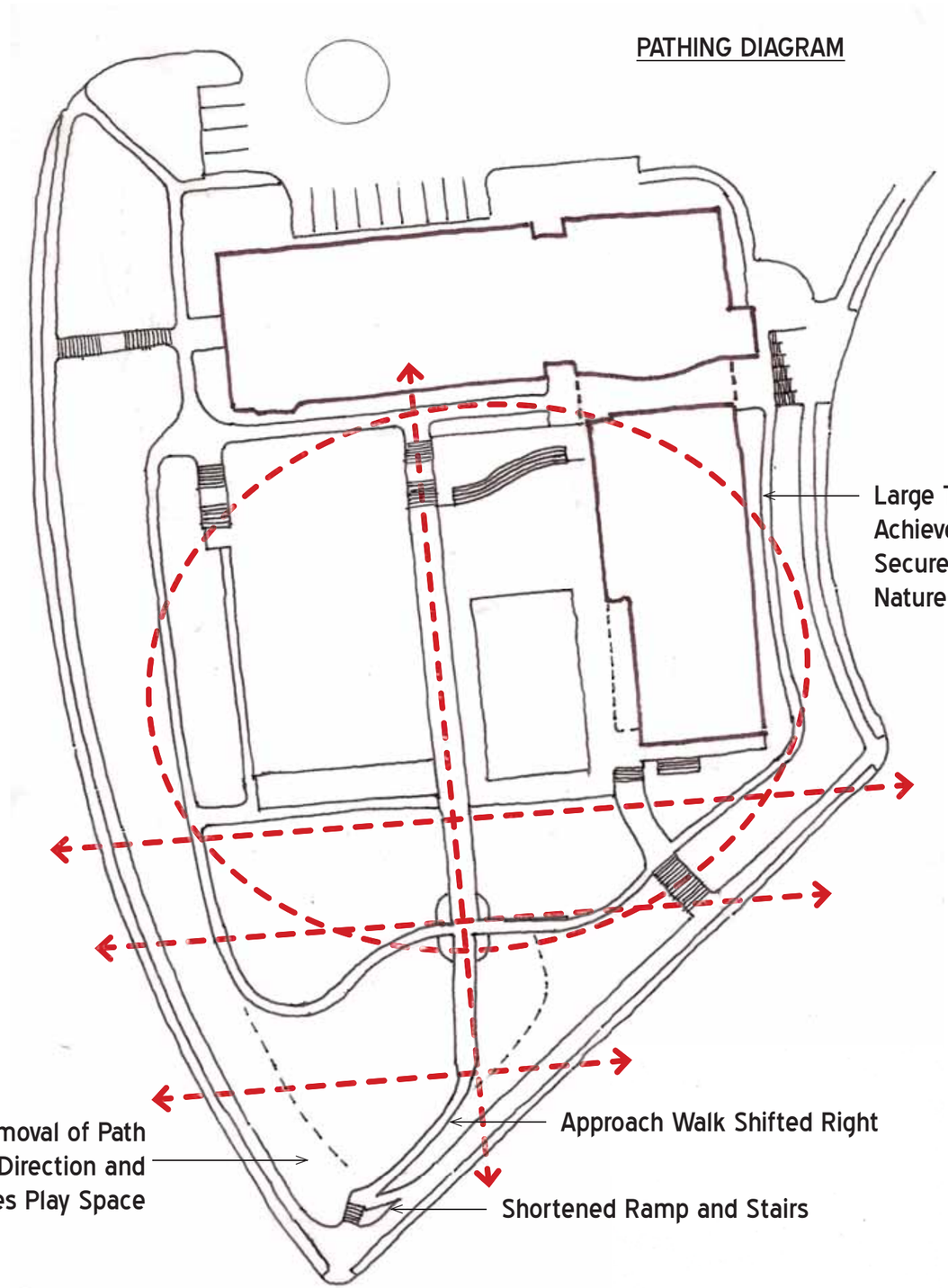


SPATIAL USE DIAGRAM




Outdoor Science Classroom with Fencing
Exploratory Boardwalk and Plantings
Revamped Seating along Retaining Wall
Revamped Planting Bed
Revamped Seating along Retaining Wall
Older Student's Play Equipment
Series of Retaining Walls and Plantings
Play Space with Natural Elements
Nature Walk with Fence and Track Circuit
Grated Tree Pits
Secluded Performance Space
Youngest Student's Play Equipment
Rain Garden and Natural Space
Gathering Space and Seating at Hill Crest
Play Space with Natural Elements
Series of Retaining Walls and Plantings
Handicap Ramp Access

PATHING DIAGRAM



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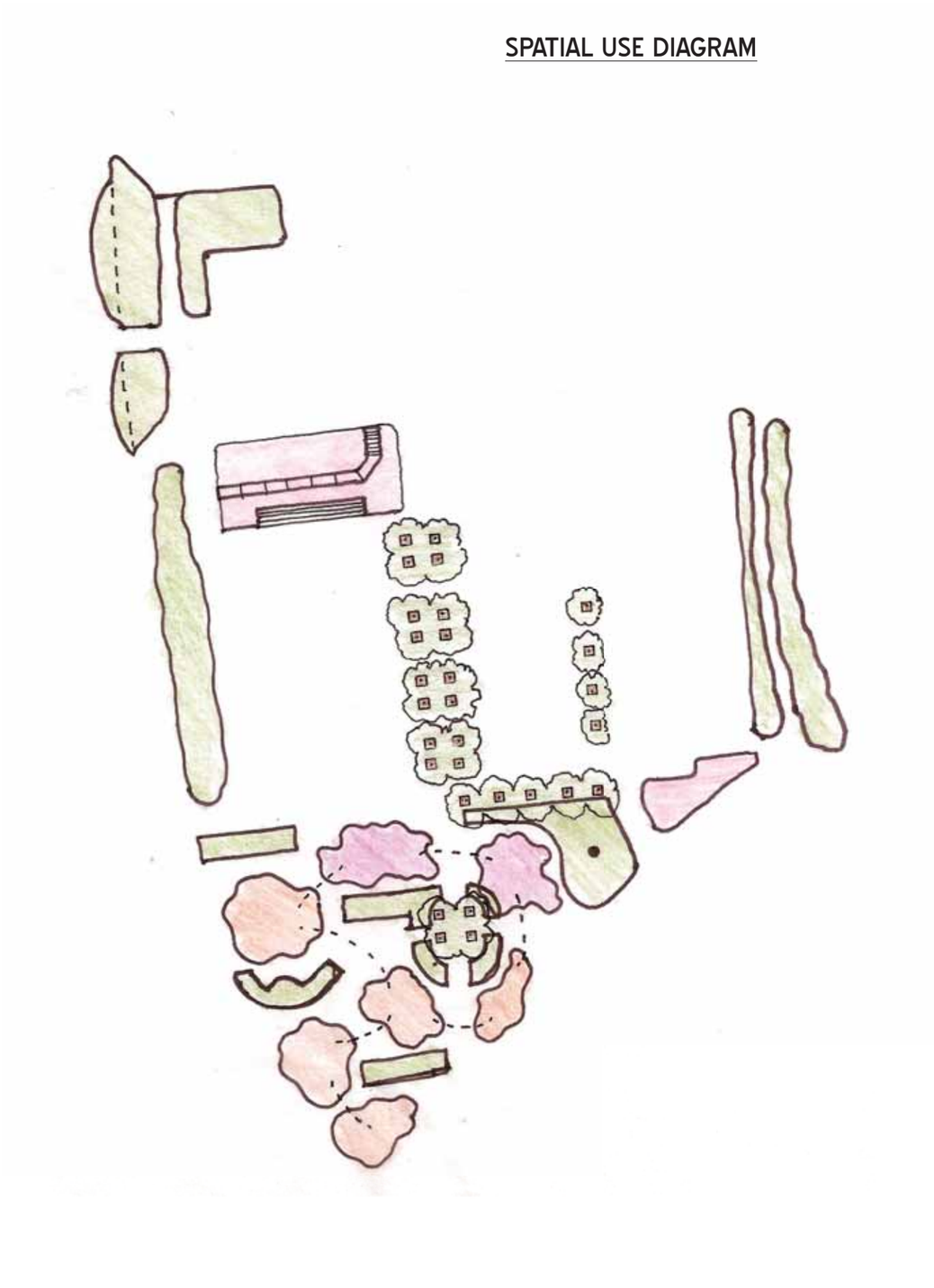
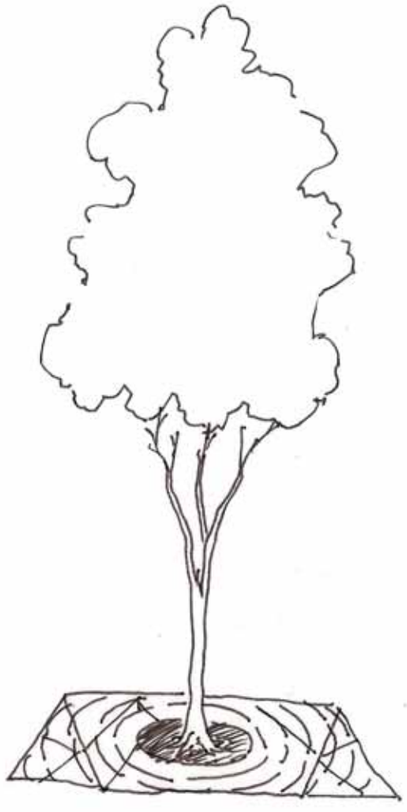
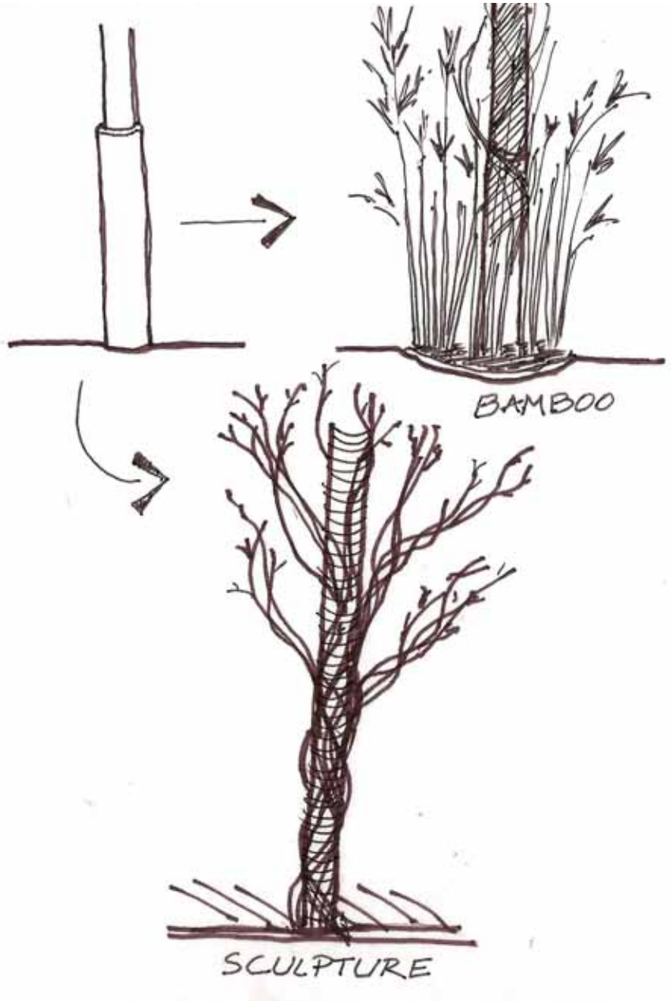
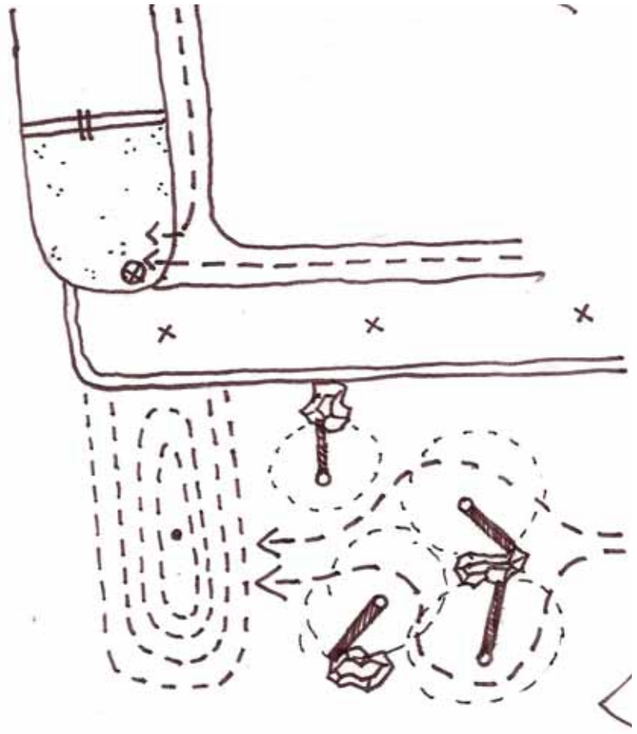
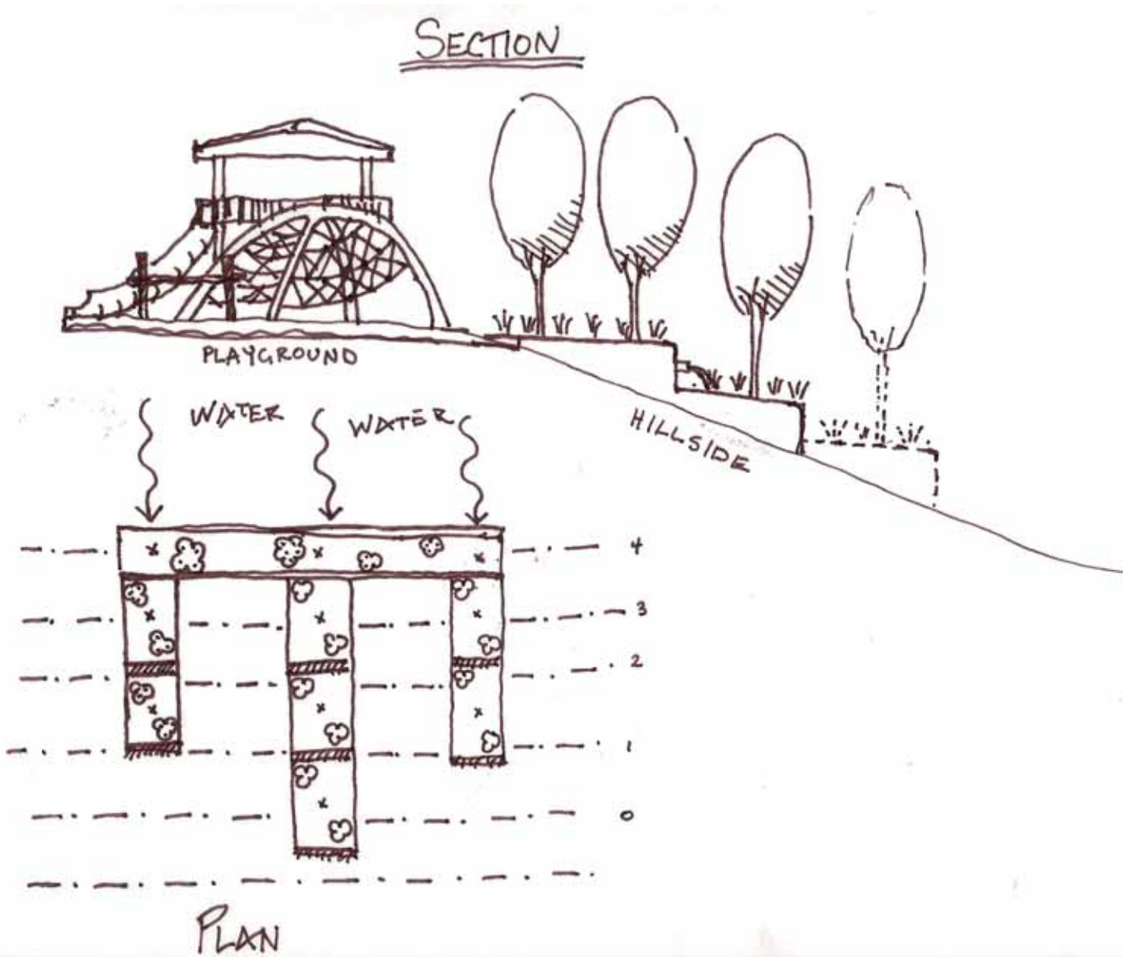
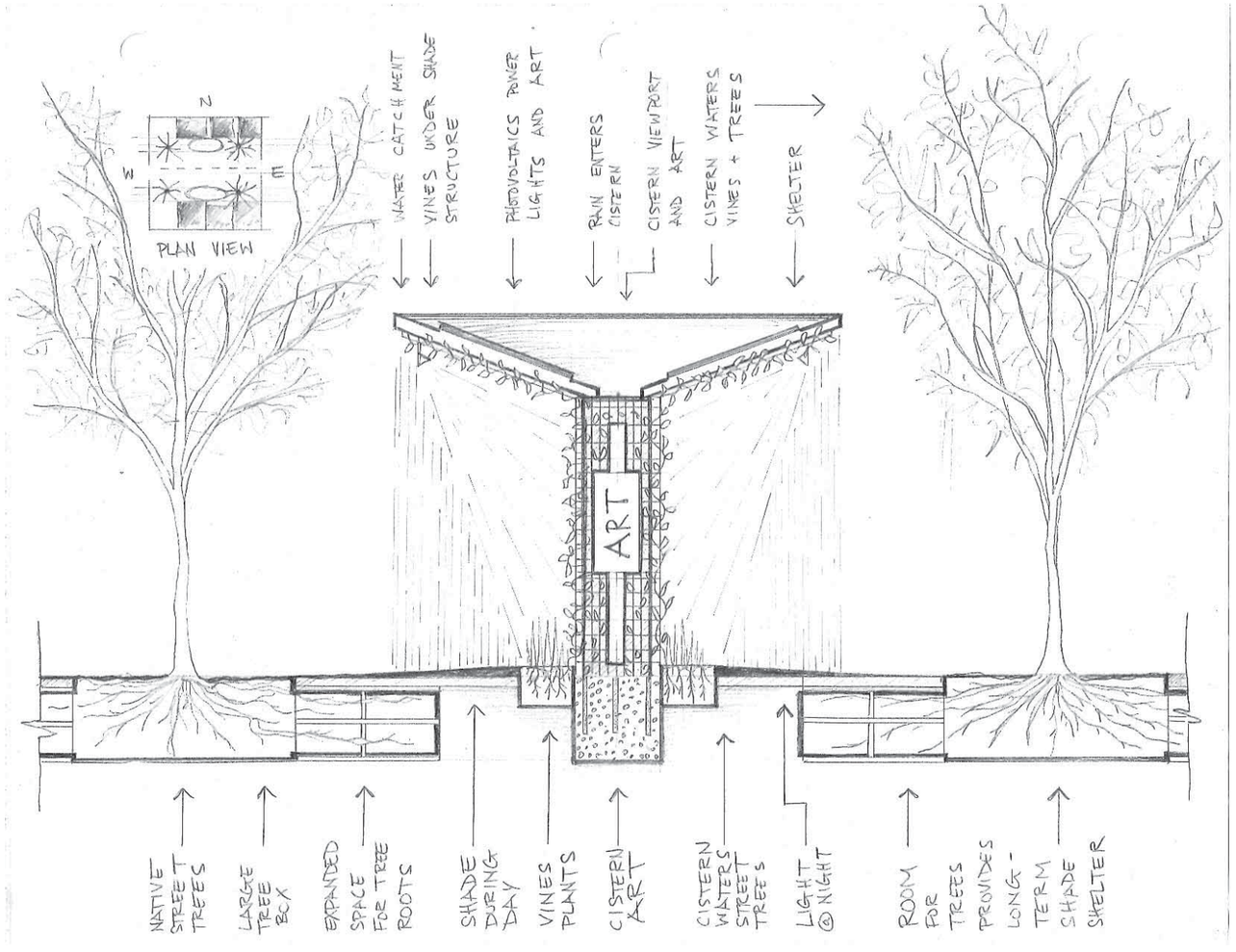





BAMBOO
SCULPTURE




SECTION
PLAYGROUND
WATER
WATER
HILLSIDE
4
3
2
1
0
PLAN


N
W
E
PLAN VIEW
WATER CATCHMENT
VINES UNDER SHADE STRUCTURE
PHOTOVOLTAICS POWER LIGHTS AND ART
RAIN ENTERS CISTERN
CISTERN VIEWPORT AND ART
CISTERN WATERS VINES + TREES
SHELTER
ART
NATIVE STREET TREES
LARGE TREE BOX
EXPANDED SPACE FOR TREE ROOTS
SHADE DURING DAY
VINES PLANTS
CISTERN ART
CISTERN WATERS STREET TREES
LIGHT @ NIGHT
ROOM FOR TREES PROVIDES LONG-TERM SHADE SHELTER