Elder, 1964

WHITEHEAD ELEMENTARY SCHOOL
ATHENS, GA.

WILLIAM D. ELDER

and

EDWARD L. PATTERSON

A Terminal Problem Presented

for the

Degree of Bachelor of Landscape Architecture

Department of Landscape Architecture,

University of Georgia,

Athens, Georgia

May 29, 1964

H.B. Owens Resource Center
School of Environmental Design
Caldwell Hall
University of Georgia

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INTRODUCTION

Environment for Education

The school is for learning and the landscape environment is a powerful force in this process. The school environment may be compared to conditions conducive to the growth of a flowering plant in a garden. If the soil is mellow and fertile; if the seed bed is well prepared; if the sun is warm and penetrating; if the rains come at the right time; and if the gardener derives a genuine satisfaction from his work and takes pride in his accomplishments, the plant will be healthy, growth will be vigorous, and the flowers and fruits will be abundant. However, if the soil is thin and stony; if there is a lack of essential plant food; if moisture and sunshine are insufficient; and if the gardner is careless and indifferent, the plant will be scrawny and the flowers and fruit will be scanty and poor in quality.

Similarly, the landscape environment influences learning. It envelops the child from the time he enters school in the morning until he leaves at the end of the day. It is an encompassing atmosphere. The child is a part of his environment and cannot readily or easily be separated from it.

A child needs beauty in his life. It is one of the basic educational needs. And what better place is there to meet this need than in the school where the child can be taught to understand and appreciate this learning?

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IMPORTANCE OF PLAYGROUNDS

Play is of decisive importance for the development and maturing of man. Consequences of insufficient possibilities for active and creative play clearly shows results such as: poor imagination, nervousness, and irritability of children, waste of spare time and craving for entertainment, agressiveness and rowdyism of many teen-agers. This is avoided by means of an environment in which the child can wear out its joys and sorrows.

Children should be allowed to play more than adults usually allow them to play because they say they are "too old". While playing, the child develops skillful hands, agility, lively senses, and a good-natured disposition, all of which are qualities needed later in life. Play is the surest guarantee for the healthy development of our children and is a valuable help in upbringing of young people. Children need space for playing as essentially as food and sleep. Will not our cities soon arrive at the point where space for playing is too restricted and friction becomes intolerable?

New streets, dwellings, schools, and factories are being built. It is extremely important to allocate and prepare in these places sufficient play space and recreational facilities for all age groups.

The Scandinavian countries have creative playgrounds as well as happy and healthy children. Our country, being the prosperous country that it is, should at least watch this creativeness. Our children are our most precious possessions and a need for their concern is vital for the future of our county.

Title of Article
The Landscape of Recreation

Published in the Landscape Architecture Quarterly.

PROBLEM STATEMENT

Members of the Board of Education of the Clarke County School District, in session on April 8, 1964, voted to secure professional assistance in the preparation of a landscape development plan for the grounds of Whitehead Elementary School. Prof. Sam Wood, Superintendant of Clarke County Schools, has employed this firm* of landscape architects to render this service.

The site is located in Northwest Athens, approximately one-third of a mile west of the Jefferson Road one block from the Whitehead Road. A single row of residential housing exists between Whitehead Road and the school property. Directly west of the school is an open area of approximately 2.5 acres surrounded by a dense pine forest. North of the school is an existing road which will eventually be paved and connected to the existing school entrance.

Following conferences with Prof. Wood and Miss Allea Betts, Principal of Whitehead Elementary School, and a careful study of the site, it was decided to include the following special features in the landscape plan, in addition to the usual items such as drives, walks, parking areas, etc: (a) an outdoor recreation area divided in two parts, one for children in the first, second and third grades, and one for students enrolled in the fourth, fifth, and sixth grades; (b) an outdoor assembly area to meet

*Elder & Patterson

requirements for various outdoor group activities and meetings; (c) school garden plots, consisting of planting beds for the students to study the fundamentals of plant growth, basic horticulture and for simple scientific experiments.

This proposed plan will include:

1. Location of existing and proposed buildings.
2. Vehicular and pedestrain circulation.
3. Parking facilities for faculty, visitors and service trucks.
4. Outdoor assembly area.
5. Outdoor recreation areas.
6. Open lawns, tree shaded areas, shrub groupings and ground covers.
7. Garden plots for each grade.
8. Design of interior court west of Cafetorium.

We propose to prepare the following drawings and other documents:

1. Site analysis sheet.
2. Master plan.
3. Grading and staking plan.
4. Construction details (to be selected).
5. Planting plan.
6. Planting details (to be selected).
7. Scaled model of court.

AN ANALYSIS OF THE PROBLEM

In the years since World War II, with a greater density of population, it became apparent there was a need for a new school facility in the vicinity of Whitehead Road. The Athens Clarke County Board of Education responded to this need by the construction of the Whitehead Elementary School.

The school is a contemporary brick structure with grades from one through six. The building consists of eighteen classrooms designed for 550 students. The school consists of three major areas, two classroom wings with butterfly roofs and an arched cafeteria. The cafetorium is a multipurpose building. Its principal uses are to serve as a cafetorium, and as an auditorium.

The site is located on a corner and is bordered by residential property on the north, east, and west and a proposed road on the south. The main entrance is from the proposed road. The parking is to the south of the cafetorium, with the service area to the north.

The existing vegetation, consisting mainly of oaks and pines, on the site is sparse. A good stand of turf has been developed immediately around the building. There is a need for more vegetation. The large oaks on the eastern side of the property should remain. Enclosure of planting is needed around the boundary of the property to screen off residential areas. The parking lot also needs planting.

At the present, the general effect is rather bare and bleak.

The apparent location for a playground would be on the western portion of the property with the northern portion used for outdoor classrooms and passive activity. There is an urgent need for more play facilities.

JUSTIFICATION

Having established the requirements of the project and secured the necessary information regarding existing conditions, preliminary studies, sketches and drawings which were necessary to present our conception of the solution of the problem were prepared. The principal objective was to create a design that would be well integrated with the existing buildings and topography, and, at the same time, would be distinct. In this solution is stressed the importance of designing adequate, simple and beautiful surroundings for all the school building and adjoining areas.

PLANTING DESIGN

The environment of the school is influenced by courtyards, lawns, driveways, and groupings of trees and shrubs which are composed on the principles of good planting design practice. Adequate planting with minimum maintenance is provided. The design of the over-all planting scheme creates smaller areas for various activities and unifies the grounds as one development. A park-like setting has been created by utilizing existing conditions, supplemented with appropriate plant materials.

In determining the plants to be used, trees native to the area and species which harmonize well with the existing

trees were selected. Planting was used to complement the buildings and courts and to create spaces.

Some people seem to dismiss the outside playing space as so much ground to be hidden by asphalt or hard earth. Where the site has natural features, ups and downs, trees, bushes, etc., these features should be preserved as an integral part of the whole plan. They are a source of enjoyment to all young children.

A playground should be a pleasant place where children can have a riproaring good time and at the same time learn co-ordination and cooperation. For the elementary grades, action play activities such as climbing, crawling, leaping, balancing and swinging should be provided for the students. The school playground is an important factor in a child's growth. Children enjoy curious shapes and bright colors and are very quick to notice pleasant forms and textures.

HARD SURFACE AREA

A hard surface area is included in the solution. Here street games such as roller skating, hopping games, marbles, etc., can be played.

SADDLE SLIDE

The saddle slide with its abstract organic shapes may be a riding horse, slide, house, or whatever the child imagines it to be. It offers children opportunities

for climbing, jumping, and crawling.

SAND

Playing with sand is very important in the development of the imaginative and creative powers of a child.

TREE CLIMBING

A tree to climb, with big strong branches turned on its side or built upright into the ground is more attractive to small children than climbing a tower made of tubular steel.

TUNNELS FOR CRAWLING AND CLIMBING

Small children like to creep into any kind of hollow space. It shows a longing for a place suitable to their size. Also the mystery and darkness attracts children.

ROPE AND TUBULAR SWINGS

The rope and tubular swings are placed away from the areas of action and sand pit games, in order to avoid accidents. These facilities were placed in an area sheltered by shrubs.

BOLLARDS

Short tree trunks, concrete bollards, or similar objects facilitate a variety of jumping and adventurous games. At the same time they form seats or tables for the children.

PLAYFIELDS

The playfield can be used for a variety of ball games such as softball, basketball and all types of field games. It also contains a meadow with trees and shrubs, so that small play areas are available where various groups of children can pursue their games simultaneously.

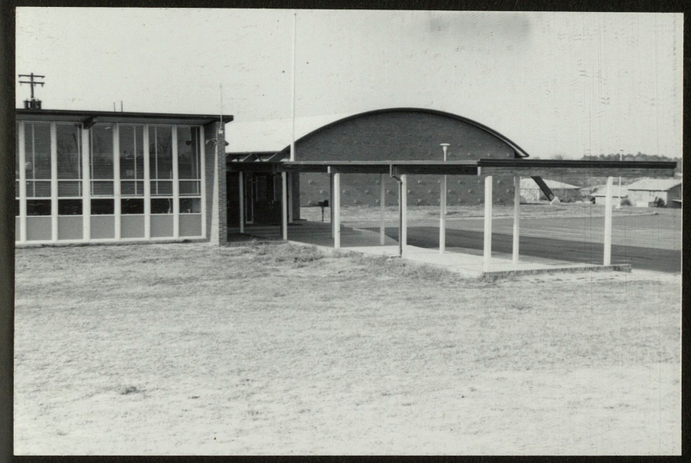
INTERIOR COURTYARDS

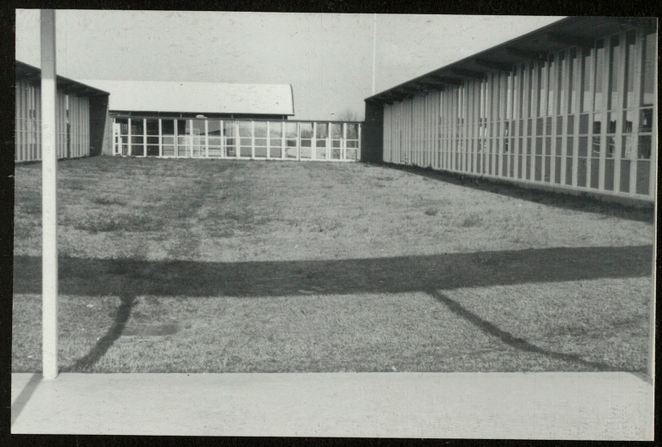
The interior courtyards were designed with simplicity as the main objective. Since they are surrounded by glass they are meant to be a visual element, and not an element for use. The mound of earth and depression are used to create interest in the terrain. Plant materials are a part of man's total environment and are important here to create a refreshing feeling.

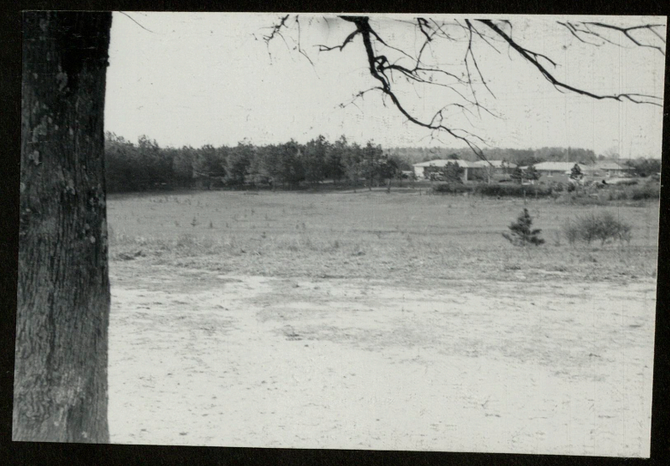
APPROACH DRIVE

An approach drive is not just a line drawn on a plan. An approach drive should be dramatic and dynamic. The approach drive often establishes the character of the school; it should be considered in itself a complete design element.

The approach drive will be heavily planted with decidious trees to create a tunnel of green, and also to mark and explain the approach drive.







WHITEHEAD ELEMENTARY SCHOOL

CLARKE COUNTY, ATHENS, GEORGIA

DRAWINGS: SITE ANALYSIS
BY: WILLIAM B. ELDER-EDWARD L. PATTERSON
TERMINAL PROBLEM: LAA 595 - U.G.A.
SCALE: 1"=40'-0" - MAY 29, 1964

SHEET 1 OF 8

NOTES
LATITUDE 33° 55' NORTH
AVERAGE ANNUAL RAINFALL 50.6"
WIND VELOCITY
TEMPERATURE
AVERAGE JULY MAX. 91.0°F
AVERAGE JANUARY MIN. 32.0°F
THERE IS A GROVE OF PINE TREES ON THE WEST SIDE OF THE SCHOOL
THERE ARE VEGETATION AROUND THE SCHOOL

LEGEND
EXISTING CONTOURS
PROPOSED CONTOURS
EXISTING DRAINAGE LINE
EXISTING DECIDUOUS TREES
EXISTING CONIFERS

WINTER PREVAILING WINDS ARE FROM N.W.
SUMMER PREVAILING WINDS ARE FROM THE N.E.
HOT AFTERNOON SUN
WARM MORNING SUN

WHITEHEAD ELEMENTARY SCHOOL

CLARKE COUNTY ATHENS GEORGIA

DRAWING: MASTER PLAN
BY WILLIAM D ELDER-EDWARD L PATTERSON
TERMINAL PROBLEM-LAR 355 U.GA.
SCALE 1"=40'-0" MAY 29, 1964

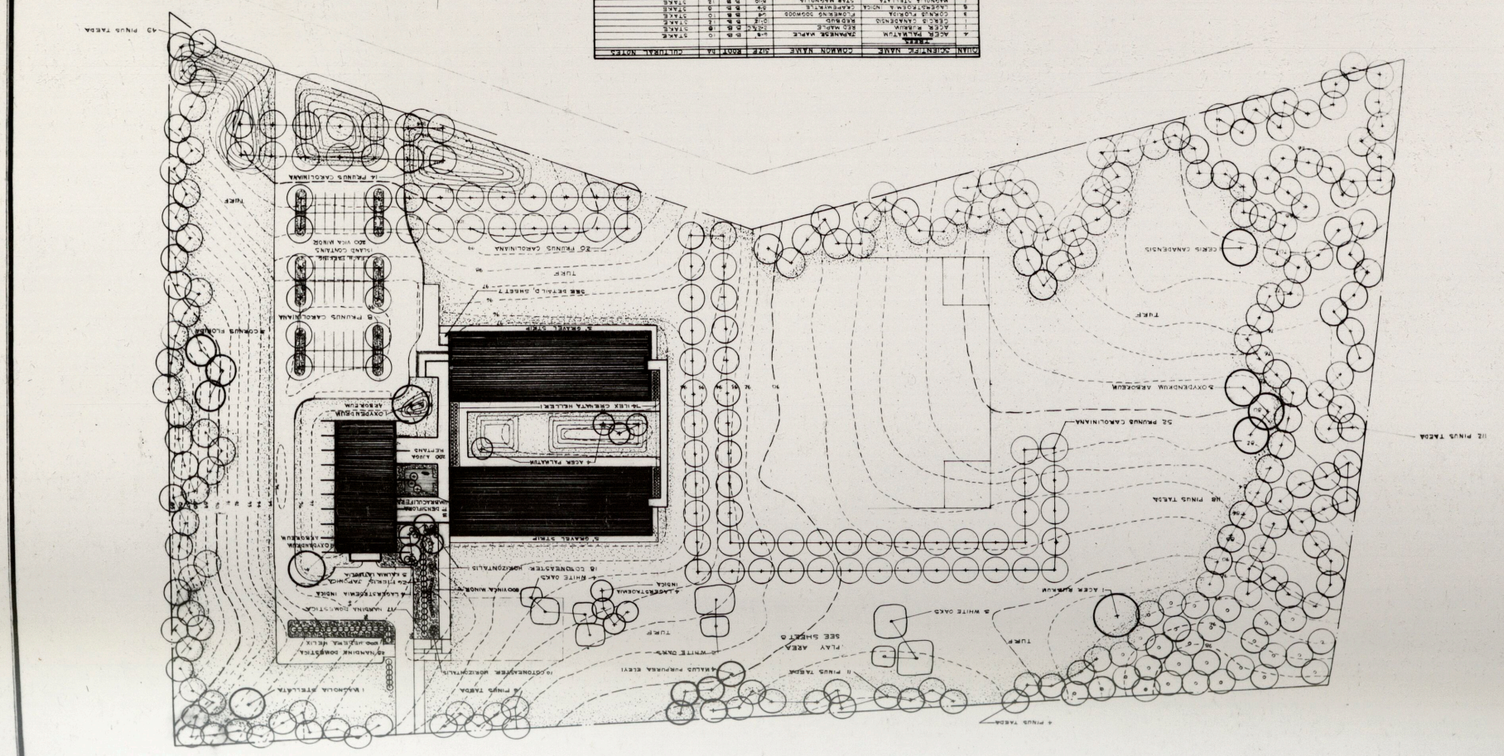
SHEET 2 OF 3

WHITEHEAD ELEMENTARY SCHOOL
CLARKE COUNTY - ATHENS
GEORGIA
DRAWING: GRADING & STAKING
BY: WILLIAM D. ELDER - EDWARD L. PATTERSON
TERMINAL PROBLEM - LAR 359 - U.G.A.
SCALE 1" = 40'-0" - MAY 29, 1964
SHEET 3 OF 5
CLASSROOM WING FIN'L. ELEV. 990
CLASSROOM WING FIN'L. ELEV. 990
MULTI-PURPOSE AREA FIN'L. ELEV. 990
PLAYFIELD 3.5% MAX. SLOPE
SOFTBALL FIELD
SOFTBALL FIELD #1
SOFTBALL FIELD #2
MULTI-PURPOSE PLAYAREA 5% SLOPE
PLAYAREA
OUTDOOR CLASSROOM
BICYCLE PARK AREA
PROPOSED WALK
PROPOSED ROAD
FUTURE EXPANSION
STAKE
STAKE
STAKE
STAKE
COORDINATE COMPUTATIONS
LEGEND
EXISTING CONTOURS
PROPOSED CONTOURS
PROPOSED PIPE
CATCH BASIN
STATION COORDINATE

WHITEHEAD ELEMENTARY SCHOOL
CLARKE COUNTY , ATHENS , GEORGIA

DRAWING: PLANTING PLAN
BY: WILLIAM B. ELDER- EDWARD L. PATTERSON
TERMINAL PROBLEM- LAR 599: U.GA.
SCALE: 1"=40'-0" MAY 29 1964

SHEET 4 OF 8


PLAY AREA
SEE SHEET 8
TURF
WHITE OAKS
PINUS TAEDA
QUERCUS PHELLOS
ACER RUBRUM
CORNUS FLORIDA
LIQUIDAMBAR STYRACIFLUA
PRUNUS CAROLINIANA
ILEX OPACA
MAGNOLIA GRANDIFLORA
CERCIS CANADENSIS
CRATAEGUS PHAENOPYRUM
LAGERSTROEMIA INDICA
BUXUS SEMPERVIRENS
JUNIPERUS VIRGINIANA
CHAMAECYPARIS PISIFERA
PICEA PUNGENS
PINUS STROBUS
CEDRUS ATLANTICA
CEDRUS LIBANI
ABIES CONCOLOR
TSUGA CANADENSIS
PICEA ABIES
PINUS NIGRA
PINUS SYLVESTRIS
PINUS MUGO MUGHO
PINUS THUNBERGII
PINUS STROBUS
PINUS VIRGINIANA
PINUS ECHINATA
PINUS RIGIDA
PINUS TAEDA
PINUS VIRGINIANA
PINUS CONTORT

CONC. CURB DETAIL

WOOD CURB FOR CRUSHED STONE

SHRUB PLANTING DETAIL

DETAIL OF DROP INLET

DETAIL OF PARKING ISLAND

DETAIL OF JUNCTION BOX

TREE PIT DETAIL

BENCH DETAIL

DETAIL OF MODERN BOLLARDS

FOOTING DETAIL OF LIGHT PLAY EQUIPMENT

DETAIL OF SADDLE FOOTING

FOOTING DETAIL OF HEAVY PLAY EQUIPMENT

DETAIL OF CATCH BASIN

PLAN

DETAIL OF SAND BOX

WHITEHEAD ELEMENTARY SCHOOL

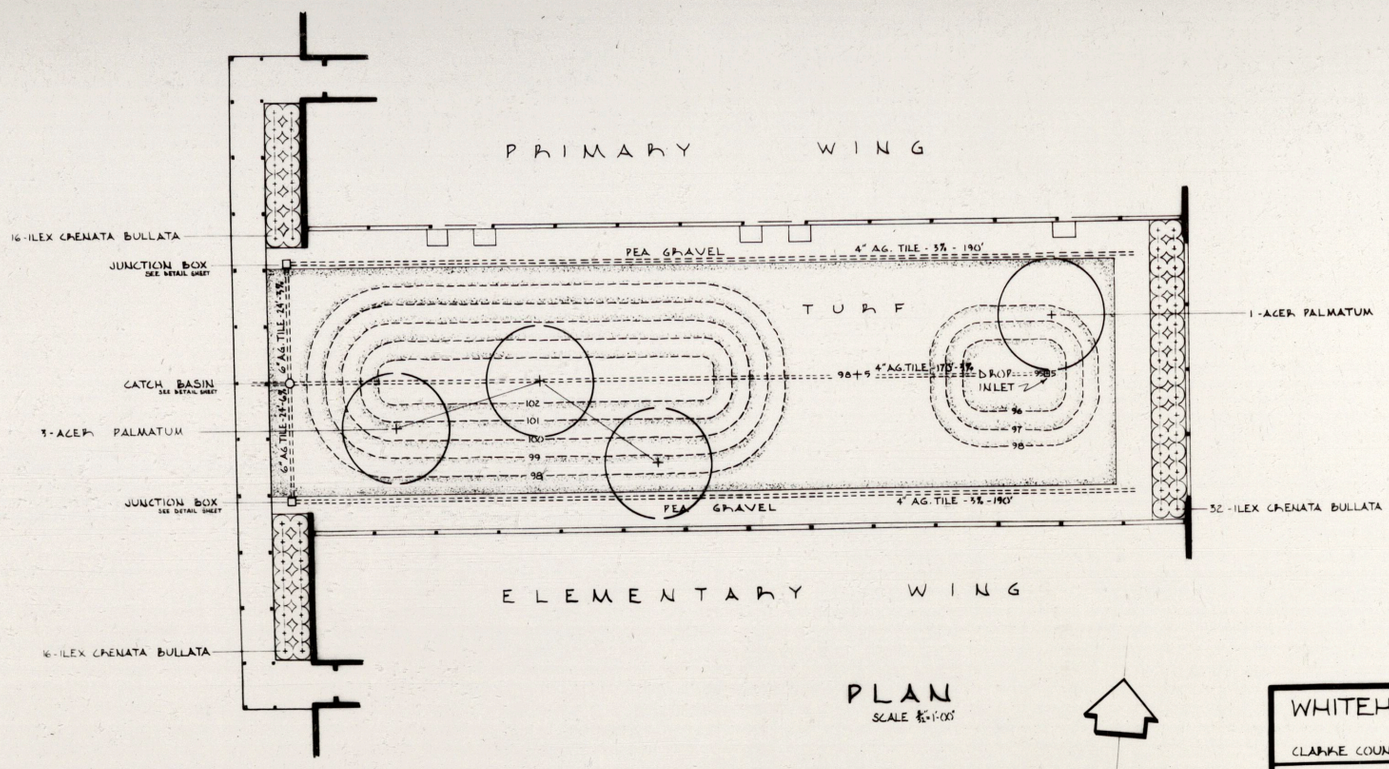
CLARKE COUNTY , ATHENS , GEORGIA

DRAWINGS DETAILS
BY: WILLIAM S. ELDER- EDWARD L. PATTERSON
TERMINAL PROBLEM- LAR 355 - U.G.A.
SCALE: AS INDICATED - MAY 29, 1964

SHEET 5 OF 5

NORTH VIEW OF ELEMENTARY WING
SCALE 1/8"=1'-00"

SOUTH VIEW OF PRIMARY WING
SCALE 1/8"=1'-00"



PLAN
SCALE 1/8"=1'-00"

WHITEHEAD ELEMENTARY SCHOOL
CLARKE COUNTY , ATHENS , GEORGIA

DRAWING: COURTYARD - A
BY: WILLIAM D. ELDER - EDWARD L. PATTERSON
TERMINAL PROBLEM U. OF GA.
SCALE: 1/8"=1'-00" MAY 29, 1964

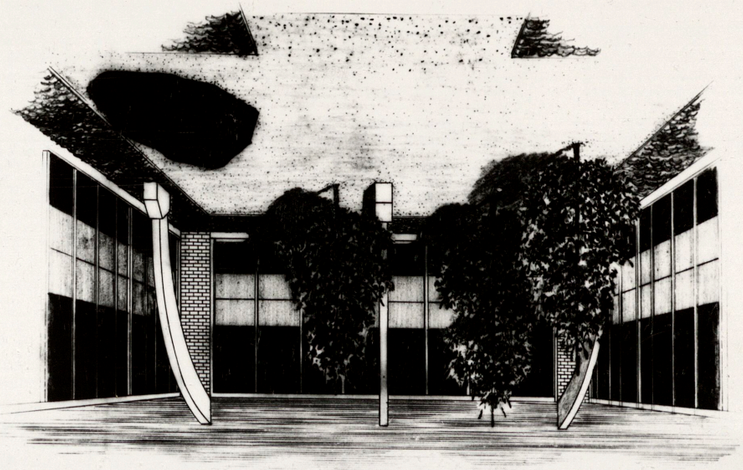
SHEET 6 OF 8

WHITEHEAD ELEMENTARY
SCHOOL
CLARKE COUNTY , ATHENS , GEORGIA

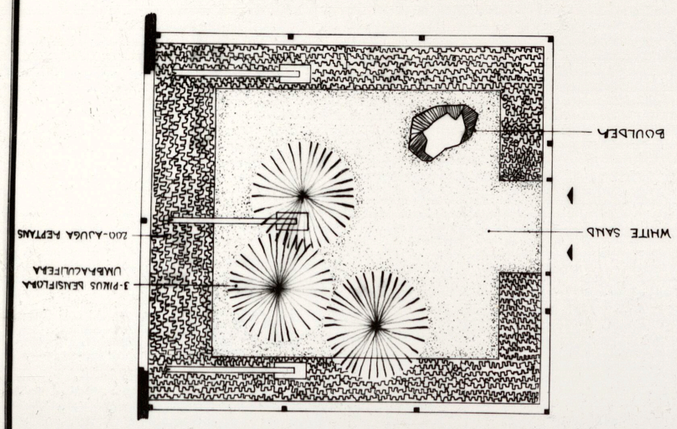
DRAWING: DETAIL b · c · d
BY: WILLIAM B. ELDER · EDWARD L. MITCHSON
TERMINAL PROBLEM · LAR 555 · USA
SCALE: AS INDICATED · MAY 29,1964

SHEET 7 OF 8

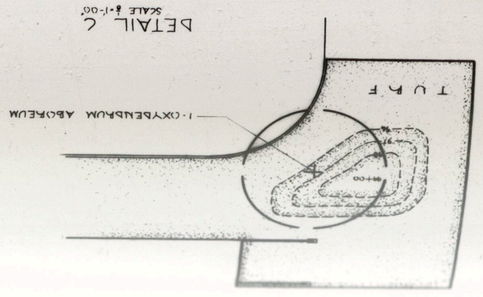
INTERIOR COURT SKETCH



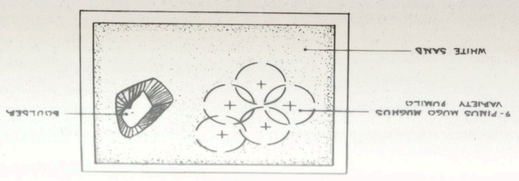
DETAIL b
SCALE $\frac{1}{8}$"-0"



DETAIL c
SCALE $\frac{1}{8}$"-0"



DETAIL b
SCALE $\frac{1}{8}$"-0"



WHITEHEAD ELEMENTARY
SCHOOL
CLARKE COUNTY , ATHENS , GEORGIA

DRAWING: PLAY AREA
BY: WILLIAM B. ELDER - EDWARD L. MITTEMEYER
TEAM/NAL PROBLEM - LAR 555 - U.G.A.
SCALE: 1"=16'-0" MAY 29, 1964

SHEET 8 OF 8

NOTE:
ALL CLIMBING PLAY EQUIPMENT AND A SAND MAT
SURROUNDING THEM
GROUND SURFACE OF THE PLAY AREA IS TAN PARK

PLAN OF PLAY AREA
SCALE 1"=16'

SKETCHES OF PLAY EQUIPMENT

GRASS AREA
SWINGS
SEESAW
SLIDE
SAND BOX
ROPE CLIMB
TAN PARK GROUND SURFACE
HORIZONTAL BARS
CONC. CRAWL TUNNELS
PLAY SCULPTURE
CLIMBING TREE
PLAY SCULPTURE
MODERN BOULDERS
CLIMBING BARS
PLAY MOUND

WHITEHEAD ELEMENTARY SCHOOL
SCALE 1"=40'
W.D. ELDER
MAY 29, 1964
E.L. PATTERSON

APPENDIX

INFORMATION FOR BIDDERS

General: Bidders, before making proposals, shall thoroughly examine the plans and specifications and make such examination on the ground as are necessary to thoroughly familiarize themselves with the nature and extent of the proposed construction and all local conditions affecting the same, as the Owner will not be responsible for Bidder's errors or misjudgment, nor for any information on local conditions, or general laws or regulations, all of which the contractor shall abide by whether specified or shown at no extra cost to the Owner.

Making Bids: All proposals must be signed in ink by the persons or person authorized to sign the same. If a proposal is made by an individual, his name and Post Office Address must be shown. If made by a firm or partnership, the name of the firm or partnership must be shown. If made by a corporation, the person or persons signing the Proposal must show the name of the state under the laws which the corporation is chartered and his, or their, authority for signing same; the name, titles and address of the President, Secretary and Treasurer, and the corporate authority for doing business in this state.

All bids must be submitted in opaque sealed envelopes bearing on the outside the name of the party, his or their address, and addressed to Clarke County Board of Education, Athens, Georgia, and plainly marked "Bid for the Whitehead Elementary School."

Bid Bond or Certified Check: No proposal will be considered unless accompanied by a Bid Bond or a Certified Check of the amount equal to five (5%) per cent of the base bid made payable to the Owner.

Withdrawal of Proposal: No bidder may withdraw his bid for a period of thirty (30) days after the date set for the opening thereof.

Interpretations: Requests for interpretations of drawings and specifications must be made in writing to the Landscape Architect not later than seven (7) days prior to receipt of proposals. Any interpretations made to bidders will be issued in the form of additions to the specifications and/or drawings and send to all bidders.

Rights Reserved: The Owner reserves the right to reject any or all bids, to waive informalities, and to decide for itself which bids or bid be deemed the lowest and best and to the best interest of the Owner.

Progress Payments: Payments on account of the contract shall be made monthly with a ten per cent (10%) retainage.

CONCRETE

General Conditions: The general and special conditions are a part of the specifications for this section and all provisions contained in them which affect this work are as binding as though incorporated herein.

Scope of Work: The general contractor shall furnish all labor and materials for installing all concrete work consisting of footings, slabs, floors, walks, etc. shown on the accompanying drawings or called for in these specifications.

Coarse Aggregate: Gravel, or crushed stone, must be hard, clean and free from organic matter, acid or other chemicals and grading reasonably uniform in size from a minimum of 1/2 inch to a maximum of 1 1/4 inch, for the different classes of work.

Fine Aggregate: Fine aggregate for concrete shall consist of clean, washed sand, 95 per cent of which will pass a No. 9 sieve. Not less than 50 per cent shall be retained on a No. 30 sieve; not more than 5 per cent shall pass a 100 mesh sieve.

Concrete Quality: All concrete shall have an ultimate compressive strength of 3,000 lbs. per square inch at the end of twenty-eight days.

Portland Concrete: Shall be one of approved brand throughout, meeting requirements of A.S.T.M., standard specifications designation C150-42, type I.

Water: All water used must be clean filtered drinking water containing no alkali, acid, vegetable matter, or other chemicals injurious to the concrete.

Mixing and Placing Concrete: Shall be approved, ready-mixed concrete or shall be mixed on the site in a mechanical mixer of the type approved by the County Engineer.

LAWNS AND PLANTING

Scope: This section includes: Furnishing all materials, equipment and labor necessary for preparation of final subgrades in lawn and planting areas; root protection; finished grading; soil treatment; lawn construction; planting of trees, shrubs and vines; protection, maintenance, guarantee, and replacement of lawns and plants; and related items required to complete the work indicated on the drawings and specified except for:

1- Protection of existing trees and shrubs

2- Protection, pruning, and repair of existing trees and shrubs to remain, and tree removal

3- Stripping and storing of existing topsoil for reuse

4- Restrictions regarding materials used for fill

5- Rough grading of subsoil to a point approximately three inches below finished grade established for lawn and planting areas.

Materials: Topsoil: If the quantity of stored topsoil is inadequate, sufficient additional topsoil shall be furnished. Topsoil furnished shall be a natural, fertile, friable soil possessing characteristics of representative productive soils in the vicinity. It shall be obtained from naturally well-drained areas. It shall not be [illegible] excessively acid or alkaline nor contain toxic substance which may be harmful to plant growth. Topsoil shall be

without admixture of subsoil and shall be cleaned and reasonably free from clay lumps, stones, stumps, roots or similar substances two inches or more in diameter, debris or other objects which might be a hindrance to planting operations.

Manure: Shall be well-rotted, unleached stable or cattle manure reasonable free from shavings, sawdust or refuse and shall not contain any harmful materials.

Lime: Shall be ground limestone containing not less than 85% of total carbonates and shall be ground to such a fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20 mesh sieve. Coarser material will be acceptable, provided the specified rates of application are increased proportionally on the basis of quantities passing the 100 mesh sieve.

Commercial Fertilizer: Shall be a 5-10-5 formula, Swift's, and shall conform to the appliable state fertilizer laws. It shall be uniform in composition, dry and free flowing and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

Peat Moss: Shall be brown; acid reaction about 4 to 5 pH; low in content of weedy material and free of mineral matter harmful to plant life; water absorbing capacity of 1100 to 1900 per cent; moisture content 30 per cent; natural shredded or granulated.

Water: Water used in this work shall be furnished by the client. Hose and other watering equipment required for the work shall be furnished by the contractor.

Materials for Staking, Guying and Wrapping:

Stakes: Stakes for supporting trees shall be 2 1/2 inches, square or round, by 8 feet, sound wood and creasoted their entire length.

Wire: For guys or for fastening trees to stakes shall be No. 12 gauge pliable, galvanized iron.

Flags: To be fastened to guys shall be of sound wood about 1/2 x 3 x 12" with a 3/8" hole centered 1 1/2 " from each end, or, 1 x 1/2 x 12" sheet metal with corners clipped and punched both ends and painted white.

Hose: To encase guy wires or wires used for fastening trees to stake shall be new or used, 2-ply reinforced rubber garden hose.

Wrapping Material: For tree trunks shall be standard burlap heavy crepe paper or other material suitable in strips of six to ten inches wide.

Plant Materials:

Plant List: A list of plants is given on the planting plan.

Nomenclature: The names of plants required under this contract conform to those given in Standardized Plant Names, 1942 edition, prepared by the American Joint Committee on Horticultural Nomenclature. Names of varities not included therein conforms generally with names accepted in the Nursery trade.

Quality and Size: Plants shall have a habit growth that is normal for the species and shall be sound, healthy, vigorous and free from insect pests, plant diseases and injuries. All plants shall equal or exceed the measurements specified in the Plant List, which are minimum acceptable sizes. They shall be measured before pruning, with branches in normal position. Any necessary pruning shall be done at time of planting. Requirements for the measurement, branching, grading, quality, balling and burlaping of plants in the Plant List generally follow the code of standards currently recommended by the American Association of Nurserymen, Inc. in the American Standard for Nursery Stock.

Type of Protection to Roots:

Balled and Burlapped Plants: Plants designated B & B in the Plant List shall be balled and burlapped. They shall be dug with firm, natural balls of earth of sufficient

diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Balls shall be firmly wrapped with burlap or similar material and bound with twine, cord or wire mesh, where necessary to prevent breaking or cracking of the ball during the planting process.

Bare Root Plants: Plants designated B R in the Plant List shall be dug and the earth removed without injury to the fibrous root system necessary for the full recovery of the plant. Roots shall be covered with a thick coat of mud by puddling or wrapped in straw, moss or other suitable material for packing immediately after they are dug, for protection until delivery.

Protection after Delivery: The balls of B & B plants which cannot be planted immediately on delivery shall be covered with moist soil or mulch, or other protection from drying winds and sun. Bare-rooted plants shall be planted or heeled in immediately upon delivery. All plants shall be watered as necessary until planted.

Plants: The contractor shall be responsible for all certificates of inspection of plant materials that may be required by Federal, State or other authorities to accompany shipments of plants. Inspection of plants to be balled and burlapped will be made at the place of growth. All plants must be inspected and approved before they are planted. Inspection and approval by the Landscape

Architect of plants at the place of growth or upon delivery shall be for quality, size and variety only and shall not in any way impair the right of rejection for failure to meet other requirements during the progress of the work.

Construction Methods:

Time of Planting: When other divisions of the work have progressed sufficiently, the contractor shall be notified in writing by the Clarke Board of Education to commence work of lawns and planting, including placing of topsoil to finish grade. Thereafter, planting operations shall be conducted under favorable weather conditions during the next specified season.

Existing Trees: Temporary structures shall be erected for the protection of existing trees during construction required in clearing the site, excavating and grading.

Permanent Tree-Root Protection: Shall be provided where indicated for existing trees as shown on the Drawings.

The Area for Tree-Root Protection: Shall be considered as that over which the branches spread. The objective of tree-root protection is to maintain the normal air and water content and fertility of the soil about the trees. Before making a fill, remove the vegetation, sod, leaf litter and other organic matter from beneath the trees and loosen the surface soil. Care shall be taken that the trees and their roots are not damaged by construction operation.

Fertilizing Existing Trees: Existing trees shall be fertilized at the beginning of their growing season with 5-10-5 formula commercial fertilizer applied at the rate of 3 lbs. per inch of the trunk diameter. The fertilizer shall be spread on top of the ground within the area of the spread of the branches.

Spraying: Infected existing trees shall be sprayed to prevent the spread of disease and insect pests to new plantings. Materials and methods used shall not cause injury to persons or structures.

Pruning and Repair: Upon completion of the work this contractor will have pruned and repaired any and all injuries to proposed and existing trees and shrubs. The amount of pruning shall be limited to the minimum necessary to remove undesirable branches to compensate for loss of roots or due to injury on the job.

Obstruction Below Ground or Overhead: It is not contemplated that planting shall be done where the depths of soil over underground construction, obstructions or rock is insufficient to accomodate the roots or where pockets in the rock or impervious soil will require drainage. Where such conditions are encountered in excavation of planting areas and where the stone, boulders or other obstruction cannot be broken and removed by hand methods in the course of digging plant pits of the usual size, and where trees to be planted

are found to be under overhead wires, other locations for the underground construction or overhead wires or for the planting may be designed by the Landscape Architect.

Thinning of Existing Trees: A qualified person shall mark with a white cloth flag, white paint or other easily distinguishable marking any existing tree which he deems necessary to remove in order to facilitate development of the remaining trees. The stumps of eradicated trees shall be removed to a depth of six inches below the existing soil level. All debris resulting from this operation shall be removed from the site by the contractor.

New Planting:

Layout: New planting shall be located where shown on the plans except where obstructions below ground or overhead are encountered or where changes have been made in the construction. Necessary adjustments shall be approved by the Landscape Architect. No planting, except ground cover and vines shall be placed closer than two feet to pavement or structures.

Planting Pits: Circular pits with vertical sides shall be excavated for all plants except for hedge and plants specifically designated on the plans to be planted in beds. Diameter of pits for trees and B & B shrubs and vines shall be at least two feet greater than the diameter of the ball or spread of the roots. Diameter of pits for bare-rooted shrubs and vines shall be at least one foot greater than th

spread of the roots. The depth of pits for trees, shrubs and vines shall be enough to accomodate the ball or roots when the plant is set to finish grade, allowing for three inches of compacted topsoil in the bottom of the pit.

Setting Plants: All plants shall be centered and set on three inches of compacted topsoil or prepared soil to such depth that finished grade level, at the plant after settlement, will be the same as that at which the plant was grown. All broken or frayed roots shall be cut off cleanly. Topsoil or prepared soil shall be placed and compacted carefully to avoid injury to roots and to fill all voids. When the hole is nearly filled, add water as necessary, and allow it to soak away.

Guying, Staking, and Wrapping Trees:

General: Trees shall be supported immediately after planting. All trees six inches and over in trunk diameter shall be guyed and wrapped. Smaller trees shall be staked. Wires shall be encased in hose to prevent direct contact with the bark of the tree and shall be placed around the trunk in a single loop. Wires shall be tightened and kept taut by twisting the strands together.

Guying: Guying shall be done with three guys spaced equally about the tree. Each guy shall consist of two strands of wire attached to the tree trunk at an angle of about 60°, at about 2/5 of the height of the tree and anchored at the ground either to notched stakes which have been driven into the ground at an angle away from the tree

so that the tops of the anchor stakes are below finished grade, or where underground utilities are within four feet of finished grade. A wood or metal flag shall be secured to each guy a few inches above the ground.

Staking: Stakes shall be equally spaced about the tree and shall be driven vertically into the ground to a depth of three feet in such a manner as not to injure the ball or roots. Trees shall be fastened to each stake at a height of about five feet by means of two strands of wire. Stakes shall be uniform in height and placed according to the diameter of the tree trunk as follows:

1 - three to six inches - three stakes

2 - two to three inches - two stakes

3 - two inches or less - one stake

Wrapping: Promptly after planting, the trunks of all trees designated to be wrapped shall be wrapped spirally from the groundline to the height of the second branch. All wrapping shall be neat and snug and the material shall be held in place by a suitable cord.

Vines: Vines shall be planted in pits containing at least one cubit foot each of topsoil or prepared soil thoroughly mixed with one-third peat. Vines shall be planted in contact with the wall or other support on which they are to grow.

Mulching: All plants shall be mulched with a three inch layer of well-rotted manure within three days after planting. This mulch shall entirely cover the area of the planting pit, bed or saucer around the plant.

Lawns: All areas not required to be developed otherwise shall be spriged, at the rate of one bushel per two hundred square feet.

Preparation of Subgrade: The subsoil shall be graded and uniformly compacted so that it will be parallel to the proposed finished grade.

Subgrade: Subgrade shall be loosened and mixed to a depth of three to four inches and all stones over two inches in size, sticks and rubbish removed. No heavy objects except lawn rollers shall be moved over lawn areas after the subgrade soil has been prepared, unless the subsoil is again graded and loosened as specified above, before topsoil is spread.

Finished Grading, Lawn Areas: After the subgrade is prepared, topsoil shall be spread evenly thereon and lightly compacted. No topsoil shall be spread in a frozen or muddy condition.

Spriging of Lawns:

Spriging of Grass: Immediately before any grass is to be spriged the ground shall be scarified as necessary and shall be raked until the surface is smooth, friable and of uniformly fine texture.

Lime: Lime shall be applied at the rate of thirty pounds per one thousand square feet to the lawn areas being prepared for planting.

Fertilizing: Commercial fertilizer shall be applied at the rate of fifty pounds per one thousand five hundred square feet to the lawn areas being prepared for planting. Fertilizer may be applied with the seed.

Repairs to the Lawn or Replacements of Plants: Repairs necessary during the maintenance period due to removal, loss or damage resulting from normal use, vandalism or acts or neglect on the part of others may be made on order of the Landscape Architect and will be at the expense of the owners.

Inspection for Acceptance:

Inspection: The work of lawns and planting, to determine completion of cntract work, exclusive of the possible replacement of plants, will be inspected by the Landscape Architect at the conclusion of the maintenance period upon written notice requesting such inspection submitted by the contractor at least ten days prior to the anticipated date. The condition of lawns will be noted and it will be determined by the Landscape Architect whether maintenance shall continue in any part.

Acceptance: As soon as all work has been completed the contractor shall give written notice of completion of work. Within ten days of receipt of notice of completion of work the Landscap

Architect shall inspect the work. Any defects in the work shall be rectified by the contractor before final acceptance.

Acceptance in Part: The work of lawns and planting will be accepted in part by the Landscape Architect upon written application by the contractor provided the work offered for acceptance comprises all the work of this division is entirely completed. This includes lawn maintenance but excludes the possible replacement of plants. This division shall be located within a continuous area which is a substantial portion separated from the remainder of the site by roads, fences, or other structural barriers or readily defined topographical features.

Plant Guaranty and Replacement:

Guaranty: Plants shall be guaranteed for the duration of one full growing season after planting, and shall be alive and in satisfactory growth at the end of the guaranty period.

Replacements: At the end of the guaranty period, inspection will be made by the Landscape Architect upon written notice requesting such inspection by the contractor at least ten days before the anticipated date. Any plant required under this contract that is dead or not in satisfactory growth, as determined by the Landscape Architect shall be removed from the site; these and any plants missing,

due to the negligence of the contractor, shall be replaced as soon as conditions permit, but during the normal planting season. In case of any question regarding the condition and satisfactory establishment of a rejected plant, the contractor may elect to allow such plant to remain through another complete growing season at which time the rejected plant, if found dead, in an unhealthy or badly impaired condition, shall be replaced.

Materials and Operations: All replacements shall be plants of the same kind and size as specified in the Plant List. They shall be furnished and planted as specified under New Planting; the cost shall be borne by the contractor except for possible replacements requlting from removal, loss or damage due to occupancy of the project in any part, vandalism or acts or neglect on the part of others.

Cost of Plant Replacements: A sum sufficient to cover the estimated cost of possible replacements, including materials and labor, will be retained by the Clarke County Board of Education and paid the contractor only after all replacements have been made and approved.

PLANT LIST

Quantity	Scientific Name	Common Name	Size	Root	Unit Cost	Total Cost
	TREES					
4	Acem palmatum	Japanese Red Maple	6-8'	BB	$30.00	$ 120.00
1	Acem rubrum	Red Maple	2-2 1/2"	BB	8.50	8.50
1	Cercis Canadensis	Redbud	10-12'	BB	4.25	4.25
3	Cornus Florida	Flowering Dogwood	6-8'	BB	5.25	15.75
8	Lagerstroemia indica	Crapemyrtle	5-6'	BB	2.50	25.00
1	Magnolia stellata	Star Magnolia	8-10'	BB	35.00	35.00
3	Malus purpurea Eleyi	Eley Crabapple	2 1/2-3"	BB	12.00	35.00
5	Oxydendrum arboreum	Sourwood	3"	BB	8.00	40.00
3	Pinus densiflora Umbraculifera	Tanyosho Pine	5-6'	BB	15.00	45.60
5	Pinus mugo Mughus	Mugo Pine	2-2 1/2' Spread	BB	11.00	55.00
178	Pinus taeda	Loblolly Pine	4-5'	BB	2.50	445.00
94	Prunus caroliniana	Cherry Laurel	10-12'	BB	15.00	1410.00
						$2214.50

	SHRUBS					
28	Cotoneaster horizontalis	Rock Cotoneaster	6-8"	BB	$4.00	$112.00
3	Kalmia latifolia	Mountain Laurel	12-15"	BB	4.75	14.25
42	Nandina domestica	Nandina	3-4'	BB	2.00	84.00
26	Pieris japonica	Japanese Andromeda	12-15"	BB	2.75	71.50
					TOTAL	$281.75
	GROUND COVER					
200	Ajuga reptans	Carpet Buale	1yr.flat	--	.15	$ 30.00
1000	Hedera Helix	English Ivy	1yr.flat	--	.07	70.00
74	Ilex crenata Helleri	Hellers Holly	12-15"	Gal. can	1.25	92.50
300	Vinca Minor	Periwinkle	1yr.flat	--	.15	300.00
					TOTAL	$492.50
	GRASS					
1000	Tifton 57	Utility Lawn			1.00/ bu.	$1000.00

PLANT ESTIMATE

Trees	$2,214.50
Shrubs	281.75
Ground Cover	492.50
Grass	1,000.00
GRAND TOTAL	$3,988.75

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