COLLEGE AVENUE URBAN
RENEWAL PROJECT.
ATHENS, GEORGIA.

BY - Dan B. Franklin

"A thesis presented for the degree of Bachelor of Landscape Architecture, University of Georgia, Athens, Georgia"

June 1962

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

Fra

COLLEGE AVENUE URBAN
RENEWAL PROJECT.
ATHENS, GEORGIA.
BY - Dan B. Franklin

LXC
35
1962
F8

"A thesis presented for the degree of Bachelor of
Landscape Architecture, University of Georgia,
Athens, Georgia"

June 1962

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

TABLE OF CONTENTS

TITLE ----------1

List of plates ----------3

Introduction and Historical sketch----------
of Athens, Georgia Urban Renewal

Statement of Problem ----------

Analysis of Problem ----------

Justification of the Problem ----------

Specifications ----------

Bibliography ----------

LIST OF PLATES

Cover ---------- 1

Master Plan 1 ---------- 2

Master Plan 2 ---------- 3

Master Grading Plan 1 ---------- 4

Master Grading Plan 2 ---------- 5

Grading and Staking Plan ---------- 6

Details ---------- 7

Planting Plan for Parking Lot ---------- 8

Planting Plan for Highrise Apartments ------ 9

Model ---------- 10

Pictures of Site ---------- 11

F.

URBAN RENEWAL
PROPOSAL

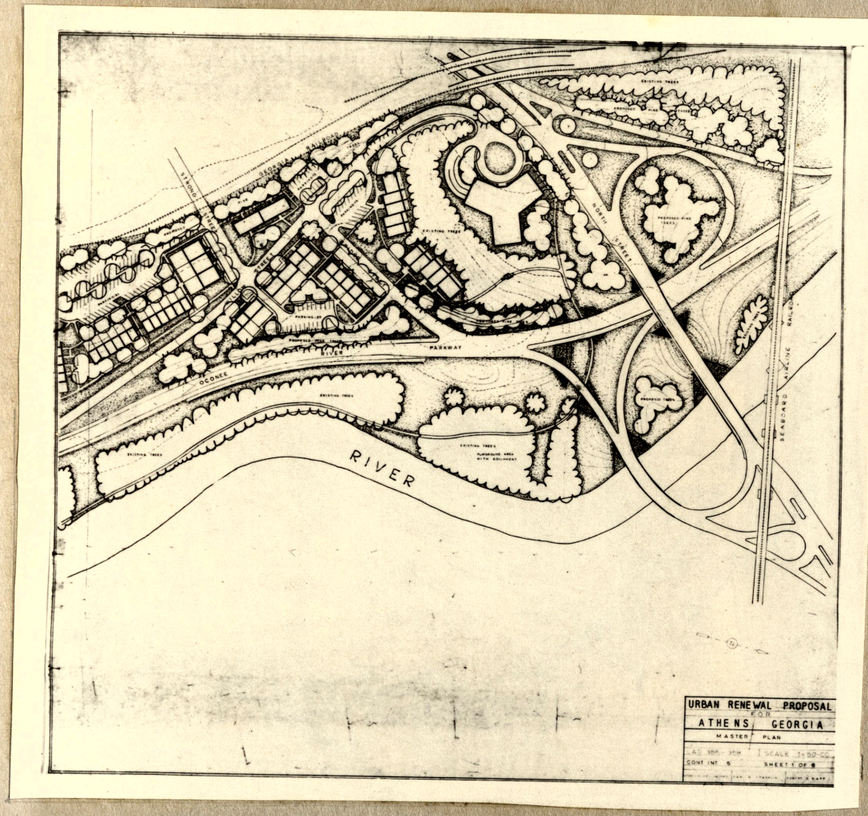
ATHENS, GA.

TABLE OF CONTENTS

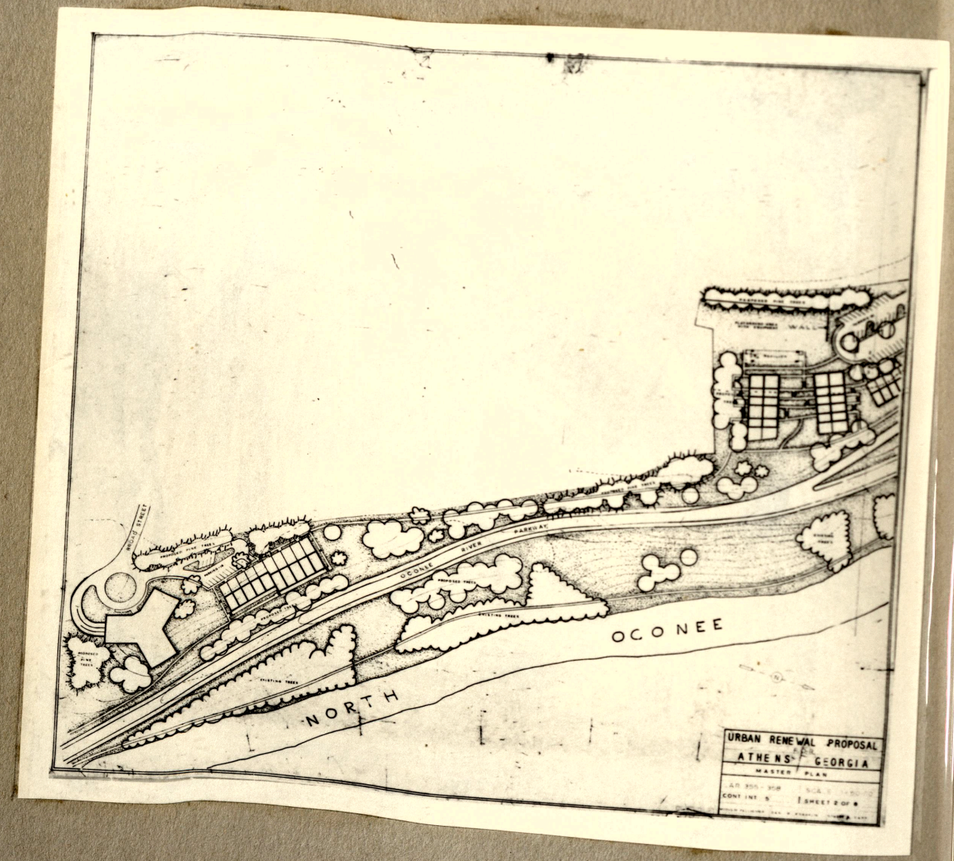
MASTER PLAN	-	SHEET 1 OF 8
MASTER PLAN	-	SHEET 2 OF 8
MASTER GRADING PLAN	-	SHEET 3 OF 8
MASTER GRADING PLAN	-	SHEET 4 OF 8
GRADING AND STAKING PLAN	-	SHEET 5 OF 8
DETAILS	-	SHEET 6 OF 8
PLANTING PLAN FOR PARKING LOT	-	SHEET 7 OF 8
PLANTING PLAN FOR HIGHRISE APARTMENTS	-	SHEET 8 OF 8

MORRIS M. FELLHEIMER
DAN B. FRANKLIN
ROBERT R. RAPP

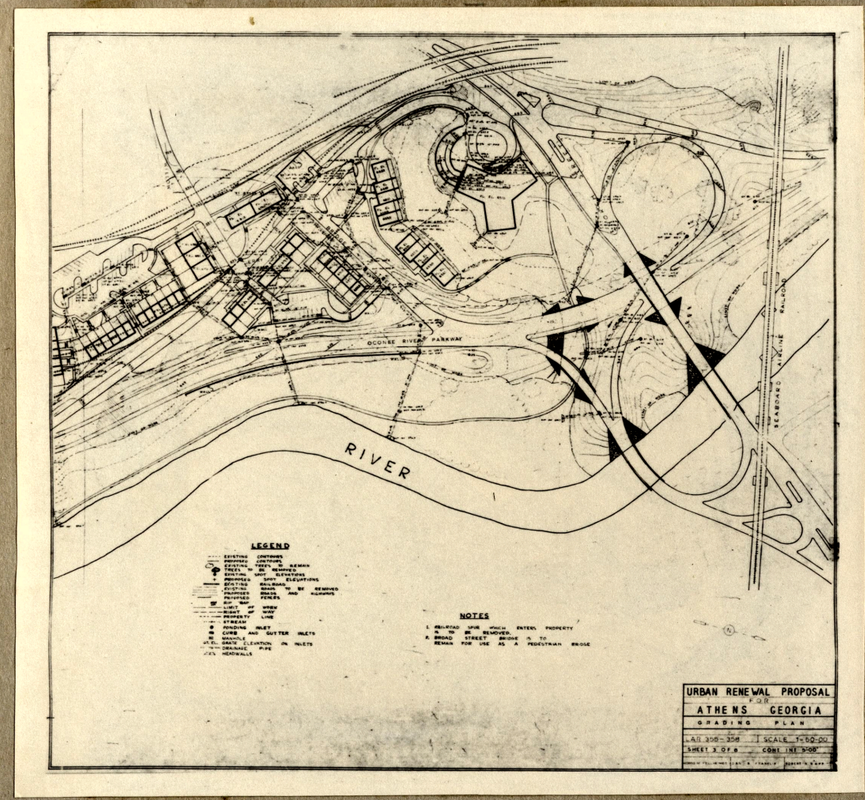
COVER SHEET



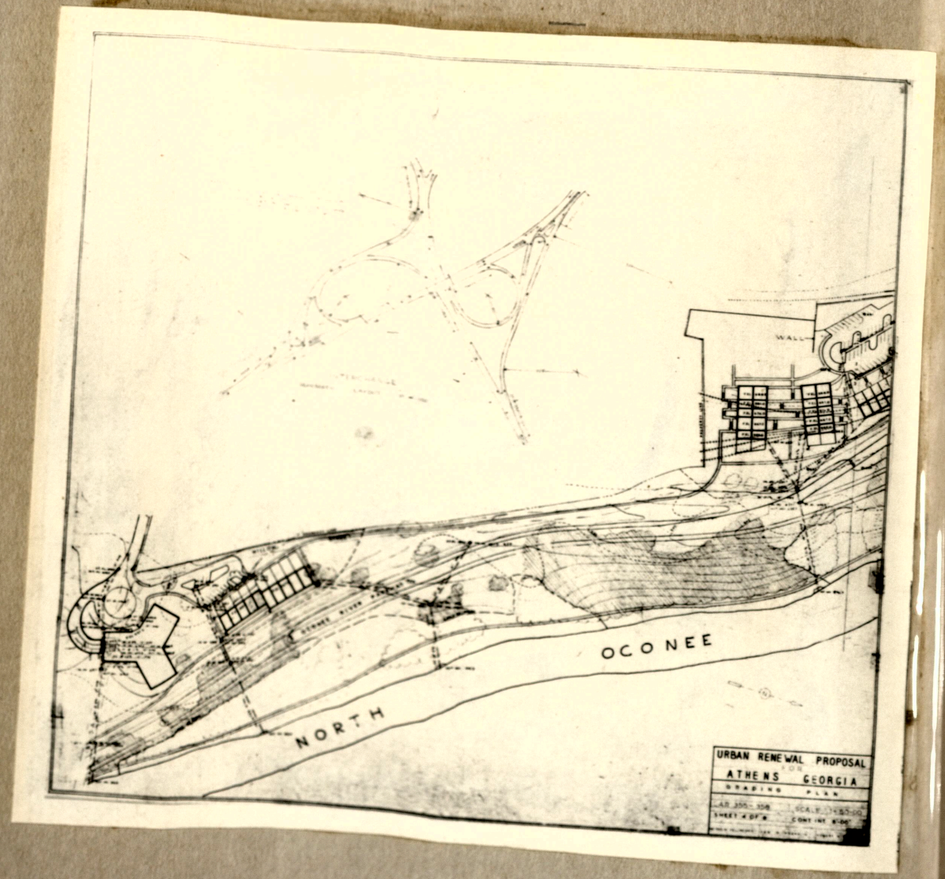
MASTER PLAN 1



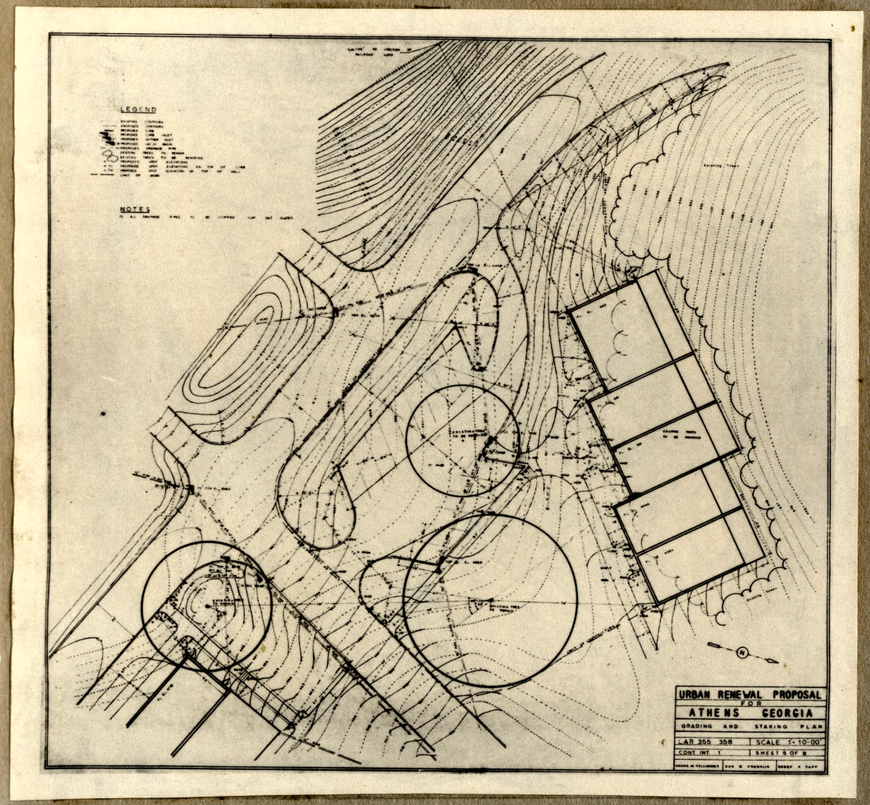
MASTER PLAN 2



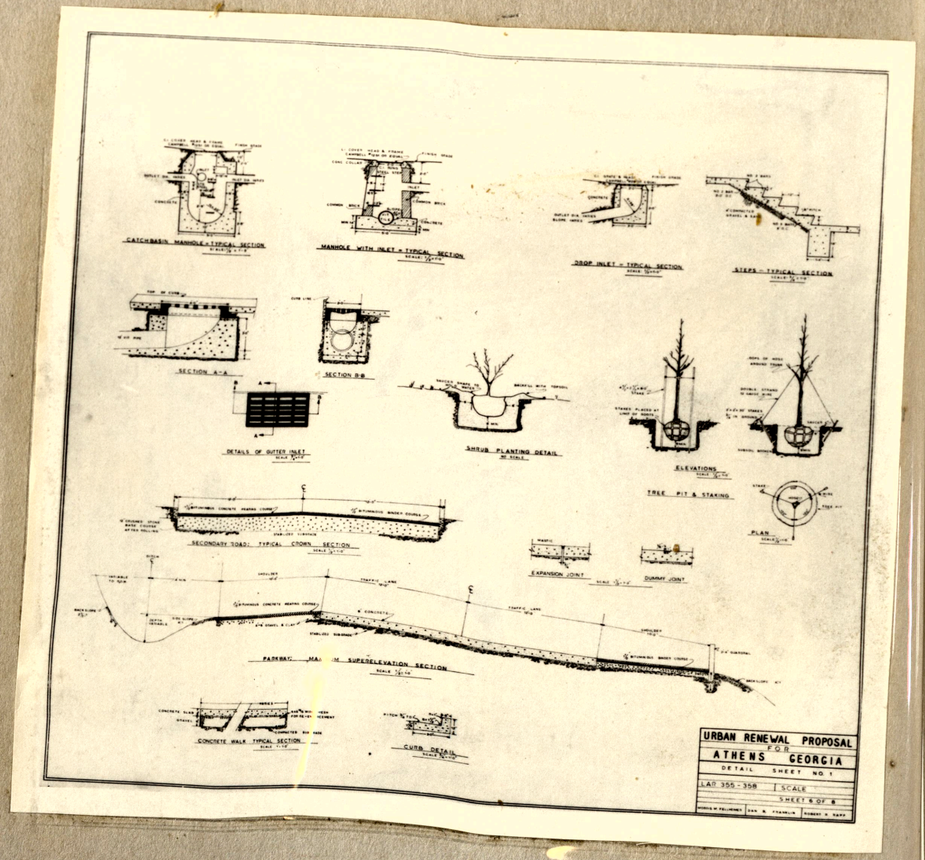
MASTER GRADING PLAN 1



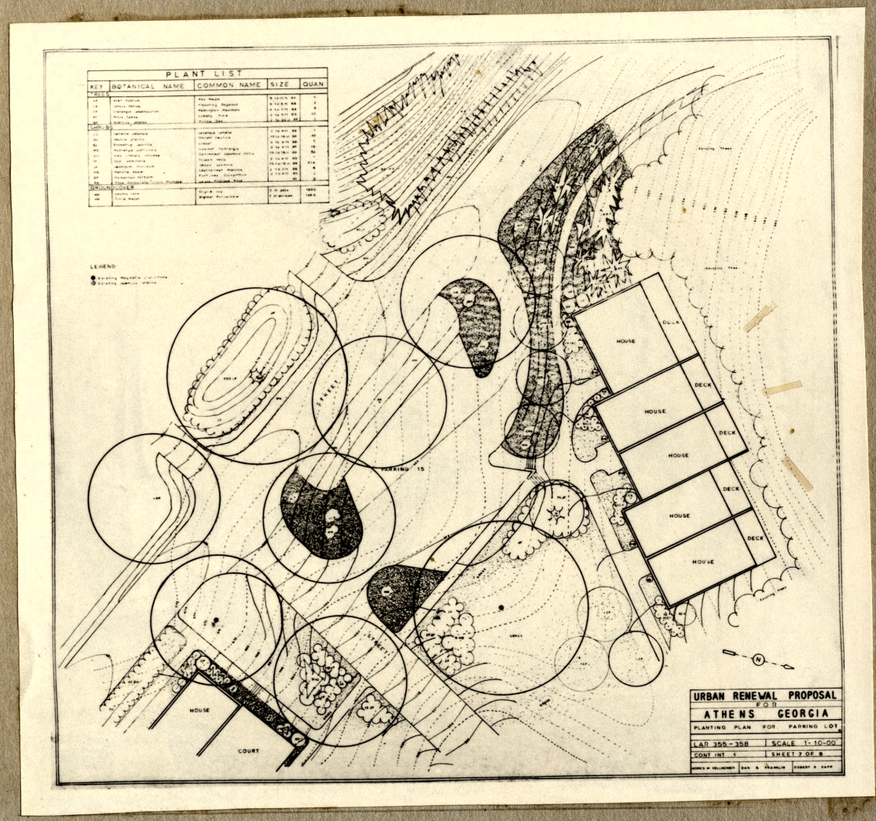
MASTER GRADING PLAN 2



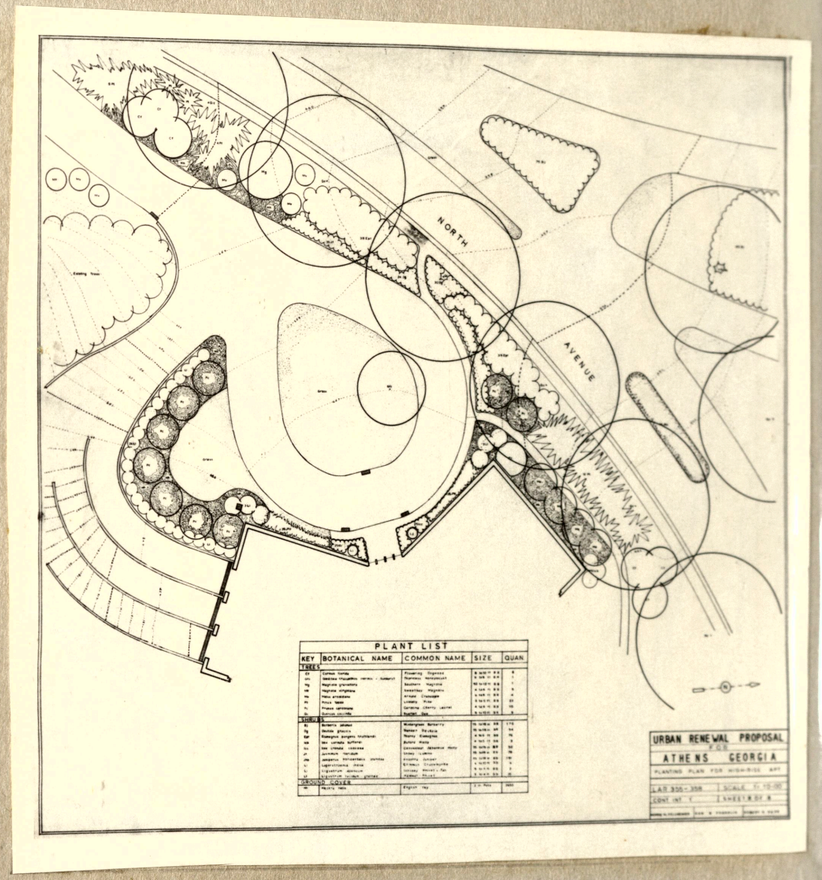
GRADING & STAKING PLAN



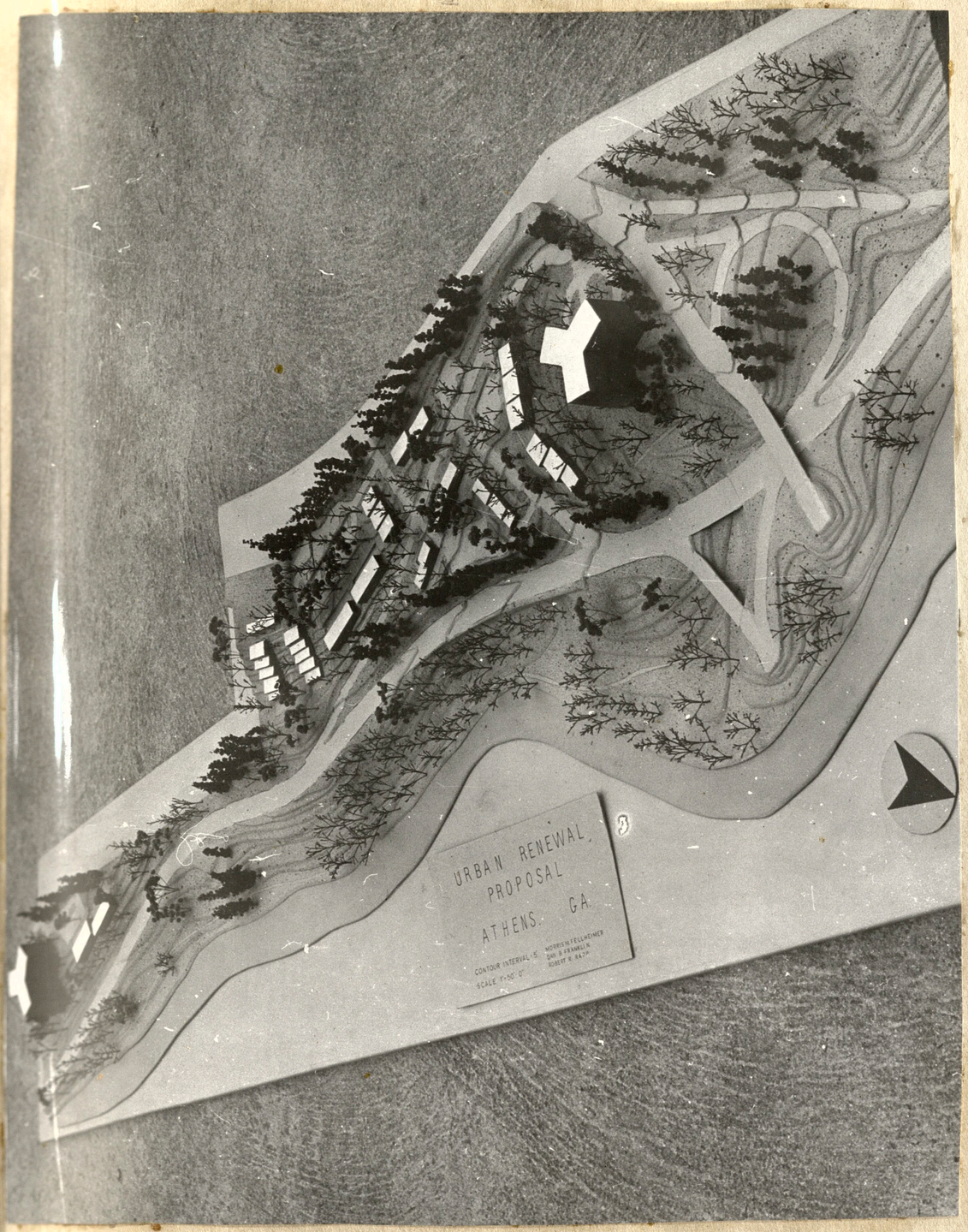
DETAIL SHEET



PLANTING PLAN



PLANTING PLAN



KEY TO PICTURES

OF SITE



NO. 1



NO. 2



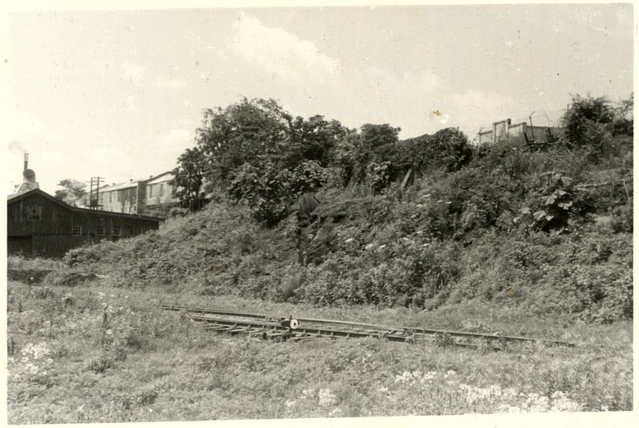
NO. 3



NO. 4



NO. 5



NO. 6

• AUG • 62



NO. 7

AUG 62



NO. 8

• AUG • 62



NO. 9

AUG 62



NO.10

• AUG • 62



NO. 11

• AUG • 62



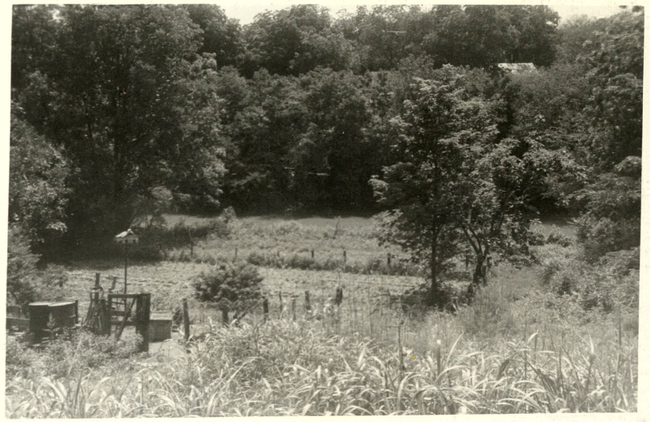
NO. 12

AUG 62



NO. 13

AUG 62



NO. 14

AUG 62



NO. 15

AUG 62



NO. 16

• AUG • 62



NO. 17

• AUG • 62



NO. 18

INTRODUCTION AND HISTORICAL SKETCH OF ATHENS URBAN RENEWAL

The first urban renewal project with which Athens, Georgia was concerned aided the growth of the University of Georgia through the construction of dormitories. The College Avenue Urban Renewal Project is the second project upon which Athens is ready to embark. This area is bounded by the Seaboard Airline Railroad tracks to the North, parts of Dougherty, Hancock, and Broad Streets to the South, a line bordering the Southern Railroad and connecting with Pulaski Street to the West, and the North Oconee River to the East.

Urban renewal has two main purposes: (1) it assists in removing costly, blighted, obsolete, and run down areas from the city, and (2) it helps, through the proper allocation of land use, to replace these areas with healthy and safe housing in pleasant neighborhoods, or with economically sound and properly located industrial areas.

Under the Urban Renewal Program, the cost of buying, clearing, and reclaiming the blighted areas is a partnership of city and Federal Government. For each $1.00 the city spends, the Federal Government adds $3.00 or 75% of the total cost.

Two phases of the planning studies for the College Avenue Urban Renewal Project have recently been completed: (1) a house to house canvass which recorded the condition of the existing structures and determined the relocation needs of the

families now living in the area, and (2) the preparation of a basic Master Plan which allocated the land use of the redevelopment area to provide the various needed uses to make an economically sound development for the growing city of Athens, Georgia.

STATEMENT OF THE PROBLEM

One part of the redevelopment area, specifically the one bounded by the Seaboard Airline Railroad to the North, the Central of Georgia Railroad and freight yards to the West, Broad Street to the South and the North Oconee River to the East, the Master Plan allocates the land use as an industrial area.

It is the belief of the Landscape Architecture Department of the University of Georgia, that this area, because of its steep topography, would be uneconomical for industrial development. It is also our contention that a riverside recreational development which includes a scenic drive along the North Oconee River, which would form a part of the Federal Government's national parkway system, and a pleasant urban living environment which preserves the river front and the existing trees would be the most useful and efficient land use development for this area.

This thesis is an evaluation of this area and presents a solution of a parkway alignment with an interchange, and a housing development which fills the needs of an urban settlement adjacent to downtown Athens, Georgia and the University of Georgia campus.

ANALYSIS OF THE PROBLEM

The area involved in this development is long and narrow and contains 30.5 acres heavily overgrown with trees, mainly Oaks, Sycamores, River Birch, Beech, Elm, and China-berry. Except in the extreme northern part of the area, the site slopes downward to the river from west to east with a 60 ft. change in elevation at an average 15% slope. In the northern part, a steep ravine cuts through the area from east to west with an intermittent stream bordered by heavy rock outcrops and large trees.

The area at present is very sparsely developed except for limited residential use. There are 62 houses in the area which the house to house canvass shows are 95% substandard and should be removed. In these houses live approximately 255 persons, mostly Negro, which will have to be relocated in decent, safe, and sanitary accommodations.

The present main access into the area is from North Avenue by a paved road, Bridge Street, and from Broad Street by a dirt road, Willow Street, which runs into the east end of Strong Street.

The main track of the Georgia Railroad runs from the northwest edge of the property and bisects the best building sites of the area. This railroad services a small freight yard and several small industrial establishments which borders on the west the narrow south portion of the property to be developed.

JUSTIFICATION OF THE PROBLEM SOLUTION

Railroad Relocation: After a thorough investigation, it was determined that this portion of the Georgia Railroad track which runs through the area to be developed could be removed and the main line rerouted over the Central of Georgia tracks, reconnecting with its main line at another point. This means abandonment of the Georgia Railroad freight yards and spur track to three small business establishments,and it is my recommendation that this area bordered by Broad Street on the South and the Central of Georgia Railroad on the West be included into the College Avenue Redevelopment project and be developed along with the area under consideration.

Road Alignments: Upon investigation of the site, it was noted that the North Oconee River approached the area from a northwest direction and that without rebuilding the Seaboard Airline Railroad bridge that there was only one point between two of the supporting columns where a road alignment with a satisfactory transitional curve could pass and enter the property under consideration. By using this alignment and keeping the parkway on the west bank of the river a full wide scenic view of the Old Covered Bridge which crosses the river just above this point could be seen soon after passing under the railroad bridge. With this railroad underpass point as the beginning of our parkway, two alignments passing through the site were found to be possible.--one continuing along the river level

and, because of the steep embankment, requiring that the parkway be protruded out over the river for a distance of about 600 feet, and the other changing grade and going over the ridge of the steep embankment and returning to the river level at the south end of the property. After due consideration of costs, use of property, and aesthetics, it was decided that the interest given by the change of grade and the view of the river valley outweighed the other considerations, and the upper alignment was selected.

North Avenue, being a major traffic artery, was selected as the most logical position for an interchange. This interchange made use of the isolated area north of North Avenue and enclosed by the intersection of the Central of Georgia Railroad and the Seaboard Airline Railroad. North Avenue from the Central of Georgia Railroad overpass and for the next 3/4 mile was realigned, closing off the dangerous blind intersection of Hoyt Street and building a new bridge over the North Oconee River.

As Broad Street is at this place a minor traffic street and has a railroad grade crossing, it was decided that rather than build another major bridge over the river and parkway, to dead-end Broad Street and use the old bridge as a pedestrian bridge to give access to the city-owned Dudley Park and thereby join it into the development.

By using the approximate location of the alignment of both Bridge Street and Willow Street, grade percentages were

kept within F. H. A. standards, grading of the area was held to a minimum, and many of the fine old trees were preserved.

Housing: To fulfill the density needed to qualify this area for redevelopment under an Urban Renewal program and still retain a neighborhood feeling which Athens, Georgia as a basically rural suburban community demands, guided the principals upon which the housing design was based. To retain a neighborhood character, housing satisfying varied types, sizes, and demands of families was required and filled with the below listed units:

Two 12 story Highrise apartments with 180 family units and including three stories of basement parking in each building.

72 - two bedroom units with terraces.

36 - one bedroom units

72 - efficiency units.

55 - individual family units.

With Walled Courts:

9 - one bedroom units

21 - two bedroom units

5 - three bedroom units

3 - four bedroom units.

With Terraces:

16 - two bedroom units

9 - three bedroom units

2 - four bedroom units

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

Without Courts or Terraces:

8 - two bedroom units.

This is a total of 253 family units or a density of 8.3 families per acre for the 30.5 acre tract.

Parking: The Highrise apartments have three levels of parking in each building with 120 parking spaces for the 90 units in each building, or 1.3 automobiles per apartment. The 85 individual housing units have 127 parking spaces in five parking lots, or 1.5 automobiles per apartment. The longest distance of any apartment unit from the parking lot is 250 feet, and most are under 100 feet.

Playgrounds: Two areas have been set aside as play areas with equipment. These are mostly directed to the younger age group for Dudley Park is connected to the area and will fill the need for older groups and the larger area needed for their recreational needs. Two pedestrian underpasses have been placed under the parkway, one at the north end and one at the south end of the area to connect the river front to the housing area.

SPECIFICATIONS

INDEX

A. General Provisions

B. Special Provisions

C. Technical Provisions

1. Grading

2. Technical Provisions - Sidewalk, Curb, Parking Lot Pavement

3. Technical Provisions - Planting.

Section B. - Special Provisions.

B-01 Scope of Work: The work to be performed will consist of furnishing all materials, labor, supplies, and equipment for specified work or construction in accordance with these specifications and in conformity with the plans.

B-02 Location: The site of the proposed work is located at the corner of Willow Street and Bridge Street, Athens, Georgia.

B-03 Specifications and Drawings: The following drawings are a part of and supplementary to these specifications.

TITLE	Drawing No.
Grading and Staking Plan	#1
Planting Plan	#2
Construction Details	#1

The drawings and these specifications are intended to be mutually explanatory and complete, and all work called for by one, even if not by the other, will be fully executed. In case of difference between drawings and specifications, the specifications will govern. In any case of discrepancy, either in the figures, in the drawings, or in the specifications, the matter will be promptly submitted to the Landscape Architect, who shall promptly make a determination in writing. Any adjustment by the contractor without this determination shall

be at his own risk and expense.

B-04 Spirit and intent of Specifications: It is the spirit and intent of these specifications, and of the drawings forming a part of them, to provide that the work and all parts thereof will be fully completed and suitable in every way for the purpose for which they are designed. Mention in these specifications or indication on the drawings of articles or materials, operations, or methods requires that the Contractor will provide each item listed - of quality, or subject to qualifications noted; perform according to conditions stated, each operation prescribed, and provide therefore all necessary labor, materials, tools, equipment and incidentals necessary to complete the work.

B-05 Errors or Omissions: The contractor will not be allowed to take advantage of errors or omissions in these specifications or contract drawings as full instructions will be given if such errors are discovered. Upon his discovery of any statement or detail which is discrepant or otherwise appears in error, the contractor will immediately call it to the attention of the Landscape Architect.

B-06 Measurements: Before ordering any material or doing any work, contractor will verify all measurements at the site and shall be responsible for correctness of same. No extra charge or compensation shall be allow

B-06 on account of difference between actual dimensions and the measurements indicated on the drawing. Any difference which may be found will be submitted to the Landscape Architect for consideration prior to beginning the work.

B-07 Examination of Site: Before submitting bids for the work, each bidder shall be held to have examined the premises and satisfied himself as to the existing conditions under which he will be pledged to operate, or that in any manner shall affect the work under this contract. No allowance shall be made subsequently in this connection in behalf of the Contractor for any error or negligence on his part.

B-08 Timing and Sequence of Work: The Contractor will begin work the first workday after receiving the "Notice to Proceed." The Contractor shall have forty (40) calendar days in which to complete the work except for extensions approved by the Landscape Architect. The Contractor will give due and adequate notice of all work he proposes to start to those in control of the properties which may be affected by his operations. Work is to proceed in an orderly way. The organization of these specifications of Contract Drawings do not necessarily indicate the order of sequence in which the work is to be performed.

B-09 Temporary Suspension of Work: The Landscape Architect shall have the authority to suspend the work, wholly or in part, for such period as he may deem to the best interest of the owner, due to conditions which are considered unfavorable to the suitable carrying out of the work, or for failure on the part of the contractor to carry out orders given or to perform any provision of the contract. The contractor will immediately respect the written order of the owner to suspend the work wholly or in part. The contractor will not suspend work without such written authority, and will immediately resume work when conditions are favorable or when methods have been corrected, as approved by the Landscape Architect in writing.

B-10 Other Contracts: The Landscape Architect may undertake or award other contracts for additional work, and the contractor shall fully cooperate with such other contractors and the owner or his employees and carefully fit his own work to such additional work as directed by the Landscape Architect. The contractor will not commit or permit any act which will interfere with the performance of work by any other contractor or employee of the owner.

B-11 Materials and Workmanship: Workmanship and materials will be as prescribed by these specifications and the Contract Drawings. When ever not explicitly describe

B-11 all workmanship used or employed in carrying out the work will be the best of the respective grades and qualities. Where equipment, materials, or articles are referred to in the specifications as "Equal To" any particular standard, the Landscape Architect shall decide the question of equality. When required by the specifications, or when called for by the Landscape Architect, the contractor will furnish for approval full information concerning the materials or articles which he contemplates incorporating in the work. Samples of materials will be submitted for approval when so directed. Machinery, equipment, materials, and articles installed or used without such approval will be at the risk of subsequent rejection.

B-12 Minor Modifications: The contractor will make such minor changes in the execution of the work to be done under these specifications as, in the judgment of the Landscape Architect, may be necessary or expedient to carry out the intent of the contract. No increase over the contract price will be paid to the contractor on account of such minor modifications provided that at the time the change is to be made the work involved has not already been executed. Work which materially increases the cost to the contractor will not be ordered under the provision of this paragraph.

B-13 Guarantee: The contractor will guarantee all work und

B-13 this contract for one year from the date of acceptance by the Landscape Architect, except as otherwise agreed upon in writing by the parties to the contract. Wherever work is required to be guaranteed, the contractor, when notified by the Landscape Architect must immediately

A. Place in satisfactory condition in every particular of the guaranteed work and

B. Make good all damage to the structures and grounds or equipment and contents thereof if such unsatisfactory condition or damage develops within the stipulated period and is due to the use of materials or workmanship which are inferior, defective, or not in accordance with this contract, and must make good any work or material or grounds which are disturbed in fulfilling the requirements of this guarantee.

B-14 Payment: Payment of 45 per cent of bid will be made upon submission by the contractor of certification that 50 per cent of contracted work has been completed. A second payment of 45 per cent of bid will be made upon completion of all work and approval of the Landscape Architect. The remaining 10 per cent will be held until expiration of the guarantee.

B-15 Rejection: All materials which do not meet these specifications or the requirements of the Contract Drawing

B-15 shall be rejected by the Landscape Architect and will be removed from the site and replaced by proper materials by the contractor at his own expense.

B-16 Contractor's Responsibilities: The Contractor will, without additional expense to the owner, obtain all insurance, licenses and permits required for the pro-

B-17 secution of the work. The contractor will provide and maintain all temporary roadways and utilities which may be authorized, and all barriers, colored lights, danger signals and other devices necessary to provide for the traffic and safety. The contractor will keep his equipment, operations, and materials confined to the limits indicated on the Contract Drawings. The contractor will restore, at his expense, any damage

B-18 to any property and will take such action to insure protection of any existing materials, trees, structures, or utilities in, on, or over the site. The contractor will conduct his operations and leave the site so as to in no way endanger the health or lives of anyone. He will be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work. He shall also be responsible for all materials delivered and work performed until completion and final acceptance. The contractor will, at all times, be responsible for the safety and conduct of his employees. The Landscap

B-16 Architect may in writing require the contractor to remove from the work such employees as he deems incompetent, careless, insubordinate, or otherwise objecionable, or whose continued employment on the work is deemed by the Landscape Architect to be contrary to the owner's interest.

B-17 Space for Storage of Materials: The contractor will provide suitable storage for materials and equipment on the site and will maintain all storage space in a safe and orderly condition. The owner assumes no liability for loss or damage to materials or equipment due to improper storage, lack of protection from the elements or from any other cause. Inflamable materials will be inclosed in safe containers.

B-18 Clean Up: The contractor will remove all debris from his operation each evening of every workday to the satisfaction of the owner. All brickbats, rock, wood debris, metal objects, and similar materials uncovered during operations will be disposed, leaving the completed work in a neat, policed manner.

Section C1 - Technical Provisions - Grading:

C1-01 Clearing and Grubbing:

a. The area within the Limit of Construction as shown on the Contract Drawings shall be cleared of trees indicated, brush, stumps, large roots, buried logs, and other objectionable material to a depth as follows:

For paved areas - 2' below subgrade

For lawn areas - 2' below finished grade.

These materials shall be removed from the site.

b. To insure proper bond and prevent slipping between original ground and fill, the surface of the original ground shall be scarified to the necessary depth.

C1-02 Drainage Structures:

a. Drainage inlets shall consist of two types Curb and Gutter as manufactured by or equal to those of the Lembo Concrete Products Corporation, 145 West 11th Street, Huntington Station, Long Island, New York as follows:

Curb Inlet Structure 701

Gutter Type Structures 501

b. All catch basins, manholes, drain pipes shall be installed and connected with proper outlets to provide adequate runoff of storm water as shown on Contract Drawings. All outlets shall be approv

by the local authorities having jurisdiction.

C1-03 Earthwork:

a. Grading and drainage shall be performed so that water will drain away from the buildings on all sides in a manner which will provide reasonable freedom from erosion.

b. Stripping and Storage of Topsoil:
Suitable topsoil on the site shall be stripped and be piled in convenient location for storage during construction and shall be used to complete finished grading operations.

c. Material for Fill:
Material used for fill shall be free from vegetable matter, wood, and other objectionable substances and shall not contain large rocks or soil lumps.

d. Placing, Spreading, and Compacting Fill Materials:
Fill material shall be placed in layers which when compacted shall not exceed 6 inches. Each layer shall be spread evenly and shall be uniformly blade mixed during spreading to insure uniformity of material in each layer. The moisture content of fill material shall be maintained so that it can be compacted to maximum practical density. Compacting shall be by means of tamping or other types of roller equipment which shall compact th

01-03 d. fill to the required density. All fill material in excess to that needed on the site shall be hauled away.

e. Grading Tolerance:

(1) Rough Grading: Areas to be graded by cutting and filling shall be rough graded to within 0.2 of a foot of the required elevation after necessary allowance has been made for thickness of topsoil, paved areas, and any other installations.

(2) Finished Grading: Shall be completed to conform to lines, grades, slopes, as shown on Contract Drawings. Application of topsoil shall be made where there is no paving shown on Contract Drawings and seeding shall be done on areas to be established as lawn.

f. Weather:

No fill material shall be placed, spread, or rolled while ground or fill is frozen or in any other unfavorable condition. When work is interrupted by heavy rain, fill shall not be resumed until moisture content of material is of satisfactory condition.

01-04 Final Acceptance:

Upon notification of the completion of the contract work, the Landscape Architect shall make an inspection

01-04 of the site and any unsatisfactory work shall be repaired, replaced, or corrected at the expense of the contractor.

Section C2 - Technical Provisions - Sidewalk, Curb, Parking Lot Pavement:

C2-01 Concrete Sidewalks, Steps, and Curbs:

A. Materials:

a. Portland Cement: Portland cement shall comply with the standard specifications for Portland Cement (ASTM C 150) and shall be Type I.

b. Fine Aggregate: Fine aggreagte shall consist of natural sand, manufactured sand, or a combination thereof and shall be graded within the following limits:

Sieve	% Passing 100
3/8 in	100
No 4	95 to 100
No 8	80 to 100
No 16	50 to 85
No 30	25 to 60
No 50	10 to 30
No 100	2 to 10

(1) The fine aggregate shall have not more than 45 per cent retained between any two consective sieves and its fineness modulus shall be not less than 2.3 nor more than 3.1.

(2) Fine aggregate shall be free of injurious amounts of organic impurities and not darker than the standard set by the Portland Cement Association in "Design

C2-01 A. b. (2) and Control of Concrete Mixtures" tenth edition; Table I Limits for Deleterious Substances in Fine Aggregate For Concrete.

(3) Fine Aggregate for use in concrete that will be frequently wet shall be free of material that could react harmfully with alkalies in the cement.

c. Course Aggregate: Course aggregate shall consist of crushed stone, gravel, or air-cooled iron blast furnace slag or a combination thereof, and shall conform to the requirements prescribed in Table II - Grading requirements for Course Aggregates as published by Portland Cement Association in "Design and Control of Concrete Mixes" Tenth Edition.

(1) Course aggregate shall be clean and free of material that could react harmfully with alkalies in the cement.

(2) Course aggregate tested for abrasion shall have a loss of not more than 50 per cent.

d. Water: The water used shall be clean and free from oil, acid, and injurious amounts of vegetable matter, alkalies or other salts.

e. Metal Reinforcement: Reinforcing bars used in

02-01 A. e. all steps shall be as below listed:

No 2 Bar - placed 2' -0" on center running length of steps.
No 3 Bar - placed 8' -0" on center running width of steps.
(See Detail sheet #1)

6"x6" #16 wire mesh reinforcement shall be used between the 6" gravel subbase and the concrete walks. (See Detail Sheet #1)

f. Storage of Materials: Cement and aggregates shall be stored at the work in such manner as to prevent deterioration or intrusion of foreign matter. Any material which has been damaged shall not be used and shall immediately be removed from the site.

B. Concrete Mix and Placement:

a. Concrete Mix:

(1) Concrete mix shall be a 1:2 1/4:4 mix calculated by absolute volume.

(2) No concrete exposed to the action of freezing weather shall have a water content exceeding 6 Gal. per sack of portland cement.

(3) The proportions of aggregate to cement shall be such as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement bars, but without permitting

02-01 B. a. (3) the materials to segregate or excess free water to collect on the surface.

(4) The methods of measuring concrete materials shall be such that the proportions can be accurately controlled and easily checked at any time during the work.

(5) During the progress of the work Slump Tests for consistency of concrete shall be made in accordance with the "Standard Method of Slump Test for Consistency of Portland Cement Concrete" and kept on record. Not less than one test for each 250 cubic yards of concrete shall be made.

b. Mixing and Placing Concrete:

(1) Before placing concrete, all equipment for mixing and transporting the concrete shall be cleaned, all debris and ice shall be removed from the places to be occupied by the concrete, forms shall be thoroughly wetted (except in freezing weather) or oiled, and the reinforcement shall be thoroughly cleaned of ice or other coatings. Any water shall be removed from places of deposit before concrete is placed.

02-01 B. b. (2) The concrete shall be mixed until there is a uniform distribution of the materials and shall be discharged completely before the mixer is recharged.

(3) Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of the materials.

(4) Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. The concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into the space between the reinforcement. No concrete that has partially hardened or been contaminated by foreign material shall be deposited on the work, nor shall retempered concrete be used.

(5) When concrete is once started, it shall be carried on as a continuous operation until the section is completed. When construction joints are necessary they shall be made as shown on Detail Sheet #1.

(6) All concrete shall be thoroughly compacted

02-01 B. b. (6) by suitable means during the operation of placing, and shall be thoroughly worked around reinforcement and embedded fixtures and into the corners of the forms.

(7) Provision shall be made for maintaining concrete in a moist condition for at least five days after the placement of the concrete.

(8) Adequate equipment shall be provided for protecting the concrete during freezing or near freezing weather. No frozen materials or materials containing ice shall be used. All concrete materials and all reinforcement, forms, fillers, and ground with which the concrete is to come in contact shall be free from frost. No dependence shall be placed on salt or other chemicals for the prevention of freezing.

c. Forms and Details of Construction:

(1) Forms shall conform to the shape, lines, and demensions of the members as called for on the Contract Drawings and shall be substantial and sufficiently tight to prevent leakage of mortar. They shall

B. c. (1) be properly braced or tied together so as to maintain position and shape,

(2) Forms shall be removed in such a manner as to insure the complete safety of the structure, and may be removed after 24 hours providing the concrete is sufficiently hard.

(3) Metal reinforcement, at the time concrete is placed shall be free from rust scale or other coatings that will destroy or reduce the bond. Metal reinforcement shall be accurately placed in accordance with the Contract Drawings and shall be adequately secured in position by concrete or metal chairs and spacers. The metal reinforcement shall be protected by thinkness of concrete at least equal to the diameter of round bars and one and one half times the side dimension of the square bars.

(4) Construction joints shall be made and located as to least impair the strength of the structure. Where a joint is to be made the surface of the concrete shall be thoroughly cleaned and all laitance removed.

02-01 B. d. Concrete Finishing:

(1) Screeding shall be done to bring the top surface to proper contour and elevation. Soon after screeding and while the concrete is still plastic, the surface shall be floated and brought to true grade. After concrete has partially hardened, floating shall be done a second time to provide a coarse finished texture.

02-01 C. Final Acceptance: At notification of completion of this phase of the contract, the Landscape Architect shall make full inspection of the work and any unsatisfactory work shall be repaired, replaced, or corrected at the expense of the contractor.

02-02 Parking Lot Pavement:

A. Description:

a. The paving mix shall be composed of mineral aggregate and asphalt thoroughly mixed in an approved plant until all aggregate particles are uniformly coated with asphalt.

b. All materials and methods of preparation and construction shall conform with the requirements of specifications hereafter detailed. The finished pavement shall conform in all respects with lines, grades, dimensions, as shown on the Contract Drawings.

02-02 B. **Materials**:

a. **Tests**: Reports of tests of materials and trial mixes proposed for use and conforming to the latest revision of methods adopted by the American Society for Testing Materials, made at the contractor's expense shall be submitted to the Landscape Architect for approval before construction begins.

b. **Paving Mix**: Paving mix shall be type II b. with normal asphalt content 3.0-6.0% by weight of total mix.

c. **Aggregate**: Aggregate shall be hard, sound, angular crushed stone, gravel, slag and fine aggregate passing the below sieve sizes by per cent of weight:

Sieve Sizes (Square Openings)	% Passing by Weight
1½ in	100
1 in	70-100
3/4in	20-40
½ in	5-20
3/8in	
#4	0- 4
#8	
#30	
#100	
#200	

Aggregate shall be clean and free from coatings of clay, silt or other objectionable matter and shall contain no clay balls.

C. **Equipment**:

a. All equipment used and furnished by the contractor

02-02 C. a. shall be of approved design and shall be maintained in its best mechanical condition. Equipment shall be serviced and lubricated away from the paving site; units that drip fuel, oil, and grease shall be removed from the project until such leakage is corrected.

b. The mix shall be spread by a mechanical self-powered paver or motor patrol capable of spreading the mix true to the line, grade, and crown indicated on the Contract Drawings. Pavers shall be capable of travelling both forward and in reverse and be capable of spreading mixes without segregation and/or tearing.

c. Rolling equipment shall consist of steel wheel and pheumatic tire rollers or a combination of both. Rollers shall be equipped with adjustable scrapers to keep the rolls clean and with efficient means of keeping the wheels wet to prevent mixes from sticking to the rolls. Rollers shall be free of flat areas, openings or projections which will mar the surface of the pavement.

d. Haul Trucks: Vehicles used for transportation of hot-mix asphalt from plant to site of work shall have tight metal bottoms and shall be

C. d. free from dust, screening, petroleum oils, volatiles or other mineral spirits which may affect the mix being hauled. The truck beds shall be painted or sprayed with a limewater or soap solution at least once a day or as often as required. After this operation, the truck bed shall be elevated and thoroughly drained.

e. Truck Scales: The hot-mix asphalt shall be paid for by the ton and shall be weighed on platform scales furnished by and at the contractor's expense. These scales shall comply with the state laws governing scales and be checked for their accuracy to the satisfaction of the Landscape Architect.

f. Hand Tools: Only lutes or rakes with covered teeth shall be used during the spreading operation and when finishing by hand. Tamping irons used to consolidate the edge of the binder and wearing courses shall be sufficient weight to compact the edges to the same degree as the body of the pavement. Tamping irons used to consolidate the material along the curbs, gutters, and other structures inaccessible to the roller shall weigh not less than 25 lbs. and shall have a bearing area not exceeding 48

C. f. square inches.

D. Weather Limitations: The placing of hot-mix asphalt shall be performed only when weather conditions are suitable. Placing of hot-mix asphalt shall not be permitted when pools of water are observed on the base court.

E. Preparation and Paving:

a. Base Course: A 4" base course with a CBR of 80 plus shall be placed and shall be primed in accordance with provisions of Asphalt Institute Specifications P-1, Asphalt Priming of Granular Type Base Courses. The prime coat shall be allowed to cure properly before any further operations are permitted on the primed area.

b. The area to be paved shall be true to line and grade having a dry and properly prepared base course free from all screenings and other loose or foreign materials. The surface of curbs, gutters, vertical faces of existing pavements, and all structures in actual contact with asphalt mix shall be painted with a thin uniform coating of asphalt material to provide a closely bonded, water tight joint.

c. The base course shall be paved with a 3" bituminous asphalt surface of type II b. mix compacted

E. c. 3/4 in to 1 1/2 in for each individual course. The completed pavement shall have a density equal to or greater than 95% of the laboratory specimen as specified in section 02-a. The final surface shall be of a uniform texture.

F. Final Acceptance: Before final acceptance of the project, the thinkness of the base course and surface course shall be determined by the Landscape Architect and any unsatisfactory work shall be repaired, replaced, or corrected at the expense of the contractor.

Section E. - Technical Provisions - Planting

15-01 Materials: Samples of materials used shall be submitted to the Landscape Architect for inspection. Upon approval of samples, delivery of materials may begin.

01-1 Topsoil: All topsoil shall be fertile, friable, natural topsoil known as light or garden loam. Topsoil shall not be taken from areas on which are growing any obnoxious weeds such as Nutgrass, Morning Glory, Sorrel or Bermuda Grass. It shall be delivered without admixture or subsoil material and shall be free from rocks, sticks, roots, or other foreign materials. It shall not be delivered in a muddy condition.

01-2 Manure: Manure shall be well rotted cow manure, not less than eight months nor more than two years old. It shall be free from foreign materials and harmful chemicals. It shall not be delivered in a soggy condition.

01-3 Water: Supply of water will be furnished by owner.

01-4 Commercial Fertilizer: Commercial fertilizer shall be a complete fertilizer; it shall be uniform in composition, dry and free flowing. This fertilizer shall be delivered to the site

01-4 in the original unopened containers, each bearing the manufacturer's statement of analysis and shall meet the following requirements: 8% Nitrogen; 6% Phosphoric Acid; 8% Potash.

01-5 Peat: Peat Moss shall be of a standard brand, consisting of partially decomposed vegetable matter of natural occurence. It shall be brown in color, clean, low in content of mineral and woody material, mildly acid; and may be either granulated or shredded.

01-6 Staking Material:

a. Wooden stakes for guying trees as shown on Detail Sheet #1.

b. Hose shall be new or used 2 ply reinforced rubber garden hose.

c. Wire guys shall be of #12 guage pliable galvanized iron and the turnbuckles shall be zinc coated.

d. Wrapping materials shall be first quality burlap at least 8 oz. in weight and 6" in width.

e. All othermaterials used in staking shall be of the highest quality and shall meet all specifications as listed here and shown

01-6 on the contract drawings.

01-7 Bonemeal: Commercial raw bonemeal shall be finely ground and have a minimum analysis of 4% Nitrogen and 20% phosphoric acid, delivered in containers showing weight analysis and name of manufacturer and stored in weather-proof storage place and in such manner that its effectiveness will not be impaired.

03-02 Plant Materials: Trees-Shrubs-Groundcover:

Note: All existing trees on the property are to be protected from injury.

02-1 Quality and Size:

a. All plants shall be freshly dug; no heeled-in plants, and no plants from cold storage will be accepted.

b. All plants shall have a normal habit of growth and shall be sound, healthy and vigorous; they shall be free from disease, insect, insect eggs, and larvae.

c. All plants shall conform to the measurements specified in the Plant List. Such measurements shall be made in accordance to methods stated in the latest edition of "Horticultural Standards of American Association of Nursery-men, Inc." Plants that meet the requirements specified in

C3-02 02-1 c. the Plant List but which do not possess a normal balance between height and spread will not be accepted. All plants shall be sound, healthy, vigorous, well branched, and free of disease, and shall have an adequate root system. Collected stock shall have a ball of earth at least a sixth greater in diameter than specified for Nursery Grown trees. Trees for planting in rows shall be uniform in size and shape.

All materials shall be subject to approval by the Landscape Architect. Where any requirement is omitted from the Plant List, the plants furnished shall be normal for the variety. Plants shall be pruned prior to delivery only upon the approval of the Landscape Architect.

d. Plants larger in size than specified in the Plant List may be used if approved by the Landscape Architect. If the use of larger plants is approved, the ball of earth or spread of roots shall be increased in proportion to the size of the plant. If plants required to be bare-rooted are furnished in sizes greater than specified, they shall be balled and burlapped when so directed by the Landscape Architect.

03-02 02-2 Inspection: Plants shall be subject to inspection and approval at the place of growth, or upon delivery, for quality, size and variety; such approval shall not impair the right of inspection and rejection at the site during progress of the work for size and condition of balls or roots, latent defects or injuries. Rejected plants shall be removed from the site immediately.

02-3 Digging and Handling:

a. Protect roots or balls of plants at all times from sun and drying winds; water as necessary until planting.

b. Balled and burlapped plants (BB) shall be dug with firm natural balls of soil of a sufficient size to encompass the fibrous and feeding roots of the plants. No plants moved with a ball shall be planted if the ball is cracked or broken, except upon special approval of the Landscape Architect.

c. Container stock shall be delivered to the site in first class condition. Plants shall have small stakes in containers where required to support the plants. Plants furnished in containers shall not be handled by the stems but only by the containers.

03-02 02-3 d. Bare rooted plants shall be planted or heeled-in immediately upon delivery. If heeled-in, all bundles of plants shall be opened and the plants separated before the roots are covered.

02-4 Nomenclature: Plant names used on the drawings conform to standardized plant names prepared for the American Joint Committee on Horticultural Nomenclature. Names of varieties not included herein conform generally to names accepted in the Nursery trade.

02-5 Substitutions: Substitutions will not be permitted except when proof is submitted that any plant specified is not obtainable. A proposal will then be considered for use of the nearest equivalent size or variety with an equitable adjustment of contract price.

02-6 Plant List: Quantities necessary to complete the work on the contract drawing shall be furnished. Any discrepancy in the quantities given in the Plant List shall not entitle the contractor to additional renumeration. All dimensions shall be the minimum acceptable size.

02-7 Planting Season: All actual planting of plant materials shall be done only during the

periods within the seasons which are normal for such work as determined by weather conditions and by accepted practices of the area, and which are approved by the Landscape Architect.

02-8 Obstruction Below Grade:

a. Remove rock or other underground obstruction to the depths necessary to permit proper installation of plantings unless other locations are approved by the Landscape Architect.

b. If changes in location or work, or if removal of rock (as defined herein) involve additional work, the contract price will be adjusted. Rock includes stone or bolders that cannot be removed or broken by hand methods.

02-9 Planting:

a. Stake tree locations and secure approval of them from the Landscape Architect before digging pits, making any adjustments necessary. Locate no plants closer than 2' to pavement or structures.

b. Excavate pits with vertical sides for all plants. Dig tree pits at least 1' larger in all dimensions than the ball, the container,

02-9

b. or than the spread of the roots. Trees shall be set blumb and straight and at such a level that after settlement a normal and natural relationship of crown of the plant with the ground surface will be established. Each tree will be planted in the center of the pit. All burlap, ropes, and wires shall be removed from the sides and tops of balls, but no burlap shall be pulled out from under the balls. Pits shall be backfilled with topsoil into which ½ pound of bonemeal per foot of height of the tree has been added. For larger trees, two pounds of bonemeal per inch of caliper shall be used. Topsoil shall be thoroughly tamped around the ball and shall be settled by water after tamping. (See detail sheet #1) A water holding saucer shall be formed with extra topsoil.

c. Set shrubs in an upright position in the center of the pits, adjusting the depth as necessary, so that the crown on the plant will stand at finished grade. Shrub pits shall be backfilled with topsoil. Compact soil around the roots or balls of plants and water thoroughly. Form a ridge of soil

03-02 02-9

c. around the edge of the pit to facilitate watering.

d. Each tree and shrub planted shall be pruned to preserve the natural character of the plant and in a manner appropriate to its particular requirement in the landscape design. In general, at least one third of the wood shall be removed by thinning or shortening branches, but no leaders shall be cut. Pruning in general shall be heavier on collected than on nursery grown plants. All soft wood or sucker growth and all broken or badly bruised branches shall be removed with a clean cut. All pruning cuts are to be made flush and clean, especially where lower branches have been removed from collected trees. Pruning cuts over 3/4 inch in diameter shall be painted over with an approved tree paint to be used on all exposed cambium as well as exposed living tissues.

e. Guying, staking, and wrapping shall be done immediately after planting. Trees shall stand plumb after staking and guying in accordance with Detail Sheet #1. Trunks

03-02 02-9 e. shall be wrapped with burlap spirally to the height of the second branches.

f. All shrubs over 6' tall shall be guyed with wire to stakes set 18" in the soil. The plants shall be protected from the wire by rubber garden hose.

g. After planting operations have been completed, the tree pits and all planted pits and shrub areas, except lawns, shall be entirely covered with a layer of manure two (2) inches deep and at the rate of 7 cubic yards per 1000 square feet and thoroughly incorporated in the upper 3 inches of the soil.

02-10 Ground Covers:

a. In all ground cover areas, humus is to be spread and incorporated into the top three inches of topsoil at the rate of 3 1/3 cubic yards per 1000 square feet.

b. Creeping juniper shall be planted at the rate of nine (9) plants per 100 square feet or 3½ feet on center.

c. Vinca and Ivy are to be planted at the rate of one (1) plant per square foot.

d. On completion of planting, all ground cover areas are to be mulched with one inch peat moss.

03-03 **Lawns:**

03-1 All ground areas of the site shall be developed as lawns except as otherwise required by the Contract Drawings.

03-2 Soil Preparation and Fertilizer: All contract areas where turf is specified shall be prepared as follows: Spread 750 pounds of manure and two (2) bales of Peat Moss per 1000 square feet of lawn area; and 20 pounds of a Chemical fertilizer, chemical contect 8-6-8 per 1000 feet of lawn area. Scarify all lawn area to a depth of 6" and thoroughly incorporate the manure, peat moss, and chemical fertilizer into the soil. At a date between March 15th and June 15th, lawn shall be constructed of Emerald Zoysia and shall be planted in 1" plugs 6" on center. These 1" plugs shall be watered immediately after planting. The lawn area shall be kept reasonably free of weeds and undesirable course native grasses for a period of 60 days after planting.

03-04 Maintenance Period: Plants shall be maintained for a period of 60 days after completion of the grass planting by watering, cultivating, pruning, spraying, and other operations found necessary.

03-05 Final Inspection: At the conclusion of the maintenance

03-05 period a final inspection of the work will be made by the Landscape Architect. Any plant not in a healthy growing condition at this time will be noted.

03-06 Acceptance: The final acceptance will be made by the owner upon completion of all the work, including maintenance, and clean up, but exclusive of the replacement of plant materials.

03-07 Plant Quality and Replacement:

a. Replacement: Any plant not found in a healthy growing condition at the time of the final inspection shall be removed from the site and replaced at the next planting season, as determined by the Landscape Architect.

b. Materials and Operation: All replacements shall be plants of the same kind and size as specified in the Plant List. They shall be furnished, planted, and mulched as specified under E-02-9 PLANTING, at no additional cost.

BIBLIOGRAPHY

Seelye, Elwyn El, Design, John Wiley & Sons, Inc., New York.

Ramsey & Sleeper, Architectural Graphic Standards, John Wiley & Sons, Inc., New York.

Abbett, Robert W., Engineering Contracts & Specifications, John Wiley & Sons, Inc., New York.

Hewes, Laurence Ilsley, American Highway practice-Volume I, John Wiley & Sons, Inc., New York.

U.S. Department of Commerce-Bureau of Public Roads - Parking Guide for cities.

Portland Cement Association, Design and Control of Concrete Mixtures.

American Bitumuls & Asphalt Company, Paving Handbook.

Wigginton, B.E., Trees & Shrubs for the Southern Piedmont - University of Georgia Press, Athens, Georgia, 1954.

Bush-Brown, America's Garden Book - Charles Scribner's Sons, New York.