

UPTOWN • PAVER • SYSTEM  
DESIGN • GUIDELINES

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CHARLOTTE • NORTH CAROLINA

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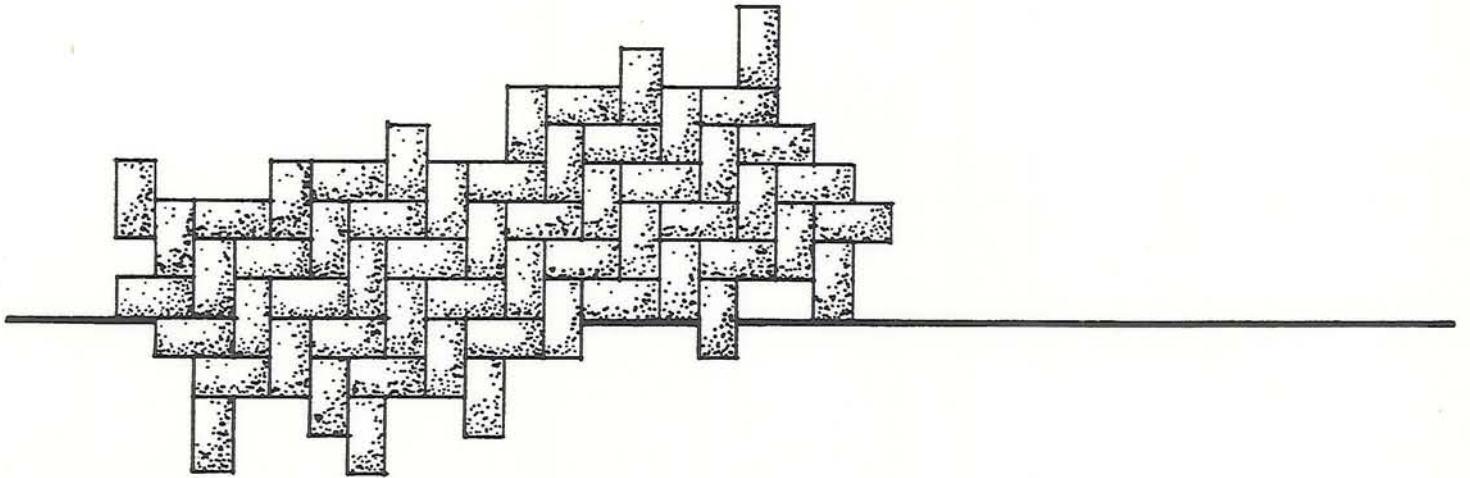
## INTRODUCTION

This report has been written to describe the modular precast concrete paver system which is required for public sidewalks in uptown Charlotte. The extent of areas in which the paver system is required, paver system design considerations and general specifications are included in this document. Site adaptation of the design is critical for a successful sidewalk paver system.

Paver systems have been used for centuries. Some of the more notable historical examples include the Campidoglio in Rome, Piazza San Marco in Venice, and Piazza del Campo in Sienna. In current times, modular paver units have been extensively used for office parks, corporate headquarters, public streets and port authorities. These systems lend visual texture to the paving surface and provide durability rarely found with other materials.

The advantages of modular paver systems are being rediscovered in the United States, particularly in areas where freezing temperatures must be accommodated. Flexible system designs allow for movement associated with freezing and thawing conditions and therefore are extremely durable. Repairability is another reason these pavement designs are used, since stained or damaged pavers can be removed and replaced. Renovations or utility work can be accomplished by removal, storage and reuse of existing pavers. Pavers lend color, visual texture and a sense of permanence to horizontal surfaces. In addition, the proper installation of the system does not require extraordinary equipment or materials or extensively trained labor, particularly for simple design patterns.

The key to a successful paver system for uptown Charlotte sidewalks is the careful adaptation of the paver system design presented in this report to a particular site and the proper installation by a reputable and experienced paver system contractor.



EXTENT OF  
PAVER SYSTEM

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## EXTENT OF PAVER SYSTEM

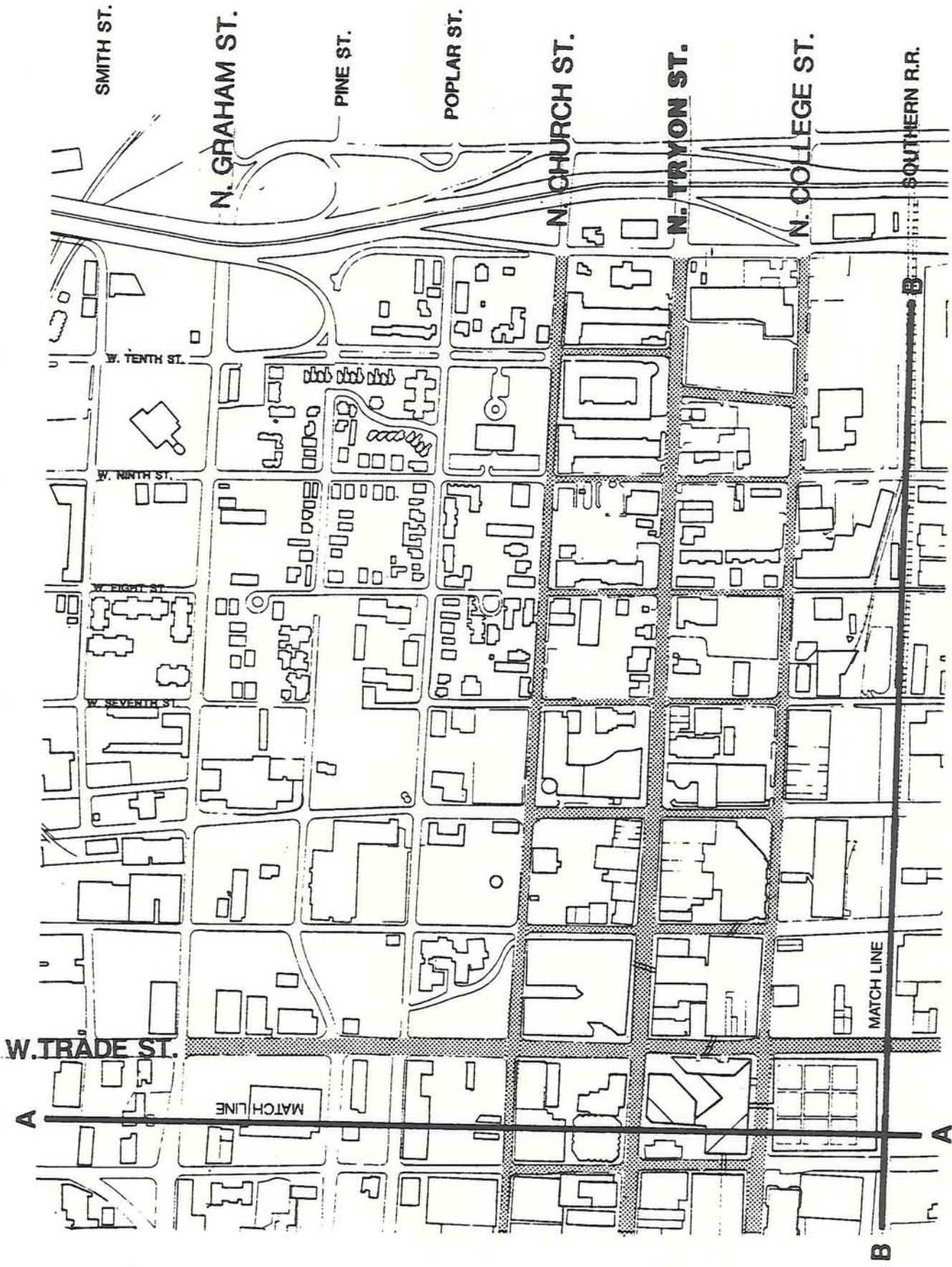
The Uptown Paver System may be used on public sidewalks bordering the streets indicated in the figures on the following pages. The existing granite borders on the original Tryon Street Mall (between Stonewall and 8th Street) must be maintained and pavers are required for this primary sidewalk. Granite borders are not required elsewhere.

- Concrete sidewalks or another pavement system may be used for sidewalks outside the original Tryon Street Mall. Any alternative pavement systems must be approved by the Charlotte-Mecklenburg Planning Commission and the Charlotte Engineering Department.



PAVER SYSTEM ALLOWED

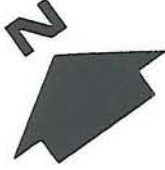
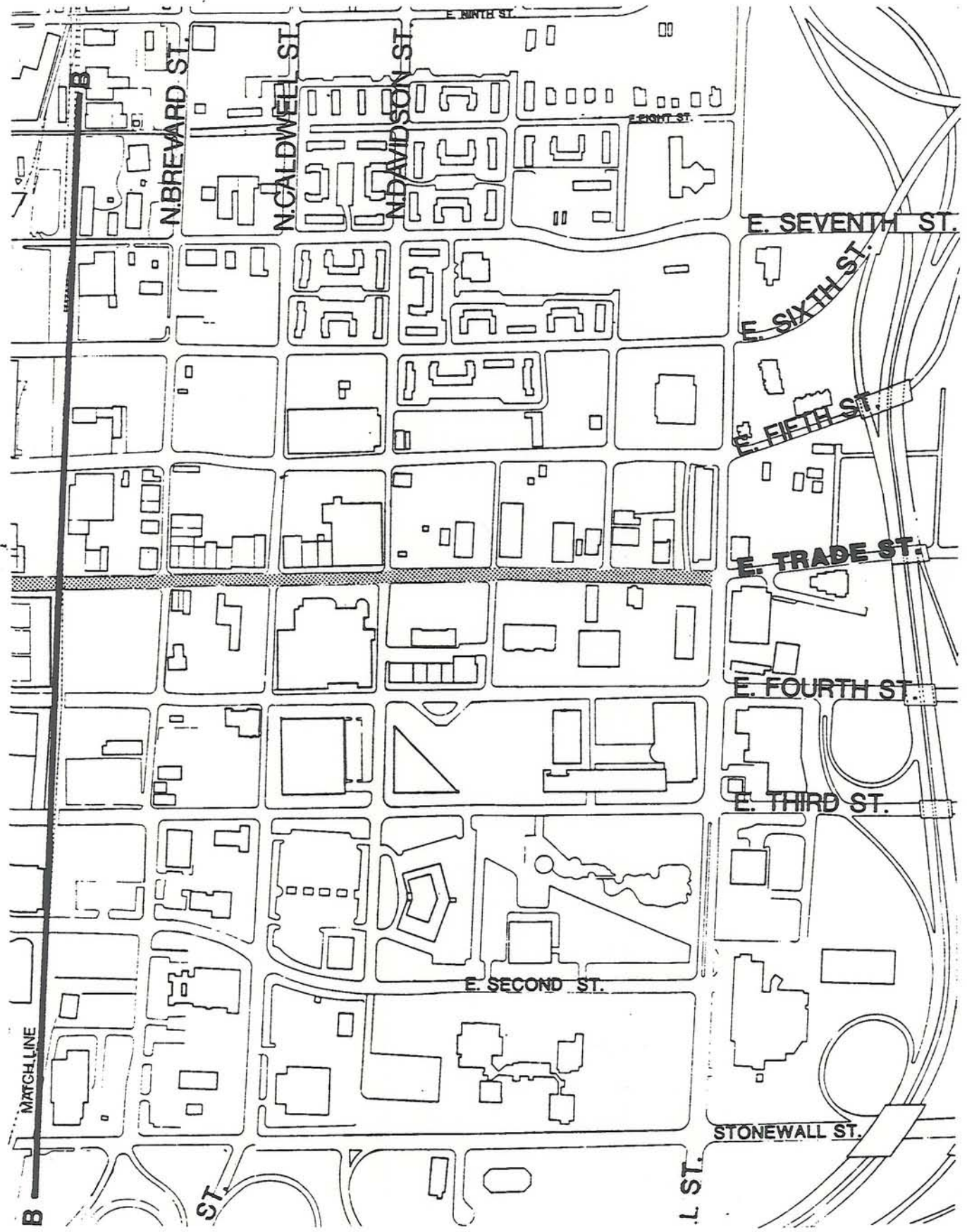




PAVER SYSTEM ALLOWED

7-1-90

PAVER SYSTEM FOR UPTOWN SIDEWALKS

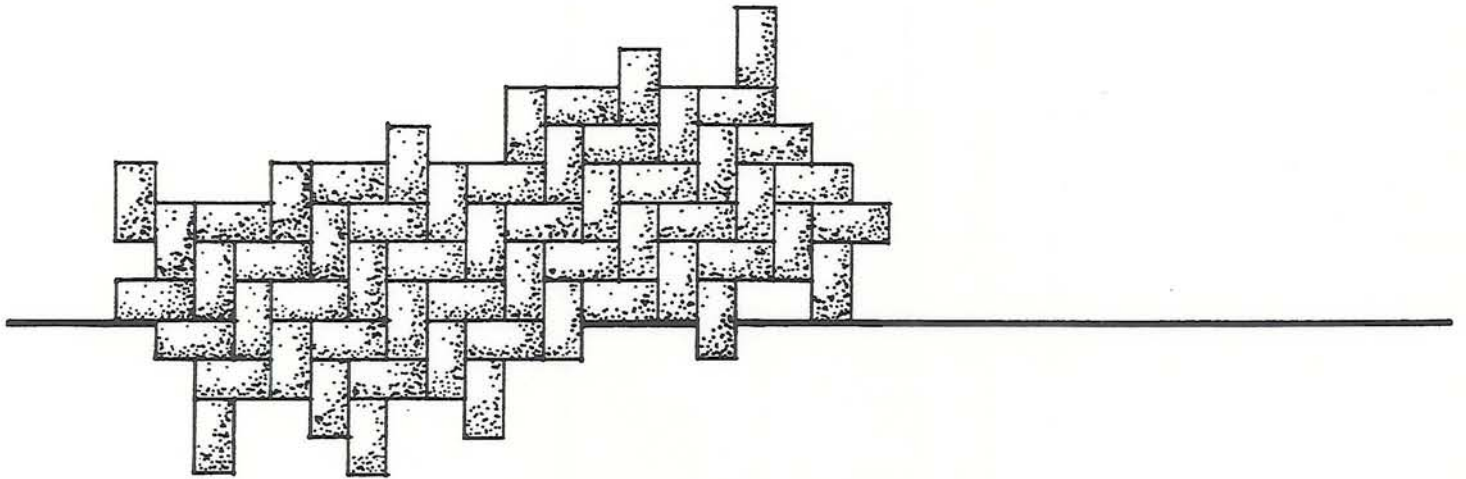


PAVER SYSTEM ALLOWED



PAVER SYSTEM FOR UPTOWN SIDEWALKS





TYPICAL DESIGN  
CONSIDERATIONS

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## TYPICAL DESIGN CONSIDERATIONS

Each project site has special conditions which must be considered in planning for a modular precast concrete paver system. Vehicular traffic, underground structures, required tree wells which extend under the sidewalks, surface or subsurface drainage conditions and site amenities may all necessitate some modification to the basic design presented in this document. Site specific changes must be done with an understanding of the design parameters of a paver system. If a single component of this paver system does not function properly, the success of the entire system may be impacted. The components of this paver system include the subbase, base course, sand laying course (for precast concrete pavers) or setting bed (for the granite banding on the Tryon Street Mall), paver units and joints between paver units.

### Subbase

The subbase consists of well-compacted soil or crushed aggregate as specified herein. The subbase provides primary support for traffic. It must be constructed similar to a roadway subbase.

### Base Course

The base course should consist of crushed aggregate which should be used as a roadway base in the Charlotte area. The compaction requirements for a aggregate base course must not be compromised. Some sites may have an existing concrete base course which is structurally sound. Concrete or crushed aggregate may be used as a base course if drainage is provided for the paver system. Drainage will require the use of a series of weeps and/or continuous drainage structures such as prefabricated drain products.

### Sand Laying Course

The sand specified for the leveling course is a manufactured sand sized to allow compaction and effective drainage. Surface water which penetrates through paver joints must be quickly removed from the sand leveling course. The amount of fines passing the No. 200 sieve is limited so that the laying course will drain to the subsurface drainage system. Poor drainage may reduce the strength of the base or subbase as well as cause efflorescence, typically a chalky white precipitant on the surface of the pavers which has been transported to the paver surface by evaporating water.

The sand laying course does not bond the paver units to the base course. The vertical movement associated with freezing and thawing is accommodated by this system design as long as drainage is provided. An unbonded, flexible system is the preferred design.

#### Setting Bed

Granite band pieces used on the Tryon Street Mall require a cementitious setting bed in lieu of a laying course to provide uniform support necessary to support traffic. The setting bed bonds the granite band to the concrete base course. The addition of a polymer modifier to the cementitious setting bed materials makes the material more durable during inclement weather conditions.

#### Precast Concrete Pavers

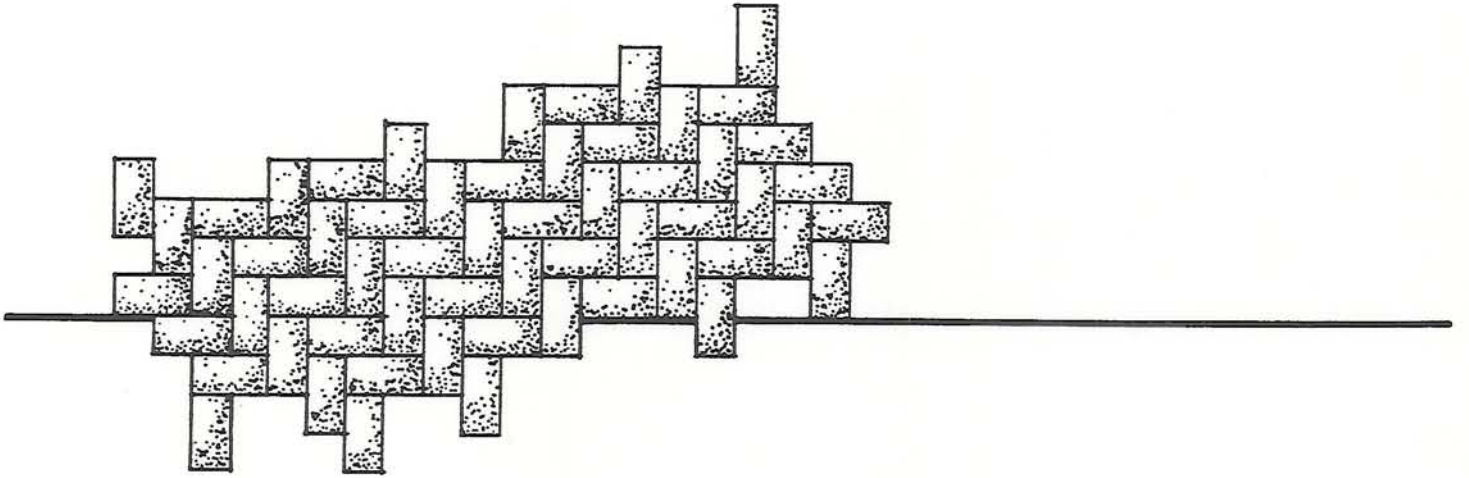
The precast concrete pavers units specified are dense, high strength units with low absorptive qualities. The dimensions and herringbone pattern of the pavers have been selected to maximize interlock and aid the ability of the paver system to withstand vehicular traffic. The nominal 4½" x 9" paver size reflects the nominal 18" x 18" design module established in the original design of the Tryon Street Mall and minimizes the necessity for cutting pavers. This paver size will be used consistently throughout the Uptown Area where concrete pavers are required for public sidewalks.

The color of pavers for public sidewalks is a three-color blend which creates a dark rose, mottled pavement surface. The color is described in more detail in the specifications.

Edge restraint for the paver units is a critical part of the paver system design. The paver units must be held in place laterally by placing pavers tight against an immovable edge such as a curb, building structure or tree grate frame.

#### Paver Unit Joints

The joints between paver units are to be tight and filled with manufactured sand fines as specified. Fines in the joints minimize the amount of surface water allowed to pass into the paver system and aid in the interlocking of the paver units. The surface of the paver system should slope at a minimum of 2% to further reduce penetration of surface water runoff.



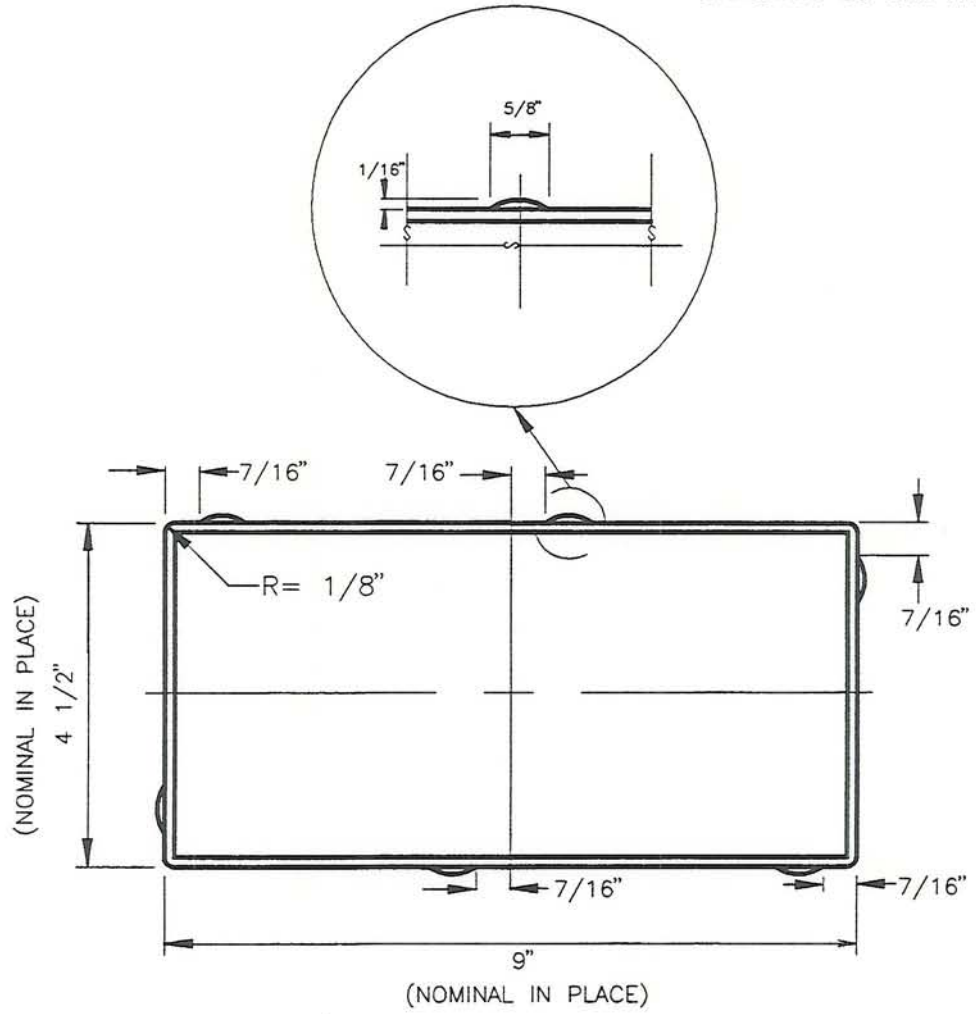
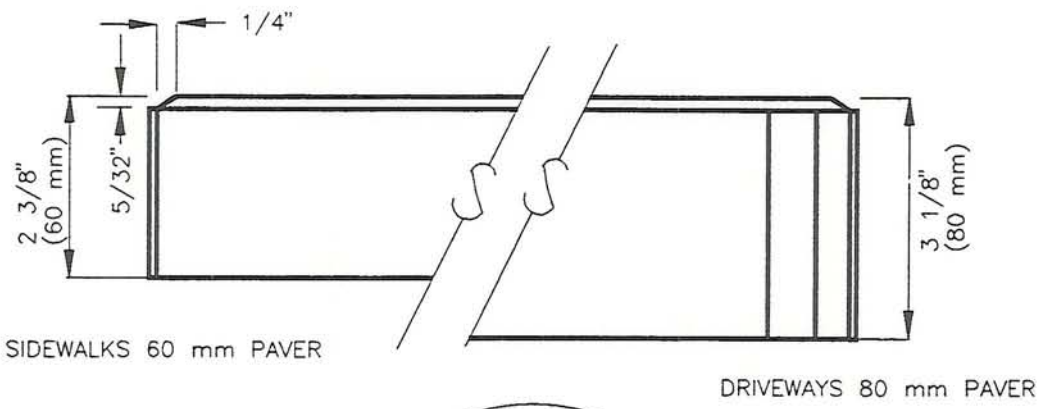
DETAILS

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## INTRODUCTION TO DETAILS

The following pages include a variety of details for the precast paver system for Uptown Charlotte sidewalks. Some of the details represent paving requirements for areas included in the original Tryon Street Mall. The granite curbs and banding shown in these details are not required for other public sidewalks.

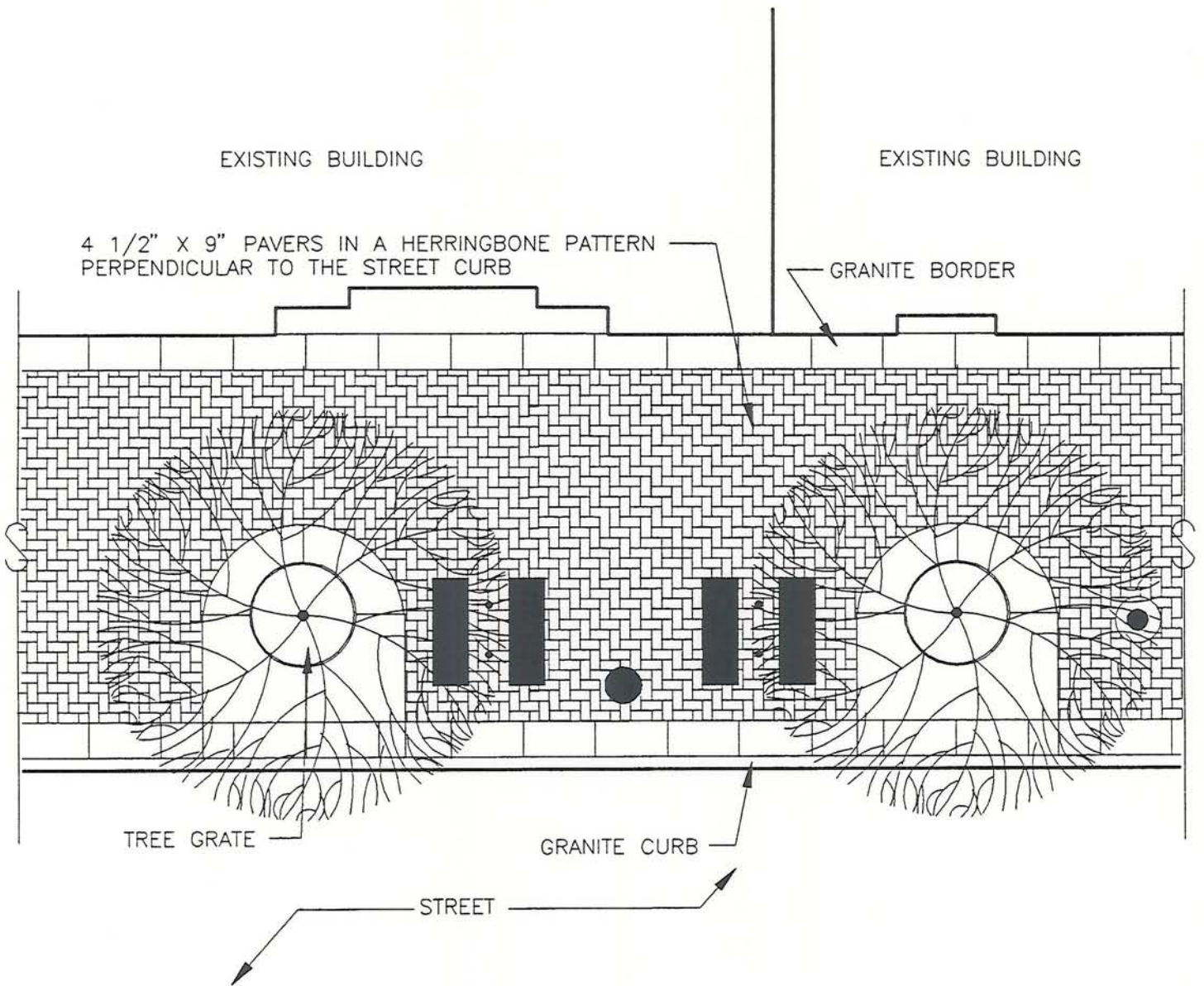
All details shown are generic. The designer of each project is responsible for adopting this pavement system to site-specific requirements. Any variations from the details shown must be submitted to the City of Charlotte as part of the paver system review.



PRECAST CONCRETE PAVERS

PAVER SYSTEM FOR  
UPTOWN SIDEWALKS

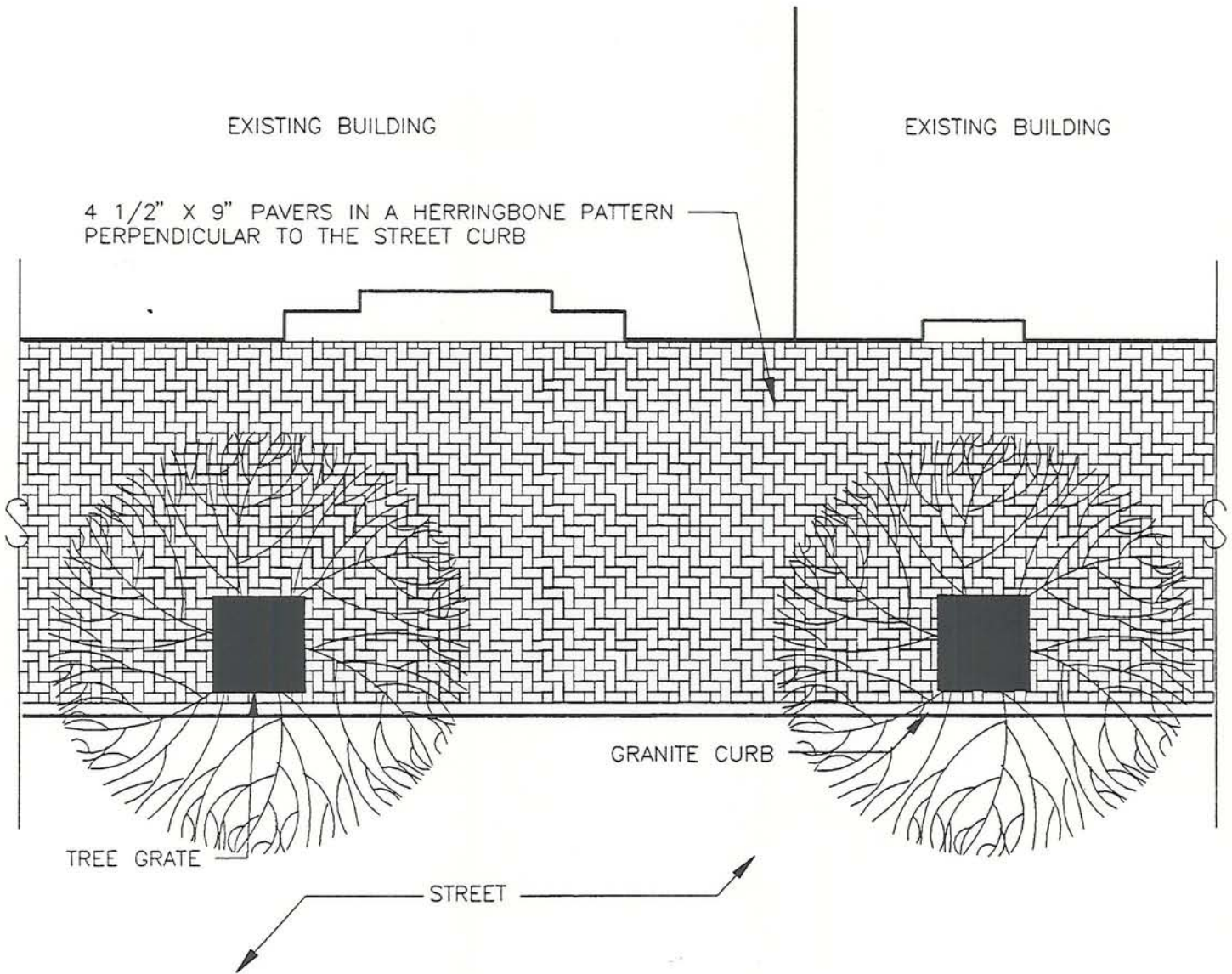
7-1-90



SIDEWALK PAVING PLAN  
(FOR TRYON STREET MALL)

## PAVER SYSTEM FOR UPTOWN SIDEWALKS

7-1-90

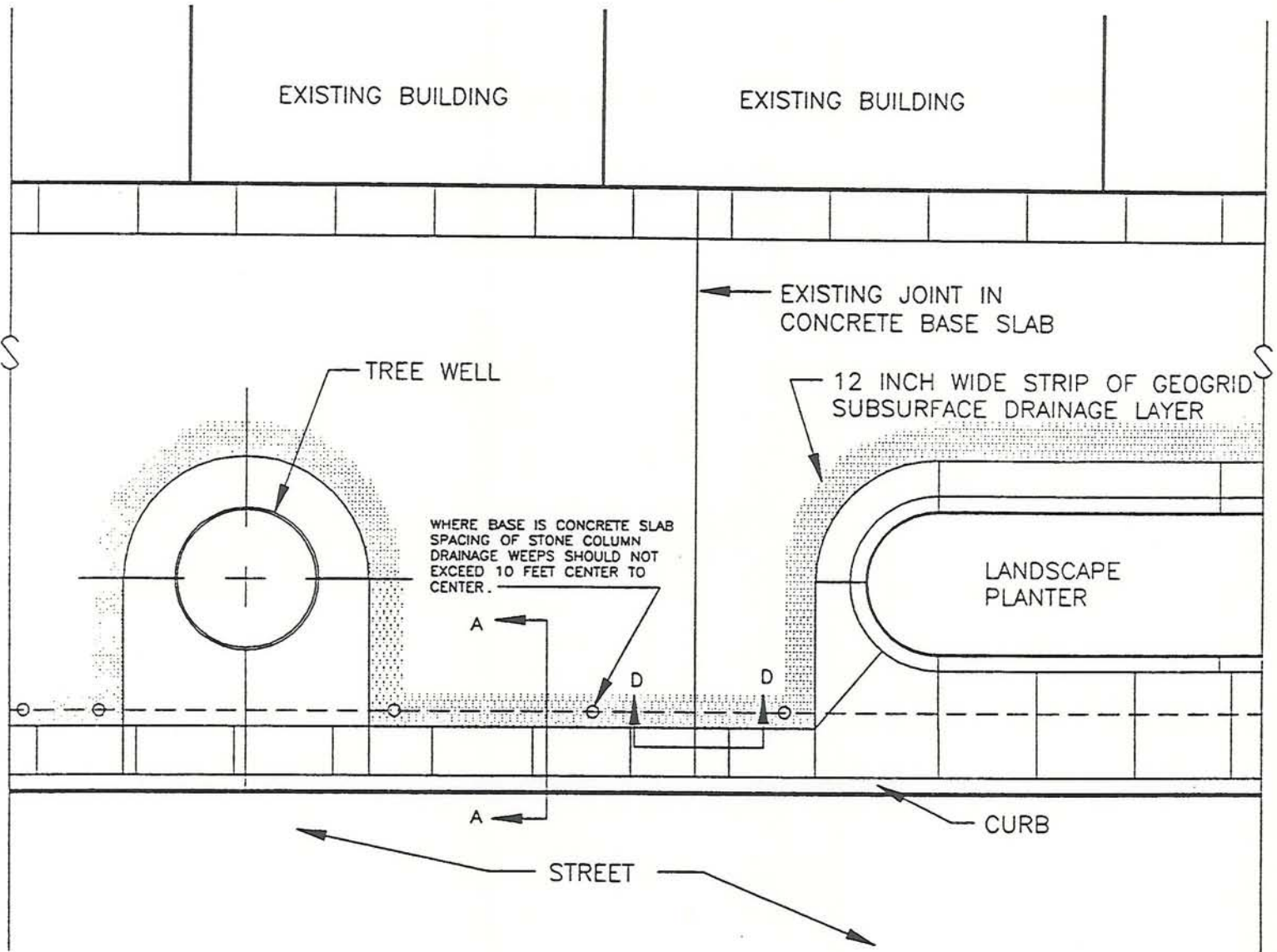


SIDEWALK PAVING PLAN  
 (OTHER THAN THE TRYON STREET MALL)

## PAVER SYSTEM FOR UPTOWN SIDEWALKS

7-1-90

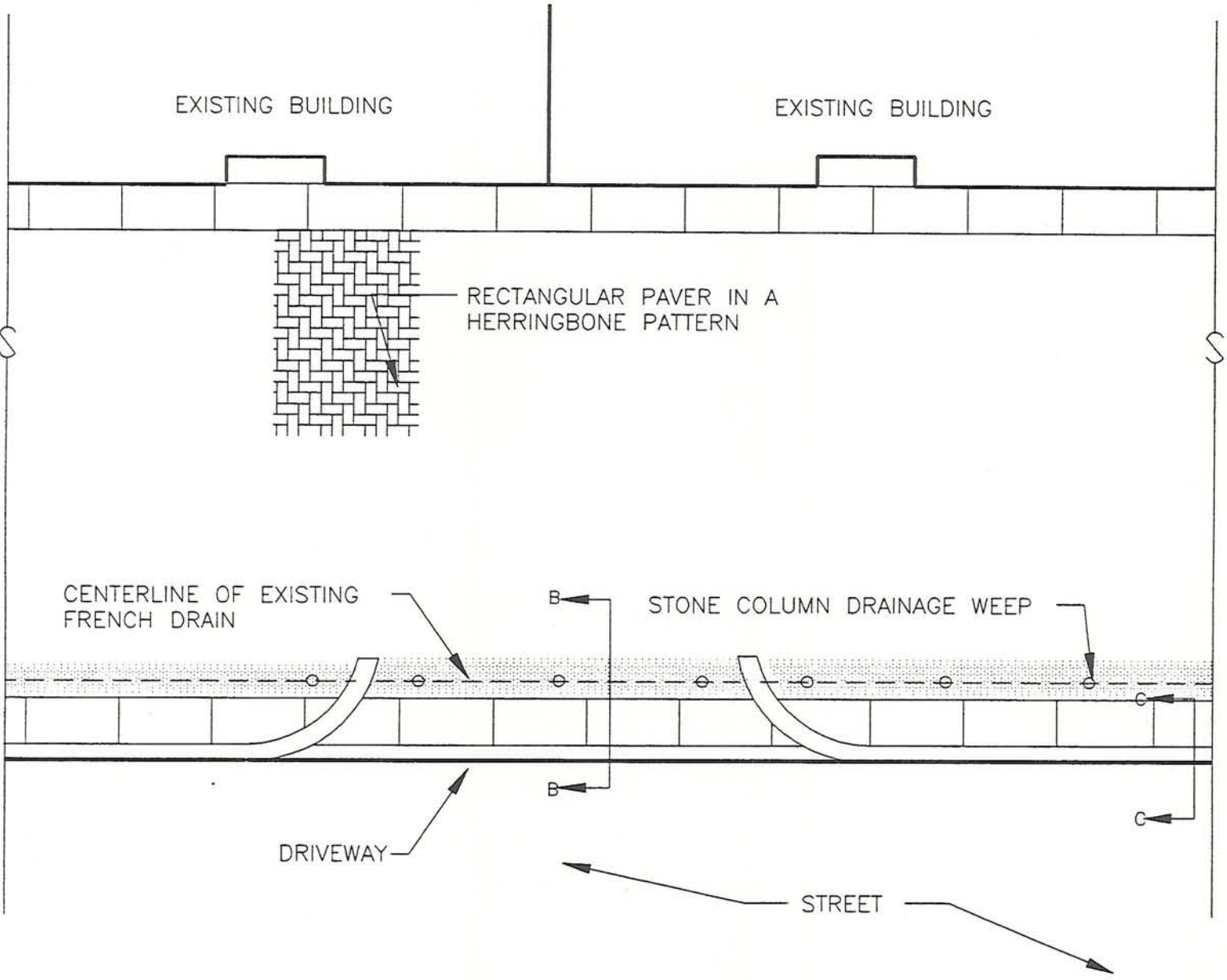




SIDEWALK PAVING PLAN

# PAVER SYSTEM FOR UPTOWN SIDEWALKS

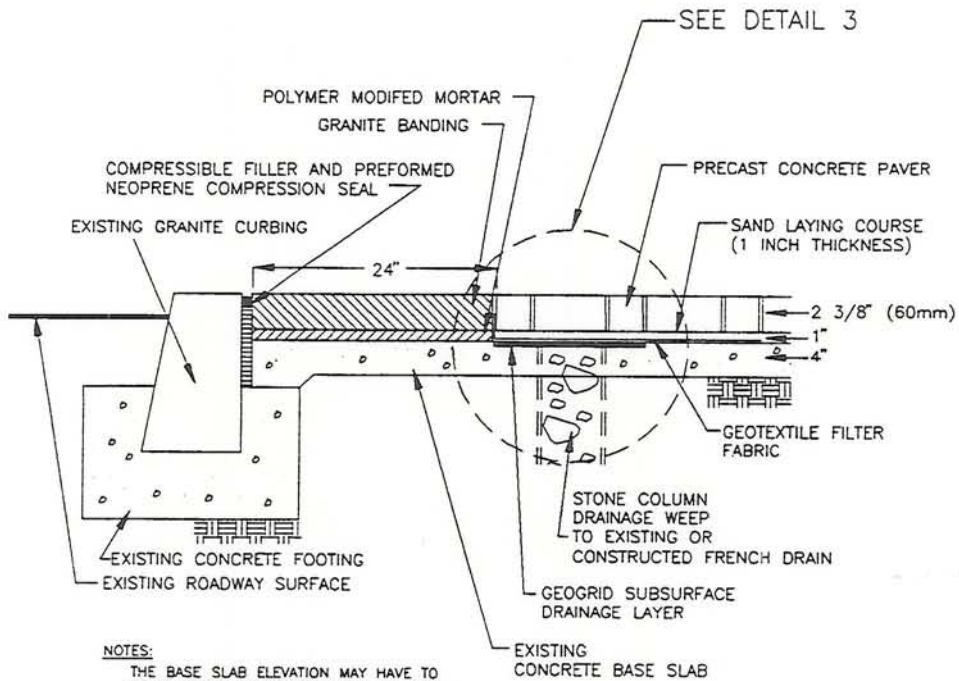
7-1-90



SIDEWALK AND DRIVEWAY DRAINAGE PLAN

PAVER SYSTEM FOR  
UPTOWN SIDEWALKS

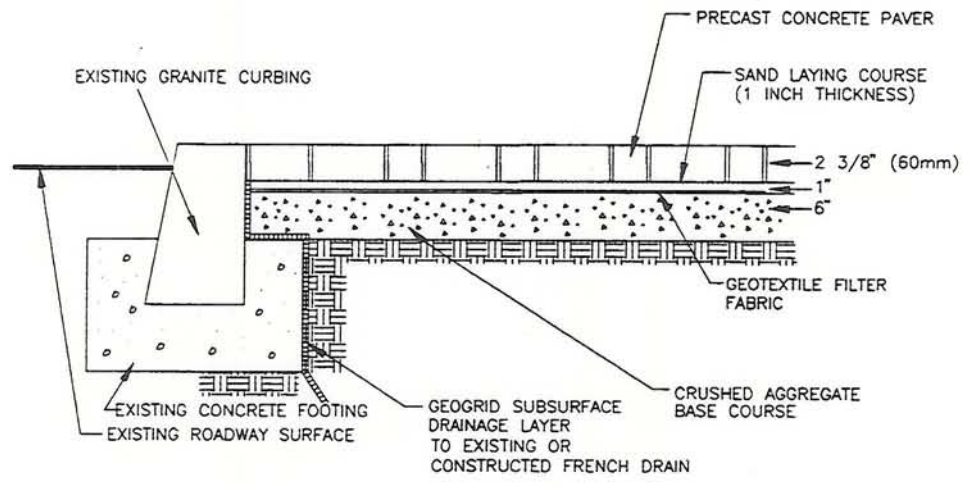
7-1-90



**NOTES:**  
 THE BASE SLAB ELEVATION MAY HAVE TO BE ADJUSTED BY GRINDING AND OR WITH MORTAR FILL TO PROVIDE A UNIFORM SAND LAYING COURSE THICKNESS OF ONE INCH.  
 NOT TO SCALE

**SECTION A-A**

TYPICAL SIDEWALK SECTION WITH CONCRETE SUBSLAB BASE

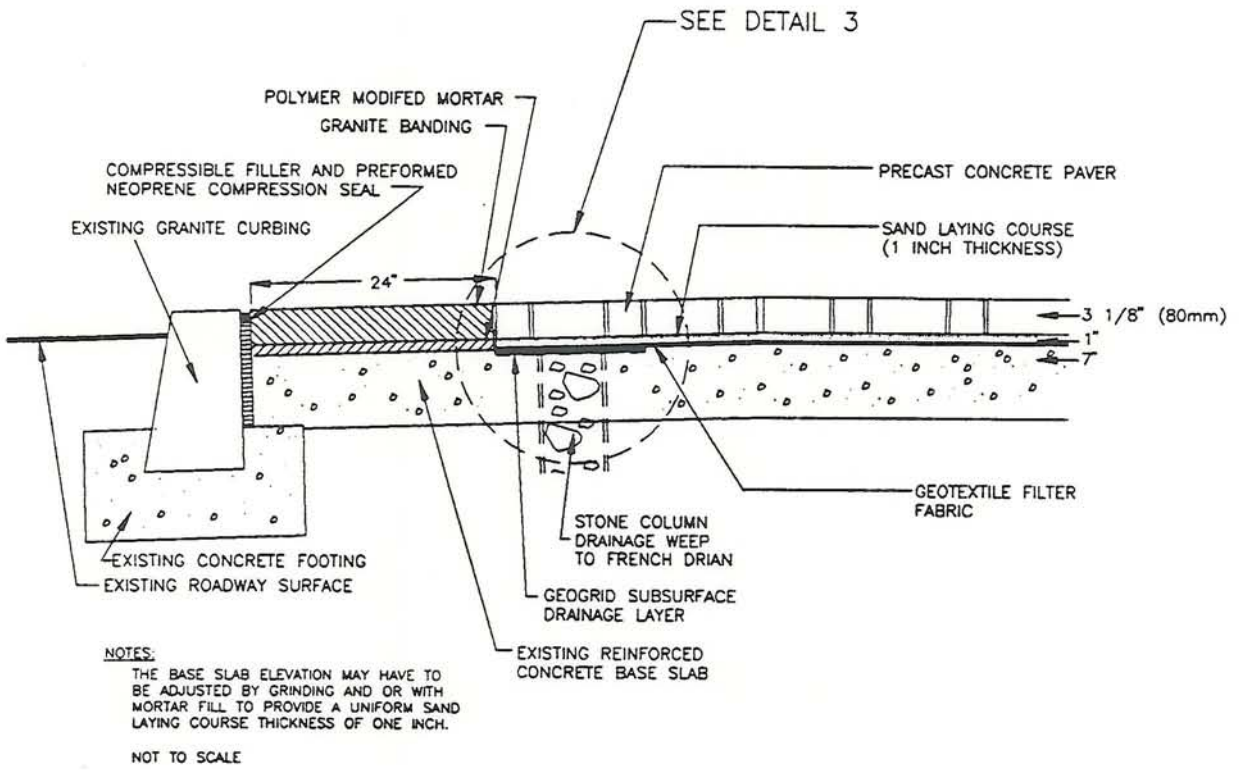


**SECTION A-A**

TYPICAL SIDEWALK SECTION WITH AGGREGATE BASE

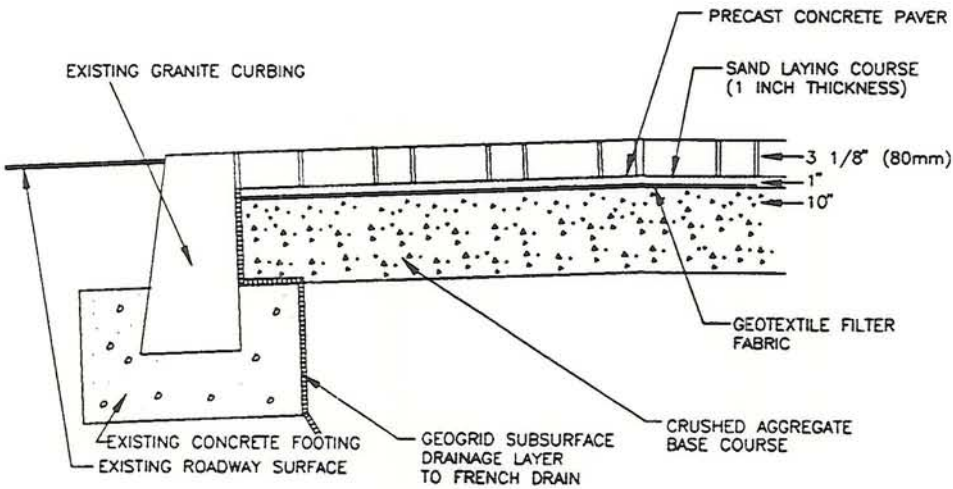
# PAVER SYSTEM FOR UPTOWN SIDEWALKS

7-1-90



**SECTION B-B**

TYPICAL DRIVEWAY SECTION  
WITH CONCRETE SUBSLAB BASE

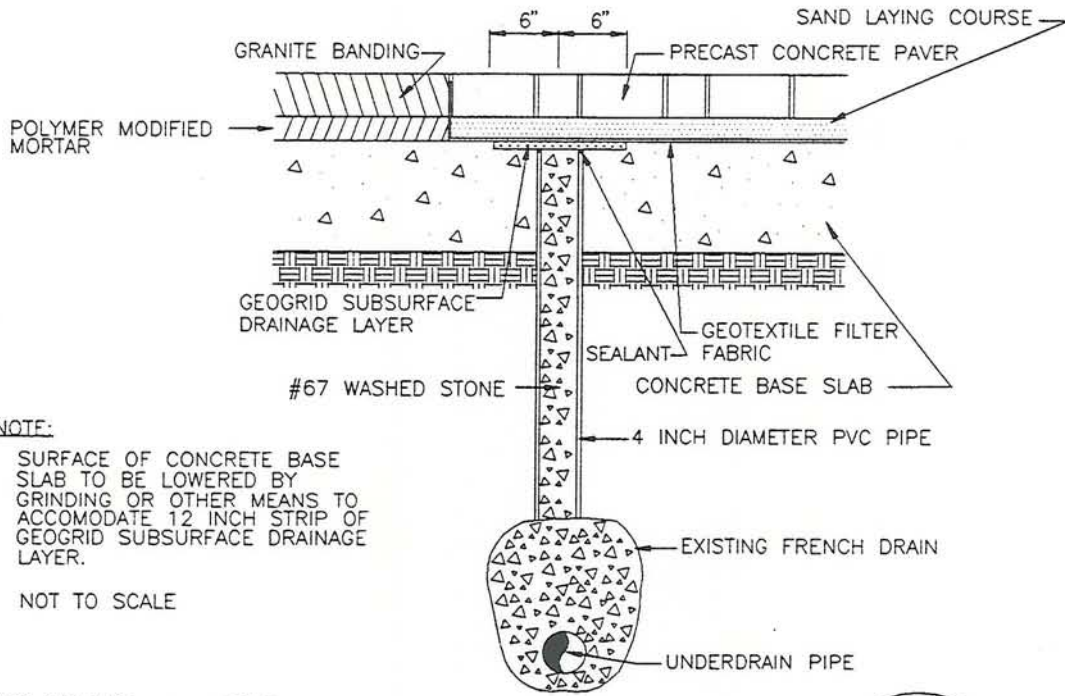


**SECTION B-B**

TYPICAL DRIVEWAY SECTION  
WITH AGGREGATE BASE

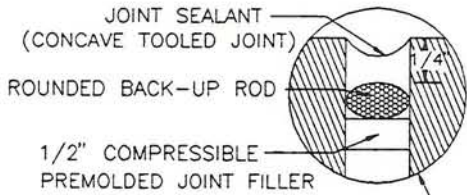
# PAVER SYSTEM FOR UPTOWN SIDEWALKS

**DETAIL 3**  
TYPICAL STONE COLUMN DRAINAGE WEEP

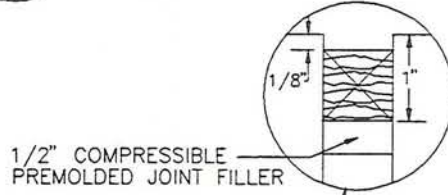


**NOTE:**  
SURFACE OF CONCRETE BASE SLAB TO BE LOWERED BY GRINDING OR OTHER MEANS TO ACCOMMODATE 12 INCH STRIP OF GEOGRID SUBSURFACE DRAINAGE LAYER.

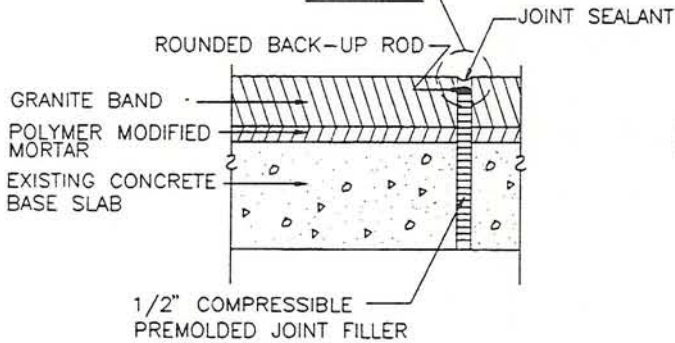
NOT TO SCALE



**DETAIL 1**

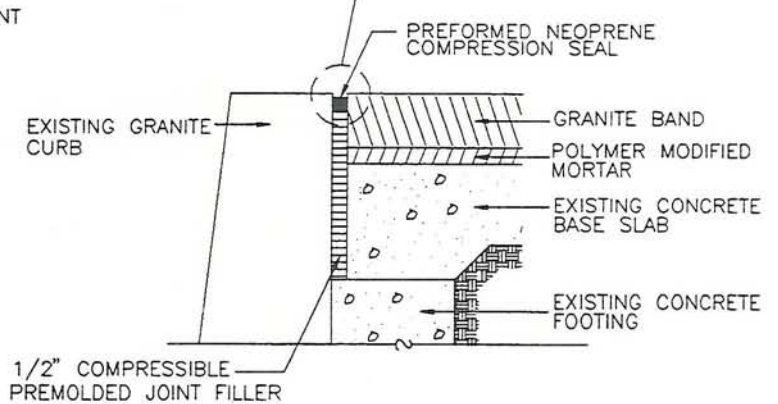


**DETAIL 2**



**SECTION D-D**

TYPICAL EXPANSION JOINT IN GRANITE BANDING ON CONCRETE BASE SLAB



**SECTION C-C**

TYPICAL EXPANSION JOINT ON CONCRETE BASE SLAB AND CURB

# PAVER SYSTEM FOR UPTOWN SIDEWALKS

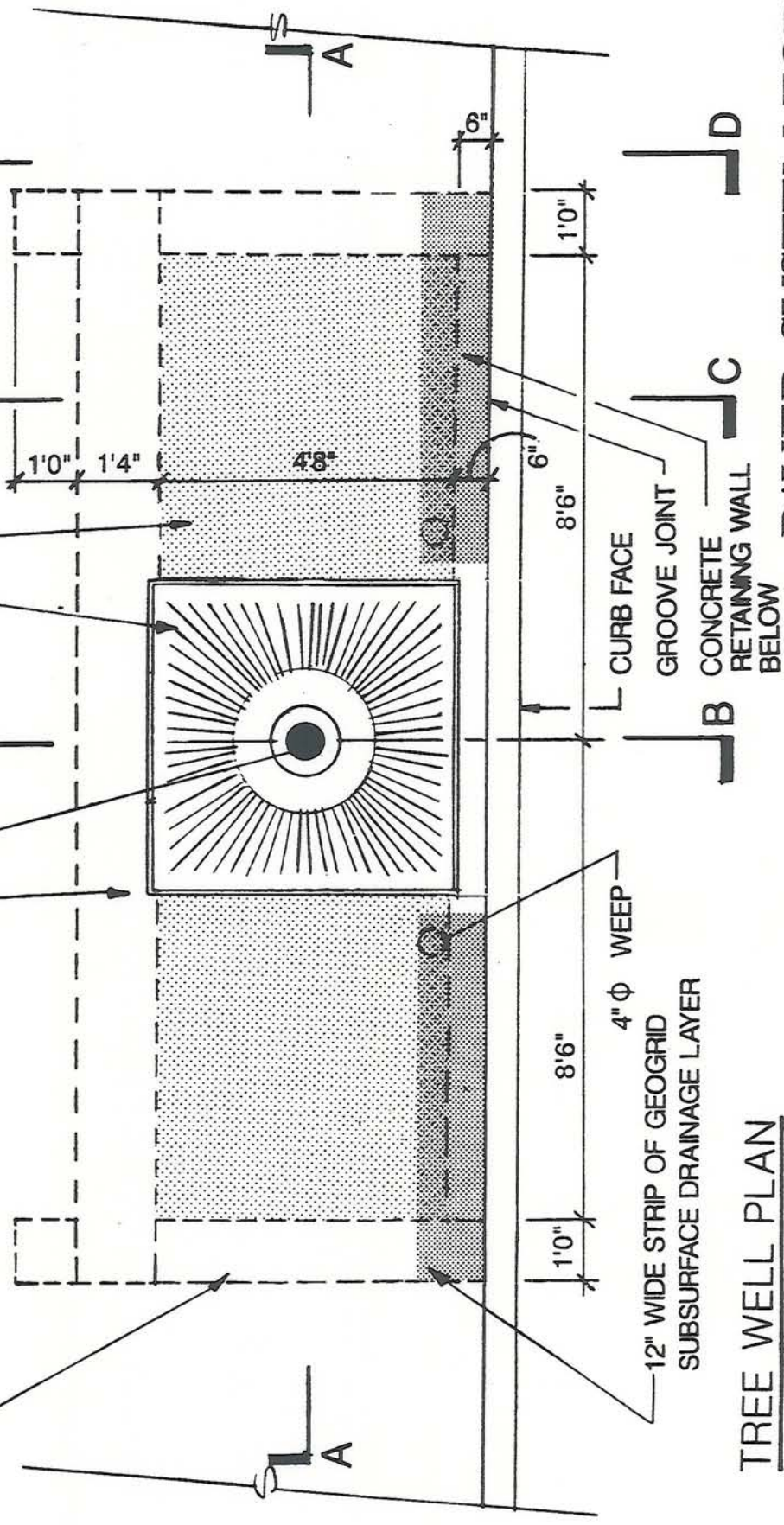
7-1-90

NOTE: THE TREE GRATE REQUIRED FOR THE TRYON STREET MALL IS NEENAH DRAWING N° NF-41191

CITY STD. TREE GRATE #8714 OR APPROVED EQUAL PRIMED AND PAINTED WITH BLACK, EXTERIOR GRADE GLOSS ENAMEL

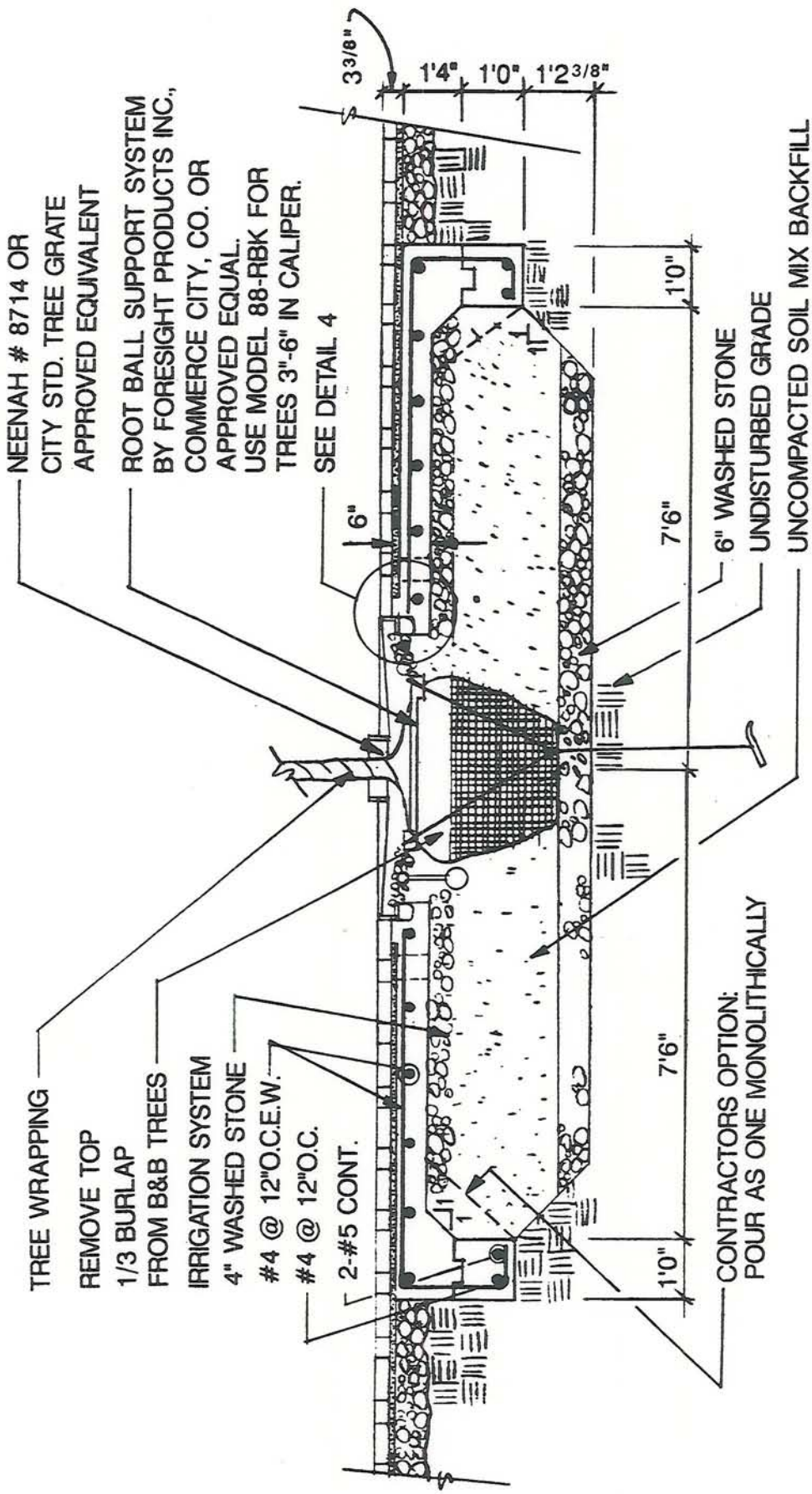
PLANTING AREA UNDER SIDEWALK, TYPICAL (UNCOMPACTED FILL)

PROPOSED TREE  
CONCRETE BEAM  
CONCRETE FOOTING



TREE WELL PLAN  
SCALE: 3/8"=1'0"

PAVER SYSTEM FOR  
UPTOWN SIDEWALKS



NEENAH # 8714 OR  
 CITY STD. TREE GRATE  
 APPROVED EQUIVALENT  
 ROOT BALL SUPPORT SYSTEM  
 BY FORESIGHT PRODUCTS INC.,  
 COMMERCE CITY, CO. OR  
 APPROVED EQUAL.  
 USE MODEL 88-RBK FOR  
 TREES 3"-6" IN CALIPER.  
 SEE DETAIL 4

TREE WRAPPING  
 REMOVE TOP  
 1/3 BURLAP  
 FROM B&B TREES  
 IRRIGATION SYSTEM  
 4" WASHED STONE  
 #4 @ 12"O.C.E.W.  
 #4 @ 12"O.C.  
 2-#5 CONT.

6" WASHED STONE  
 UNDISTURBED GRADE  
 UNCOMPACTED SOIL MIX BACKFILL

CONTRACTORS OPTION:  
 POUR AS ONE MONOLITHICALLY

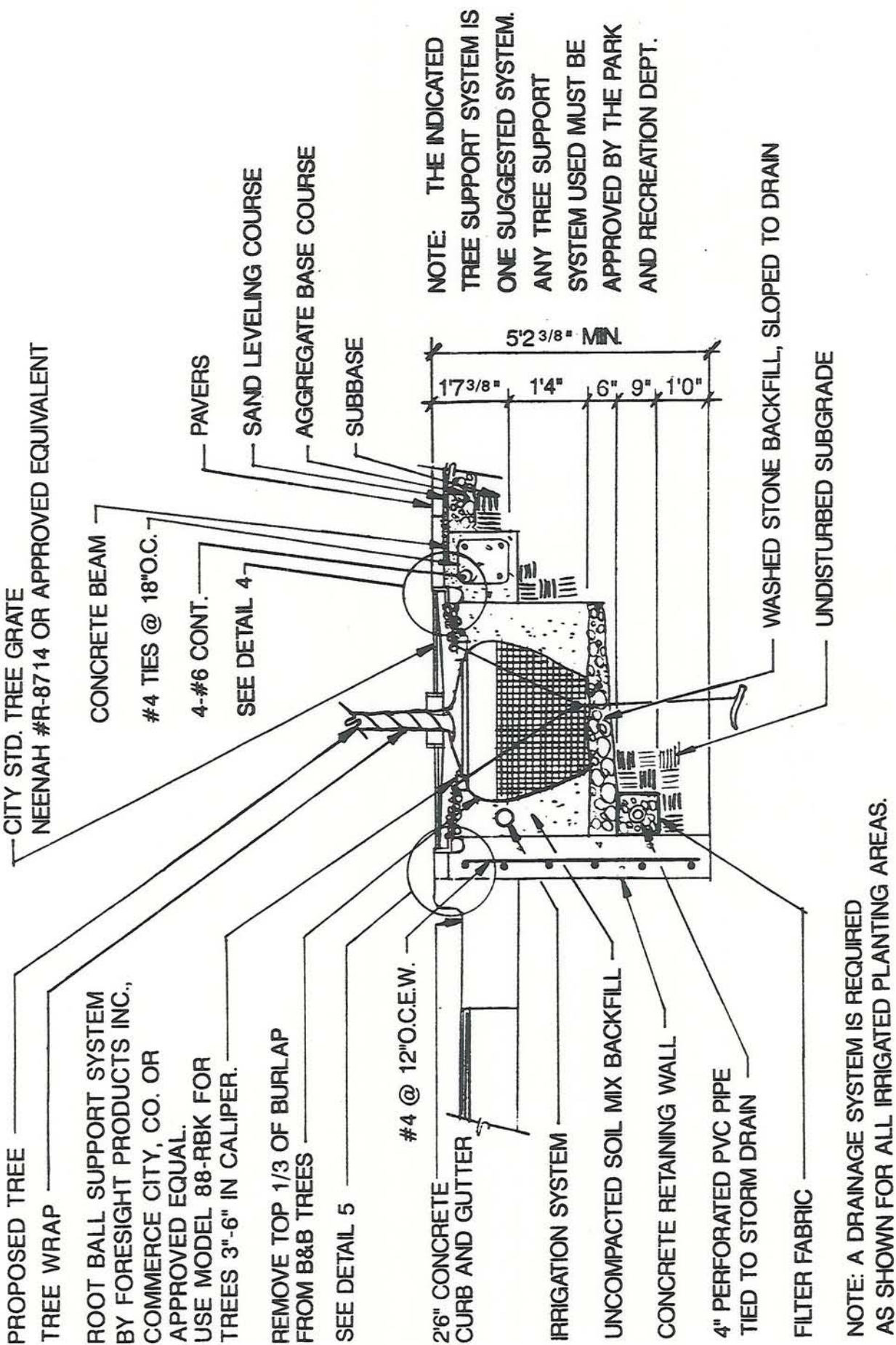
TREE WELL SECTION A-A

SCALE: 3/8"=1'0"

NOTE:

THE INDICATED TREE SUPPORT SYSTEM IS ONE SUGGESTED SYSTEM.  
 ANY TREE SUPPORT SYSTEM USED MUST BE APPROVED BY  
 THE PARK AND RECREATION DEPT.

**PAVER SYSTEM FOR  
 UPTOWN SIDEWALKS**



NOTE: THE INDICATED TREE SUPPORT SYSTEM IS ONE SUGGESTED SYSTEM. ANY TREE SUPPORT SYSTEM USED MUST BE APPROVED BY THE PARK AND RECREATION DEPT.

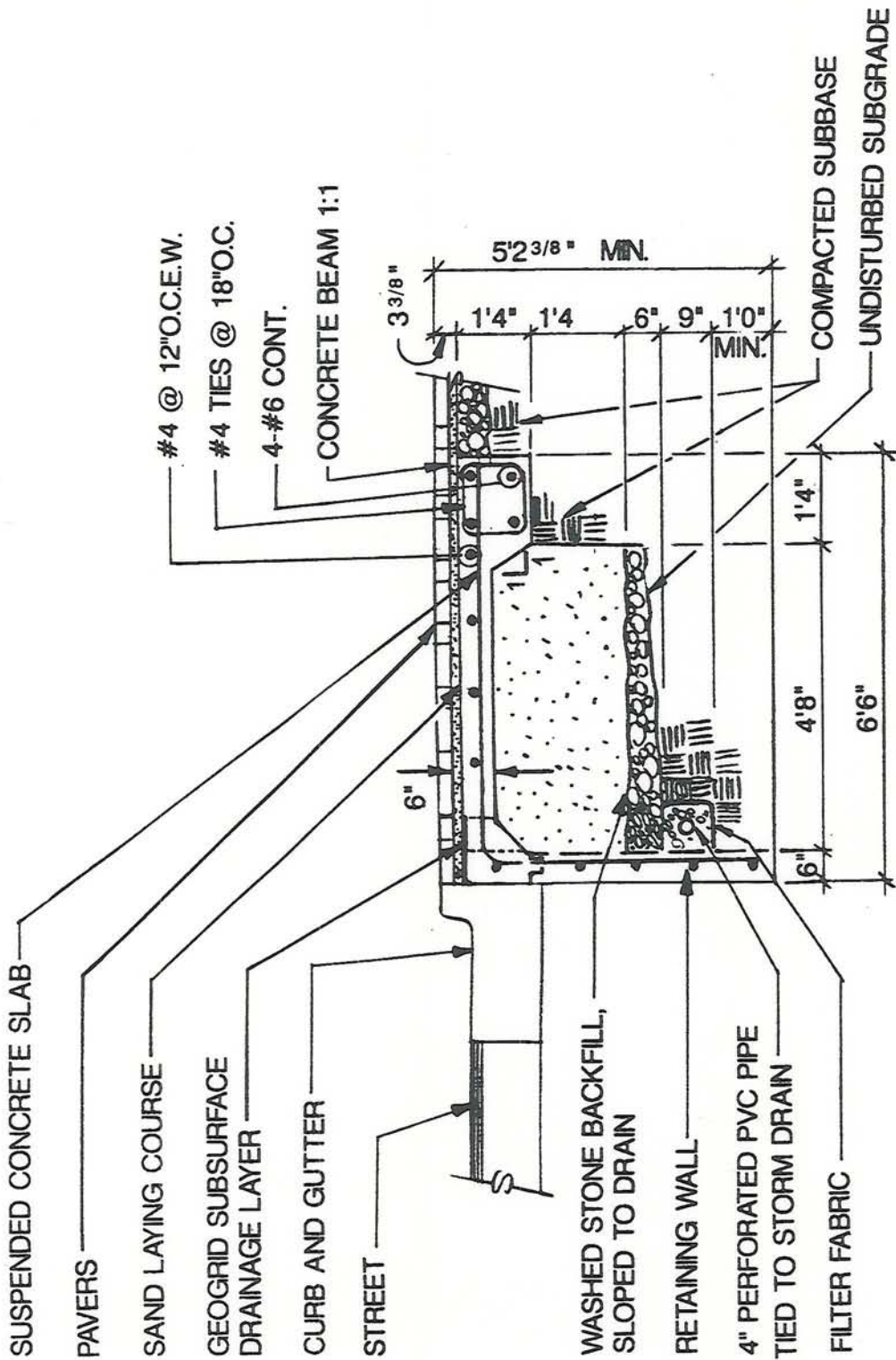
NOTE: A DRAINAGE SYSTEM IS REQUIRED AS SHOWN FOR ALL IRRIGATED PLANTING AREAS.

TREE WELL SECTION B-B

SCALE: 3/8"=1'0"

**PAVER SYSTEM FOR UPTOWN SIDEWALKS**

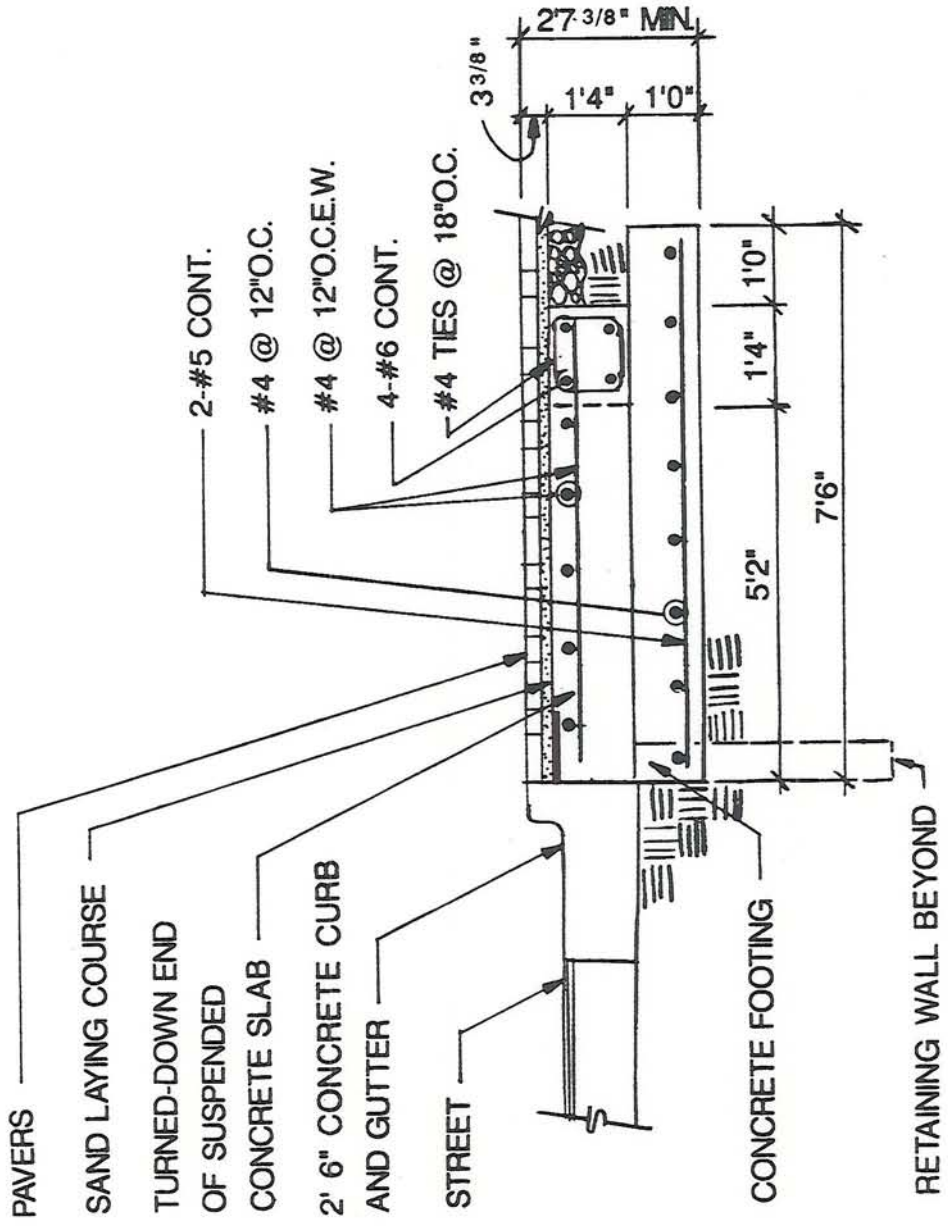




TREE WELL SECTION C-C

SCALE: 3/8" = 1'0"

# PAVER SYSTEM FOR UPTOWN SIDEWALKS



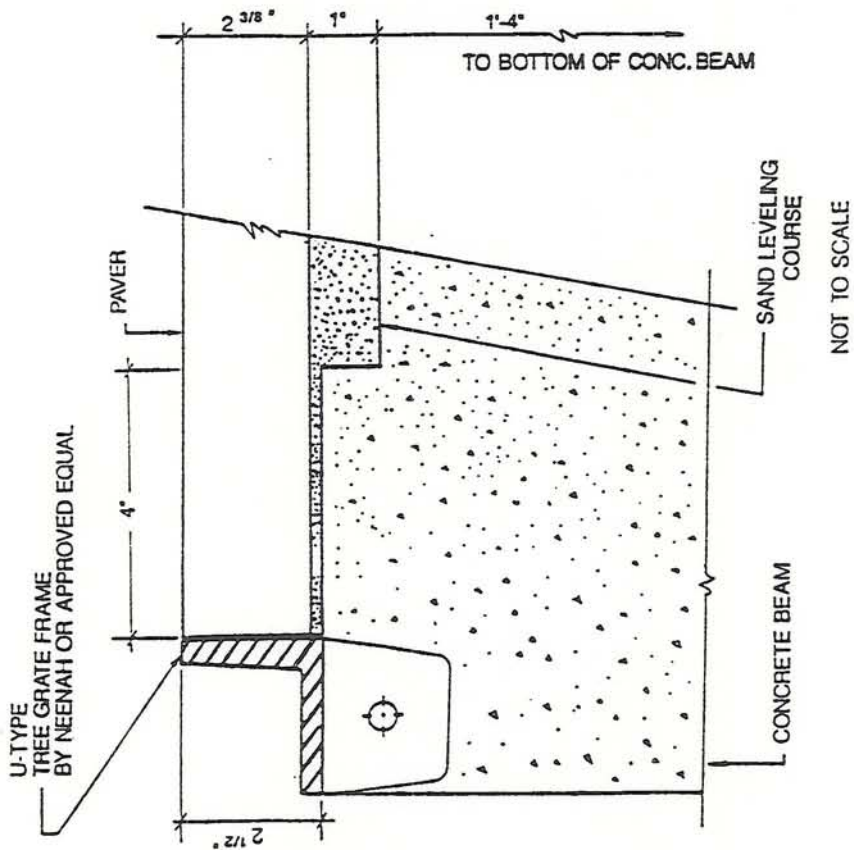
TREE WELL SECTION D-D

SCALE: 3/8"=1'0"

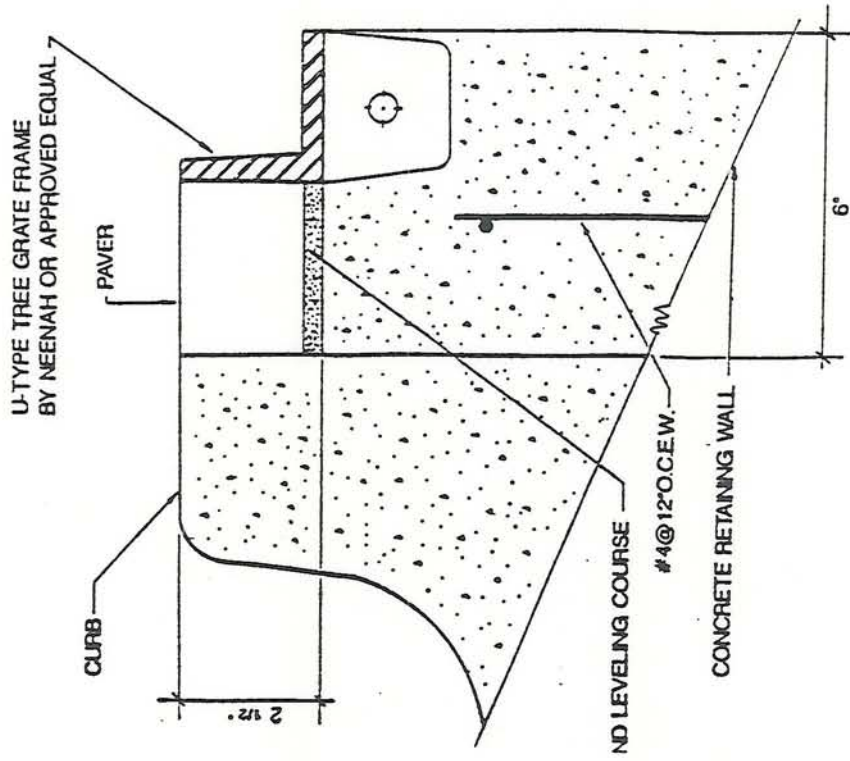
PAVER SYSTEM FOR  
UPTOWN SIDEWALKS

7-1-90

DETAIL 4

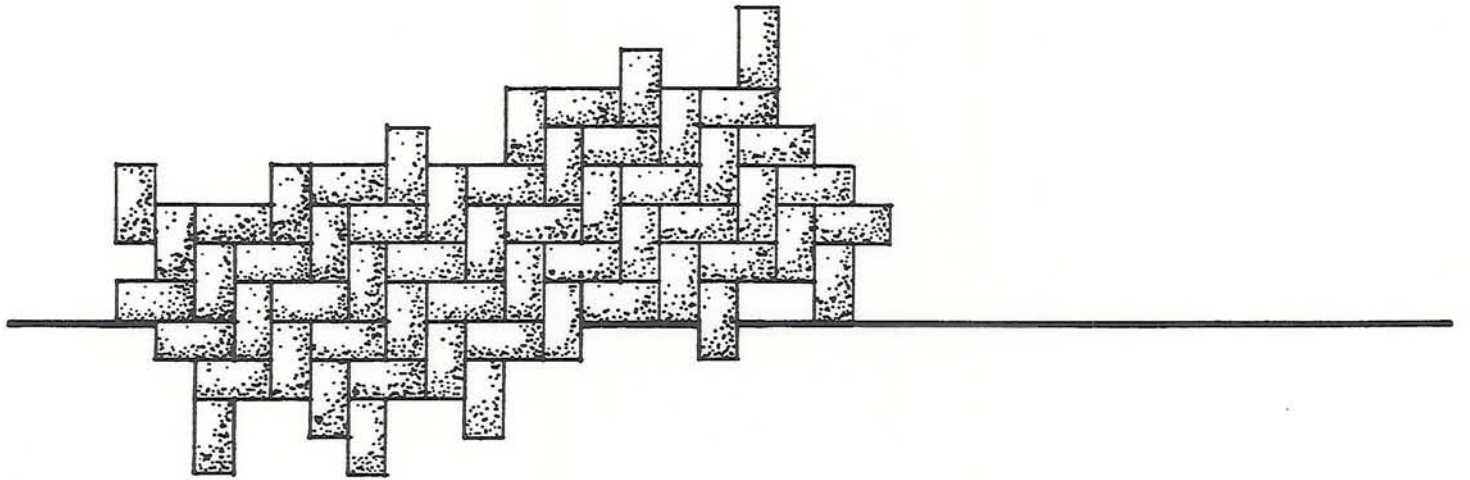


DETAIL 5



# PAVER SYSTEM FOR UPTOWN SIDEWALKS

7-1-90



S P E C I F I C A T I O N S

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## SECTION 02515

### PRECAST CONCRETE PAVING

#### PART I - GENERAL

##### 1.01 DESCRIPTION

- A. Work included: Provide precast concrete paving where shown on the Drawings, as specified in this Section, and as needed for a complete and proper installation.
- B. Related work:
  - 1. Section 02232 - Sand Laying Course and Drainage Weeps.

##### 1.02 DEFINITIONS:

ASTM - American Society for Testing and Materials.

##### 1.03 SUBMITTALS

- A. Experience Requirements:

Contractor or Subcontractor who will install the paver system shall submit a minimum of five references for work that he has done of similar nature listing the name, address and telephone number of the Owner, location, size and description of each project. The project list should total at least 500,000 square feet, and shall have been constructed within the past 5 years.
- B. Product Data: Submit the following for approval at least two weeks in advance of construction:
  - 1. Materials list for items proposed to be provided under this Section.
  - 2. Certifications, signed by materials producers and subcontractors, stating that the materials meet or exceed the specified requirements.
- C. Materials Samples: Submit at least twelve weeks prior to beginning the Work, adequate and representative samples of the precast concrete pavers proposed for use on the project to the Testing Laboratory for testing necessary to determine compliance with this Section.
- D. Submittals to be made to the City of Charlotte Engineering Department, attention Mr. Timothy A. Richards, P.E.

## 1.04 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in capacity and numbers to accomplish the Work in a timely manner.
- C. Provide material samples, access for and cooperate with the Testing Laboratory

## 1.05 PRODUCT HANDLING AND STORAGE

- A. Store or stockpile materials at locations designated by the City Of Charlotte Department Of Transportation (CDOT).
- B. Protect the materials from deterioration during storage.

## PART II - PRODUCTS

### 2.01 MATERIALS

- A. Precast concrete pavers:
  - 1. Size:
    - a). Sidewalks: Nominal 4-1/2 inch by 9 inch rectangular paver 60 mm thick.
    - b). Drives: Nominal 4-1/2 inch by 9 inch rectangular paver 80 mm thick.
  - 2. Color:

Paver batch design shall consist of 450 lbs. cement/2085 lbs aggregates/min. 12 lbs of inorganic color pigment.

The color shall be a three-color blend of 15% Brick Red (160-4), 35% Midnight Black (8084) and 50% Baja Red (160-2) Davis Colors by Frank D. Davis Co., Beltsville, MD. 20705 or approved equal to match "Southmark" by Paverlock, Inc. of Cincinnati, Ohio..
  - 3. Physical Properties, comply with ASTM C 936 except as follows:

- a). Aggregates: Use normal weight aggregates that conform with the requirements in ASTM C 33.
- b). Resistance to freezing and thawing: As required by ASTM C 936 except subject the test specimens to 300 cycles of freezing and thawing.
- c). Surface Texture: The pavers shall have a uniform surface texture that is not unusually coarse or pitted.
- d). Efflorescence: The pavers shall show no signs of efflorescence when subjected to an extended efflorescence test. The test procedure shall be in accordance with ASTM C 67 except the test period will be extended from 7 to 28 days.

### PART III - EXECUTION

#### 3.01 PREPARATION

- A. Sand laying course and drainage weeps: Comply with Section 02232.

#### 3.02 INSTALLATION

- A. Placement:
  - 1. Lay the pavers in a herringbone pattern as shown on the Drawings.
  - 2. Place the pavers so that they are in contact with adjacent paver unit spacing ribs.
  - 3. Fill gaps around utility boxes, tree wells, edge restraints, etc. with paver units cut to fit. Make edge cuts without cracking or chipping the paver units. Provide a joint width of 1/16 inch to 1/8 inch between cut edges of paver and adjacent structure.
- B. Vibration:
  - 1. Vibrate the pavers until they are firmly seated in the sand laying course and the surface elevations are within the tolerances permitted.
  - 2. Use compaction effort necessary to prevent densification of sand under traffic.
  - 3. Do not vibrate the pavers closer than 3 feet to any unrestrained edges.

4. Use a minimum of three passes of the vibrator.
5. Completely vibrate all pavers, except those within three feet of the laying face, prior to the end of each day's Work.

C. Filling Joints:

1. Use fine dry sand meeting the requirements of ASTM C 144.
2. Spread the sand on the surface of the pavers after the first pass of the vibrator.
3. Use additional passes of the vibrator and spread additional sand on the paver surface as required to completely fill the joints.
4. Remove surplus sand from the surface of the pavers.
5. Return to site as necessary within the first month to refill joints and relevel pavers.

### 3.04 ACCEPTANCE

A. Surface Tolerances:

1. The final surface elevation of the paver system shall not deviate from the design elevations by more than 1/4 inch.
2. The final surface, when measured under a 10 feet lay steel or aluminum straightedge, shall not deviate by more than 1/8 inch.

- B. Damaged Paver Units: Remove and replace damaged paver units prior to final acceptance.

END OF SECTION



## SECTION 02517

### GRANITE BAND

#### PART I - GENERAL

##### 1.01 DESCRIPTION

- A. Work included: Replace or construct granite banding where shown on the Drawings, as specified in this Section, and as needed for a complete and proper installation.
- B. Related work:
  - 1. Section 02515 - Precast Concrete Paving.
  - 2. Section 02232 - Sand Laying Bed and Drainage Weeps.

##### 1.02 DEFINITIONS:

ASTM - American Society for Testing and Materials.

AASHTO - American Association of State Highway and Transportation Officials.

##### 1.03 SUBMITTALS

###### A. Experience Requirements:

Contractor or Subcontractor who will install the paver system shall submit a minimum of five references for work that he has done of similar nature listing the name, address and telephone number of the Owner, location, size and description of each project. The project list should total at least 500,000 square feet, and shall have been constructed within the past 5 years.

###### B. Product data: Submit the following for approval at least two weeks in advance of construction:

- 1. Materials list for items proposed to be provided under this Section.
- 2. Certifications, signed by materials producers and subcontractors, stating that the materials meet or exceed the specified requirements.

- C. Materials Samples: Submit at least twelve weeks prior to beginning the Work, adequate and representative samples of the polymer modified mortar and replacement granite panels proposed for use on the Project to the Testing Laboratory for testing necessary to determine compliance with this Section.
- D. Submittals to be made to the City of Charlotte Engineering Department, attention Mr. Timothy A. Richards, P.E.

#### 1.04 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in capacity and numbers to accomplish the Work in a timely manner.
- C. Provide material samples, access for and cooperate with the Testing Laboratory.

#### 1.05 PRODUCT HANDLING AND STORAGE

- A. Store or stockpile materials at locations designated by the City Of Charlotte Department Of Transportation (CDOT).
- B. Protect the materials from deterioration during storage and handling in accordance with the setting bed manufacturer's recommendations.

### PART II - PRODUCTS

#### 2.01 MATERIALS

- A. Existing Granite Panels:
  - 1. Use the existing granite panels that were removed, cleaned and stockpiled during selective demolition.
  - 2. Do not use granite panels that are chipped cracked or otherwise defective unless previously approved by City.
- B. Replacement Granite Panels:
  - 1. Physical Characteristics: Comply with ASTM C 615.

2. Source: Obtain replacement panels from the City of Charlotte or the same quarry and supplier that provided the existing granite panels.
  3. Color: Provide granite with a uniform color similar to the existing granite panels.
  4. Dimensions: Conform to the dimensions as shown on the Drawings and/or match the dimensions of adjacent original granite panels. Dimensional tolerances will be plus or minus 1/8 inch.
  5. Finish: Match finish of original granite panels.
- C. Polymer modified mortar setting bed: Sika Top 122 Repair Mortar or an approved equivalent.
- D. Premolded Elastic Joint Material: Comply with AASHTO M 153, Type I.
- E. Joint Sealant: Comply with ASTM C 920, Type S or M, Grade NS, Class 25, Use T. except the minimum Shore hardness shall be 35. Color shall be black.
- F. Back-up Rod
1. Compatible with joint sealant.
  2. Closed cell expanded polyethylene.
  3. Capable of resisting permanent deformation before and during sealant application.
  4. Nonabsorbent to water and gas.
  5. Shall not blow upon mild heating.
- G. Preformed Neoprene Compression Seal: Comply with ASTM D 2628.

### PART III - EXECUTION

#### 3.01 PREPARATION

- A. Drainage weeps: Comply with Section 02232.
- B. Secure the Engineer's approval on the condition of the concrete substrate before proceeding with the installation of the modified mortar setting bed and granite panels.
1. The existing concrete base slab may have to be repaired or adjusted by grinding and/or with mortar fill to provide a uniform thickness of modified mortar setting bed.

### 3.02 INSTALLATION

#### A. Installation:

1. Prepare the substrate of the concrete base slab in accordance with the setting bed manufacturer's recommendations.
2. Use forms along the inside edge of the granite bands as required for containment of setting bed. Do not remove forms until setting bed has gained sufficient strength to support the granite banding and any expected construction/pedestrian traffic.
3. Mix, and place and consolidate the setting bed as recommended by the manufacturer.
4. Shape the setting bed parallel to the planned finish grades by screeding.

#### B. Laying Granite Panels:

1. Remove dust from bottom and sides of granite panels by scrubbing with fiber brushes and water.
2. Place and seat the granite panels by slightly overfilling setting bed and seating panels true to line and grade by tapping, such as in vertical masonry work.
3. Provide joints, approximately 3/8 inch wide, between panels.
4. Fill the joints between granite panels with setting bed material and tool the joints with a concave tooling device.
5. Allow for expansion joints as shown on the Drawings. Cut granite panels at expansion joint locations using means and methods that do not damage the granite panels.

#### C. Expansion Joints:

1. Construct expansion joints at the locations and of the configuration shown on the Drawings.
2. Install sealants, preformed neoprene compression seals and other expansion joint components in accordance with the manufacturers' recommendations.

END OF SECTION

## SECTION 02232

### SAND LAYING COURSE AND DRAINAGE WEEPS

#### PART I - GENERAL

##### 1.01 DESCRIPTION

- A. Work included: Provide sand laying course and drainage weeps where shown on the Drawings, as specified in this Section, and as needed for a complete and proper installation.
- B. Related Work:
  - 1. Section 02515 - Precast Concrete Paving.

##### 1.02 DEFINITIONS

ASTM - American Society for Testing and Materials.

NCDOT-SSRS - North Carolina Department of Transportation Standard Specifications for Roads and Structures dated January 1, 1990.

##### 1.03 SUBMITTALS

- A. Experience Requirements:

Contractor or Subcontractor who will install the paver system shall submit a minimum of five references for work that he has done of similar nature listing the name, address and telephone number of the Owner, location, size and description of each project. The project list should total at least 500,000 square feet, and shall have been constructed within the past 5 years.
- B. Product Data: Submit the following for approval, at least two weeks prior to beginning the work.
  - 1. Materials list for items proposed to be provided under this Section.
  - 2. Certificates, signed by the materials producers and the subcontractor, stating that materials meet or exceed the specified requirements.

- C. Materials Samples: Submit, at least eight weeks prior to beginning the work, adequate and representative samples of the materials to the Testing Laboratory for tests necessary to determine the gradation in accordance with ASTM C 136 and C 117, and the permeability, if requested by the Engineer, in accordance with ASTM D 2434.
- D. Submittals to be made to the City of Charlotte Engineering Department, attention Mr. Timothy A. Richards, P.E.

#### 1.04 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained in the necessary crafts and also are completely familiar with the specified requirements and methods needed for proper performance of the Work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the Work in a timely manner.
- C. Provide access for and cooperate with the Testing Laboratory.

#### 1.05 PRODUCT HANDLING AND STORAGE

- A. Store or stockpile materials at locations designated by the City Of Charlotte Department Of Transportation (CDOT).
- B. Protect the materials from deterioration during storage.
  - 1. Stockpile aggregates to minimize segregation.
  - 2. Store and handle geotextiles in accordance with the manufacturer's recommendations, except that in no case expose the geotextiles to direct sunlight, ultraviolet rays, temperature greater than 140°F, mud, dirt, dust and debris, to the extent that its strength, toughness or permeability requirements are diminished. Do NOT use torn or punctured geotextiles.

#### 1.06 SCHEDULING

- A. Comply with requirements and restrictions of the City Of Charlotte Department Of Transportation (CDOT).

## PART II - PRODUCTS

### 2.01 MATERIALS

- A. Geotextile Filter Fabric: Provide a nonwoven fabric that complies with Item 1056 Type 1 of NCDOT-SSRS.
- B. Sand Laying Course:
  - 1. Comply with ASTM C-33 except the material shall be angular and graded within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
3/8"	100
4	70-100
8	40-90
16	25-75
30	10-35
50	0-5
100	less than 1

- C. PVC Pipe: Comply with ASTM D 2729.
- D. Geogrid Subsurface Drainage Layer: J-DRain 102 by JDR Enterprises, Inc. 725 Branch Drive, Alpharetta, Georgia, 30201, or approved equivalent.
- E. Sealant: Comply with ASTM C 920, Type S, Grade NS, Class 12-1/2, use NT.
- F. Washed Stone: No. 67 Stone that complies with ASTM C 33.
- G. Crushed Aggregate Base Course: Type ABC crushed aggregate base course meeting the requirements of Section 520 of NCDOT-SSRS.

## PART III - EXECUTION

### 3.01 PREPARATION

- A. Comply with requirements and restrictions of the City Of Charlotte Department Of Transportation (CDOT).
- B. Secure the Engineer's approval on the condition of the concrete or aggregate base substrates before proceeding with the construction of the stone column drainage weeps or sand laying course.
  - 1. The concrete base slab may have to be repaired or adjusted by grinding and/or with mortar fill to provide a uniform sand laying course thickness of one inch.

2. Where aggregate base is to be constructed beneath precast block paver system, the crushed aggregate base course shall be compacted to 100 percent of the modified Proctor's (ASTM D 1557) maximum dry density.
3. Soil or aggregate subbase beneath aggregate base shall be suitable soil material or Type ABC crushed aggregate base course. Fill soil or crushed aggregate subbase shall be compacted to 100 percent of the standard Proctor's (ASTM D 698) maximum dry density.

### 3.02 CONSTRUCTION OF DRAINAGE WEEPS

- A. Construct stone column drainage weeps, horizontal or vertical weeps as shown on the Drawings and as specified in this Section.
- B. Take necessary precautions during construction to assure that the existing French drains are not damaged.

### 3.03 PLACING FILTER FABRIC

- A. Line the inside of the curb and the concrete substrate with filter fabric as shown on the Drawings and specified in this Section, and as recommended by the fabric manufacturer.
- B. Provide a minimum overlap of 12 inches at the seams.
- C. Protect filter fabric from damage due to construction traffic, weather, ultraviolet exposure and other sources.

### 3.04 CONSTRUCTING SAND LAYING COURSE

- A. Obtain necessary approvals before placing the sand laying course.
- B. Spread the sand evenly over the area to be paved and at least 6 inches beyond the end of the area.
- C. Compact sand laying course using vibrating vehicular equipment until no densification is achieved with additional passes of the vibrating equipment.
- D. Screed and level a final seating layer of the sand laying course over the compacted layer of sand laying course to achieve the thicknesses and grades specified on the Drawings after final compaction.
- E. Do not disturb the sand laying course once it is compacted, screeded and leveled. If the sand laying course is disturbed due to exposure to construction traffic, foot

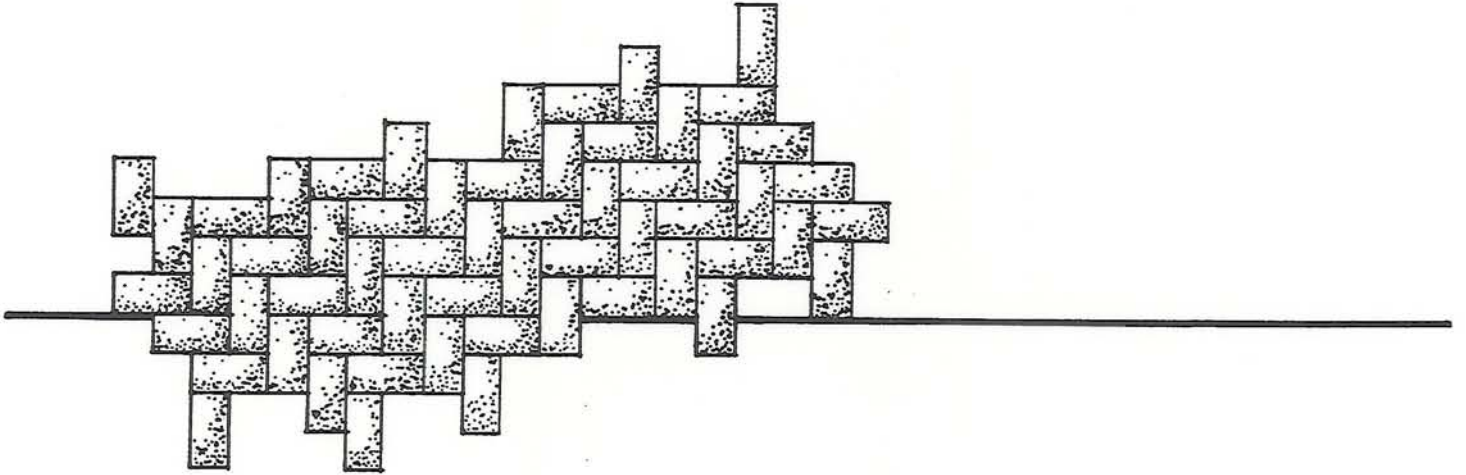


traffic, the environment, or by other means, recompact and reshape it until it meets the requirements of this Section.

### 3.05 TESTING

- A. The Testing Laboratory will observe construction of the drainage weeps and test the sand laying course to determine if they are being constructed in compliance with the requirements of this Section.
- B. If, in the Engineer's opinion based on the Testing Laboratory's report the sand laying course or drainage weeps are not being constructed in accordance with the requirements of this Section, correct the deficiency in a manner approved by the Engineer at no additional cost to the City Of Charlotte.
- C. Secure the Engineer's approval of sand laying course and drainage weeps prior to placing the precast concrete pavers.

END OF SECTION



# REVIEW REQUIREMENTS

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## SUBMITTAL REQUIREMENTS FOR PAVER SYSTEM REVIEW

### Plan

Provide a plan of project site at a scale of 1" = 50' or larger showing locations of areas to receive modular paver units. Indicate pedestrian and vehicular areas, overall laying pattern of paver units and any accent bands, location of tree wells, proposed grades for paver system surface, and routing of subdrainage system including tie-in to storm drainage lines.

### Details

Provide details of paver system design for pedestrian and/or vehicular areas including subbase, base course, sand-laying course and/or setting bed, size and shape of paver units, laying pattern of pavers, edge restraint, accept band details when applicable, driveway entrance details, tree well details and paver system subdrainage.

### Specifications

Provide complete specifications of paver system design for all products used and construction requirements.

### Phasing and Schedule

Provide the anticipated time of completion of construction and a description of phasing of construction of paver system areas when applicable.