



DOWNTOWN ORLANDO STREETScape GUIDELINES

CITY OF ORLANDO, FLORIDA

Prepared for:



**DOWNTOWN DEVELOPMENT BOARD (DDB)
and
COMMUNITY REDEVELOPMENT AGENCY (CRA)
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&
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DOWNTOWN ORLANDO STREETSCAPE GUIDELINES

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SECTION 1.0

INTRODUCTION

SECTION 1.0 – INTRODUCTION

The *Downtown Orlando Streetscape Guidelines* sets standards for streetscape improvements within public rights-of-way and in adjacent public and private outdoor spaces within the Downtown Orlando Community Redevelopment Area and the Downtown Development District, as administered by the Community Redevelopment Agency (CRA) and the Downtown Development Board (DDB), respectively. The Guidelines coordinate streetscape elements of paving, street trees, lighting, street furniture and other features, and addresses design and construction of streetscape improvements.

The *Downtown Orlando Streetscape Guidelines* combines the earlier *Downtown Orlando Streetscape Design Guidelines* and the *Technical Guidelines for Streetscape Construction* into a single document.

GOALS

The *Downtown Orlando Streetscape Guidelines* has the following goals:

- To beautify our streets and improve environmental quality;
- To develop a system of pedestrian-oriented streets, walkways and open spaces;
- To provide design guidelines that establish a level of quality;
- To create a sense of orientation to the street environment;
- To promote continuity and compatibility among private and public developments; and
- To protect, maintain and enhance the integrity of the downtown area and historic district.

Building form, pedestrian scale, and the relationship of buildings to streets influenced the *Streetscape Guidelines*. Pedestrian environments should meet functional and sensory needs through a network of well-defined, well-proportioned outdoor spaces.

CONTEXT

The *Streetscape Guidelines* began as an outgrowth of the *Downtown Growth Management Plan* (GMP), adopted in 1981 and revised in 1985, and was incorporated into the *Orlando Illustrated Land Development Code* (LDC), adopted in 1985. The *Streetscape Guidelines* reflect Orlando's goals and direction established by the GMP and enforced by code in the LDC. These guidelines are not intended to supersede or bypass the LDC or any other portion of the Code of the City of Orlando.

Additionally, the *Streetscape Guidelines* used the guidelines contained in the Downtown Outlook, the community redevelopment plan (Plan) of the CRA for the Area, as a base for creation of these more detailed guidelines contemplated by the Plan.

Downtown Growth Management Plan (1981, 1985 and 1991)

The purpose of the Downtown GMP is to guide the City in managing downtown change during the next 20 years. Key elements include open space, landscape areas, pedestrian circulation and vehicular circulation.

The Open Space and Landscape Concept. The open space and landscape concept described in the GMP proposes:

- To link, through landscaped streets or pedestrian walkways, major downtown open spaces;
- To incorporate existing isolated fragments of public open space into a coherent system;
- To “green” the downtown, particularly the streets of the Central Business District (CBD);
- To introduce new public plazas at key locations in the CBD to improve the visual image of downtown and to meet the need for outdoor gathering places; and
- To continue Orlando area characteristics of water and foliage downtown, particularly in the CBD.

Pedestrian Circulation. A primary objective of the GMP is to improve the pedestrian environment. Many downtown sidewalks south of Robinson Street and north of South Street are narrow (Magnolia Avenue, for example, has 7-foot-wide sidewalks). The GMP proposes wider sidewalks, especially on major streets (e.g., Division Street, and Orange, Magnolia, Rosalind, and Parramore Avenues) to provide adequate space for pedestrians, trees, and furniture.

The Pedestrian Circulation Concept in the GMP concentrates pedestrian routes in the heart of the CBD. Orange Avenue, for example, is the major pedestrian spine downtown. On some streets, sidewalks may be widened at the expense of on-street parking and loading, allowing them only during off-peak hours. Further study of traffic on these streets may lead to a ban of on-street parking and other solutions to the loading problem. Any solutions to parking and loading problems must be based on a minimum sidewalk width of 15 feet on principal pedestrian routes if objectives of the GMP are to be met.

Major access to downtown is via Interstate-4 from the north and south and by Spessard Holland (East-West) Expressway. Arterial access is by Orange Avenue from the south, Colonial Drive on the north, and Robinson Street from the east.

Orlando Illustrated Land Development Code The LDC specifies regulations that implement the goals and plans set forth in the GMP. Major components include Zoning District Regulations, Performance and Design Regulations, Sign Regulations, Duties of Officers and Boards, and Applications and Procedures.

1.1 - Streetscape Project Approach

Streetscape construction is challenging, highly visible construction, affecting merchants, business owners, and the general public. It's imperative that inconveniences caused by streetscape construction is minimized. Pedestrians and vehicles must be directed carefully by boardwalks, barriers and directional signs. Continual use of the street during construction is critical.

Coordination with city staff is essential. Changes resulting from differing field conditions must be quickly reviewed by staff, recommendations made, and approvals issued so that schedules are maintained.

Coordination must also occur with utility companies such as Bell South, OUC, People's Gas, and Bright House Networks. Streetscape work often provides these groups opportunities to

upgrade systems. The engineer and contractor should coordinate with all utility companies.

Coordination may require phasing, and development of phasing plans will minimize street level disruptions and allow the contractor to work efficiently.

Public awareness, understanding, interaction, and support are key and should be coordinated through governmental avenues. Retailers, business and property owners should be contacted early in the project and kept involved in regularly scheduled design and construction meetings.

Successful implementation of the streetscape program provides an opportunity for many different groups to participate in the enhancement of our downtown.

STREETSCAPE TREATMENTS INTRODUCTION

There are five basic streetscape treatments: Treatment 1 (Primary Pedestrian Streets), Treatment 2 (Secondary Pedestrian Streets), Treatment 3 (Historic Streets), Treatment 4 (Window Pane Sidewalk Streets), and Treatment 5 (Parkway Streets). Each uses similar features to enable streets to blend. Individual site plans shall be reviewed by the City Architect and the Development Review Committee (DRC) for conformance.

Any new streetscape in a commercial area where the treatment has not been established shall use Treatment 4 or 5, as determined by the City Architect. Primarily commercial streets will receive Treatment 4, Window Pane Streets, and streets that are primarily single-family residential shall typically be Treatment 5, Parkway Streets.

Others shall be designated "Plazas," and shall receive specific consideration and requirements. Additional requirements shall be reserved for projects affecting Gertrude's Walk and associated roadscaapes.

Section 3.0, Streetscape Treatments, describes each streetscape type. The Technical Guidelines in Section 4.0 specify construction procedures. Section 5.0 provides additional information on amenities such as planters and street furniture.

NOTE: Specific products and/or brand names called out herein should not be construed to indicate a preferred "sole source." Each product or item may be replaced by an "equal" as approved by the DDB/CRA.

SECTION 2.0

PROCESS
for
STREETSCAPE DESIGN
&
CONSTRUCTION

SECTION 2.0 - PROCESS FOR STREETScape DESIGN & CONSTRUCTION

In addition to meeting the standards contained in this document, the Developer shall ensure that the design complies with the City of Orlando's "Engineering Standards Manual" (ESM), available through the City of Orlando website and the Public Works Department. Any discrepancies between these guidelines and the ESM shall be brought to the attention of the City Architect. This process and these requirements are supplemental to any City Code requirements applicable to the project.

The Developer shall adhere to the following process:

2.1 - PRELIMINARY DESIGN

- 2.1.1 Contact the City Architect to discuss design requirements and intent.
- 2.1.2 Submit **10 sets** of conceptual drawings to the City Architect that clearly show all proposed work. Revise as needed per discussions with the City Architect for compliance with the Streetscape Guidelines. The City Architect will involve appropriate City staff in review, and will familiarize the Executive Director of DDB with the project and keep him or her informed of progress.
- 2.1.3 Once a conceptual plan has been approved by the City Architect, the Developer shall submit it for review by the Development Review Committee (DRC). Application forms for project review are available online at www.downtownorlando.com. Design modifications and resubmittal to DRC may be required. The City Architect will forward preliminary plans to appropriate City staff for review.

2.2 - DESIGN DEVELOPMENT AND FINAL DESIGN

- 2.2.1 Submit **10 sets** of design drawings to City Architect for review at 30%, 60%, and 90% design stages.
- 2.2.2 If the Developer wishes the CRA to participate in cost-sharing of construction costs, prior to issuance of building permits, the Developer shall execute the following:
 - A) Streetscape Agreement** (in substantially the form included in Section 2.7): A binding agreement between the Developer and the CRA will set terms and conditions of participation. The Construction Cost Estimate will be attached and made a part of this document. This document is not required if Developer uses the streetscape elements contemplated in this document or is not requesting CRA funding.
 - B) Construction Cost Estimate and Certificate of Approval** (included in Section 2.7): Preliminary cost estimates shall be provided by the Developer with 30%, 60%, and 90% drawings. Upon design completion, the Developer must present to the City Architect a final detailed summary of time and

material charges of the anticipated construction costs. If adjustments to the estimate are necessary the Developer shall resubmit. This will establish a maximum eligible cost for CRA participation. Actual costs exceeding the maximum are not eligible for further participation.

The Construction Cost Estimate should reflect all requirements of these Guidelines, as well as *Orlando Illustrated Land Development Code (LDC)*.

- C) Performance Bond** (in substantially the form included in Section 2.7 for CRA funded projects and/or as required by the City's Permitting Services Division).

2.3 - PERMITTING

The Developer shall apply for and secure all required permits and complete the "**Pre-Construction Punch List**" form included in Section 2.7.

2.4 - CONSTRUCTION

2.4.1 Inspections will be made by City inspectors. Inspections of streetscape construction will be separate from building inspections.

2.4.2 After completion of construction, submit completed "**Final Punch List**" form (included in this section) and related required materials to the City Architect for review and signature.

2.4.3 Execute the "**Maintenance Bond**" (in substantially the form included in section 2.7 for CRA funded projects and/or as required by the City's Permitting Services Division).

2.4.4 After final inspections, punchlists, and approvals, submit "**Certificate of Final Inspection and Compliance**" (included in Section 2.7) to the City Architect. Note that spaces for "project information" should be completed by Developer. Also note that the CRA must receive this signed document prior to the disbursement of any cost-sharing funds.

2.5 - COST SHARING

As contemplated by the Community Redevelopment Plan for the Downtown Orlando Community Redevelopment Area, for projects containing streetscape improvements within the public right-of-way that comply with these streetscape guidelines (including variations from strict interpretation of the guidelines that are approved by the City Architect), the CRA may participate by sharing in construction costs of such streetscape improvements. Such funding is subject to funding availability in any given fiscal year. Projects will be reviewed case-by-case for participation. Costs eligible for cost sharing include sidewalks, handicap ramps, brick pavers, concrete pavers, specialty pavers, trees, tree wells and grates, site furniture, painting, planters, irrigation, seasonal planting, understory planting, and lighting. Costs for replacement of previously installed streetscape, sidewalk replacement costs, roadway and infrastructure improvements beyond the curb, curb and gutter, storm inlets, and utilities (excluding some costs

associated with lighting) are costs not eligible for cost sharing. The formula for calculating the portion of the costs eligible for CRA participation is as follows:

TOTAL COST of ALL ELIGIBLE ITEMS*	\$
	X .50
SUBTOTAL	\$
ALLOCATED COST OF NEW SIDEWALK**	-
CRA CONTRIBUTION TO CONSTRUCTION COST	\$

* These costs only apply to work items and construction within City rights-of-way. The City does not share costs for work on private property.

** Based on 4" depth of plain concrete sidewalk at \$Current market value per sq. ft. and 5' wide: use \$CMV/L.F. X length of project which would require sidewalk.

The CRA contribution shall be made to the Developer upon satisfactory completion of the project as evidenced by a completed certificate of final inspection and compliance.

2.6 - CITY STAFF INVOLVEMENT

It is recommended that early and continuing contact be made with all agencies affected by the project. This will minimize misunderstandings and delays, and aid the Developer with a smoother approval and construction process. Some agencies that should be involved are:

2.6.1 City Architect (DDB/CRA)

- Must approve preliminary and final construction plans, including maintenance of traffic, before any construction commences.
- May require additional features and changes as necessary.
- Must receive complete record drawings in paper and computer-assisted design and drafting (CADD) files in an acceptable format upon project completion.

2.6.2 CRA Clean Team

- Provides panel box lock requirements.
- Coordinates acceptance of project components upon completion of construction.

2.6.3 City of Orlando Transportation Engineering Division

- Must approve any work involving street or sidewalk closings, and must approve any traffic maintenance and protection plans.
- May require Developer to install traffic pole foundations or underground conduit; developer should request such information early in order to include it in design drawings.
- Must approve any temporary or permanent modifications to pavement, curbs, striping, meters, or traffic signs.
- Reviews all streetscape and roadway designs.

2.6.4 City of Orlando Fire Department

- Must approve any fire hydrant relocation
- Must have unimpeded access to hydrants during construction

- Must be notified of any road or travel lane closures which could alter emergency access routes.

2.6.5 City of Orlando Public Works Department

- Must review, approve, and sign all required forms (included in this section - to be photocopied and submitted by Developer) in the spaces provided.
- All streetscape design reviews and field inspections will be for full compliance with the *Streetscape Guidelines*, latest revision. Note that streetscape inspections and approvals are separate from the building inspections.
- Must review and approve in writing any changes in the originally approved streetscape design or materials.
- Must review and approve design and materials for stormwater, sanitary system, and items relating to public works and safety.

2.6.6 City of Orlando Capital Improvements and Infrastructure Division

- Acts as the City's representative regarding inspection and approval of streetscape construction
- Reviews bond and insurance forms for appropriateness.
- Conducts Pre-Construction Meeting.
- Monitors construction deficiencies, changes in the work, schedules and progress.

2.6.7 Utility Companies

- Often take advantage of streetscape construction to upgrade their systems; early contact will allow them to review the design and schedule any work. NOTE: Failure to contact utilities could result in construction delays. There may be underground systems which must be protected during construction. Locations of these systems are furnished by the respective utilities at the request of the Developer. Damage to utilities can result in significant fines.
- OUC Water Engineering - Should be contacted for location and installation of irrigation hot-tap and meter. Payment must be made by Developer in advance of the utility work. Coordinate any necessary fire hydrant additions or relocations.
- OUC Electric Engineering - Will designate the power source and install the meter for service to the automatic irrigation (meter base installed by Developer.)
- Coordinate streetlight quantities and locations and streetlight conduit requirements. Notify OUC Design Lighting to order and install new streetlights, to be paid for by Developer, and eligible for CRA cost participation. All streetlights are to be approved by City Traffic Engineering prior to installation.
- Other underground utility companies which should be contacted include: Bell South, People's Gas Co., Bright House Networks, Sprint, Verizon, and others.

NOTE: All streetscape drawings and specifications are required to include the following note: "All materials and construction shall be in accordance with the *Downtown Orlando Streetscape Guidelines*, latest revision."

2.7 - FORMS

Forms included in this section shall be completed and submitted to the City Architect at the appropriate phase of the process. All spaces relating to "Project Information" should be completed by the Developer. The forms to be completed by Developer shall be in substantially the same form as these forms included herein, but may vary from project to project due to variations in details. Required forms include (the CRA Cost Participation Formula is required only for CRA funded projects and the Streetscape Agreement is required for projects receiving CRA funding and for projects using materials other than those specified within these *Streetscape Guidelines*).

- Pre-Construction Punch List
- Itemized Cost Estimate and Construction Cost Estimate Certificate of Approval (to be submitted together)
- Streetscape Agreement
- Performance Bond (100%)
- Maintenance Bond
- Construction Documentation and Final Punch List
- Certificate of Final Inspection and Compliance

PRE-CONSTRUCTION PUNCHLIST

To Be Submitted Following CRA Approval of Development Plan

PROJECT: _____

ADDRESS: _____

DEVELOPER: _____

DEVELOPER'S CONTACT REPRESENTATIVE: _____

TELEPHONE NUMBER: _____ FAX: _____

DATE: _____ EMAIL: _____

The following items shall be submitted to the City Architect, prior to construction of any Streetscape work:

<u>ITEM</u>	<u>DATE SUBMITTED TO CITY ARCHITECT</u>
1. Project and materials specifications	_____
2. Final Streetscape Design Development drawing, showing approval signed by the CRA representative.	_____
3. Completed Pre-Construction Punchlist , Cost Estimate, Construction Cost Estimate Certificate of Approval, Streetscape Agreement, Performance Bond, and all required permits.	_____
4. Shop drawings and materials certifications for all paving items, including brick or hex pavers, concrete, and street materials.	_____
5. Shop drawings for irrigation system (including piping, heads, valves, automatic controller, and backflow preventer), tree grates and guards, or other.	_____
6. Shop drawings and/or materials certification for all sanitary systems and stormwater drainage items, including pipe, inlet and manhole structures, and related fittings, lids, covers, etc.	_____
7. Nursery certificate/invoices for all landscape materials, showing compliance with Section 4.0, Technical Documents.	_____
8. Product data and samples for paint, as outlined in Section 4.0, Technical Documents.	_____
9. Erosion Control Plan per OUSWMM guidelines.	_____

The above list verified as to completeness by:

(City Architect)

(Date)

cc: CRA

CONSTRUCTION COST ESTIMATE

(To be completed by Developer and submitted to City Architect. This form is not required if Developer does not wish to participate in Streetscape cost-sharing with CRA)

In order for the CRA to complete and sign the Streetscape Agreement, an itemized Construction Cost estimate must be submitted by the Project Developer and approved by the City Architect. Refer to "CRA Cost Participation Formula" form for cost-sharing procedures and requirements. The estimate submitted shall show the name and address of the project, the Developer's name, the date, and the estimated quantity and unit price for **each** construction item.

CONSTRUCTION COST ESTIMATE PROJECT:

ADDRESS: _____

DEVELOPER: _____

DEVELOPER'S CONTACT REPRESENTATIVE: _____

TELEPHONE NUMBER: _____ **FAX:** _____

DATE: _____ **EMAIL:** _____

Instructions:

Below is a spreadsheet of streetscape items which are eligible for cost-sharing. The applicant must fill in all items with quantities, unit of measure, cost per unit of measure, total cost per item, subtotal costs, and grand total costs. If additional items that are not listed have been approved by the CRA for cost-sharing, add separate lines for each.

All approved items shall be eligible for 50% cost sharing.

LANDSCAPE

Item Number	Description	Quantity	Measure	Cost / Per	Type	Summary Cost
13	Trees (If differing varieties, list by type)					
	Type 1		EA			
	Type 2		EA			
	Type 3		EA			
14	Understory Planting		Lump Sum		PSF	
15	Seasonal Planting		Lump Sum		PSF	
16	4" Select Native Soil Setting Beds		SY			
17	Structural Soil		CY			
SUB-TOTAL						

LIGHTING

Item Number	Description	Quantity	Measure	Cost / Per	Type	Summary Cost
18	STREET LIGHTING (U/G Conduit, boxes and pole bases in accordance with OUC Lighting Specs.)					
19	INGROUND UPLIGHTING					
20	PLANTER & WALKWAY LIGHTING					
21	Auxiliary Electric System (option by the CRA)					
SUB-TOTAL						

GRAND TOTAL	
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NOTE EXCLUSIONS:

Curb and Gutter, Storm inlets, Utility Boxes (though custom covers may be included with agreement) and roadway and infrastructure improvements beyond the curb.

Unless specifically itemized otherwise, all items shown are for materials and installation, complete including incidental items such as saw cutting, legal disposal of debris, earthwork, equipment, handling, transportation, labor, testing, services, etc., as required to complete the Streetscape construction in its entirety in accordance with the project drawings, specifications, and the *Downtown Orlando Streetscape Guidelines*, latest revision.

TOTAL ESTIMATE OF ELIGIBLE ITEMS, WRITTEN IN WORDS:

Non-Participatory Cost Items

The Following Items are not eligible for cost-sharing participation. The City may require a detailed cost estimate of these and other items for comparison with those requested for cost sharing.

- Mobilization, General Conditions, Insurance, Bonds, etc.
- Removal & Disposal Concrete Curb, Curb & Gutter or Valley Gutter
- Removal & Disposal of Concrete Sidewalk & Driveways
- Removal & Disposal of Roadway
- Removal & Disposal of Existing Trees
- Maintenance & Protection of Pedestrian Traffic
- Maintenance & Protection of Vehicular Traffic
- Standard 2' Curb & Gutter
- Valley Gutter & Transitions(incl. Handicap Ramp Drop Curbs)
- Handicap Ramp Replacement
- Stabilized Subbase
- Limerock Base
- Asphalt
- Concrete Sidewalk
- Rehabilitation of Existing Sanitary Manholes
- Storm Inlets
- Modified FDOT Type 3 Storm Inlet
- Storm Sewer Piping
- Street Signs
- Traffic Signals
- Signing and Striping
- Other Related Items

**CONSTRUCTION COST ESTIMATE
CERTIFICATE OF APPROVAL**

(To be submitted by Developer with the Itemized Construction Cost Estimate.)

PROJECT: _____

ADDRESS: _____

DEVELOPER: _____

DEVELOPER'S CONTACT REPRESENTATIVE: _____

TELEPHONE NUMBER: _____ FAX: _____

EMAIL: _____

This is to certify the required itemized construction cost estimate has been completed by the Developer and is on file with the City Architect, and has been reviewed and approved as to estimated quantities and unit prices based on the submitted approved design drawings.

Approved maximum total estimated cost \$ _____

Approved by: _____

(Signature)

City of Orlando
City Architect

(Date)

NOTE: This signed Certificate must be received by the CRA prior to the completion of the Streetscape Agreement.

cc: Project Developer
Public Works Department

STREETSCAPE AGREEMENT

This Agreement is made and entered into by and between the **Community Redevelopment Agency of the City of Orlando**, a public body corporate and politic of the State of Florida created pursuant to Part III, Chapter 163, Florida Statutes (hereinafter referred to as the “CRA”), the principal address of which is Orlando City Hall, 6th Floor, 400 S. Orange Ave., Orlando, Florida 32801 and _____, a _____, (hereinafter referred to as the “Developer”), the principal address of which is _____.

WITNESSETH:

WHEREAS, the CRA was created as a public body corporate and politic of the State of Florida, for the purposes of the community redevelopment objectives of Part III, Chapter 163, Florida Statutes; and

WHEREAS, in an effort to accomplish the objectives of Part III, Chapter 163, Florida Statutes, and further implement the Downtown Orlando Community Redevelopment Plan adopted pursuant thereto, the CRA has adopted and established the Streetscape Cost Sharing Program (hereinafter referred to as the “Program”), under which the CRA provides financial assistance towards certain eligible streetscape projects within the Downtown Orlando Community Redevelopment Area (the “Area”); and

WHEREAS, the Program serves an important and significant public purpose and is necessary and proper in order to preserve and enhance the tax base and promote the health, safety, and welfare of the public by furthering the eradication of slum and blight by providing safe, consistent streetscape within the Area; and

WHEREAS, Developer is constructing _____ and as part of such development is reconstructing and landscaping the public sidewalk and streetscape on a portion of the Developer’s Property and the adjacent right-of-way as shown on Exhibit “A”; and

WHEREAS, in order to offset expenses of the portion of the streetscape within the public right-of-way (the “Streetscape Project”), the CRA, upon recommendation by the CRA Advisory Board, agreed to contribute _____ (\$_____) towards the costs of such Streetscape Project pursuant to and contingent upon the terms of this Agreement; and

NOW, THEREFORE, in consideration of the promises and covenants set forth herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the CRA and _____ agree as follows:

1. Incorporation of Recitals. The recitals set forth hereinabove are true and correct and are incorporated herein as if fully set out below.
2. Construction of Streetscape Project. Upon completion, the Developer shall dedicate the improvements within the public right-of-way to the City.

3. Cost Estimate. A cost estimate for the Streetscape Project is attached hereto as Exhibit “B” and incorporated herein by this reference. The formula used to determine the maximum amount of CRA funding pursuant to section 4 hereof and the calculation of such amount is shown on Exhibit “C”, attached hereto and incorporated herein by this reference.

4. Funding. Subject to Developer complying with the conditions contained herein, the CRA shall provide funding up to the amount of _____ upon completion of the Streetscape Project, as evidenced by a signed Certificate of Final Inspection and Compliance in the form attached hereto as Exhibit “D” and submission of an invoice reflecting actual costs of construction to the CRA. In the event that actual costs of construction of the Streetscape Project for items which the CRA is participating in funding are less than the cost estimate for such items, the CRA shall only be obligated to pay its matching share of the actual cost of such items and in no event shall the CRA be obligated to pay any costs in excess of the initial CRA contribution to construction cost estimate of \$_____ shown on Exhibit “C”. The CRA shall provide funding pursuant to this section only within the first twelve (12) months of the Effective Date of this Agreement. To this end, Developer shall complete the Streetscape Project detailed on the scope of work attached hereto as Exhibit “E” within such twelve (12) month period.

5. Temporary Sidewalks. The Developer shall provide at its cost any temporary sidewalks required during the construction of the Streetscape Project.

6. Performance Bond. Prior to commencing construction of the Streetscape Project, Developer shall provide a performance bond in substantially the form attached hereto as Exhibit “F”.

7. Defects/Maintenance Bond. The Developer shall protect the CRA and City of Orlando (“City”) against any defects resulting from faulty materials or workmanship of the Streetscape Project and shall maintain the Streetscape Project for a period of two (2) years from the date such improvements are approved and accepted by the CRA and City. The Developer shall obtain a two (2) year maintenance bond for those portions of the Streetscape Project that are improvements within the right-of-way or public property, which bond shall comply with the requirements of City Code and be in a form substantially similar to that attached hereto as Exhibit “G”. If the Streetscape Project is defective, or does not conform to the Streetscape Guidelines, Developer shall promptly, without cost to the CRA or City, either correct such defective work, or if it has been rejected by the Agency, remove it from the site and replace it with non-defective and conforming improvements. If the Developer fails to correct the defects, and in the CRA’s sole discretion, such delay would cause serious risk of or loss or damage, the CRA may have the defects corrected or the rejected work removed and replaced and all direct and indirect costs of such removal and replacement, including compensation for additional professional services shall be paid for by the Developer. The CRA reserves and retains all rights and remedies at law and in equity against the Developer and its Surety for damages and for corrections of any and all latent defects. Maintenance of the Streetscape Project following the two year maintenance period covered by the maintenance bond shall be the responsibility of the _____.

8. Books and records. Developer shall compile and maintain accurate books and records related to the construction of the Streetscape Project and indicating compliance with the requirements of this Agreement, and shall make such records available at a mutually agreed upon time for inspection and/or audit by the CRA during regular business hours.

9. Default. In the event the Developer shall violates any of the terms, covenants or conditions of this Agreement and Developer shall not have cured or corrected such violation within twenty (20) calendar days, the CRA shall have the right at its election to immediately terminate this Agreement. Developer acknowledges agrees that in addition to terminating this Agreement, the CRA may sue for actual damage arising out of or connected in any way to a breach of the obligations herein and may also pursue any other remedies provided by law or in equity for breach of the obligations herein. Failure of the CRA to declare a default shall not constitute a waiver of any rights by the CRA. Furthermore, the waiver of any default by the CRA shall in no event be construed as a waiver of rights with respect to any other default, past or present.

10. Indemnification and Insurance. To the extent permitted by law, Developer shall indemnify, defend and hold harmless the CRA, its agents, employees, and elected and appointed officials, including the Advisory Boards to the CRA and their members, from and against all claims, damages, losses, and expenses (including all attorneys' costs and fees reasonably and actually incurred, and all attorneys' costs and fees on appeal) arising out of or resulting from Developer's performance under this Agreement, and which are caused in whole or in part by Developer, its agents, employees or subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable. Developer shall procure and maintain throughout the term of this Agreement, at Developer's sole cost and expense, a commercial general liability insurance policy with limits of not less than five hundred thousand dollars (\$500,000.00) per occurrence and two million dollars (\$2,000,000.00) in the aggregate, for bodily injury and property damage. Additionally, Developer shall procure and maintain throughout the term of this Agreement, automobile liability coverage in the amount of \$500,000.00 combined single limits for bodily injury and property damage combined. Developer shall provide the CRA with certificate(s) of insurance on all the policies and renewals thereof in a form acceptable to the CRA and shall have the City and CRA named as additional insureds on all insurance policies required by this Agreement and provide evidence thereof.

11. Bankruptcy. In the event (a) an order or decree is entered appointing a receiver of Developer or its assets, which is not appealed (or if appealed is determined adverse to Developer) or (b) a petition is filed by Developer for relief under federal bankruptcy laws or any other similar law or statute of the United States, which action is not dismissed, vacated or discharged within sixty (60) days after the filing thereof, then the CRA shall have the right to terminate immediately this Agreement.

12. Force Majeure. The parties shall use reasonable diligence to ultimately accomplish the purpose of this Agreement but shall not be liable to each other, or their successors or assigns, for breach of contract, including damages, costs, and attorney's fees (including costs or attorney's fees on appeal) as a result of such breach, or otherwise for failure to timely perform its obligations under this Agreement occasioned by any cause beyond the reasonable control and without the fault of the parties. Such causes may include but shall not limited to acts of God, acts of terrorism or of the public enemy, acts of other governments (including regulatory entities or courts) in their sovereign or contractual capacity, fires, hurricanes, tornadoes, floods, epidemics, quarantines, restrictions, strikes, substantial shortages of building materials within the Orlando Metropolitan Area, or failure or breakdown of transmission or other facilities ("Force Majeure"). Notwithstanding anything herein to the contrary, if Developer or the CRA is delayed, hindered or prevented in or from performing its respective obligations under this Agreement by any occurrence or event of Force Majeure, then the period for such performance shall be extended for the period of such performance

is delayed, hindered or prevented, and the party delayed, hindered or prevented in or from performing shall not be deemed in breach hereunder.

13. Agency. Developer and CRA, and their agents, contractors, and subcontractors, shall perform all activities that are contained herein as independent entities and not as agents of each other.

14. Third-party Beneficiaries. This Agreement is solely for the benefit of the parties signing hereto and their successors and assigns, and no right, nor any cause of action, shall accrue to or for the benefit of any third party.

15. Binding Nature of Agreement. This Agreement shall be binding, and shall inure to the benefit of the successors or assigns of the parties hereto, and shall be binding upon and inure to the benefit of any person, firm, or corporation that may become the successor in interest, directly or indirectly, to the Business, or any portion thereof.

16. Controlling Law and Venue. This Agreement and the provisions contained herein shall be construed, controlled, and interpreted according to the laws of the State of Florida, and all duly adopted ordinances, regulations, and policies of the City of Orlando now in effect and those hereinafter adopted. Unless otherwise specified in this Agreement for a particular issue, all City ordinances, rules, regulations and policies are applicable. The location for settlement of any and all claims, controversies, or disputes, arising out of or relating to any part of this Agreement, or any breach hereof, shall be Orange County, Florida.

17. No Liability or Monetary Remedy. Developer hereby acknowledges and agrees that it is sophisticated and prudent in business transactions and proceeds at its own risk under advice of its own counsel and advisors and without reliance on the CRA, and that the CRA bears no liability for direct, indirect or consequential damages arising in any way out of this Agreement. The only remedy available to Developer for any breach by the CRA is one of mandamus to require the CRA's specific performance under the terms and conditions of this Agreement.

18. Relationship. This Agreement does not evidence the creation of, nor shall it be construed as creating, a partnership or joint venture between Developer and the CRA. Developer cannot create any obligation or responsibility on behalf of the CRA or bind the CRA in any manner. Each party is acting for its own account, and it has made its own independent decisions to enter into this Agreement and as to whether the same is appropriate or proper for it based upon its own judgment and upon advice from such advisors as it has deemed necessary. Each party acknowledges that it is not acting as a fiduciary for or any advisor to the other in respect to this Agreement or any responsibility or obligation contemplated herein. Developer further represents and acknowledges that no one was paid a fee, commission, gift, or other consideration by Developer as an inducement to entering into this Agreement.

19. Personal Liability. No provision of this Agreement is intended, nor shall any be construed, as a covenant of any official (either elected or appointed), director, employee or agent of the CRA in an individual capacity and neither shall any such individuals be subject to personal liability by reason of any covenant or obligation of the CRA contained herein.

20. Entire Agreement. This Agreement constitutes the entire agreement between the parties with respect to the specific matters contained herein and supersedes all previous discussions,

understandings, and agreements. Any amendments to or waiver of the provisions herein shall be made by the parties in writing.

21. Severability. If a sentence, phrase, paragraph, provision, or portion of this Agreement is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed an independent provision and such holding shall not affect the validity of the remaining portion hereto.

22. Notices. Any notice required or allowed to be delivered hereunder shall be in writing and deemed to be delivered when (i) hand delivered to the person hereinafter designated, or (ii) upon receipt of such notice when deposited in the United States Mail, postage prepaid, certified mail, return receipt requested, addressed to the party at the address set forth opposite the party's name below, or at such other address as the applicable party shall have specified, from time to time, by written notice to the other party delivered in accordance herewith:

CRA: Thomas Chatmon
 Executive Director
 Community Redevelopment Agency
 Orlando City Hall
 400 S. Orange Ave.
 Orlando, Florida 32801

Copy to: Stacey Young Adams
 Assistant City Attorney
 Orlando City Hall
 400 S. Orange Ave.
 Orlando, Florida 32801

Developer:

23. Assignment. Developer shall not assign this Agreement without the prior and written consent of the CRA.

24. Term. The term of this Agreement shall be _____, commencing on the Effective Date.

25. Effective Date. This Effective Date of this Agreement shall be the date upon which all parties have fully executed the Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year indicated below.

Date

Name

Title

ATTEST:

Secretary

Sign: _____

Name: _____

STATE OF FLORIDA
COUNTY OF ORANGE

The forgoing instrument was acknowledged before me this ____ day of _____, 2007, by _____, the _____ of _____, on behalf of the company. He/she is personally known to me or has produced _____ as identification.

Notary Public

Name

Date

Commission Expires

For the Community Redevelopment Agency

Buddy Dyer, Chairman

Date

ATTEST:

Thomas C. Chatmon, Jr.
Executive Director, CRA

Approved as to form and legality for the use and reliance of the CRA only:

Assistant City Attorney

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we _____
hereinafter referred to as "PRINCIPAL," and _____, a surety company authorized to do business in the State of Florida, hereinafter referred to as "SURETY," are held and firmly bound to the Community Redevelopment Agency of the City of Orlando, and the City of Orlando, Florida, hereinafter jointly referred to as "CITY," in the sum of \$_____, for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above PRINCIPAL, entered into a streetscape agreement with the CITY dated ____ ("Agreement"), a copy of which is attached hereto and made a part hereof, to construct sidewalks, and other improvements based on plans and specifications dated ____, 20____, and filed with the City Engineer.

NOW, THEREFORE, the condition of this obligation is such that if PRINCIPAL:

1. Promptly and faithfully performs its duties, all the covenants, terms, conditions, and agreements of said Agreement including, but not limited to the guaranty and maintenance period and the warranty provisions, in the time and manner prescribed in the Agreement, and
2. Pays CITY all losses, damages (liquidated or actual), expenses, costs and attorneys' fees, including costs and attorney's fees on appeal that CITY sustains resulting directly or indirectly from any breach or default by PRINCIPAL under the Agreement, and
3. Satisfied all claims and demands incurred under the Agreement, and fully indemnifies and holds harmless the CITY from all costs and damages which it may suffer by reason of failure to do so, then this bond is void; otherwise it shall remain in full force and effect.

The SURETY unconditionally covenants and agrees that if the PRINCIPAL fails to perform all or any part of the obligations required by the Agreement or the development's plans or specifications above referred to, within the time specified, the SURETY, upon forty-five (45) days written notice from the CITY, or its authorized agent or officer, of the default, will forthwith perform and complete the aforesaid obligations and pay the costs thereof, including, but not limited to, the CITY's engineering costs, legal fees (including attorneys' fees on appeal) and contingent costs. Should the SURETY fail or refuse to perform to fulfill the obligations in the Agreement and complete the said improvements, the CITY, in view of the public interest, health, safety and welfare factors involved and the inducement in approving the development and shall have the right to resort to any and all legal remedies against the PRINCIPAL, and the SURETY, or either, both at law and in equity, including specifically, specific performance, to which the PRINCIPAL AND SURETY unconditionally agree.

The PRINCIPAL and the SURETY further jointly and severally agree that the CITY at its option, shall have the right to construct, or cause to be constructed, the aforesaid improvements in case the PRINCIPAL should fail or refuse to do so. In the event the CITY should exercise and give effect to such right, the PRINCIPAL and the SURETY shall be jointly and severally liable hereunder to reimburse the CITY the total cost thereof, including, but not limited to, construction costs, engineering costs, legal fees (including attorneys' fees on appeal)

and contingent costs, together with any damages, either direct or consequential which may be sustained on account of the failure of the PRINCIPAL to carry out and execute all of its obligations.

The SURETY, for value received, hereby stipulates and agree that its obligations hereunder shall be direct and immediate and not conditional or contingent upon CITY's pursuit of its remedies against PRINCIPAL, and shall remain in full force and effect notwithstanding (i) amendments or modifications to the Agreement entered into by CITY and PRINCIPAL without the SURETY's knowledge or consent, so long as the dollar amount of this Performance Bond is not affected, (ii) waivers of compliance with or any default under the Agreement granted by CITY to PRINCIPAL without the SURETY's knowledge or consent, or (III) the discharge of PRINCIPAL from its obligations under the AGREEMENT as a result of any proceeding initiated under the Bankruptcy Code, as amended, or any similar state or federal law, or any limitation of the liability of the PRINCIPAL or its estate as a result of any such proceeding.

IN WITNESS WHEREOF, the Principal and the Surety have executed these presents this _____ day of _____, 20____.

Principal

By: _____

Print Name: _____

Title: _____

Attest:

By: _____

Print Name: _____

Title: _____

Surety

By: _____

Print Name: _____

Witnesses:

Attorney-in-Fact

(1) _____

Print Name: _____

(2) _____

Print Name: _____

CONSTRUCTION DOCUMENTATION AND FINAL PUNCHLIST

(To be completed by Developer and submitted to the City Architect prior to final acceptance of Streetscape construction.)

NOTE: Items marked "" must be obtained during actual construction.

PROJECT:

ADDRESS: _____

DEVELOPER: _____

DEVELOPER'S CONTACT REPRESENTATIVE: _____

TELEPHONE NUMBER: _____ **FAX:** _____

DATE: _____ **EMAIL:** _____

A. The following items must be on file with the Public Works Department prior to final acceptance of Streetscape construction.

ITEM	DATE	REC'D.
1. Warranty certificates for street trees and other Streetscape landscaping materials. NOTE: Warranty and maintenance before and after final acceptance are outlined in Section 4.0, Technical Documents.	SUBMITTED _____	_____
2. *Concrete mix and *sand-cement mix certificates.	_____	_____
3. *Street paving materials certificates (write "N/A" if not included in this project)	_____	_____
4. Auxiliary Electric and irrigation system warranty certificates, instructions, extra stock, etc. as specified in Section 4.0, Technical Documents, and project specs. NOTE: Contractor is responsible for all maintenance until final acceptance.	_____	_____

ITEM	DATE SUBMITTED	REC'D
5. *Written notification to Director of New Development, OUC Electric, to order and install new streetlights per design drawings.	_____	_____
6. Signed easements for access to irrigation and electrical items, if on private property, as approved by CRA.	_____	_____
7. Full set of record drawings and copy of all digital files in AutoCAD 2006 or higher version	_____	_____

The above list verified as to completeness by City of Orlando, Public Works Department by:

Construction Management Representative

(Date)

cc: CRA

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, hereinafter referred to as 'PRINCIPAL' and State of Florida hereinafter referred to as 'SURETY,' and held and firmly bound unto the Community Redevelopment Agency of the City of Orlando, Florida, and the City of Orlando, Florida, hereinafter jointly referred to as "CITY," in the sum of \$_____ for the payment of which we bind ourselves, heirs, executors, successors or assigns, jointly and severally, firmly by these presents:

WHEREAS, PRINCIPAL has constructed certain improvements, including but not limited to streets, curbs, storm drains, sewer system, sidewalks and other improvements as described in the streetscape agreement dated _____ between PRINCIPAL and the CITY ("Agreement").

WHEREAS, the aforesaid improvements were made pursuant to certain plans and specifications dated _____, 20____, and filed with the CITY Engineer, and

WHEREAS, PRINCIPAL is obligated to protect the CITY against any defects resulting from faulty materials or workmanship of said improvements and to maintain said improvements for a period of two (2) years from _____, 200____.

NOW, THEREFORE, the condition of this obligation is such that is PRINCIPAL shall promptly and faithfully protect the CITY against any defect and correct any defects resulting from faulty materials or workmanship of the aforesaid improvements and maintain said improvements for a period of two (2) years from _____, 20____, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

The CITY Engineer shall notify the PRINCIPAL in writing of (1) any defect for which the PRINCIPAL is responsible and (2) any item that is not properly maintained and shall specify in said notice a reasonable period of time within which PRINCIPAL shall have to correct said defect or properly maintain said item.

The SURETY unconditionally covenants and agrees that if the PRINCIPAL fails to perform within the time specified, the SURETY, upon 45 days written notice from the CITY, or its authorized agent or officer, or the default will forthwith correct such defect or defects, perform the required maintenance and pay all CITY costs related thereto, including, but not limited to, engineering costs, legal fees (including attorney's fees on appeal) and contingent costs. Should the SURETY fail or refuse to correct said defects and perform the required maintenance, the CITY, in view of the public interest, health, safety and welfare factors involved, and the consideration in approving the development and entering into the Agreement, shall have the right to resort to any and all legal remedies against the PRINCIPAL and SURETY, both at law and in equity, including specifically, specific performance, to which the PRINCIPAL and SURETY unconditionally agree.

The PRINCIPAL and SURETY further jointly and severally agree that the CITY, at its option, shall have the right (1) to correct said defects and (2) to perform the required maintenance in case the PRINCIPAL shall fail or refuse to do so, and in the event the CITY should exercise and give effect to such right, the PRINCIPAL and the SURETY shall be jointly and severally obligated hereunder to reimburse the CITY the total cost thereof, including, but not limited to, constructions, engineering costs, legal fees (including attorney's fees on appeal) and contingent costs, together with any damages, either direct or consequential, which may be sustained on account on the failure of the PRINCIPAL to correct said defects.

IN WITNESS WHEREOF, the Principal and the Surety have executed these presents this
_____ day of _____, 20____.

Principal

By: _____

Print Name: _____

Title: _____

Attest:

By: _____

Print Name: _____

Title: _____

Surety

By: _____

Print Name: _____

Attorney-in-Fact

Witnesses:

(1) _____

Print Name: _____

(2) _____

Print Name: _____

**CERTIFICATE OF FINAL INSPECTION AND
COMPLIANCE FOR STREETScape CONSTRUCTION**

PROJECT: _____

ADDRESS: _____

DEVELOPER: _____

DEVELOPER'S CONTACT

REPRESENTATIVE: TELEPHONE NUMBER: _____

DATE: _____ **EMAIL:** _____

This is to certify that all Streetscape construction has been inspected and approved for compliance with the *Downtown Orlando Streetscape Guidelines* by the below-noted City of Orlando representatives, and that all warranties, certificates, and any other items required by the *Downtown Orlando Streetscape Guidelines* are on file with the City Architect.

Signed: _____ Date: _____
(Public Works Dept. --
Capital and Infrastructure Division)

Signed: _____ Date: _____
(City Architect--CRA)

Signed: _____ Date: _____
(Downtown Facility Supervisor--CRA)

NOTE: This signed certificate must be received by the CRA prior to the release of any cost-sharing funds.

SECTION 3.0

STREETSCAPE TREATMENTS

3.0 - DOWNTOWN STREETScape CLASSIFICATIONS

3.0.1 - GENERAL

The streets of Downtown Orlando have been classified in five main categories or “Treatments” for streetscape improvements as described in the following pages. These are:

- Treatment 1: Primary Pedestrian Streets
- Treatment 2: Secondary Pedestrian Streets
- Treatment 3: Historic Streets
- Treatment 4: Window Pane Streets
- Treatment 5: Parkway Streets

Three additional categories—“Gertrude’s Walk & Railroadscapes”, “Other Treatments,” and “Plazas”--have been added to provide guidelines for pedestrian use areas other than that of the typical streetscape. Church Street and Division Avenue are categorized under “Other Treatments.”

Section 3 describes paving, sidewalk widths, street tree plantings, lighting, street furniture and other design features. **Varying paving pattern and materials may be permitted to enhance the primary entrance(s) of a building, as approved by the DDB/CRA.**

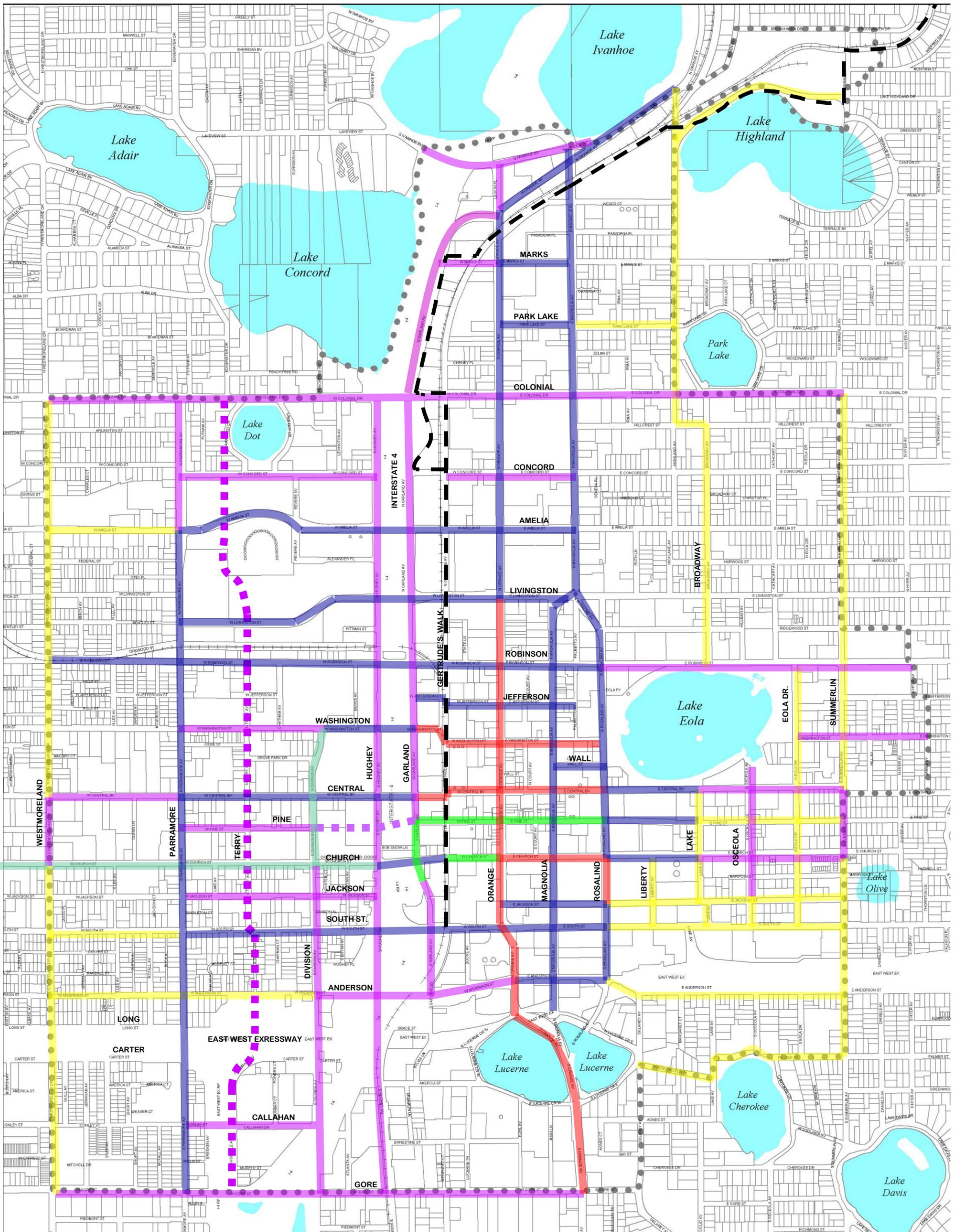
Refer to Section 4.0 for specific design and construction requirements and Section 5.0 for additional information on amenities.

Map 1: Streetscape Classifications identifies streetscape classifications.

Map 2: Sidewalk Widths illustrates minimum sidewalk widths proposed downtown. New building projects (i.e., not renovations of existing buildings) will be required to provide 15 feet of sidewalk from back of curb to face of building in Treatments 1, 2, 3, and 4.

The DDB and CRA have the discretion to modify and add streetscape classifications.

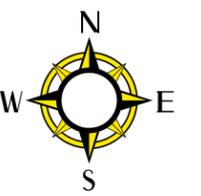


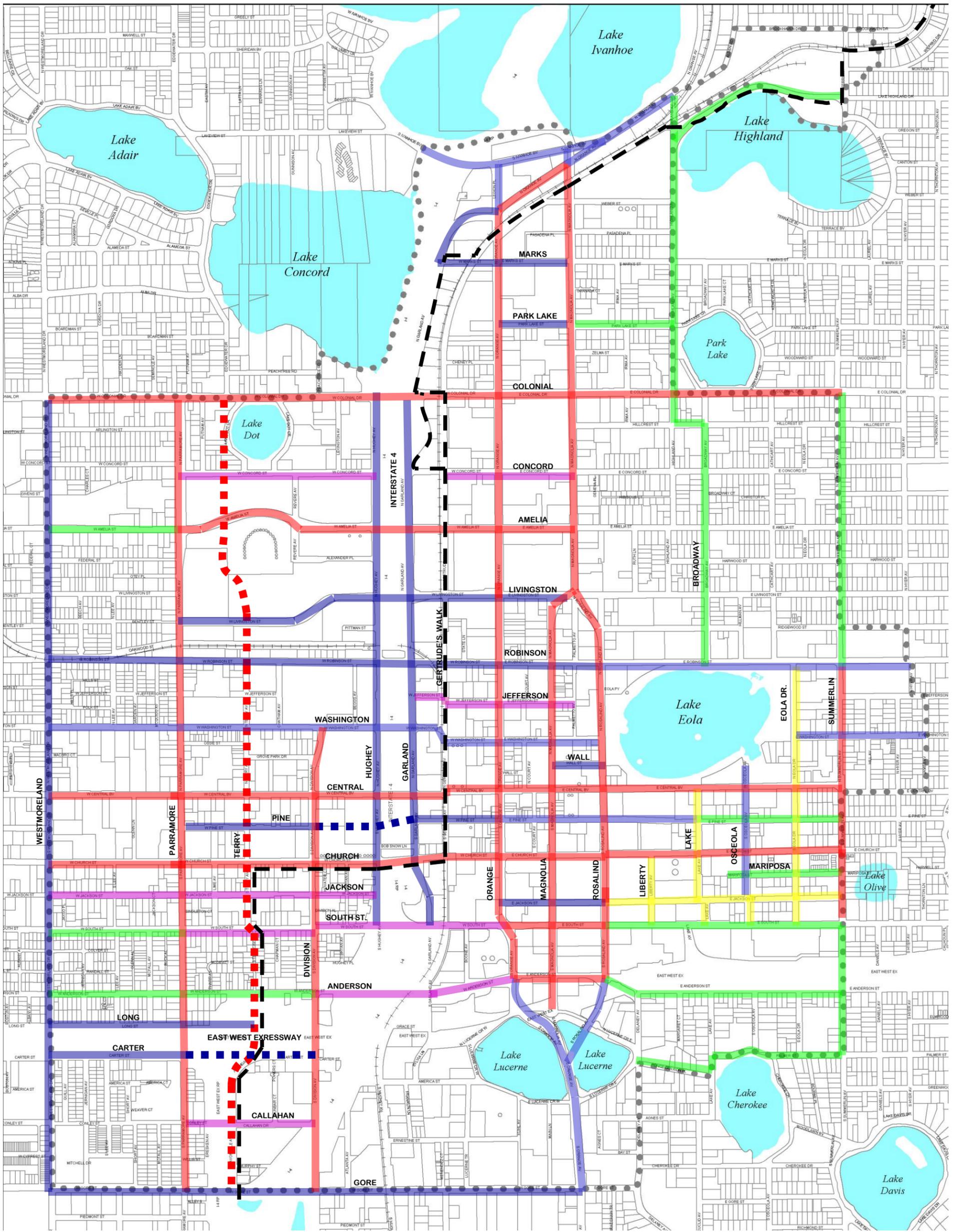


MAP 1: STREETScape CLASSIFICATIONS

LEGEND

- Treatment 1 (Primary Pedestrian Street)
- Treatment 2 (Secondary Pedestrian Street)
- Treatment 3 (Historic Street)
- Treatment 4 (Window Pane Street)
- Treatment 5 (Parkway Street)
- Gertrude's Walk & Railroadscape
- Downtown CRA Boundary
- Other Treatments (incl. Church Street & Division Avenue)





MAP 2: SIDEWALK WIDTHS

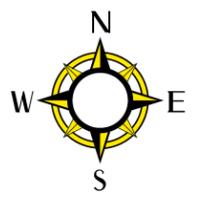
LEGEND

- 15' Wide Sidewalks with Tree Wells
- 13' Wide Sidewalks with Tree Wells
- 11' Wide Sidewalks with Tree Wells
- 7' Wide Sidewalks and 7'-6" Wide Parkways
- 5'-6" Wide Sidewalks and 6' Wide Parkways
- 16'-18' Wide Sidewalks with Tree Wells

- Downtown CRA Boundary
- Future Road Expansion

Notes:

1. All other residential streets not defined shall have minimum 5' Wide Sidewalks with 6' Wide Parkways.
2. All other commercial streets not defined shall have minimum 13' Wide Sidewalks with Tree Wells.
3. Distances to be measured from back of curb to face of building.



3.1 - TREATMENT 1: PRIMARY PEDESTRIAN STREETS

3.1.1 – TREATMENT 1 OVERVIEW

Treatment 1 shall be used for primary pedestrian streets, those streets which have a strong pedestrian orientation and heavy use within Downtown. Emphasis is placed on the pedestrian scale, with wide sidewalks, frequent street trees, and other streetscape amenities to make walking a pleasant experience. Classified as Primary Pedestrian Streets are: Portions of Orange Avenue, Washington Street, Central Boulevard, Church Street, and Pine Street.

Characteristics of Treatment 1, Primary Pedestrian Streets, include:

- Strong pedestrian orientation within the Downtown Core.
- On-street parking with “bulb-outs” where feasible.
- Sidewalks 15 feet or more in width with brick and hexagonal pavers.
- Street trees within hexagonal tree wells.
- Double wheelchair-accessible ramps at each street corner.
- Double acorn light fixtures on both sides of the street.
- “Bulb-outs” of sidewalks at intersections with decorative pavers or other specialty surfaces at the corners and crosswalks.
- Brick sidewalks. The brick should be laid in a running bond pattern in a concrete slab.
- Precast Hexagonal Concrete Pavers: Hexagonal black and white pavers have played a prominent role in historic Orlando and are still in evidence in parts of the City. They are used in Orlando streetscape projects as the special paving treatment to the enhance sidewalks, roadway intersections, and temporary parallel parking. Other special applications may be selected on other designations.



Details 3.1.A through 3.1.C illustrate Primary Pedestrian Streets. Sidewalks are paved in brick, with a “furnishing strip” of precast hexagonal concrete pavers, street trees, tree grates, tree guards, and street lights.

Treatment 1 construction layouts and details are provided in this section. Refer to Section 2.0 - Process for Streetscape Design & Construction for process of approval and forms required for completing the streetscape. Refer to Section 4.0 and 5.0 for technical specifications required.

3.1.2 - ALTERNATIVE STREETSCAPE DESIGNS

Any streetscape designs that do not conform to the *Streetscape Guidelines* are subject to review by the DDB/CRA for approval. Design may vary from these guidelines due to site conditions and approved conceptual changes.

The City may request that new development projects provide a different style of paver, tree grate, or amenity other than those specified herein. This will be determined on a project-by-project basis. Granite pavers and curbs are encouraged.

Hardscape and landscape improvements outside the streetscape area should be compatible with the design of the streetscape and will be reviewed by the City Architect.

3.1.3 – TREATMENT 1 STREET TREES

Street trees are planted generally 25 feet on center (this spacing may vary depending upon tree type and site conditions) and are provided with tree grates and guards. Variances from typical tree spacing must be approved by the DDB/CRA. Street tree planting design is subject to approval of City Transportation Engineering Division. On streets which have a speed limit greater than 25 miles per hour, greater setback of the tree from the curb may be required.

See Section 4.15, Trees & Landscaping, and Section 4.16, Irrigation, for technical specifications for all landscaping and irrigation.

3.1.4 – TREATMENT 1 STREETLIGHTS

Except at intersections where tall streetlights are provided, double acorn streetlights are specified. The lighting is generally spaced midway between street trees, as necessary to meet City illumination requirements, determined on a project by project basis. All streetlight planning, design, and construction shall be coordinated with OUC. Planning should begin early to ensure logical, uniform lighting schemes that minimize bright and dark spots. A streetlight plan shall be part of the submittal to DRC.

See Section 5.5 for specifications.

3.1.5 – TREATMENT 1 CURB RADII

Subject to approval by the City Transportation Engineering Division, the minimum radii of back of curb at all typical intersections approximating a right angle shall be as follows:

- Local to Local R = 25'
- Local or Collector to Collector R = 35'
- Local or Collector to Arterial R = 45' or greater

Refer to City Land Development Code, Section 2B, Major Thoroughfare Plan, for designations of Collector and Arterial streets.

3.1.6 - TREATMENT 1 SIDEWALK WIDTHS

All new buildings constructed within the CRA will be required to provide sidewalks 15 feet in width. Sidewalk widths required for renovations of existing buildings are the exception and shall conform to the site conditions.

Paving Design for Narrow Sidewalks: Where a narrow sidewalk exists in a Treatment 1 Streetscape (i.e., less than 10 feet from the property line or building to where the sidewalk meets the curb), it is necessary to adjust the proportions of sidewalk design details.

The concrete band which borders the brick and hexagonal pavers should be reduced to a width of 6 to 8 inches. In unique cases, the width could be further reduced with the approval of the CRA.

For tree grates, the concrete collar may be reduced from 12 to 6 inches.

3.1.7 – TREATMENT 1 PAVEMENT

Surface treatments for paving in Treatment 1 are as follows:

- A. Brick Pavers - Sidewalks and Driveways
Used for:
 - 1. Sidewalks between furnishing strip areas and building facades.
 - 2. Mid-block driveways.

- B. 12" Hexagonal Concrete Pavers - Sidewalks
Used for:
 - 1. Sidewalks in furnishing strip area.

- C. Thin-Set Pavers - Sidewalks
Used for:
 - 1. All locations where full depth pavers cannot be installed due to vertical clearance limitations, including as a minimum vault areas and rear portions of inlet tops.

- D. Concrete - Sidewalk and/or Driveways (see Section 4.6, Concrete Work)
Used for:
 - 1. Transitioning to existing sidewalks on side streets.

- E. Asphalt Pavement – Streets
Used for:
 - 1. Streets from intersection to intersection.
 - 2. Areas within the 30" concrete circular band area.
 - 3. Transition areas at intersections from 16" concrete banding to limits of construction on side streets.

- F. 8" Hexagonal Concrete Pavers - Street
Used for:
 - 1. Loading zone areas.
 - 2. Intersections.

NOTE: A long lead time should be anticipated when ordering brick and hexagonal pavers.

3.1.8 - WHEELCHAIR ACCESSIBILITY

All street corners shall have two wheelchair ramps, unless site conditions dictate otherwise and as approved by the City Architect and City Transportation Engineering Division.

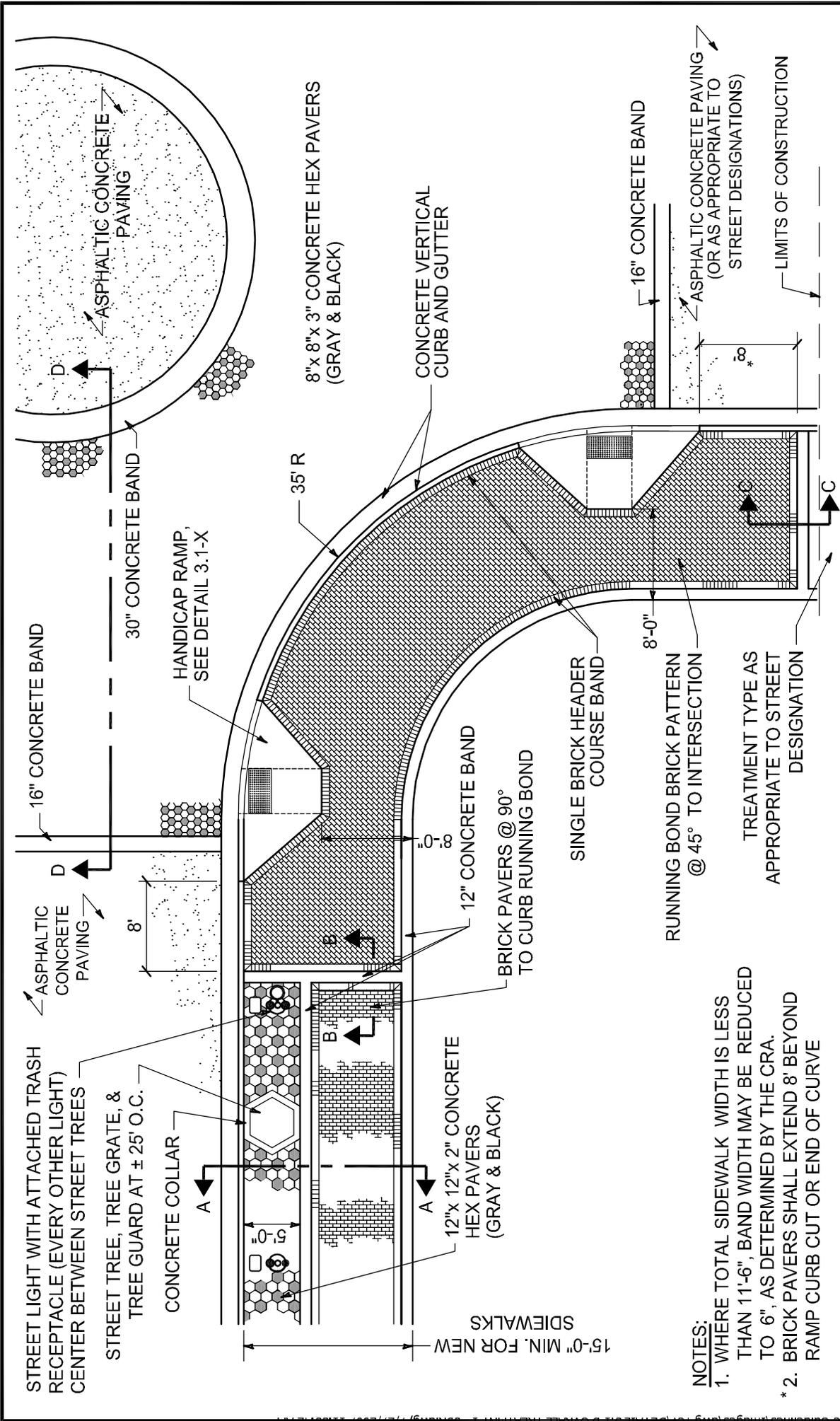
3.1.9 - TEMPORARY SIDEWALK IMPROVEMENTS

Any temporary sidewalk provisions that may be required during the construction of streetscape improvements are the responsibility of the property owner and will not be a cost sharing item of the DDB/CRA.

3.1.10 – TREATMENT 1 DETAILS

The following details shall be incorporated into the construction plans. The designer shall modify the details as necessary to fit site conditions. All variations from these details shall be approved by the City of Orlando.

See also Section 4.0, Technical Documents, and Section 5.0, Other Site Furniture, for further specifications.



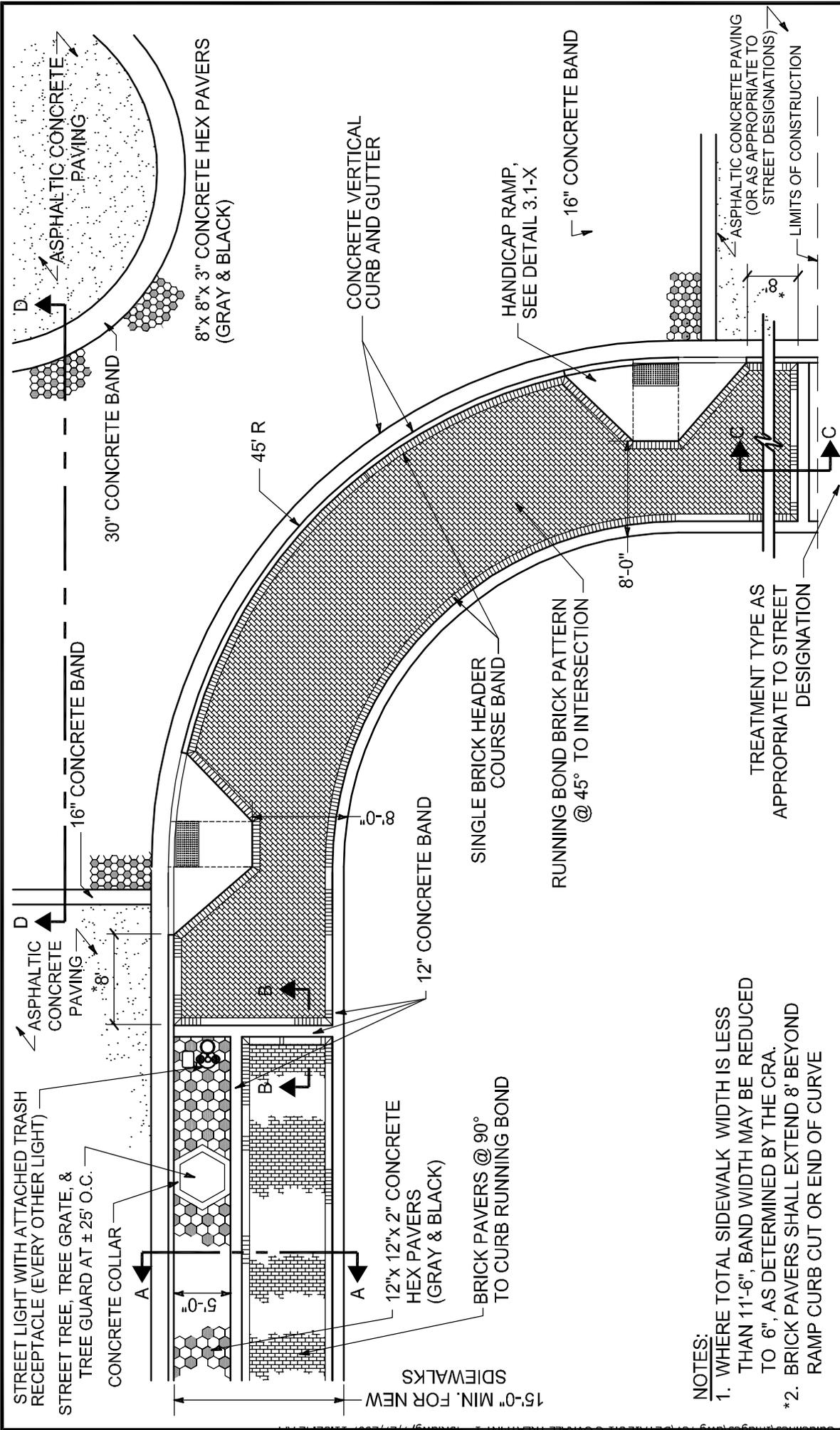
OVERALL STREETSCAPE TREATMENT (35' CORNER RADIUS)



TREATMENT 1

DETAIL 3.1-B

Rev. 07/30/07



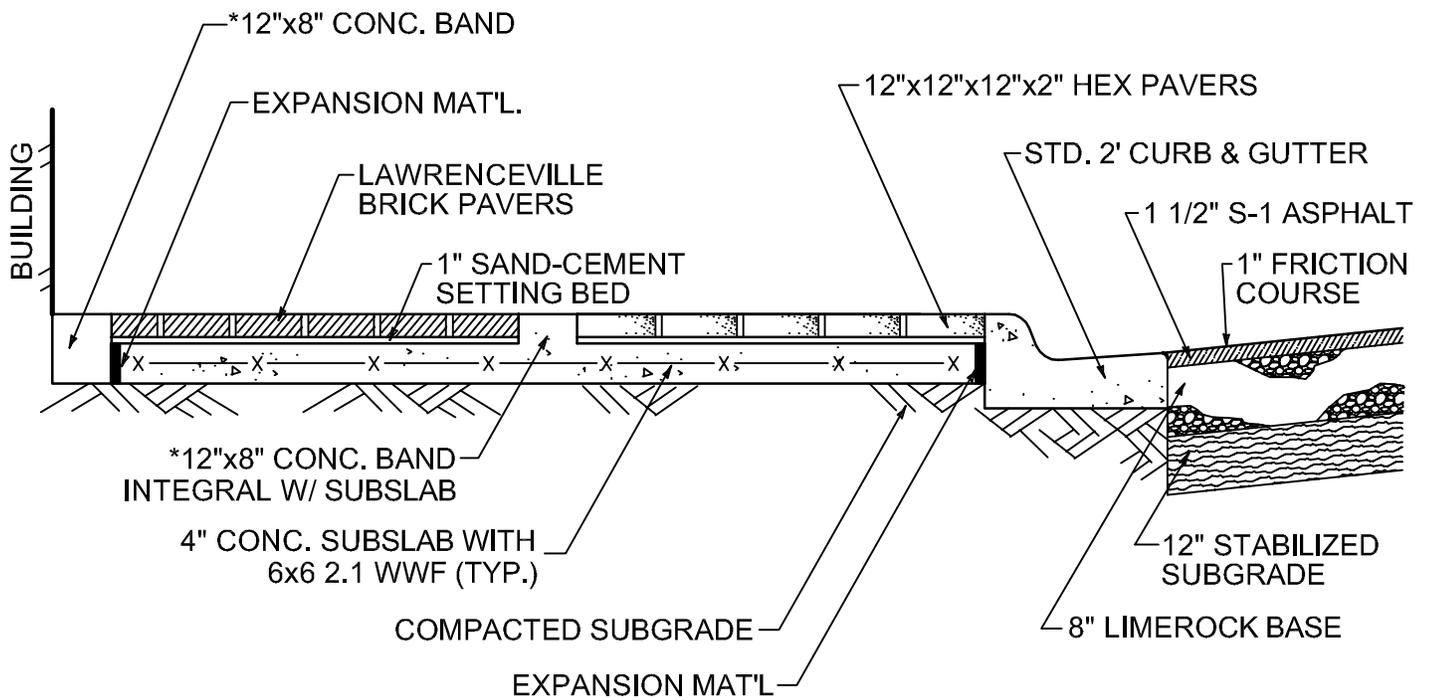
OVERALL STREETSCAPE TREATMENT (45' CORNER RADIUS)



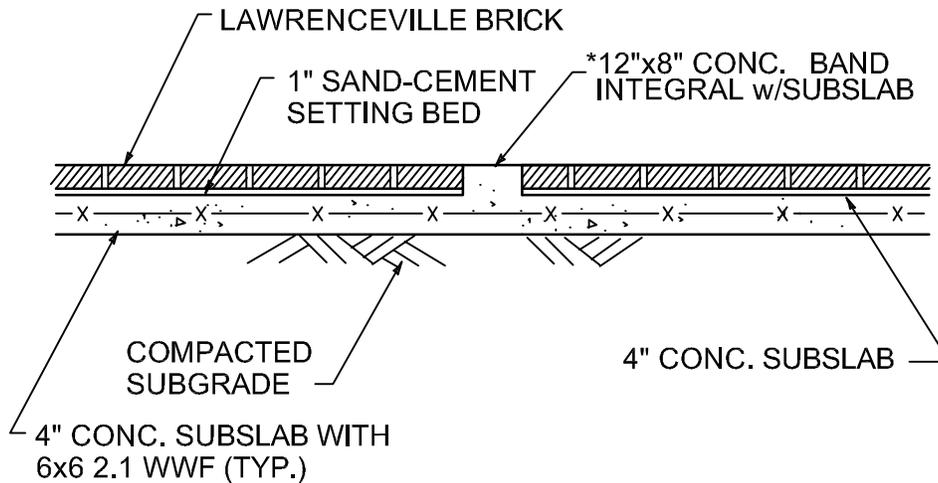
TREATMENT 1

DETAIL 3.1-C

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SECTION A-A (DETAILS 3.1-A, 3.1-B, 3.1-C)



SECTION B-B (DETAILS 3.1-A, 3.1-B, 3.1-C)

*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.



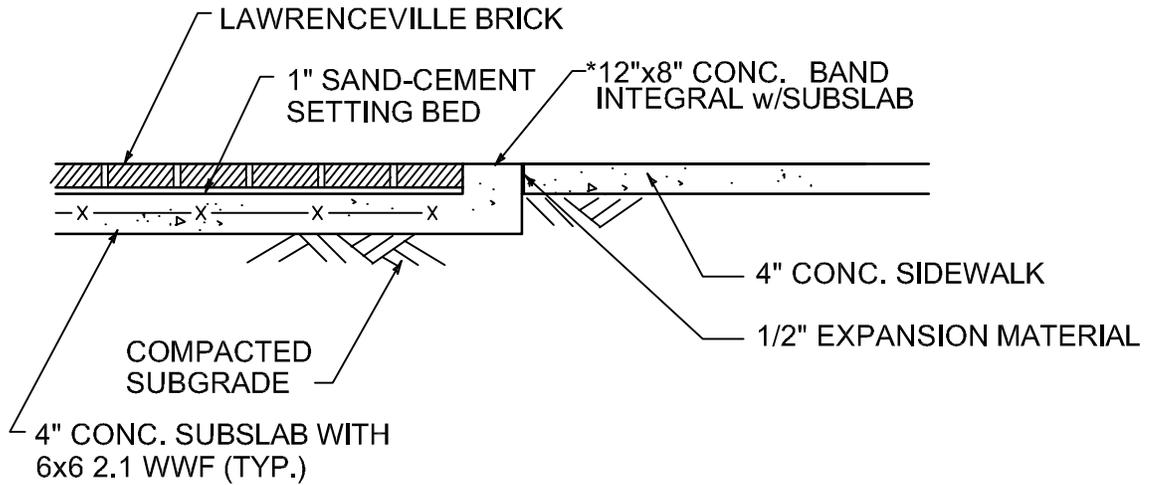
PAVER AND SIDEWALK SECTIONS

TREATMENT 1

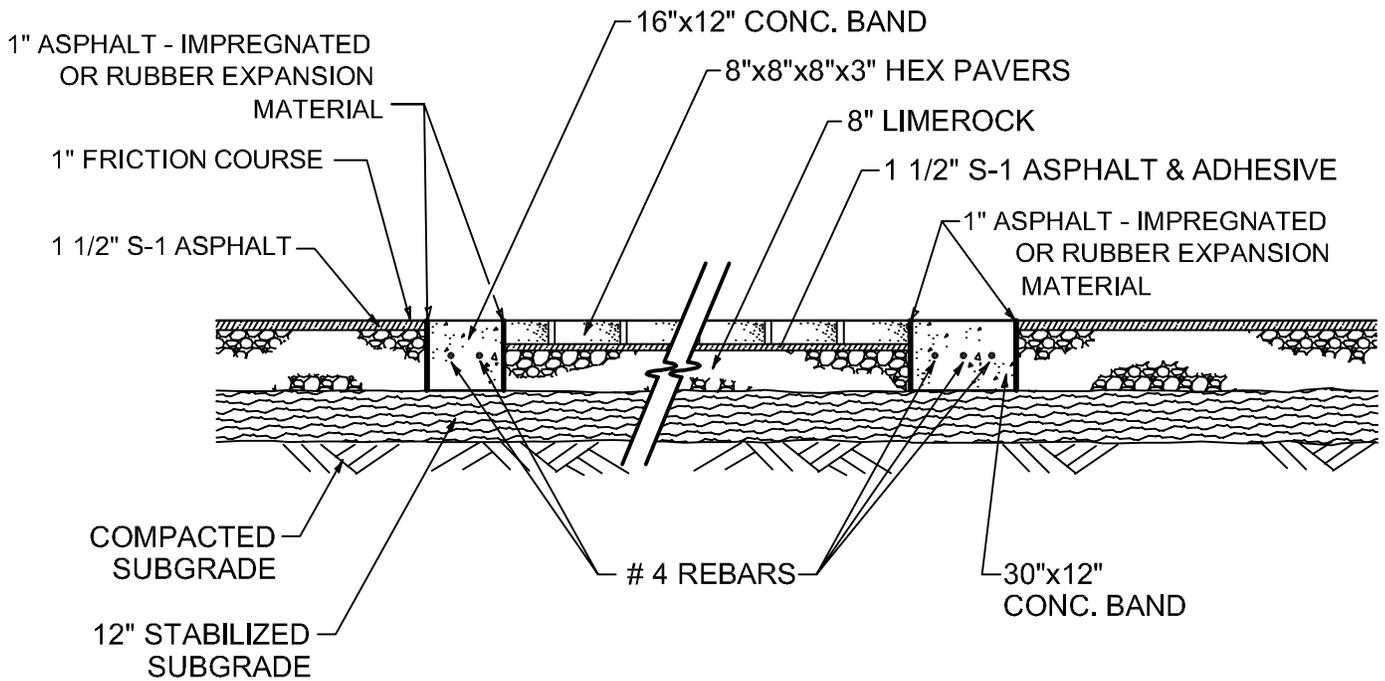
3.1-D



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SECTION C-C (DETAILS 3.1-A, 3.1-B, 3.1-C)



SECTION D-D (DETAILS 3.1-A, 3.1-B, 3.1-C)

*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.



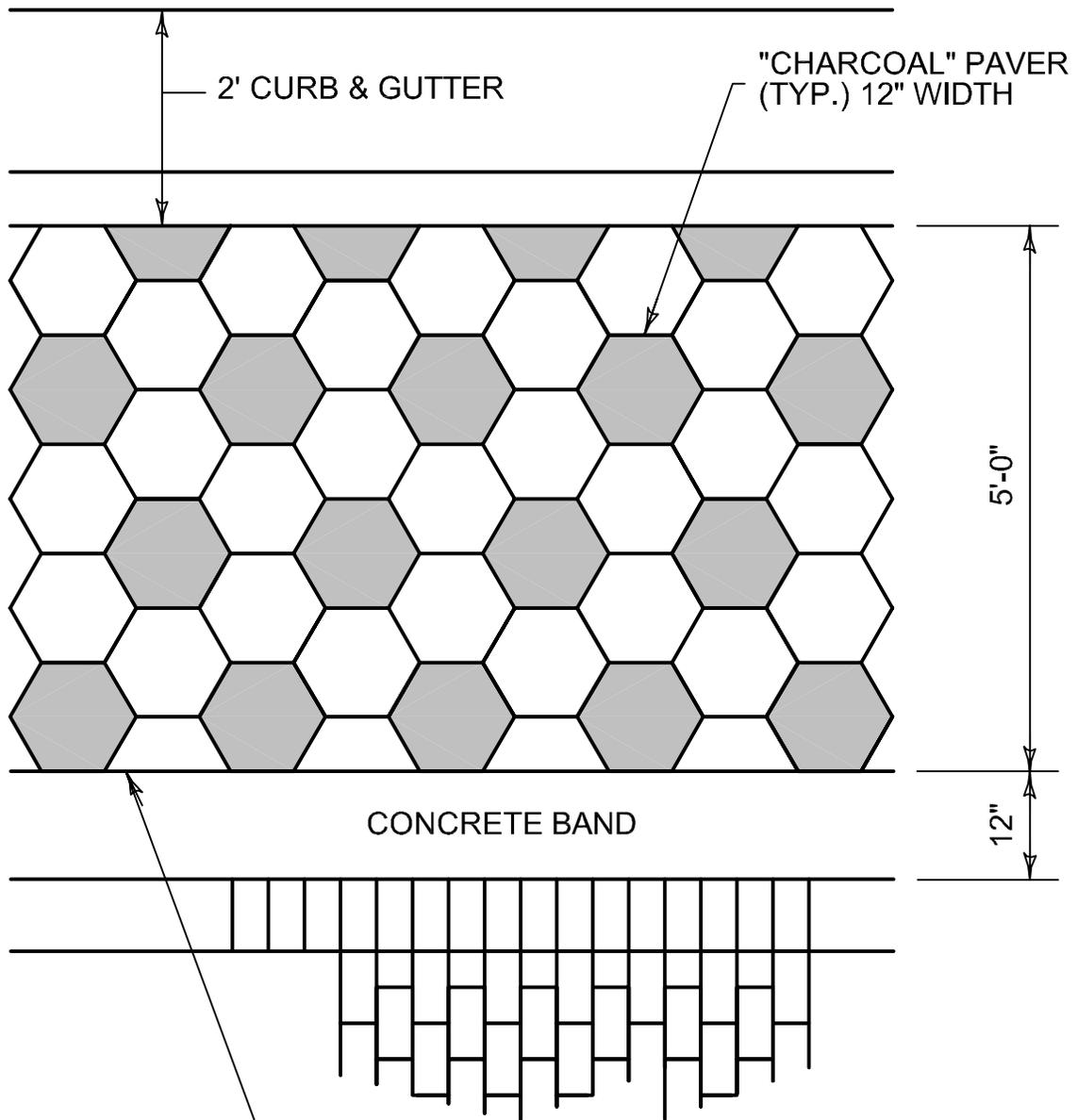
PAVER AND SIDEWALK SECTIONS

TREATMENT 1

3.1-E

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START ALL HEX PAVER INSTALLATION AT CONCRETE BAND, 5' FROM BACK OF CURB. ALL IRREGULAR CUTS ARE TO OCCUR AT CURB LINE. "CHARCOAL" COLORED PAVERS ADJACENT TO THE CONCRETE BAND ARE TO BE FULL, UNCUT PAVERS.

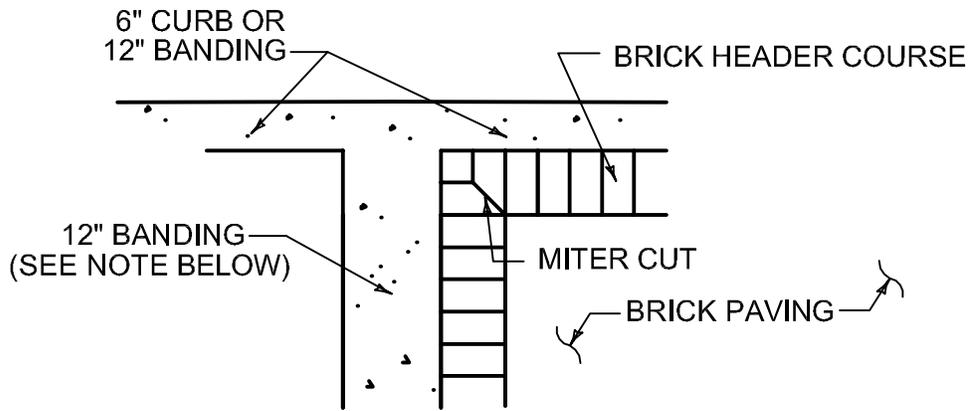


HEX PAVER PATTERN

TREATMENT 1

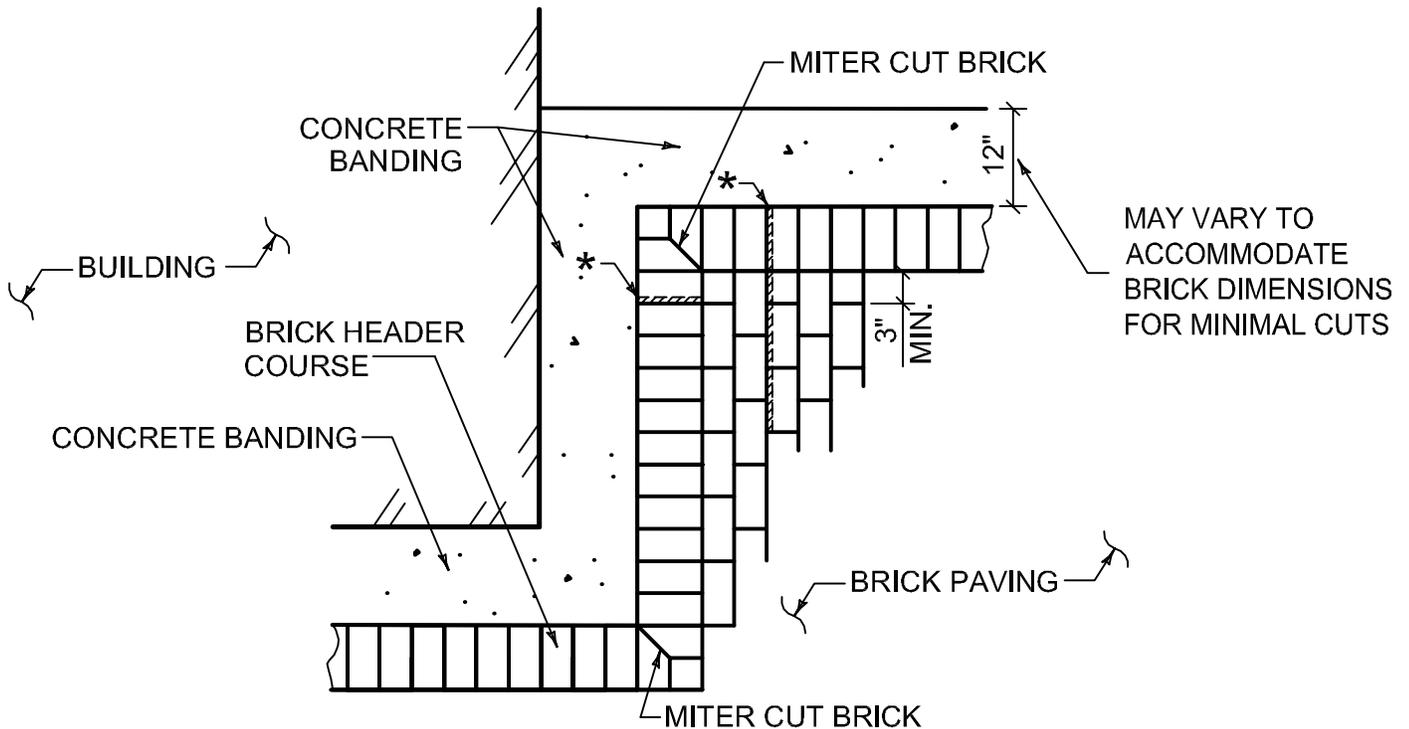
DETAIL 3.1-F





*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.

OUTSIDE CORNER PLAN



*BRICKS CUT TO COMPENSATE FOR FIELD HEADER COURSING SHOULD OCCUR MID-FIELD AND NOT AT ENDS OF PATTERN.

INSIDE CORNER PLAN



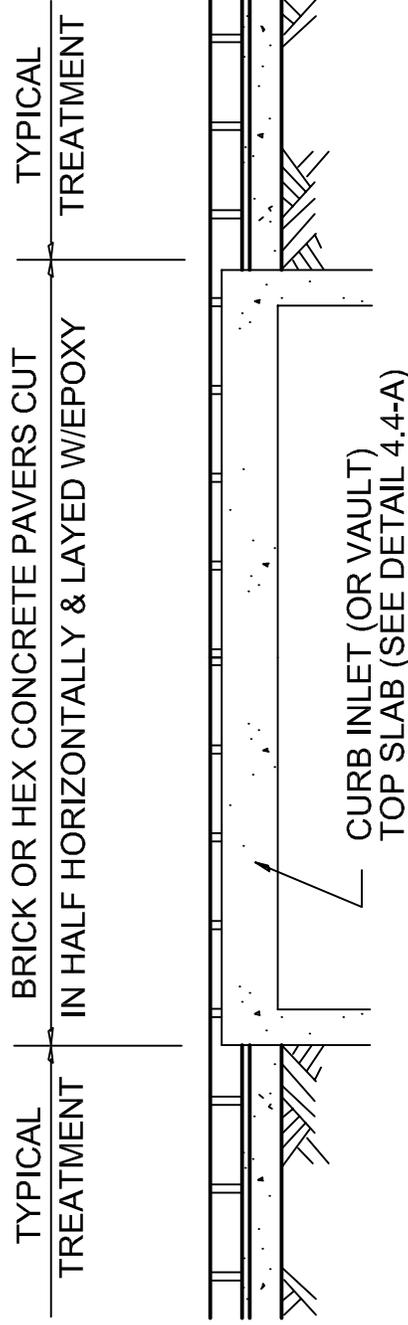
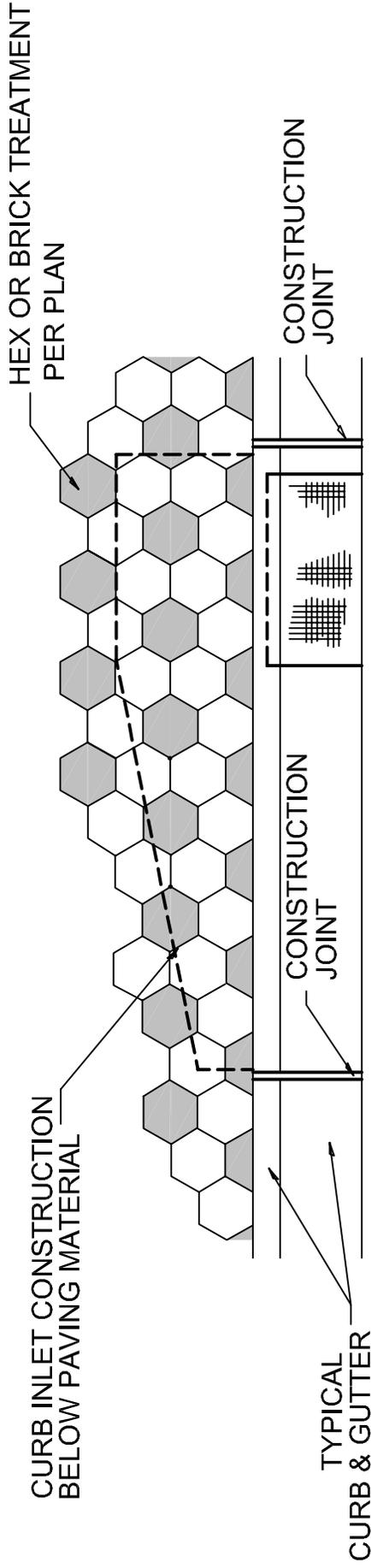
BRICK HEADER CORNER DETAIL

TREATMENT 1

DETAIL 3.1-G



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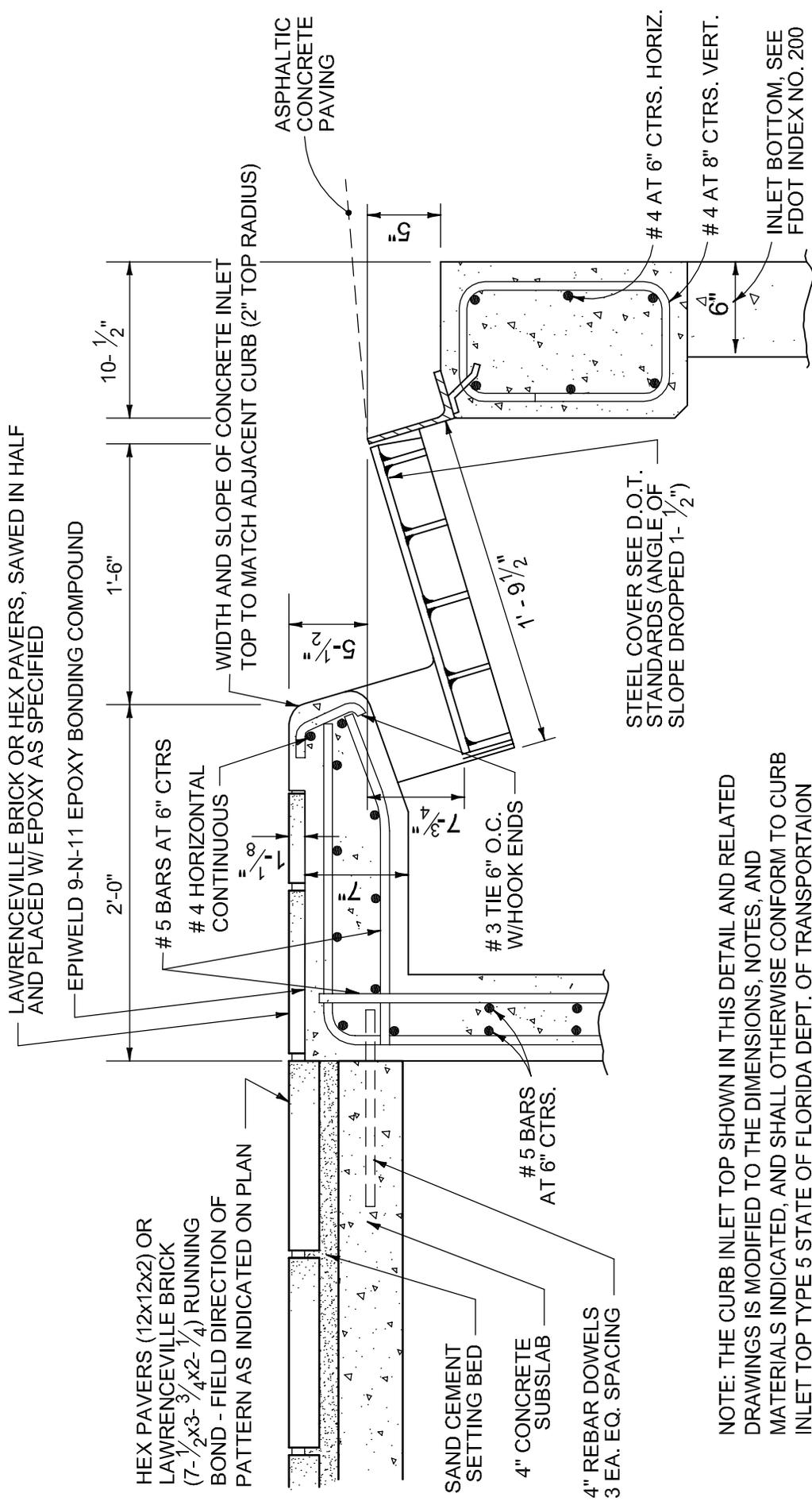
THIN SET PAVERS

TREATMENT 1

DETAIL 3.1-H

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NOTE: THE CURB INLET TOP SHOWN IN THIS DETAIL AND RELATED DRAWINGS IS MODIFIED TO THE DIMENSIONS, NOTES, AND MATERIALS INDICATED, AND SHALL OTHERWISE CONFORM TO CURB INLET TOP TYPE 5 STATE OF FLORIDA DEPT. OF TRANSPORTATION ROAD DESIGN STANDARDS.

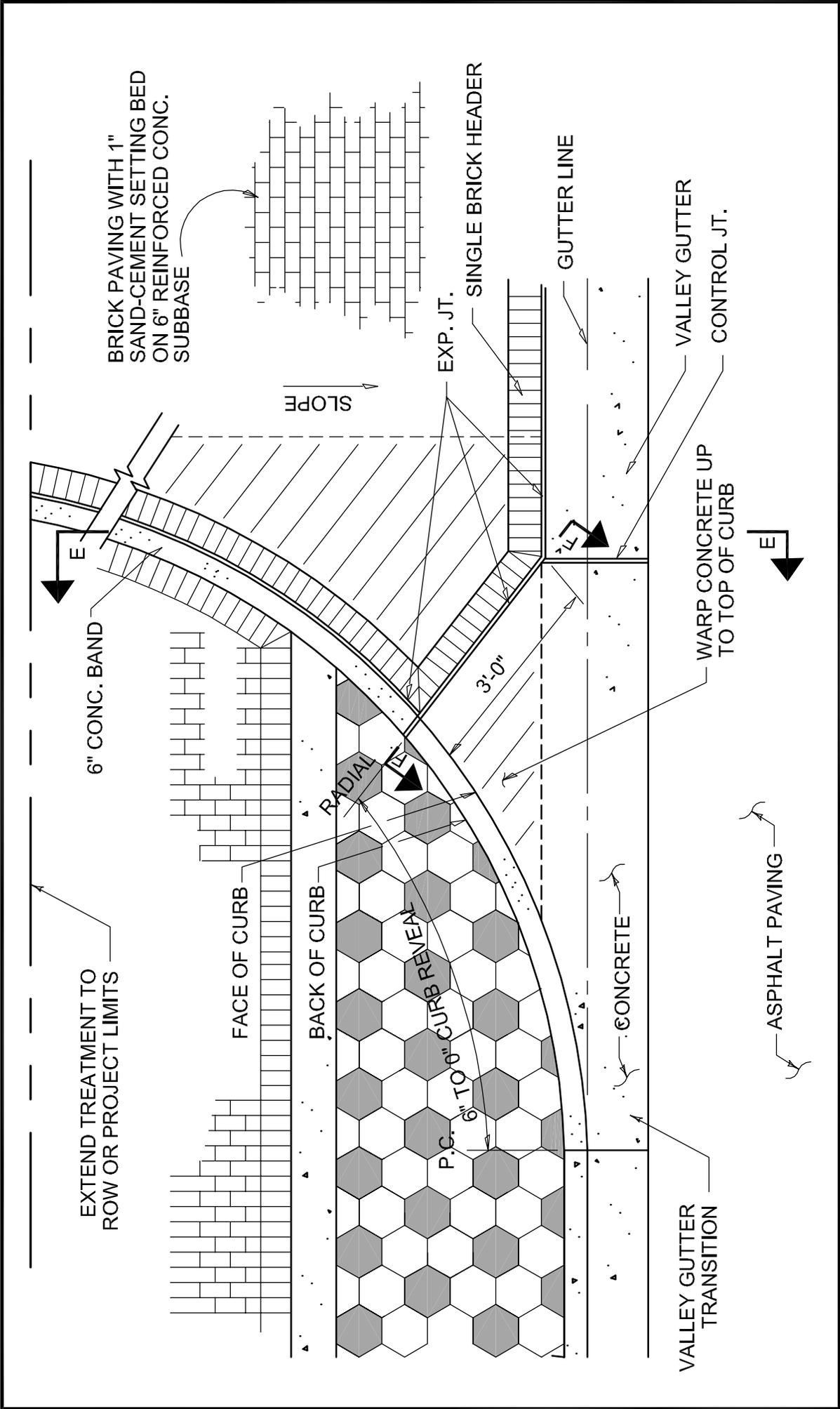
MODIFIED FDOT TYPE 5 INLET TOP

TREATMENT 1

DETAIL 3.1-I

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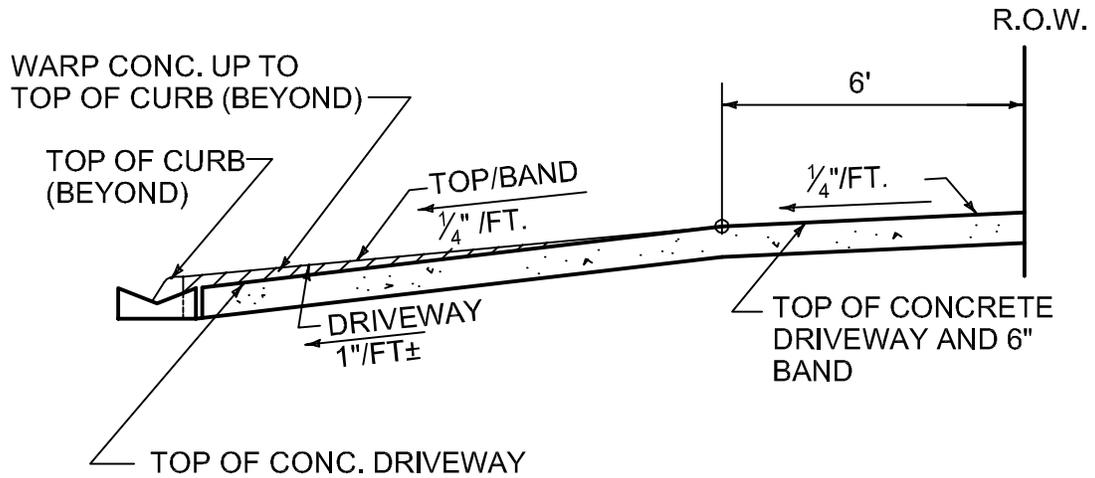
MID-BLOCK DRIVEWAY DETAIL

DETAIL 3.1-J

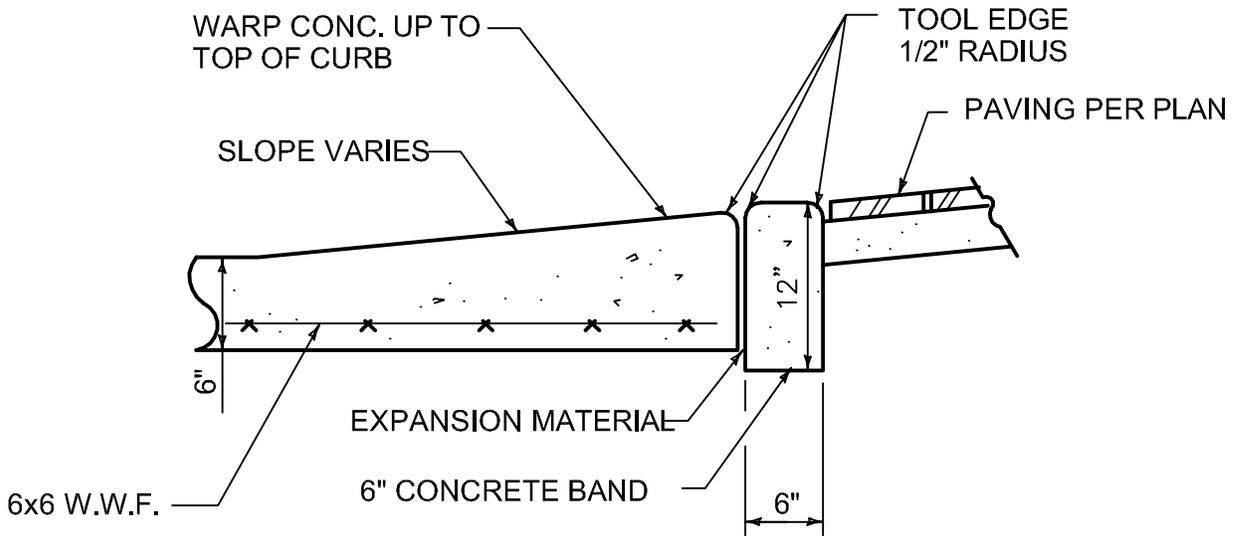
TREATMENT 1

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SECTION E-E



SECTION F-F

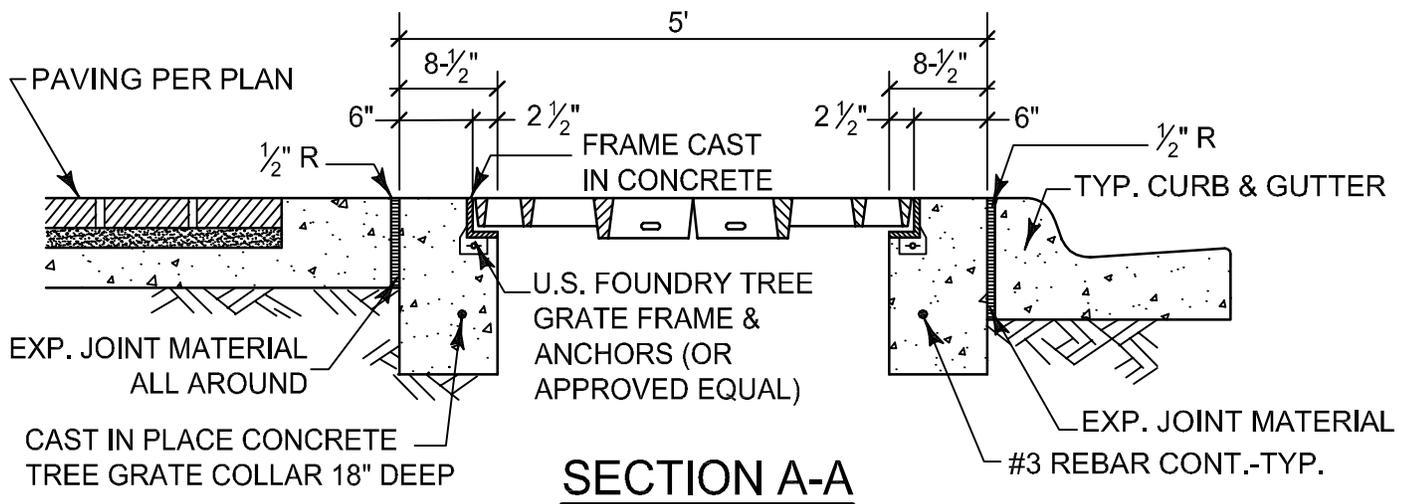
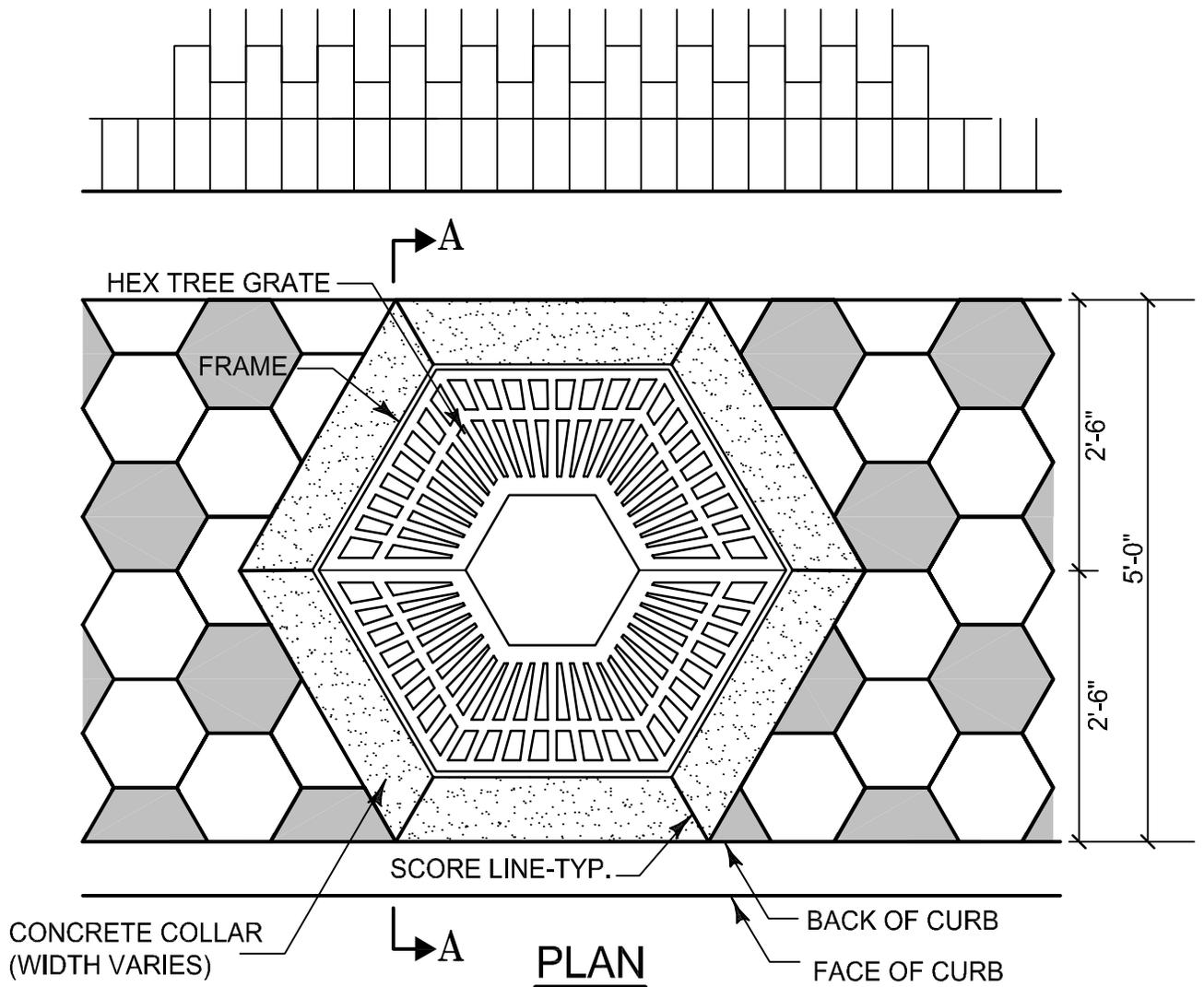


MID-BLOCK DRIVEWAY SECTIONS

TREATMENT 1

DETAIL 3.1-K





TREE GRATE, FRAME AND COLLAR

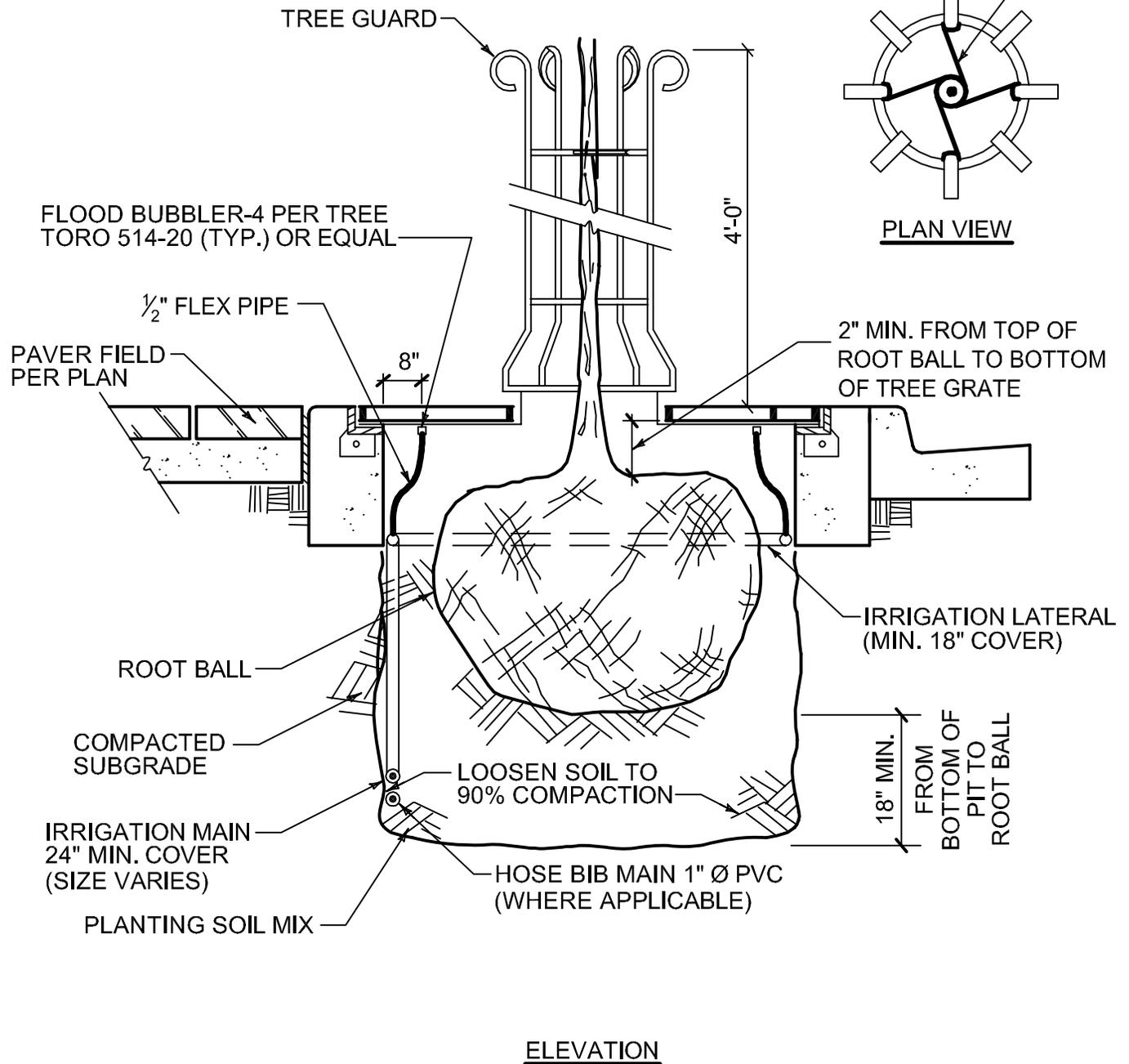
TREATMENT 1

DETAIL 3.1-L



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'WONDER TIE' OR APP. EQUAL
4 PER TREE AT TOP OF GUARD



ELEVATION



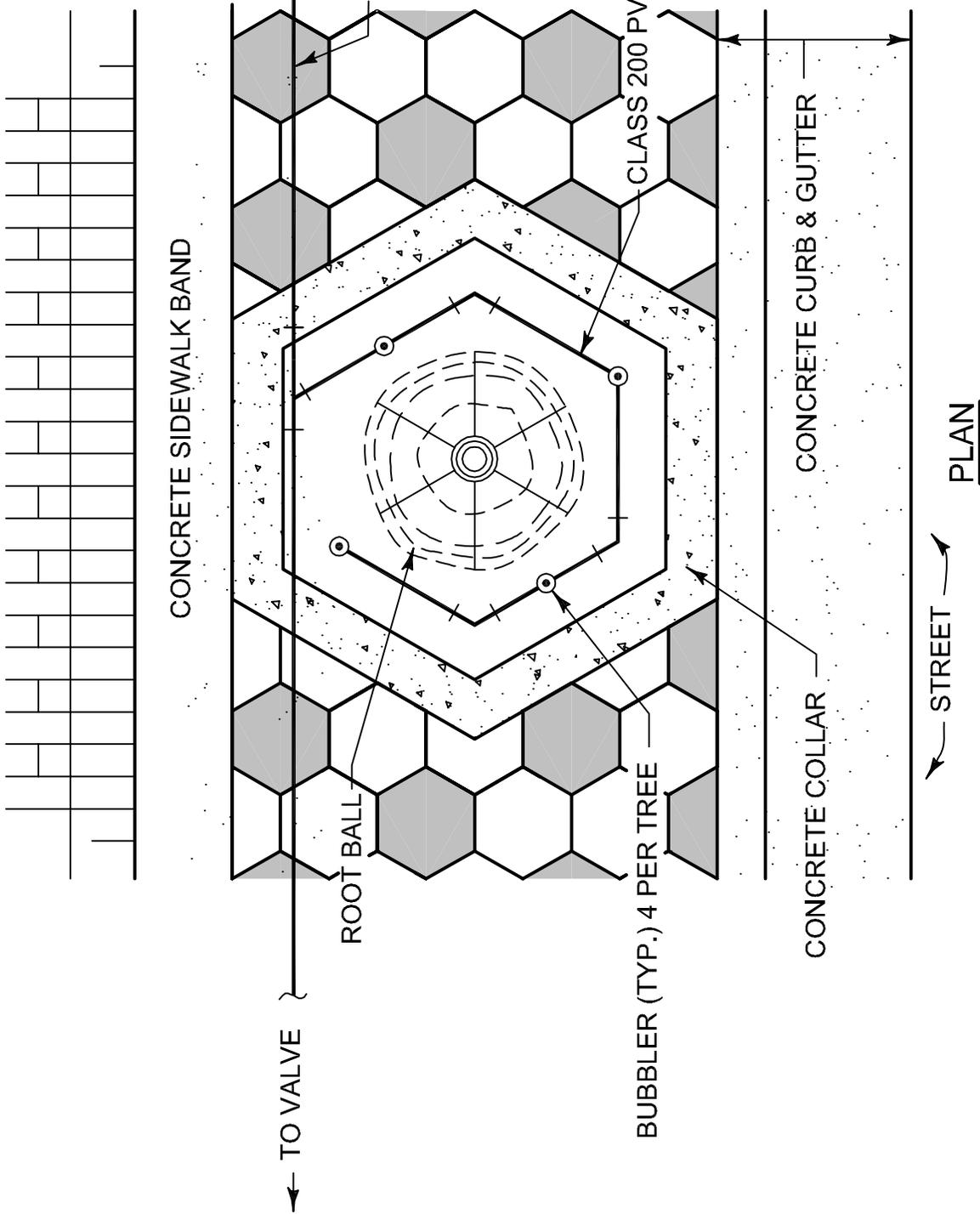
TREE WELL WITH IRRIGATION

TREATMENT 1

DETAIL 3.1-M



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BUBBLER PLACEMENT & PIPE ROUTING WITHIN TREE WELL

TREATMENT 1

DETAIL 3.1-N

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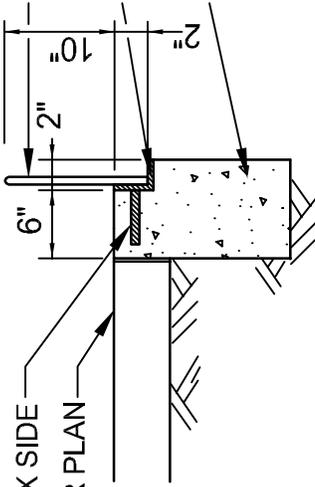
1/2" x 4" STEEL DOWEL 1 EA. PER HEX SIDE
 SIDEWALK TREATMENT PER PLAN

5/8" O.D. STEEL SMOOTH ROD;
 PAINTED BLACK

1/4" x 2" ANGLE-IRON BASE

CONCRETE TREE WELL FOOTING

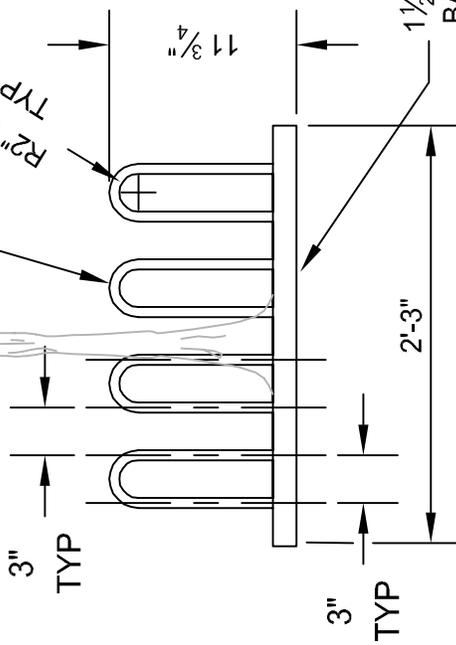
ANCHOR DETAIL



5/8" O.D. STEEL
 SMOOTH ROD;
 PAINTED BLACK

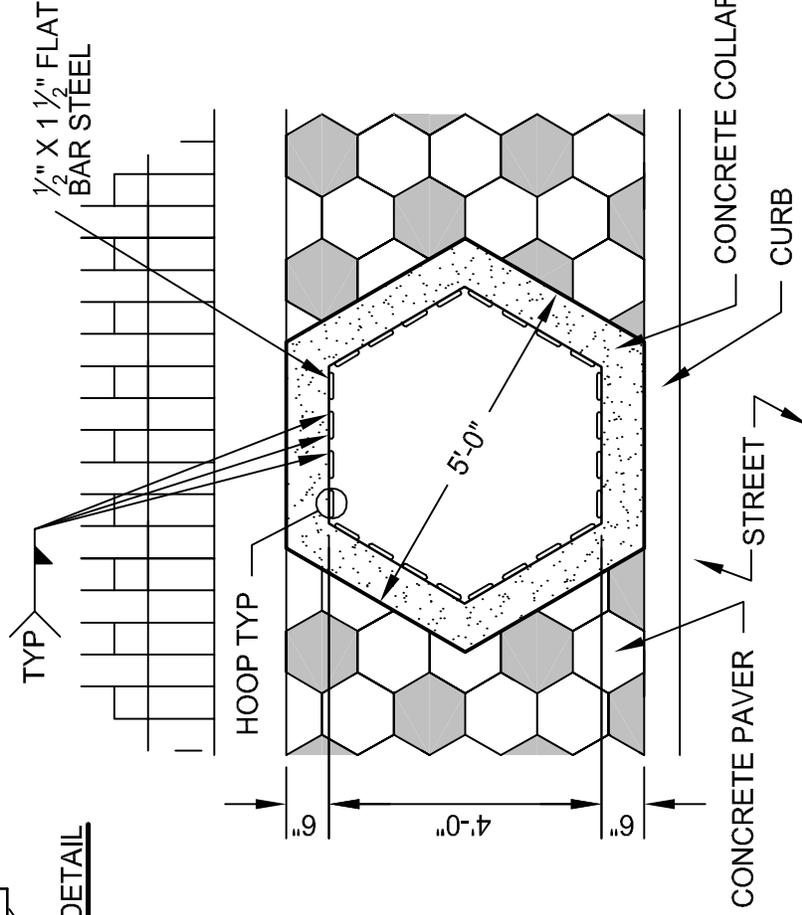
R2" OD
 TYP

1 1/2" X 1 1/2" FLAT
 BAR STEEL



ELEVATION

NOTE:
 HOOP SPACING MAY VARY ACCORDING TO WIDTH OF FRAME.



PLAN



HOOP STYLE TREE GUARD - HEXAGONAL

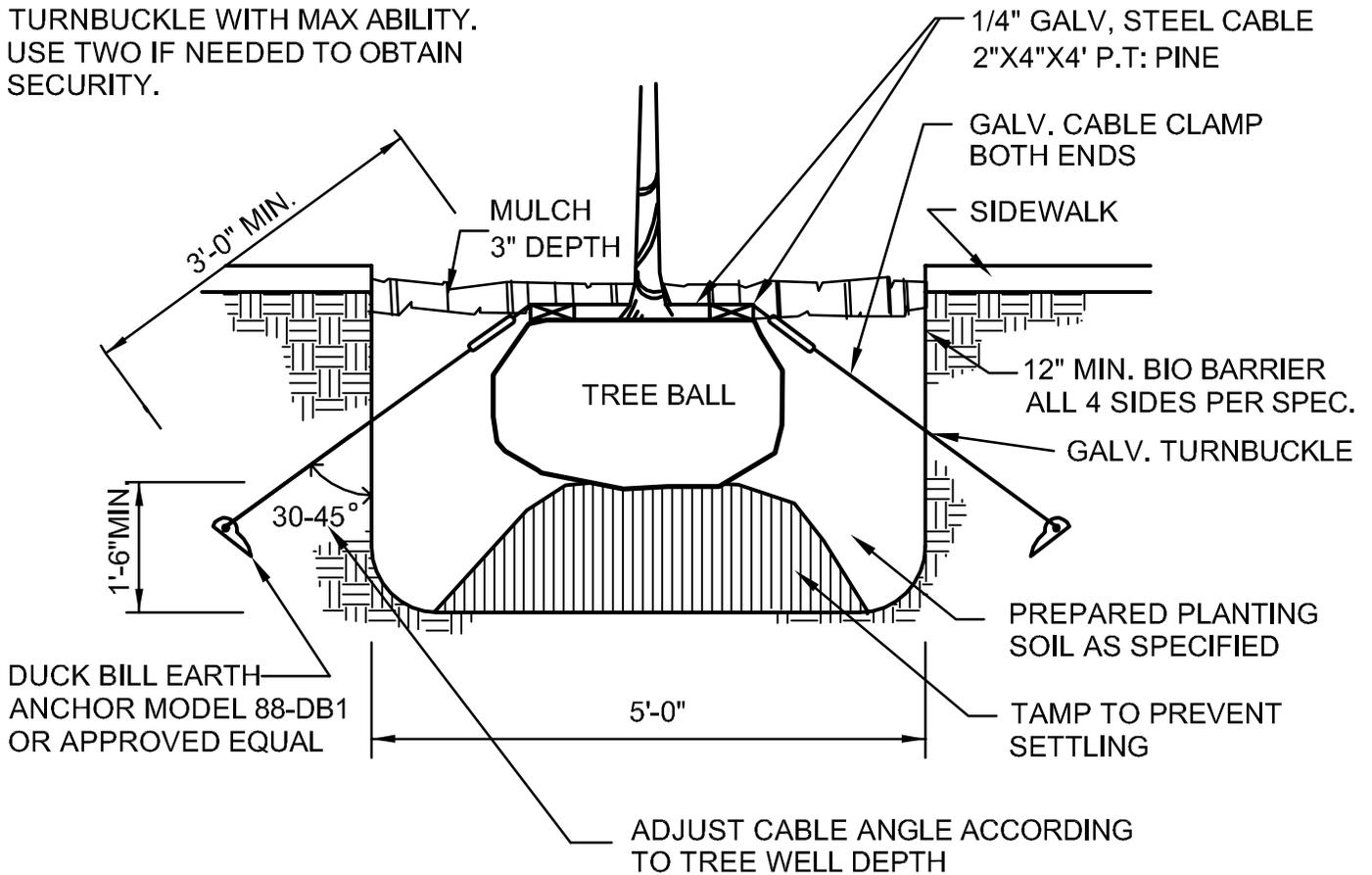
TREATMENT 1

DETAIL 3.1-0

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NOTE: TENSION CONNECTING CABLE TO MAXIMUM TENSION. INSTALL TURNBUCKLE WITH MAX ABILITY. USE TWO IF NEEDED TO OBTAIN SECURITY.



UNDERGROUND TREE GUYING:

A METHOD IN WHICH TWO CABLES ARE STRETCHED ACROSS THE TOP OF THE ROOT BALL AND DOWNWARD AT ABOUT 45° TO DEADMEN PLACED AT BOTTOM OF PLANTING HOLE. TWO BOARDS ARE LAID ACROSS ROOT BALL UNDER AND AT RIGHT ANGLES TO CABLES TO DISTRIBUTE PRESSURE ON ROOT BALL. BACK FILL MUST BE WELL TAMPED TO KEEP ROOT BALL FROM BREAKING AS CABLES ARE TIGHTENED. IN VARIATION OF THIS METHOD, ROOT BALL CAN BE CABLED FIRMLY TO 4 STAKES DRIVEN INTO BOTTOM OF PLANTER'S HOLE, ALONG SIDE AND AROUND BALL.

NOTE: THIS DETAIL SHALL BE USED WHEN VARIATION FROM TREE GRATE, FRAME, AND COLLAR DETAIL IS APPROVED.



UNDERGROUND TREE GUYING

TREATMENT 1

DETAIL 3.1-P



STRUCTURAL SOIL PLACEMENT DETAIL PLAN

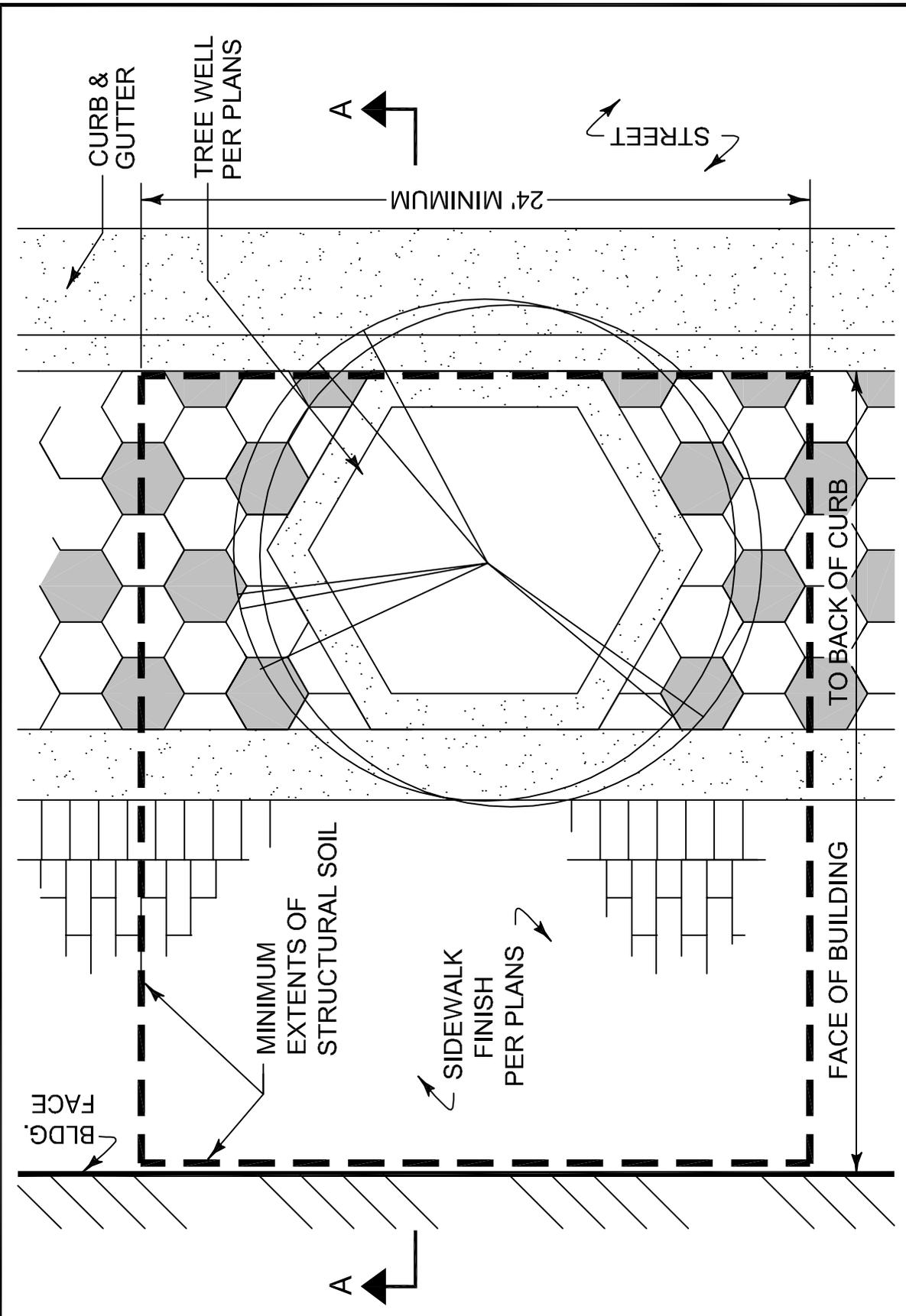
DETAIL 3.1-Q

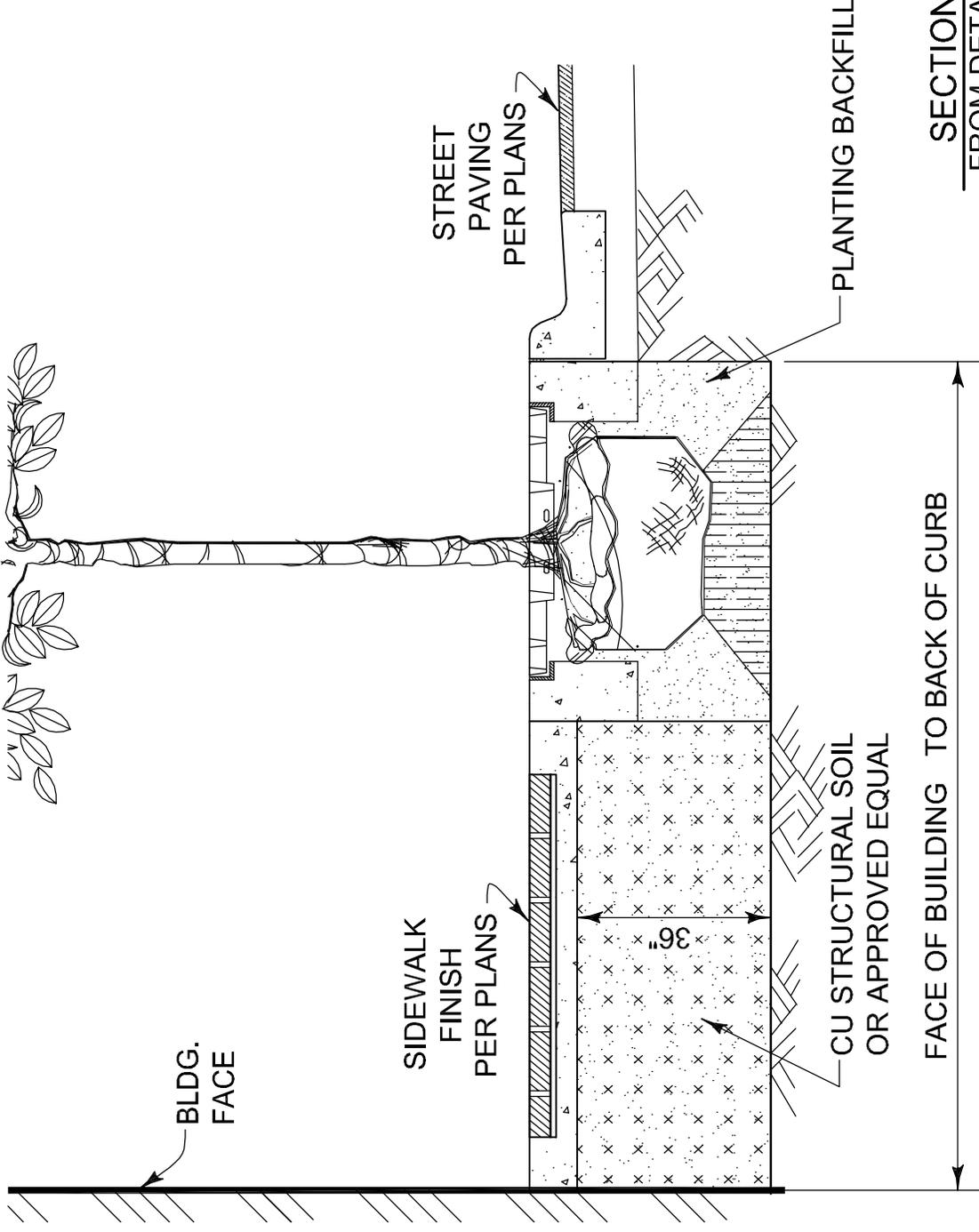
TREATMENT 1

Rev. 07/30/07



NOTE: DEPENDING UPON SPECIFIC SITE AND PROJECT CONDITIONS, STRUCTURAL SOIL MAY BE REQUIRED TO BE PLACED CONTINUOUSLY ALONG THE STREET TO THE EXTENTS OF THE PROJECT.





SECTION A-A
FROM DETAIL 3.1-R

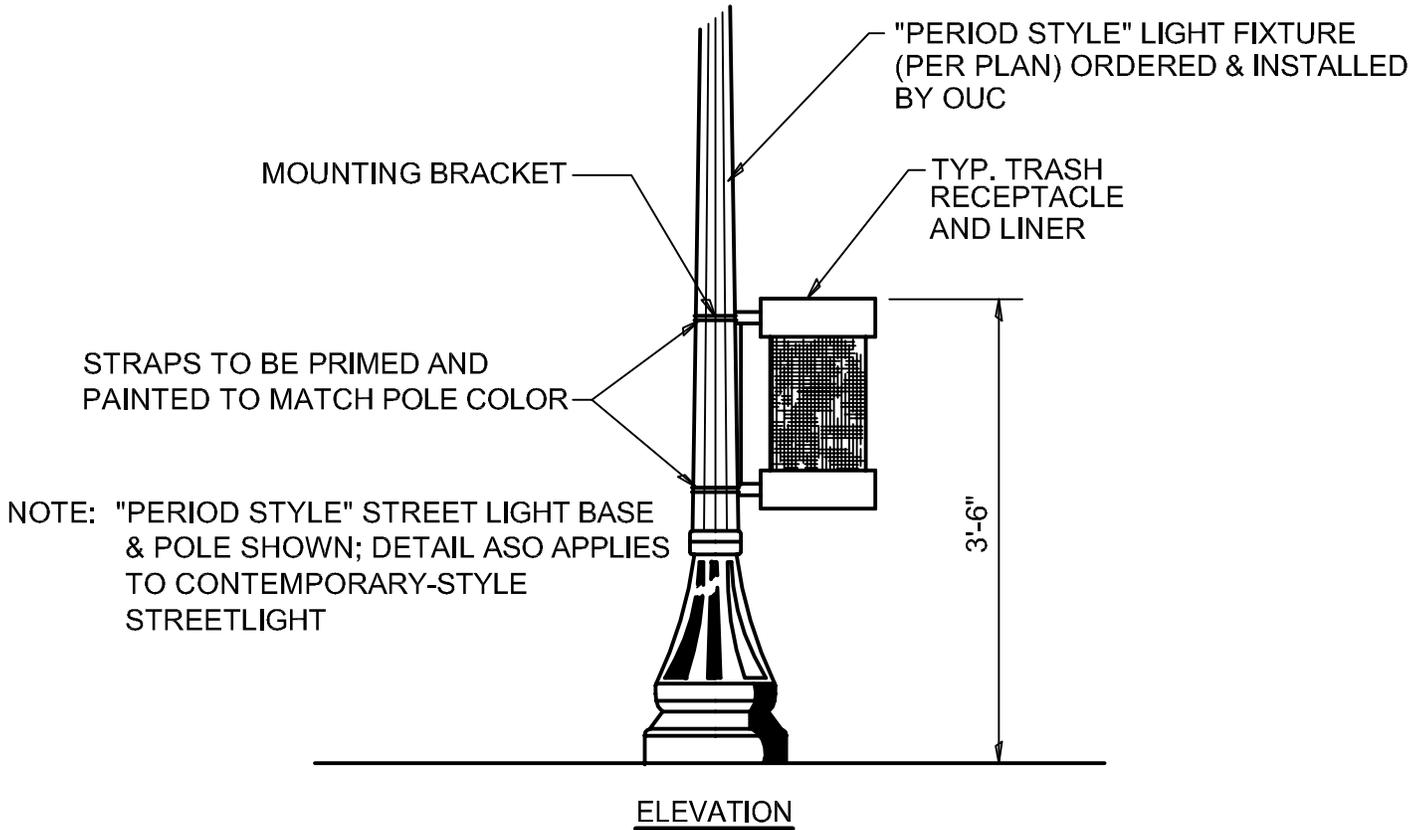
STRUCTURAL SOIL PLACEMENT SECTION

TREATMENT 1

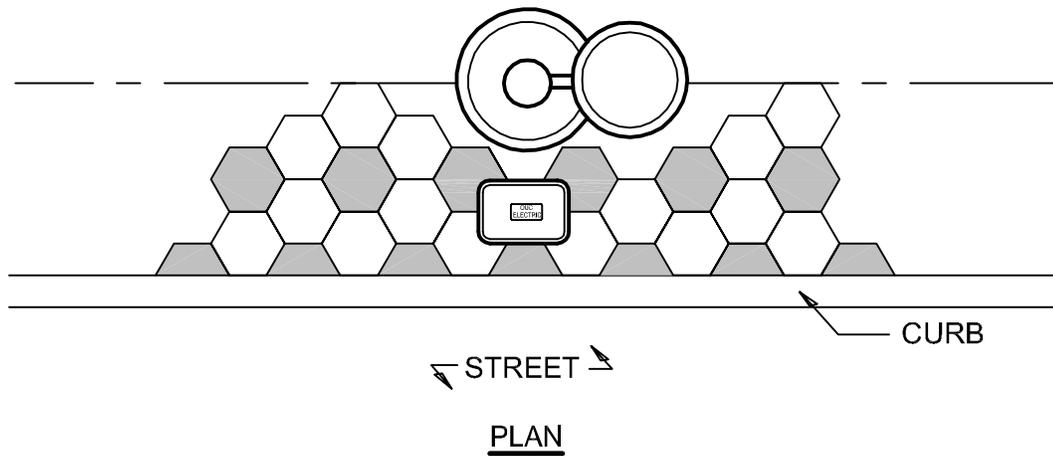
DETAIL 3.1-R

Rev. 07/30/07





← PLACE RECEPTACLE SO THAT POLE AND RECEPTACLE ARE PARALLEL TO STREET AND NOT IN PEDESTRIAN MOVEMENT PATH. →



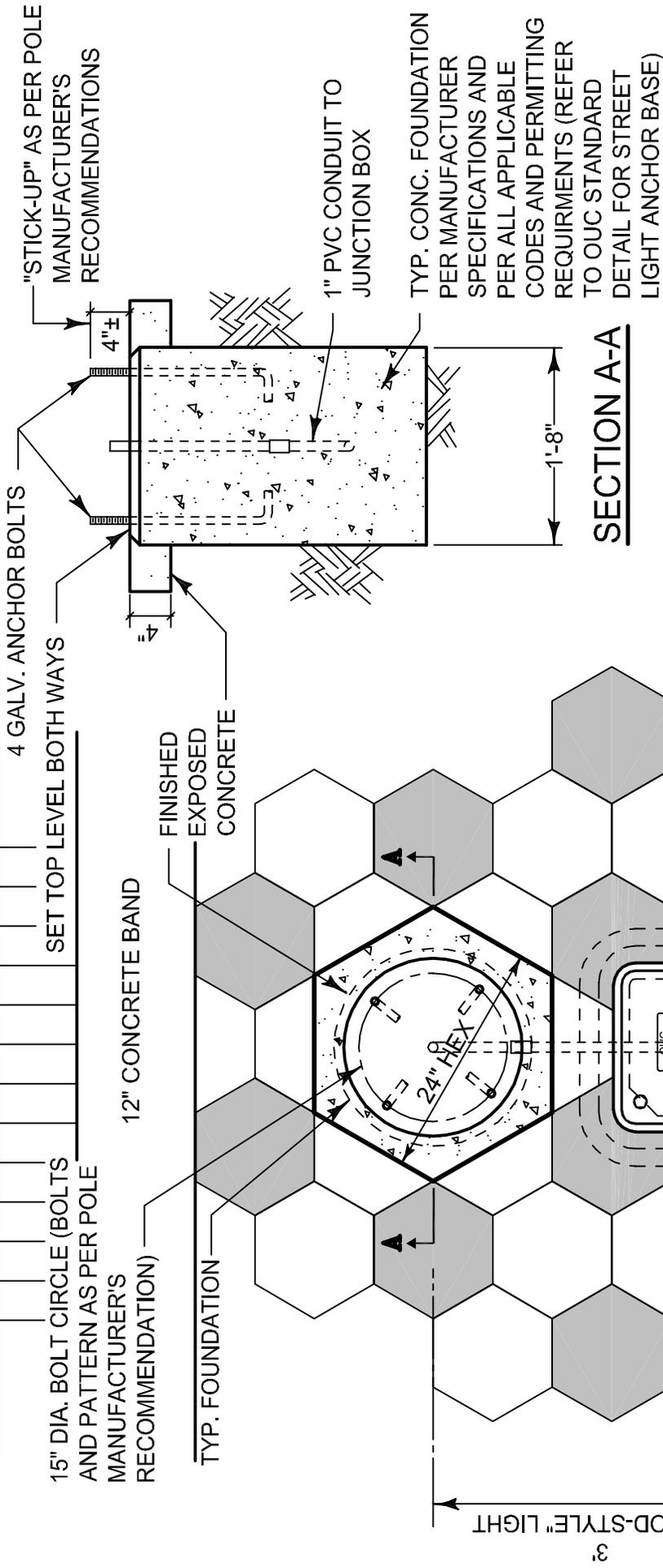
STREET LIGHT w/TRASH RECEPTACLE

TREATMENT 1

DETAIL 3.1-S

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SECTION A-A

3

ALIGN EDGE OF BOX FRAME WITH 1/2 PAVER WIDTH (6")

LAYOUT PLAN

JUNCTION BOX (SEE DETAIL 4.8-A, AND OUC STANDARD DETAIL FOR TYP. JUNCTION BOX, STREET LIGHT POLE W/BASE & ELECTRICAL CONDUIT PLACEMENT)



STREETLIGHT POLE FOUNDATION

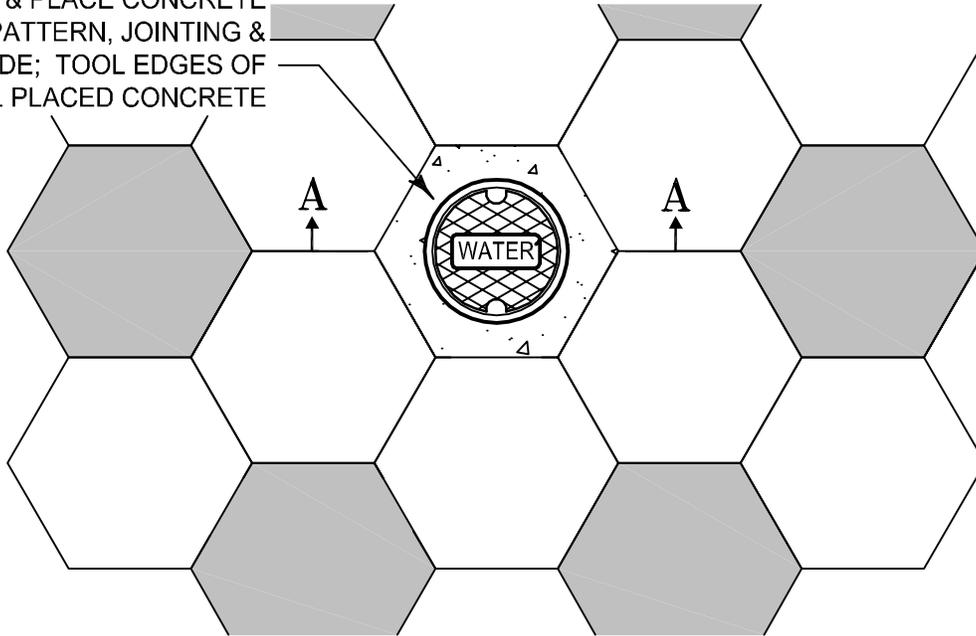


TREATMENT 1

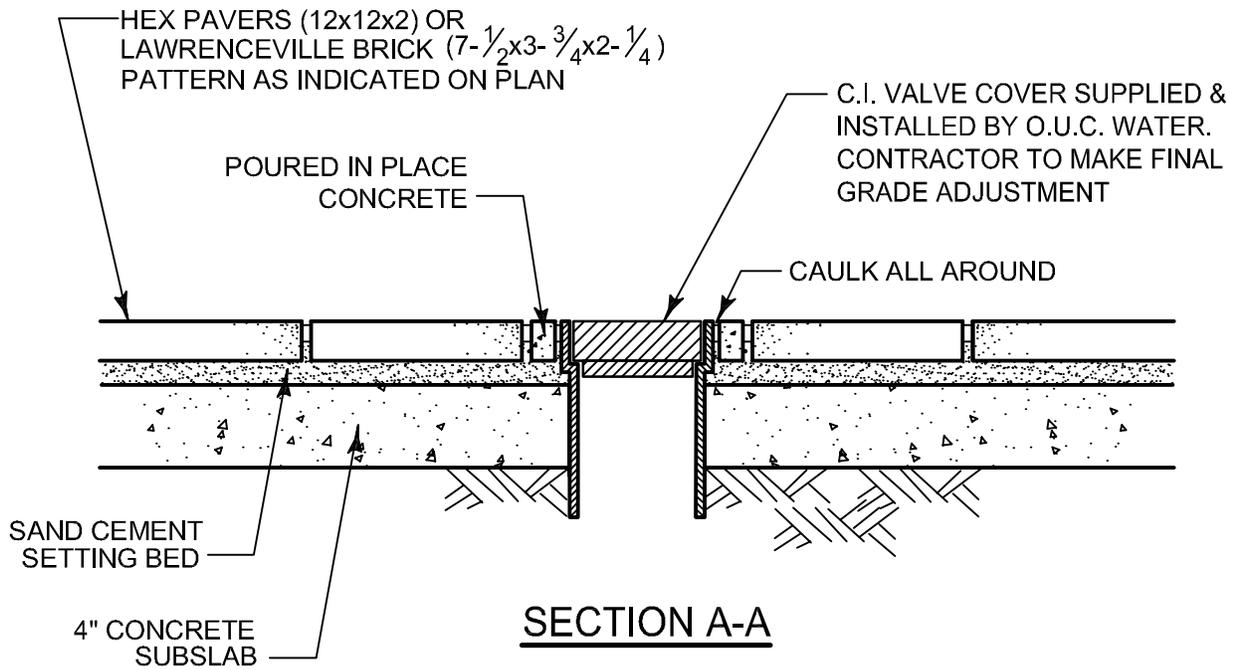
DETAIL 3.1-T

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OMIT PAVERS WHERE VALVE
COVERS FALL & PLACE CONCRETE
TO MATCH PATTERN, JOINTING &
FINISH GRADE; TOOL EDGES OF
ALL PLACED CONCRETE



PLAN



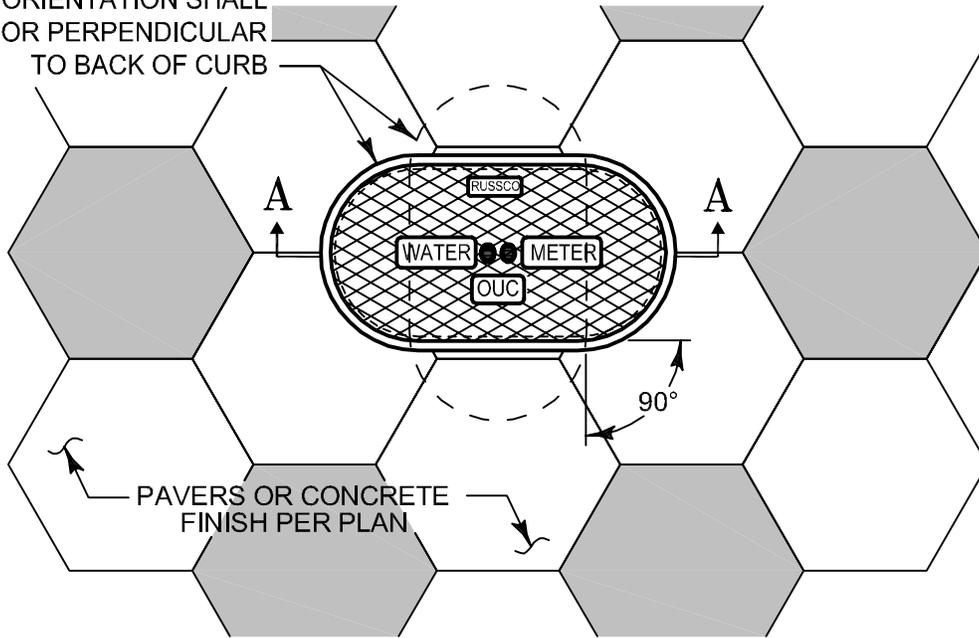
WATER VALVE BOX

TREATMENT 1

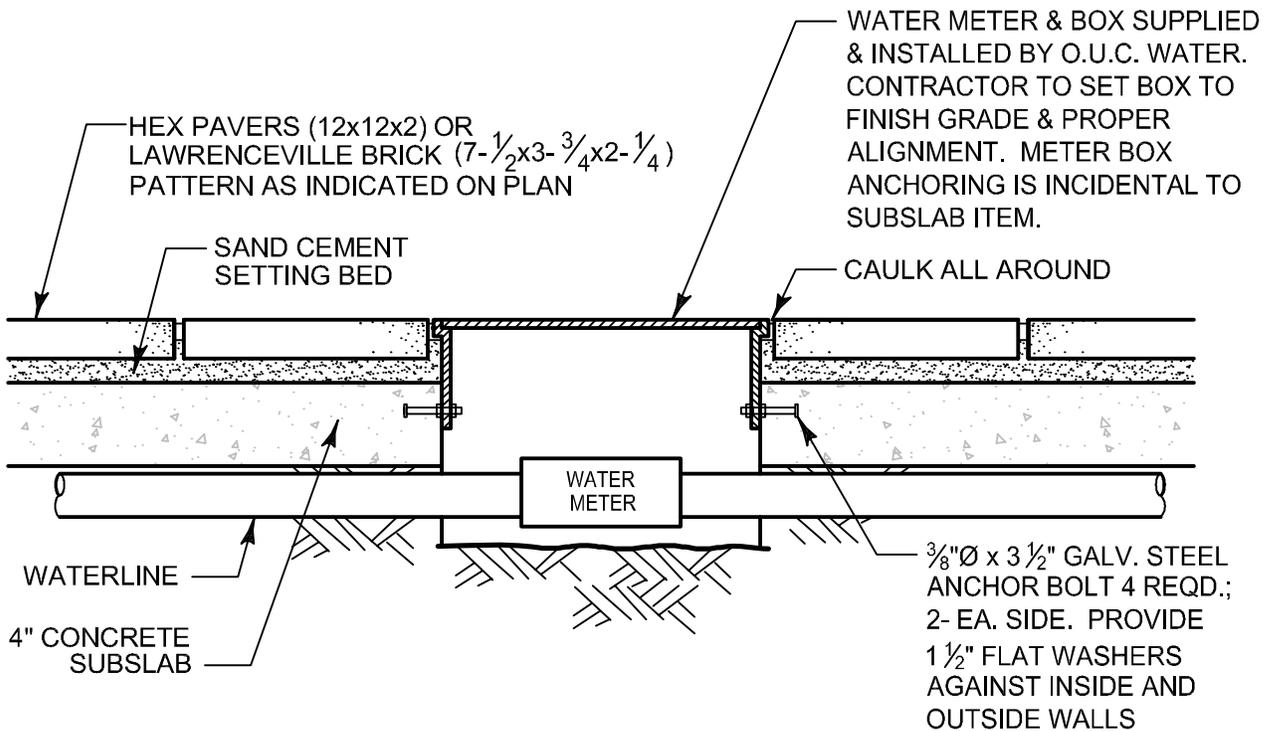
DETAIL 3.1-U



METER BOX ORIENTATION SHALL BE PARALLEL OR PERPENDICULAR TO BACK OF CURB



PLAN



SECTION A-A



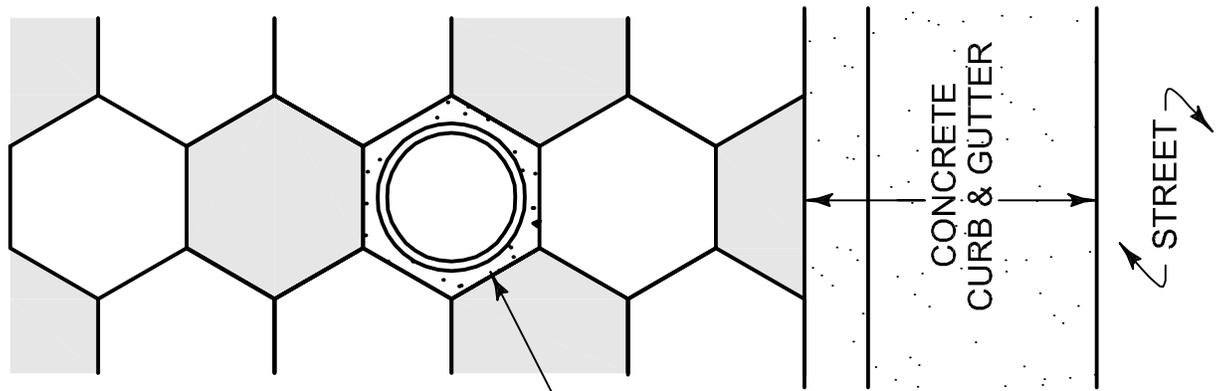
WATER METER BOX

TREATMENT 1

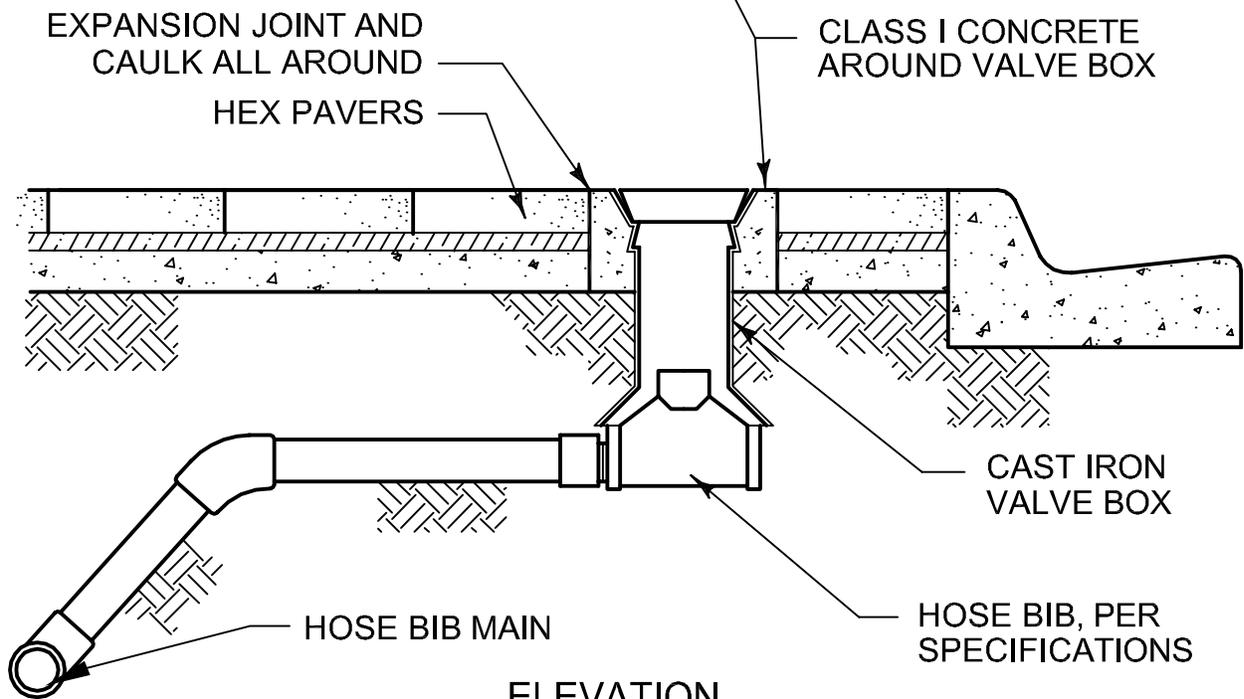
DETAIL 3.1-V



Rev. 07/30/07



PLAN



ELEVATION

NOTES:

1. COMPACT SOIL AROUND VALVE BOX TO SAME SAME DENSITY AS UNDISTURBED ADJACENT SOIL.
2. VALVE AND BOX SHALL BE DIRECTLY CENTERED UNDER A HEX PAVER AS SHOWN.
3. PROVIDE ONE HOSE BIB APPROXIMATELY EVERY 150', MINIMUM ONE BER BLOCK.



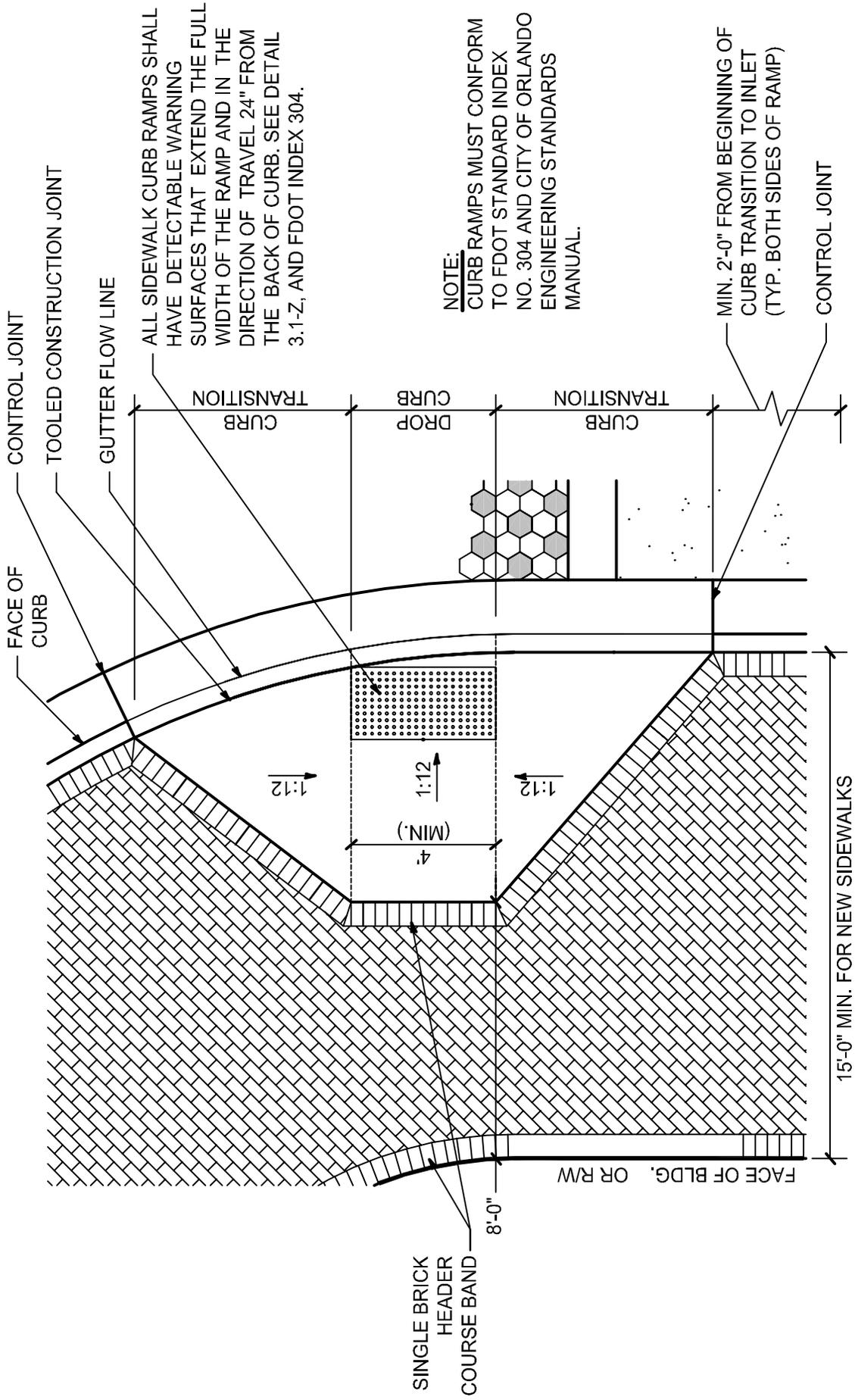
HOSE BIB ASSEMBLY

TREATMENT 1

DETAIL 3.1-W



Rev. 07/30/07



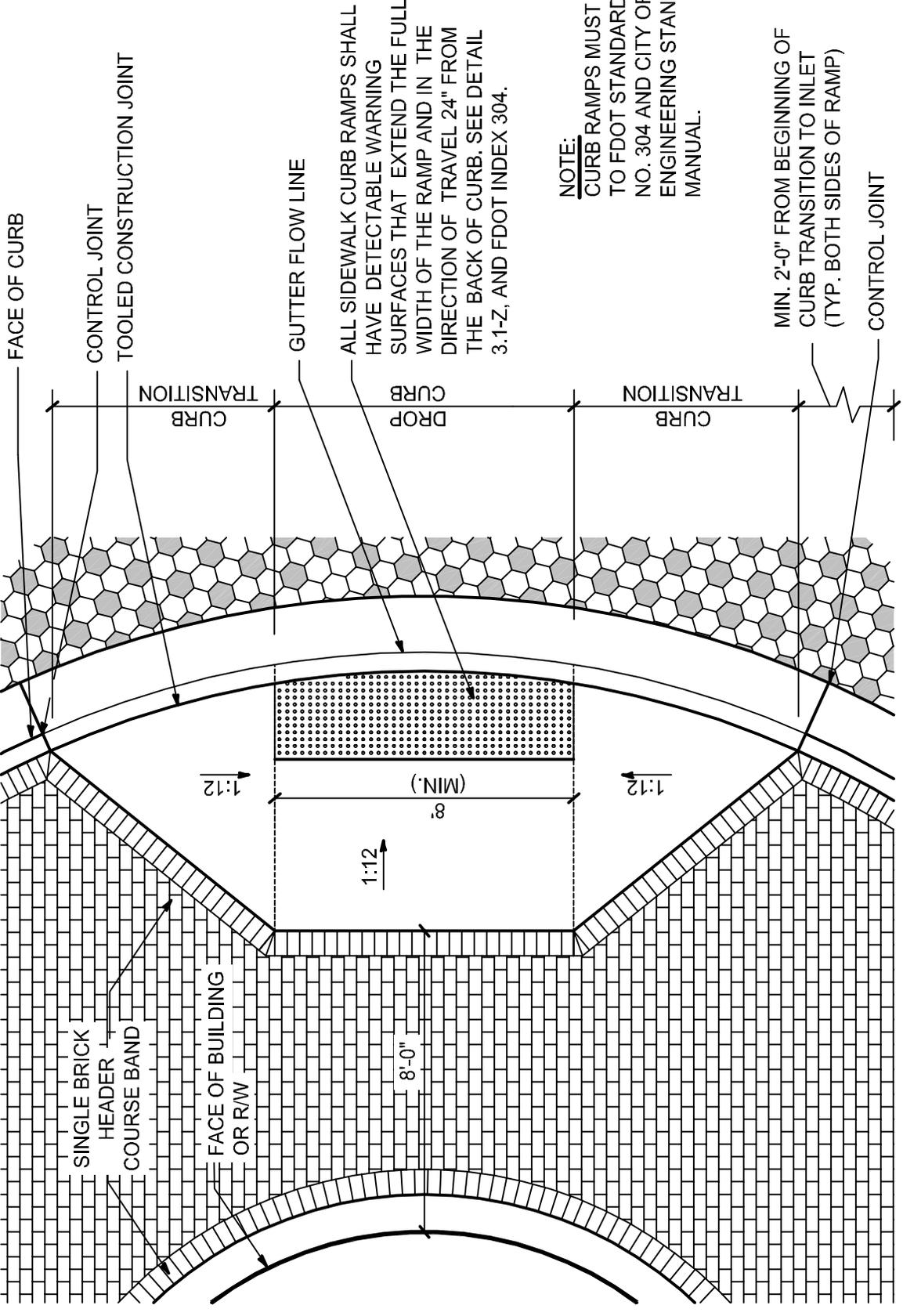
SINGLE PURPOSE HANDICAP RAMP

TREATMENT 1

DETAIL 3.1-X

Rev. 07/30/07





NOTE:
CURB RAMPS MUST CONFORM TO FDOT STANDARD INDEX NO. 304 AND CITY OF ORLANDO ENGINEERING STANDARDS MANUAL.

DUAL PURPOSE HANDICAP RAMP

TREATMENT 1

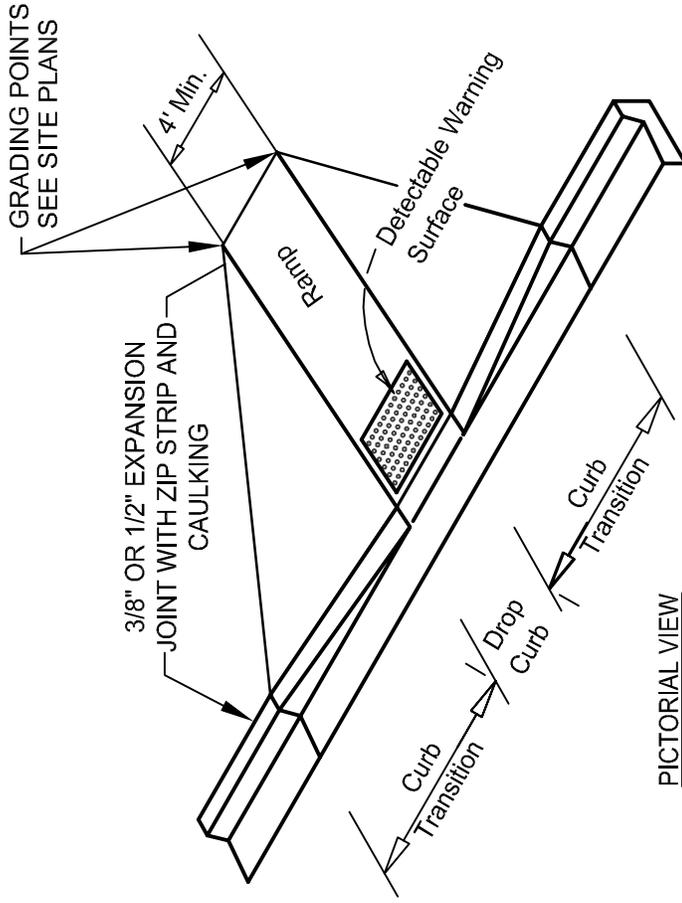
DETAIL 3.1-Y

Rev. 07/30/07

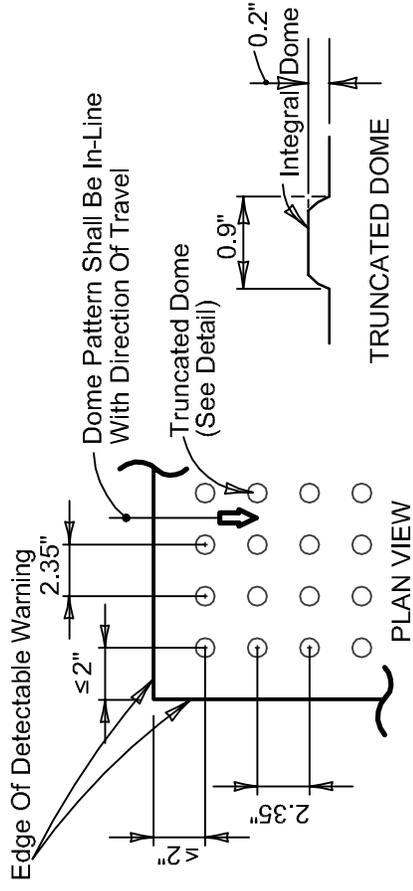


NOTES:

1. All curb ramps shall have detectable warning surfaces that extend the full width of the ramp and 24" from the back of curb in the direction of travel. As shown on Detail.
2. Detectable warning surfaces shall be truncated dome pattern in conformance with U.S. Department of Justice A.D.A. Standards. Detectable warning surface shall be cast-in-place concrete, with Scofield 'Chromix' Color Admixture #4821 'Shady Red', or approved equal.
3. Optional 12"x12" Masonry Unit or Granite Truncated Dome Pavers may be used with the approval of the City Architect.
4. The color requirement for detectable warnings is to provide a dark-on-light visual contrast between the detectable warning surface and the adjacent walking surface.
5. Expansion joints shall be placed at all perimeter edges abutting concrete, but no joints shall be made in the ramp itself.
6. Transition curb may be formed at the time of curb construction or may be monolithic with the ramp, but is included with the pay item for the ramp.



PICTORIAL VIEW



DETECTABLE WARNING SURFACE DETAIL

ADDITIONAL NOTES:

1. REFER TO FDOT INDEX 300 FOR MORE INFORMATION REGARDING PUBLIC SIDEWALK RAMPS.
2. CONTACT CITY ARCHITECT FOR FIELD CONFLICT RESOLUTION.



CURB RAMP DETECTABLE WARNING

TREATMENT 1

DETAIL 3.1-Z

Rev. 07/30/07



3.2 - TREATMENT 2: SECONDARY PEDESTRIAN STREETS

3.2.1 – TREATMENT 2 OVERVIEW

Streets receiving Streetscape Treatment 2 are important pedestrian routes but play a secondary role in the visual and functional structure of the streetscape. Secondary Pedestrian Streets are: Magnolia Avenue, Rosalind Avenue, Robinson Street, Livingston Street, Jefferson Street, South Street and Anderson Street between Orange Avenue and Rosalind Avenue. Parts of Amelia Street, Orange Avenue and Parramore Avenue are also Secondary Pedestrian Streets.



Although there is generally a lower level of pedestrian activity than on Primary Pedestrian Streets, these streets provide significant connections to the Downtown core.

Design guidelines for Secondary Pedestrian Streets are flexible. Developers are encouraged to provide alternative designs of high quality.

Characteristics of Treatment 2, Secondary Pedestrian Streets, include:

- Concrete sidewalks 15 feet in width with brick and hexagonal pavers and scored concrete.
- Double row of soldier course bricks

defining the concrete walk.

- Furnishing strip of hexagonal pavers (or brick in special cases) adjacent to the street
- Street trees within tree wells (located within the furnishing strip). Tree well shapes vary.
- Double wheelchair-accessible ramps at each street corner.
- Single acorn light fixtures located symmetrically on both sides of the street, within the furnishing strip.

Typical plans of Streetscape Treatment 2 are shown on Details 3.2.A through 3.2.C. Depending upon the width of the sidewalk, the detailing of the brick edging may vary.

3.2.2 - ALTERNATIVE STREETSCAPE DESIGNS

Any streetscape designs that do not conform to the *Streetscape Guidelines* are subject to review by DDB/CRA for approval. Design may vary from these guidelines due to site conditions and approved conceptual changes.

The City may request that new development projects provide a different style of paver, tree grate, or amenity other than those specified herein. This will be determined on a project-by-project basis. Granite pavers and curbs are encouraged.

Hardscape and landscape improvements outside the streetscape area should be compatible with the design of the streetscape and will be reviewed by the City Architect.

3.2.3 - TREATMENT 2 STREET TREES

Trees are generally 30 feet on center and have tree grates and guards (spacing may vary depending upon species and site conditions) and are provided with tree grates and guards. Variances from typical tree spacing must be approved by the DDB/CRA. Street trees are placed within hexagonal tree wells unless otherwise approved. Street tree planting design is subject to approval of City Transportation Engineering Division. On streets which have a speed limit greater than 25 miles per hour, greater setback of the tree from the curb may be required.

See Section 4.15, Trees & Landscaping, and Section 4.16, Irrigation, for specifications for landscaping and irrigation. All tree species shall be selected from the list of approved trees in those specifications.

3.2.4 - TREATMENT 2 STREET LIGHTS

Single acorn light fixtures shall be located on both sides of the street, generally spaced midway between street trees, as necessary to meet City illumination requirements, and as determined on a project by project basis. All streetlight planning, design, and construction shall be coordinated with OUC. Planning should begin early to ensure logical, uniform lighting schemes that minimize bright and dark spots. A streetlight plan shall be included in submittals to DRC. See Section 5.5 for specifications.

3.2.5 – TREATMENT 2 CURB RADII

Subject to the approval of the City Transportation Engineering Division, the minimum radii of back of curb at all typical intersections approximating a right angle shall be as follows:

- Local to Local R = 25'
- Local or Collector to Collector R = 35'
- Local or Collector to Arterial R = 45' or greater

Refer to City Land Development Code, Section 61, Part 2B, Major Thoroughfare Plan, for Collector and Arterial street designations.

3.2.6 – TREATMENT 2 SIDEWALK WIDTHS

All new buildings constructed within the CRA will be required to provide sidewalks 15 feet in width. Sidewalk widths required for renovations of existing buildings are the exception and shall conform to the site conditions.

3.2.6.1 -- Paving Design for Narrow Sidewalks

Where a narrow sidewalk exists, i.e., less than 15 feet from the building to where the sidewalk meets the curb, it may be necessary to adjust the proportions of sidewalk design details.

A Treatment 2 Street may be adjusted by a reduction in the concrete band to 6 to 8 inches, and by reducing the brick soldier course from a double to a single row.

For tree grates, the concrete collar may be reduced from 12 to 6 inches. Sidewalks less than 10 feet in width may be required to use a smaller tree grate and guard that replicates the reduced proportions the existing grate and guard design.

These requirements will be identified by the DDB/CRA on a special case basis.

3.2.7 – PAVING PATTERN

Surface treatments for paving in Treatment 2 are as follows:

-
-
- A. Brick Pavers - Sidewalks
Used for:
 - 1. Sidewalks and corner treatment at intersections.

 - B. 12" Hexagonal Concrete Pavers – Sidewalks
Used for:
 - 1. Sidewalks in furnishing strip area.

 - C. Concrete/Brick paving – Sidewalks
Used for:
 - 1. Sidewalk treatment between furnishing strip and face of building.

 - D. Thin-Set Pavers - Sidewalks
Used for:
 - 1. All locations where full depth pavers cannot be installed due to vertical clearance limitations, including vault areas and rear portions of inlet tops.

 - E. Concrete - Sidewalks and/or Driveways, (see Section 4.6, Concrete Work)
Used for:
 - 1. Mid-block driveways.
 - 2. Transitioning back to existing sidewalks on side streets.

 - F. Asphalt Pavement – Streets
Used for:
 - 1. Pavement from intersection to intersection.
 - 2. Intersections within the 30" concrete circular band area.
 - 3. Transition areas at intersections from 16" concrete banding to limits of construction on side streets.

 - G. 8" Hexagonal Concrete Pavers – Street
Used for:
 - 1. Intersections.
 - 2. Loading zone areas

NOTE: A long lead time should be anticipated when ordering brick and hexagonal pavers.

3.2.8 - WHEELCHAIR ACCESSIBILITY

All street corners shall have two wheelchair ramps, unless site conditions dictate otherwise and as approved by the City Architect and City Transportation Engineering Division.

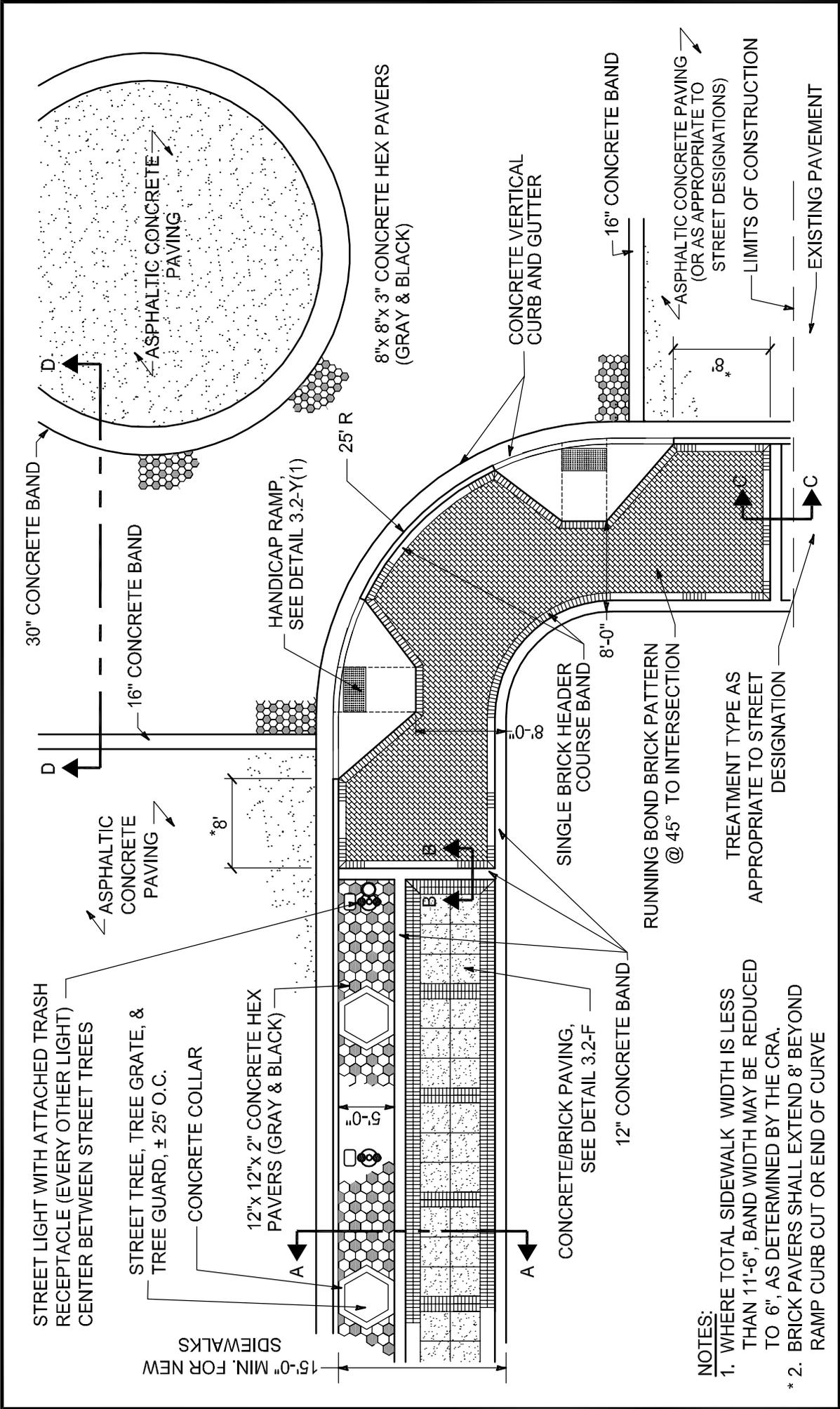
3.2.9 - TEMPORARY SIDEWALK IMPROVEMENTS

Any temporary sidewalk provisions that may be required during the construction of streetscape improvements are the responsibility of the property owner and will not be a cost sharing item of the DDB/CRA.

3.2.10 – TREATMENT 2 DETAILS

The following details shall be incorporated into the construction plans. The designer shall modify the details as necessary to fit site conditions. All variations from these details shall be approved by the City of Orlando.

See also Section 4.0, Technical Documents, and Section 5.0, Other Site Furniture, for further specifications.



NOTES:

1. WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE CRA.
- * 2. BRICK PAVERS SHALL EXTEND 8' BEYOND RAMP CURB CUT OR END OF CURVE



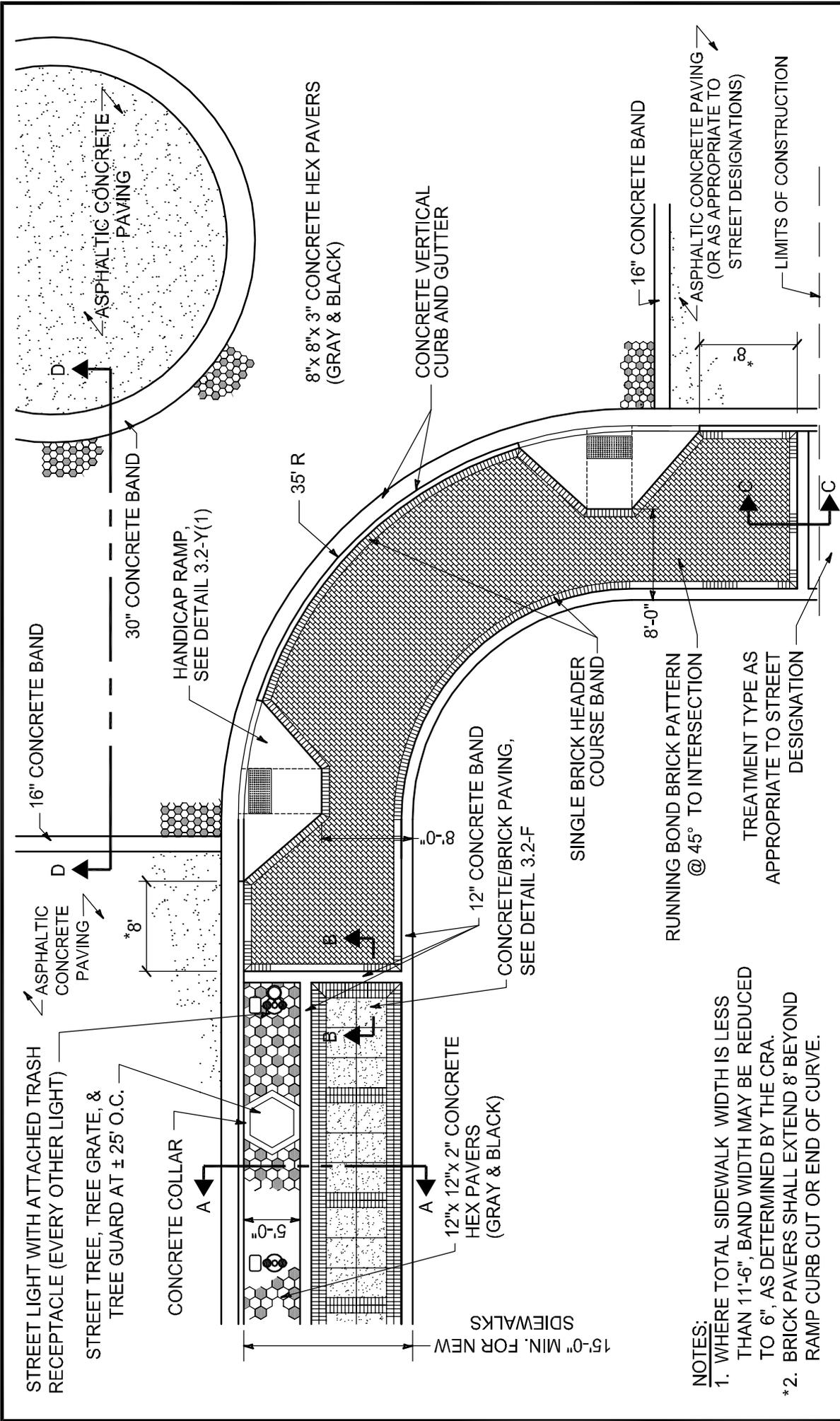
**OVERALL STREETSCAPE TREATMENT
(25' CORNER RADIUS)**



TREATMENT 2

DETAIL 3.2-A

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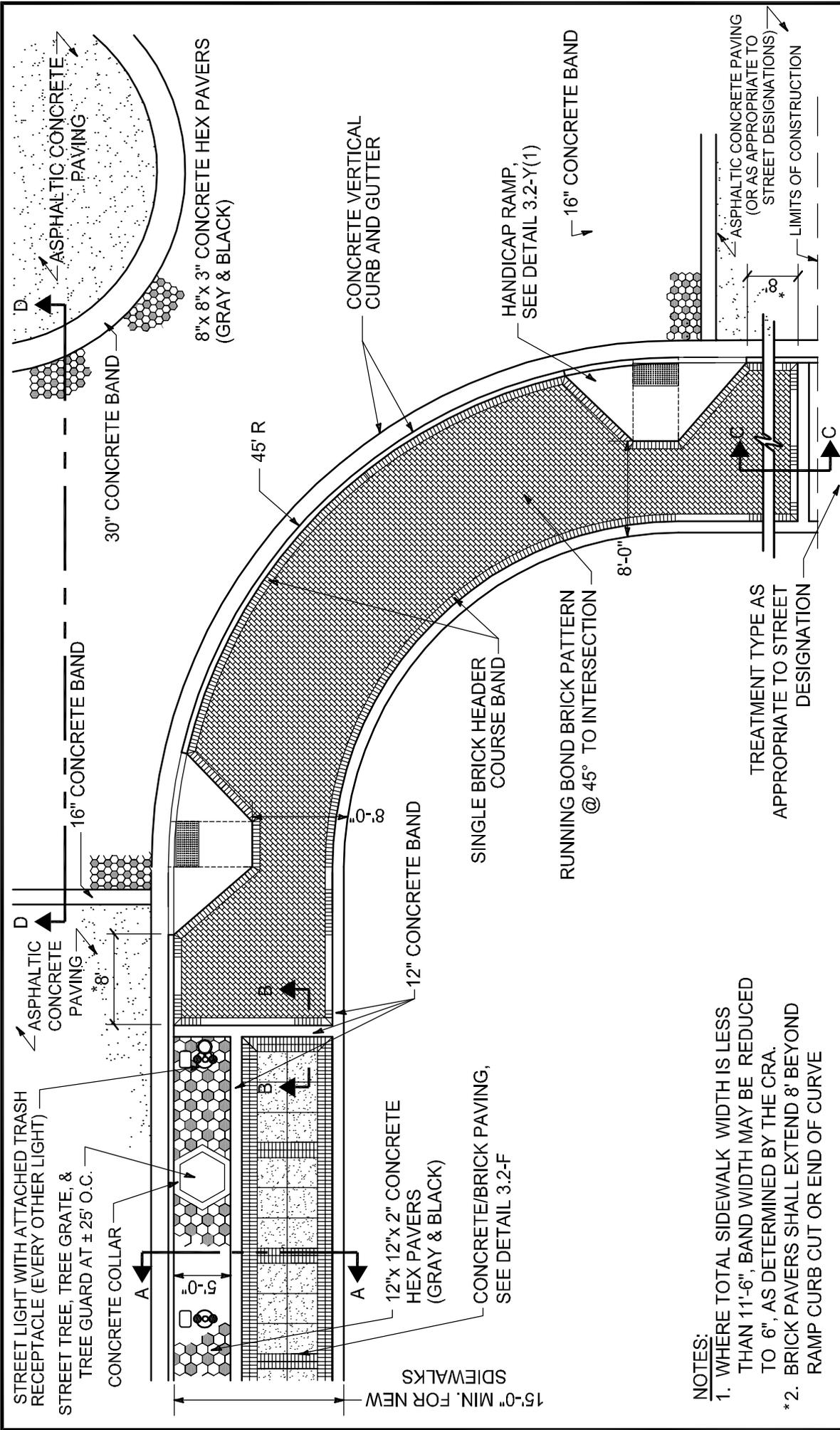
OVERALL STREETSCAPE TREATMENT (35' CORNER RADIUS)

TREATMENT 2

DETAIL 3.2-B



Rev. 07/30/07



- NOTES:**
- WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE GRA.
 - BRICK PAVERS SHALL EXTEND 8' BEYOND RAMP CURB CUT OR END OF CURVE



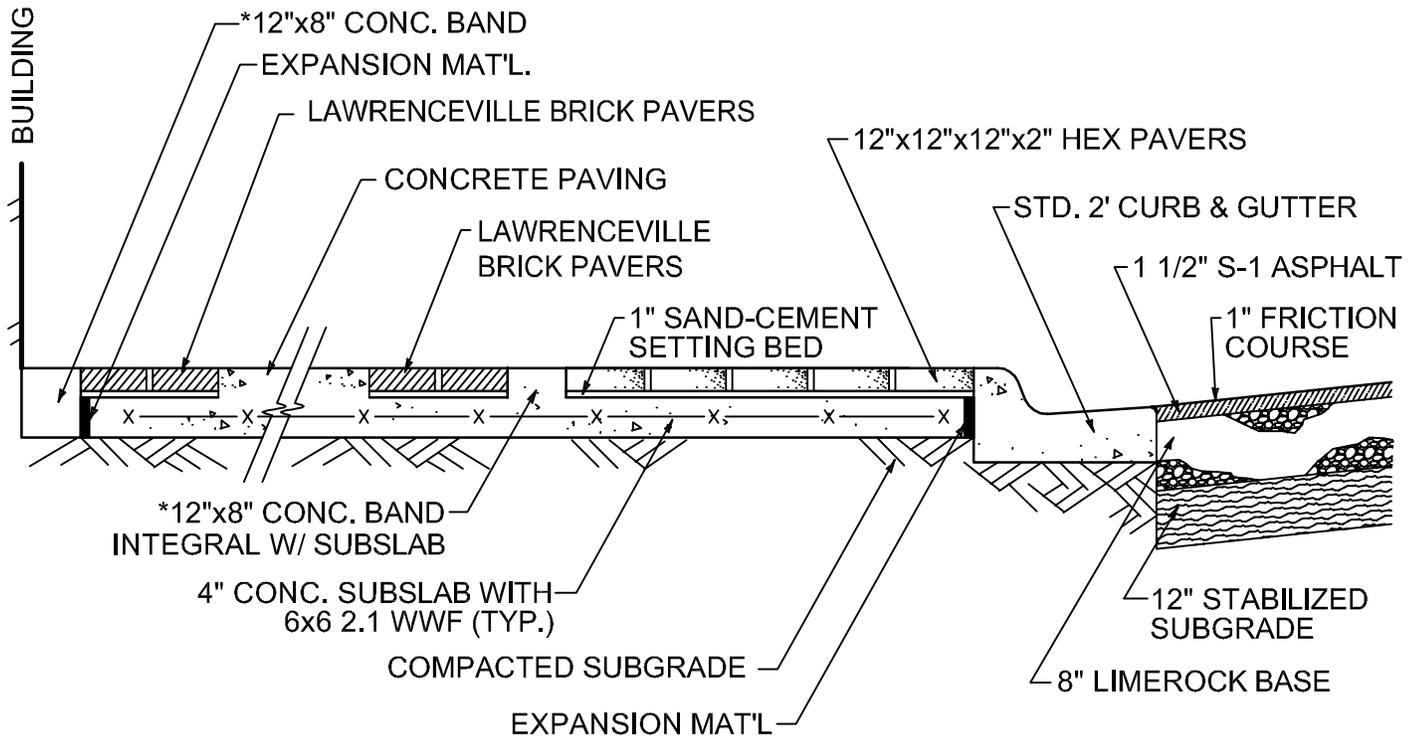
OVERALL STREETSCAPE TREATMENT (45' CORNER RADIUS)



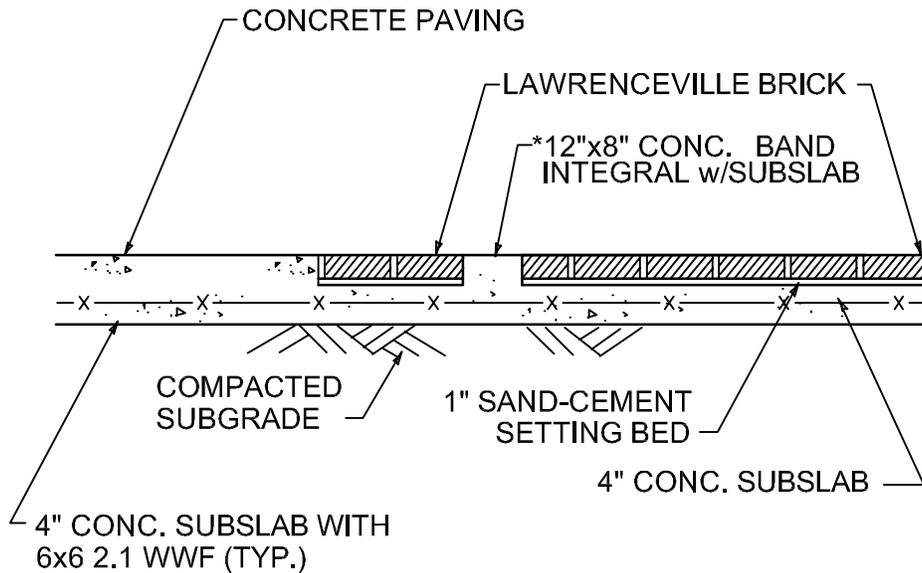
TREATMENT 2

DETAIL 3.2-C

Rev. 07/30/07



SECTION A-A (DETAILS 3.2-A, 3.2-B, 3.2-C)



SECTION B-B (DETAILS 3.2-A, 3.2-B, 3.2-C)

*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.



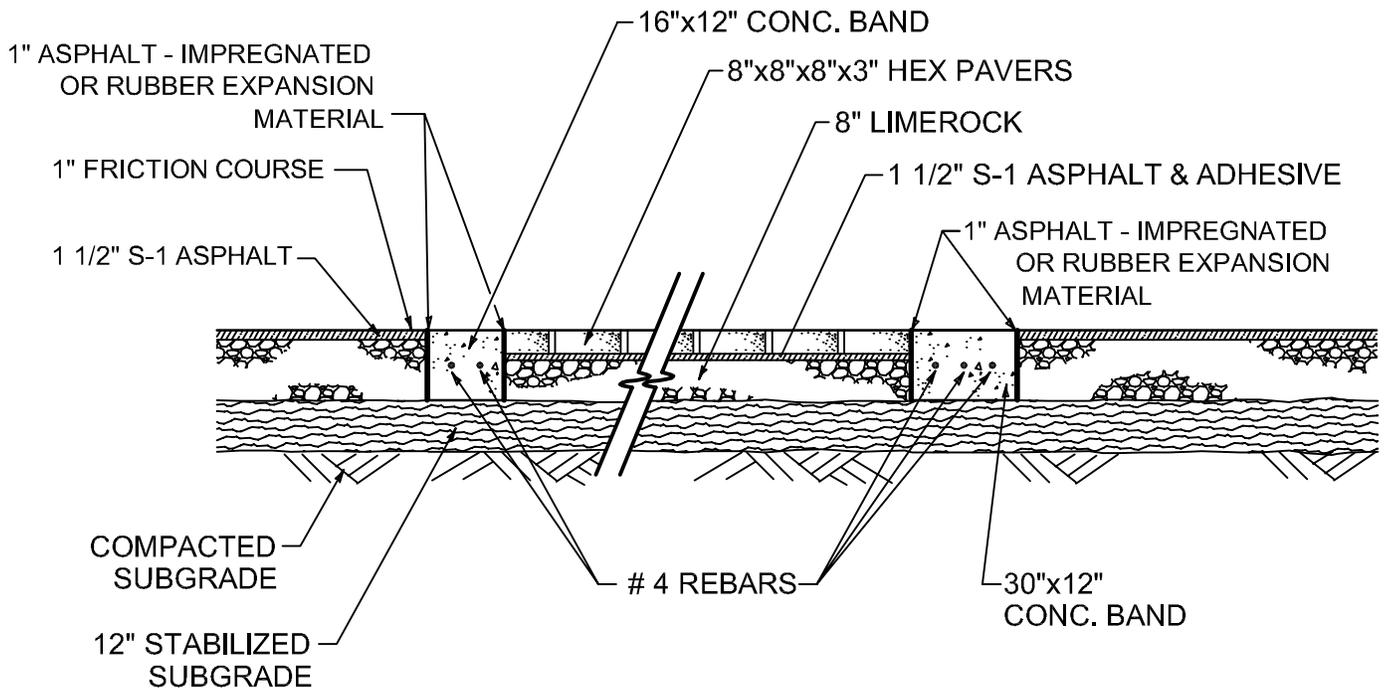
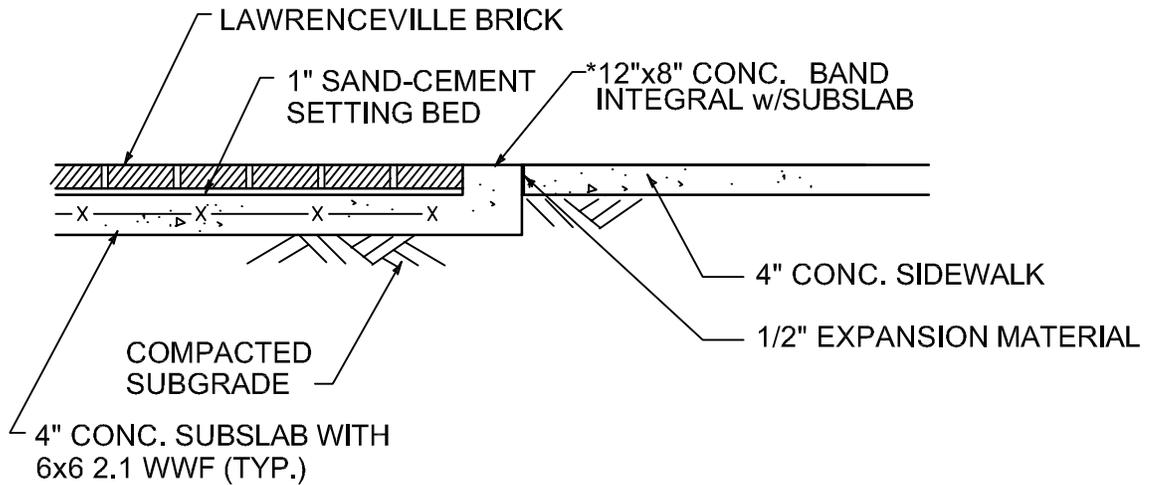
PAVER AND SIDEWALK SECTIONS

TREATMENT 2

3.2-D



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*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.



PAVER AND SIDEWALK SECTIONS

TREATMENT 2

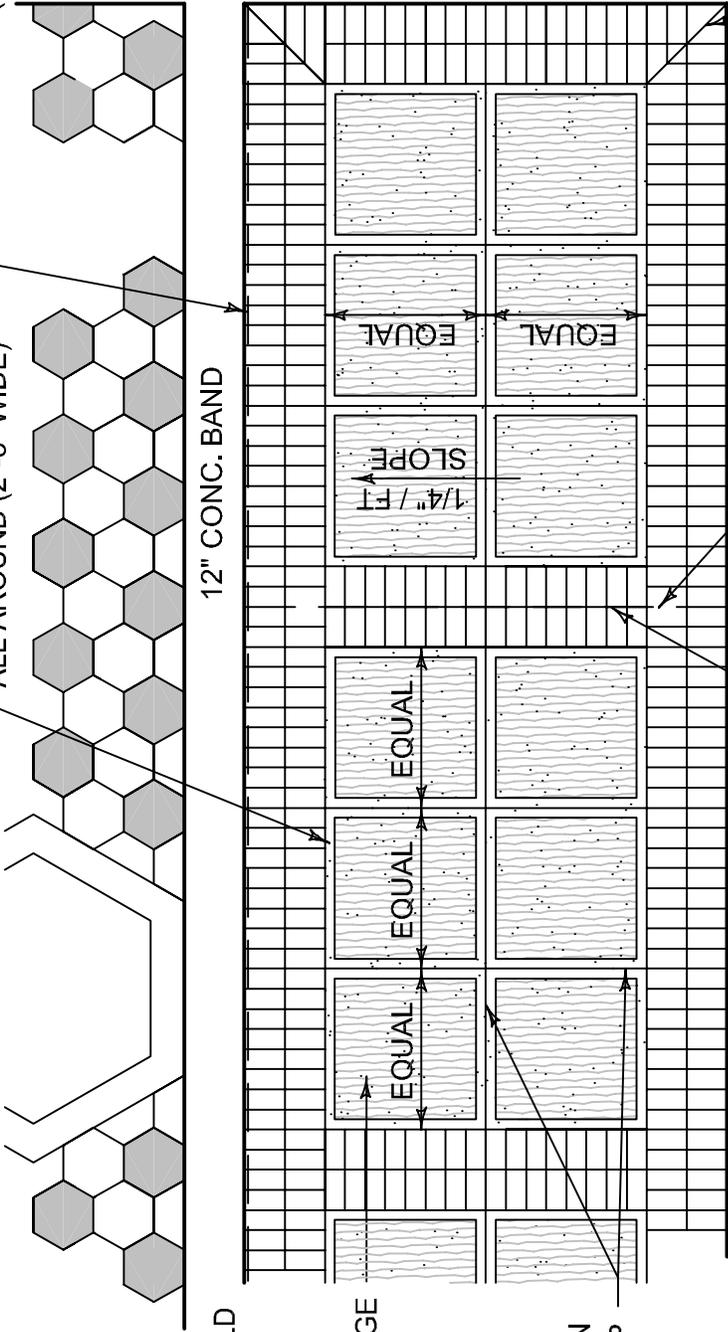
3.2-E



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EXP. JT. BELOW
BELOW BRICK (TYP.)

TROWELLED EDGE EQUAL
ALL AROUND (2"-3" WIDE)



NATURAL CONCRETE FIELD
W/ LIGHT BROOM FINISH
PERPENDICULAR TO
DIRECTION OF WALK W/
SMOOTH TROWELLED EDGE

SCORE LINES AS SHOWN
3/8" WIDE x 1" DEEP

12" CONC. BAND

TOOLED JOINT IN CONC.
BAND (TYP. BOTH BANDS)

TYP. LOCATION OF EXP.
JT. IN CONC. SUBSLAB

EQ. SPACING 9'-4" (±)

EQ. SPACING 9'-4" (±)

DOUBLE ROW BRICK BAND MITRE CUT AT ALL INTERSECTIONS AS
SHOWN. ALL BRICK HAND TIGHT JOINT W/ SAND SWEPT JOINTS



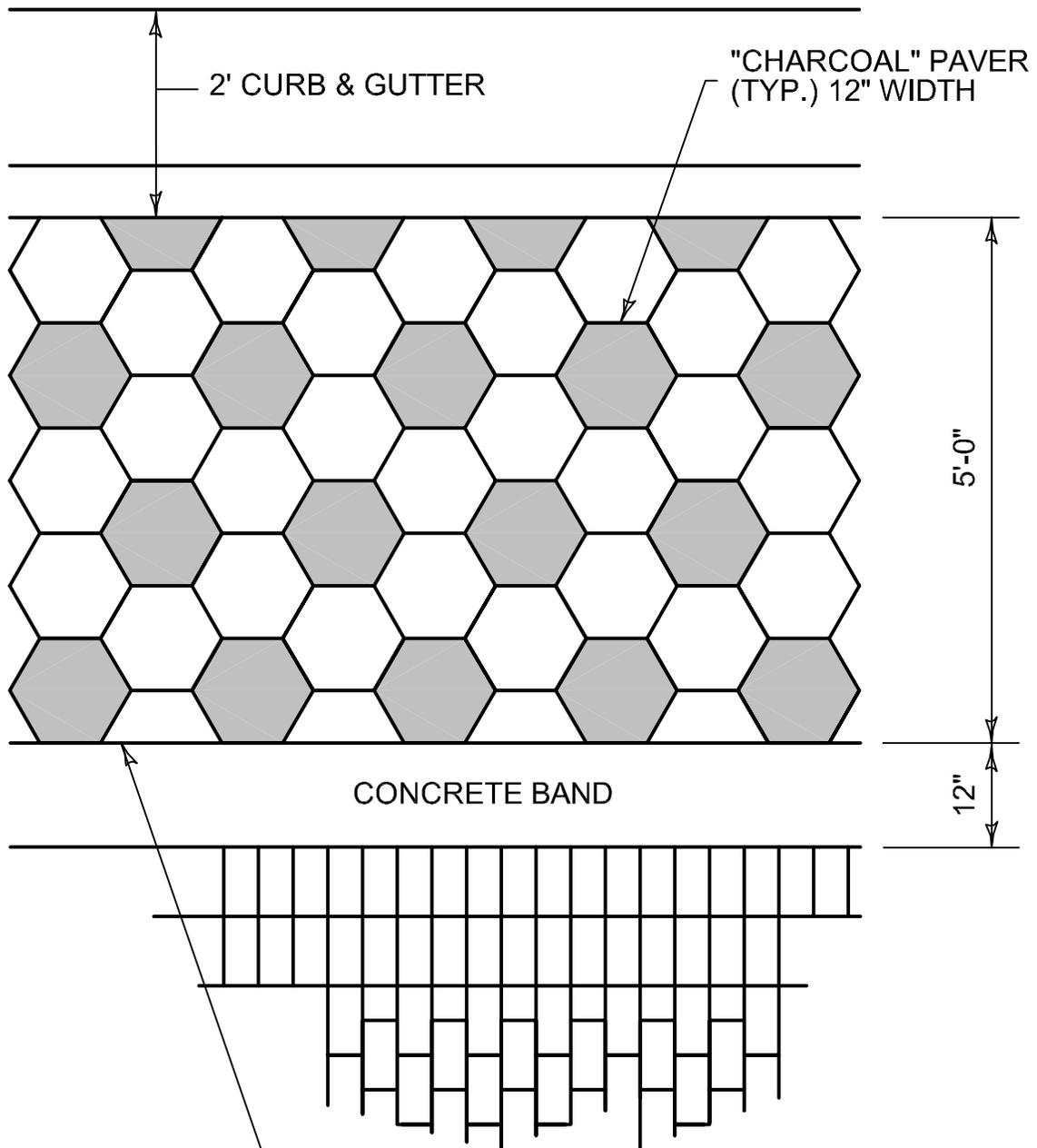
CONCRETE/BRICK PAVING

TREATMENT 2

DETAIL 3.2-F

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START ALL HEX PAVER INSTALLATION AT CONCRETE BAND, 5' FROM BACK OF CURB. ALL IRREGULAR CUTS ARE TO OCCUR AT CURB LINE. "CHARCOAL" COLORED PAVERS ADJACENT TO THE CONCRETE BAND ARE TO BE FULL, UNCUT PAVERS.

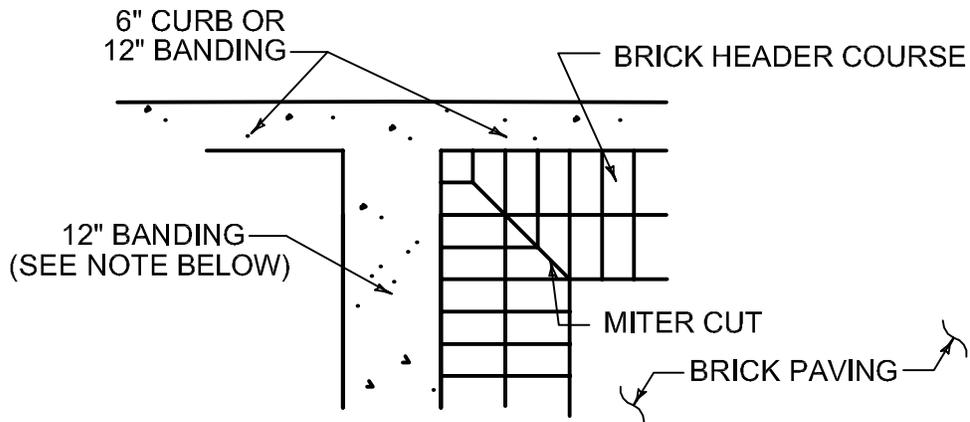


HEX PAVER PATTERN

TREATMENT 2

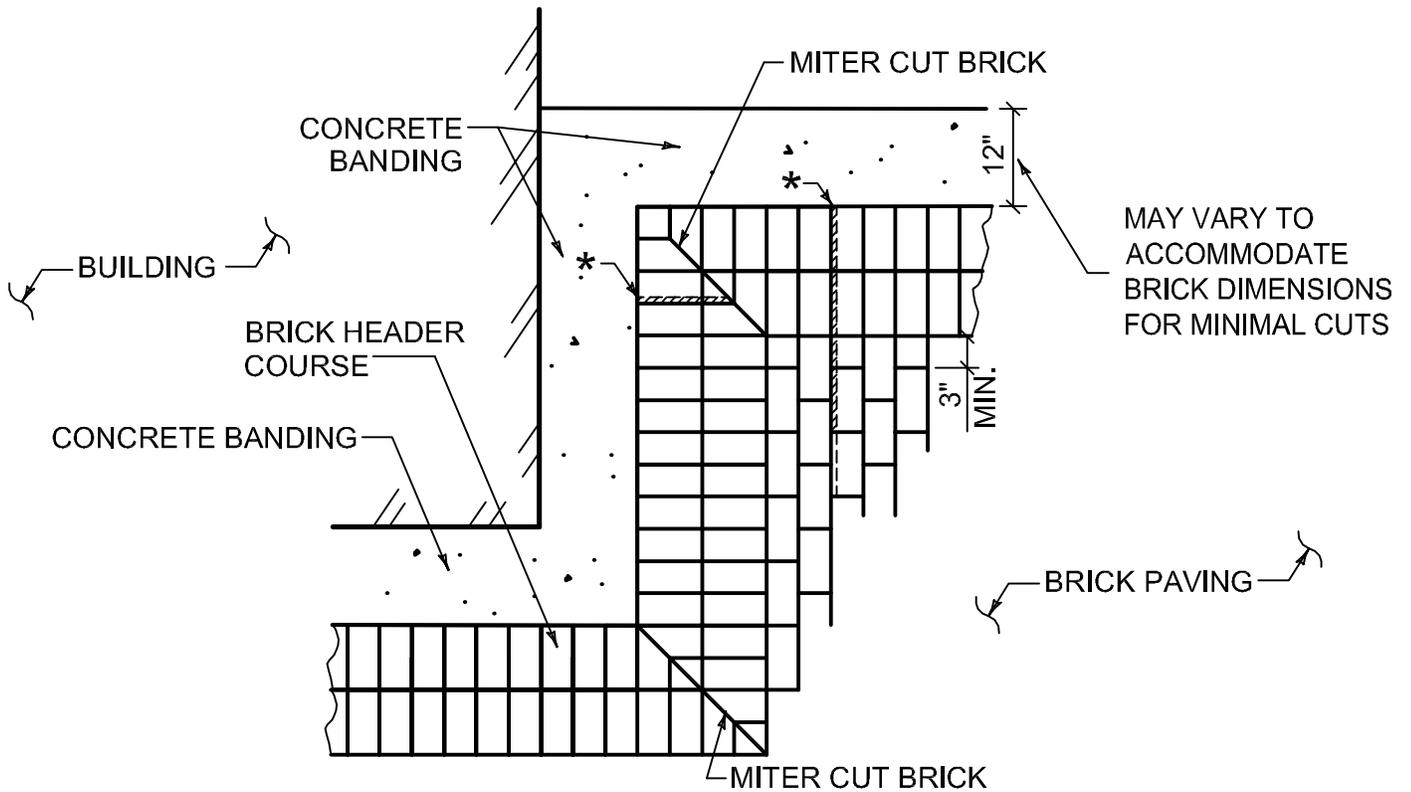
DETAIL 3.2-G





*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.

OUTSIDE CORNER PLAN



*BRICKS CUT TO COMPENSATE FOR FIELD HEADER COURSING SHOULD OCCUR MID-FIELD AND NOT AT ENDS OF PATTERN.

INSIDE CORNER PLAN



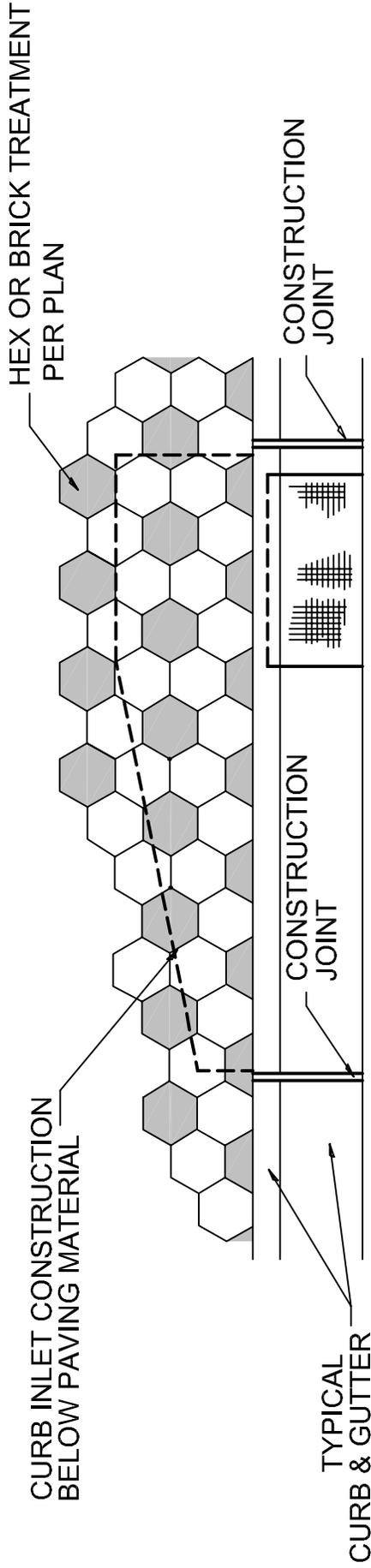
BRICK HEADER CORNER DETAIL

TREATMENT 2

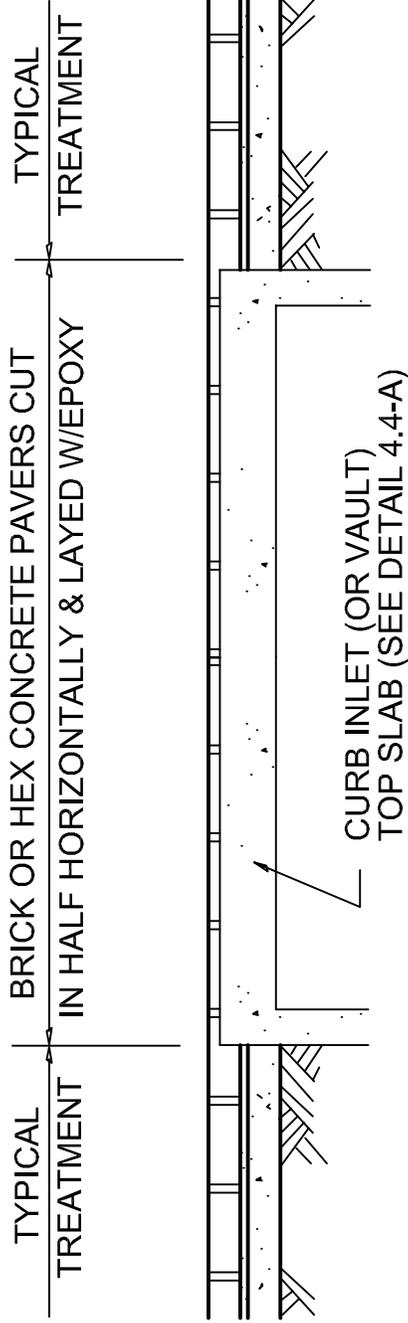
DETAIL 3.2-H



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PLAN



SECTION

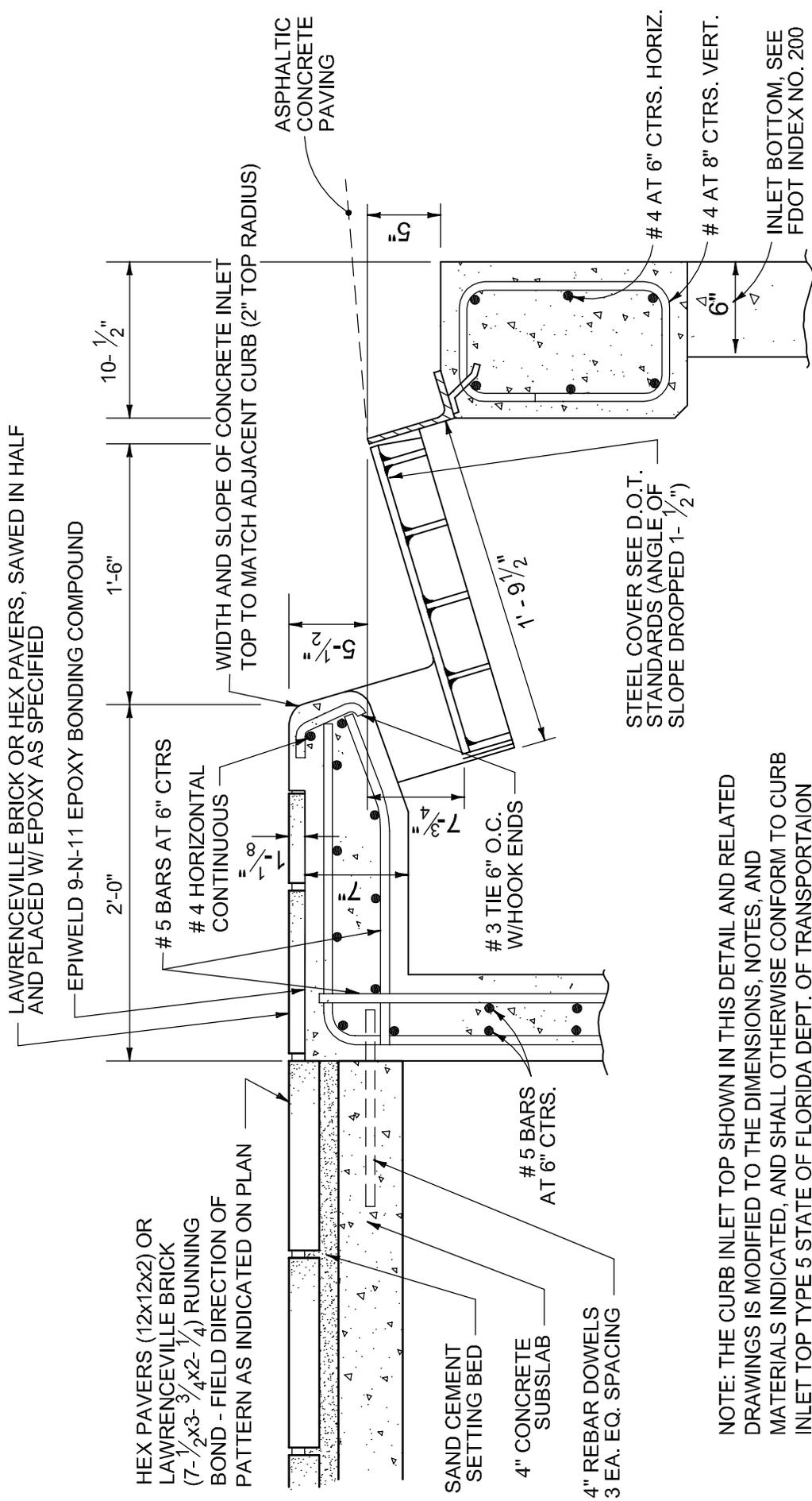
THIN SET PAVERS

TREATMENT 2

DETAIL 3.2-I

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NOTE: THE CURB INLET TOP SHOWN IN THIS DETAIL AND RELATED DRAWINGS IS MODIFIED TO THE DIMENSIONS, NOTES, AND MATERIALS INDICATED, AND SHALL OTHERWISE CONFORM TO CURB INLET TOP TYPE 5 STATE OF FLORIDA DEPT. OF TRANSPORTATION ROAD DESIGN STANDARDS.

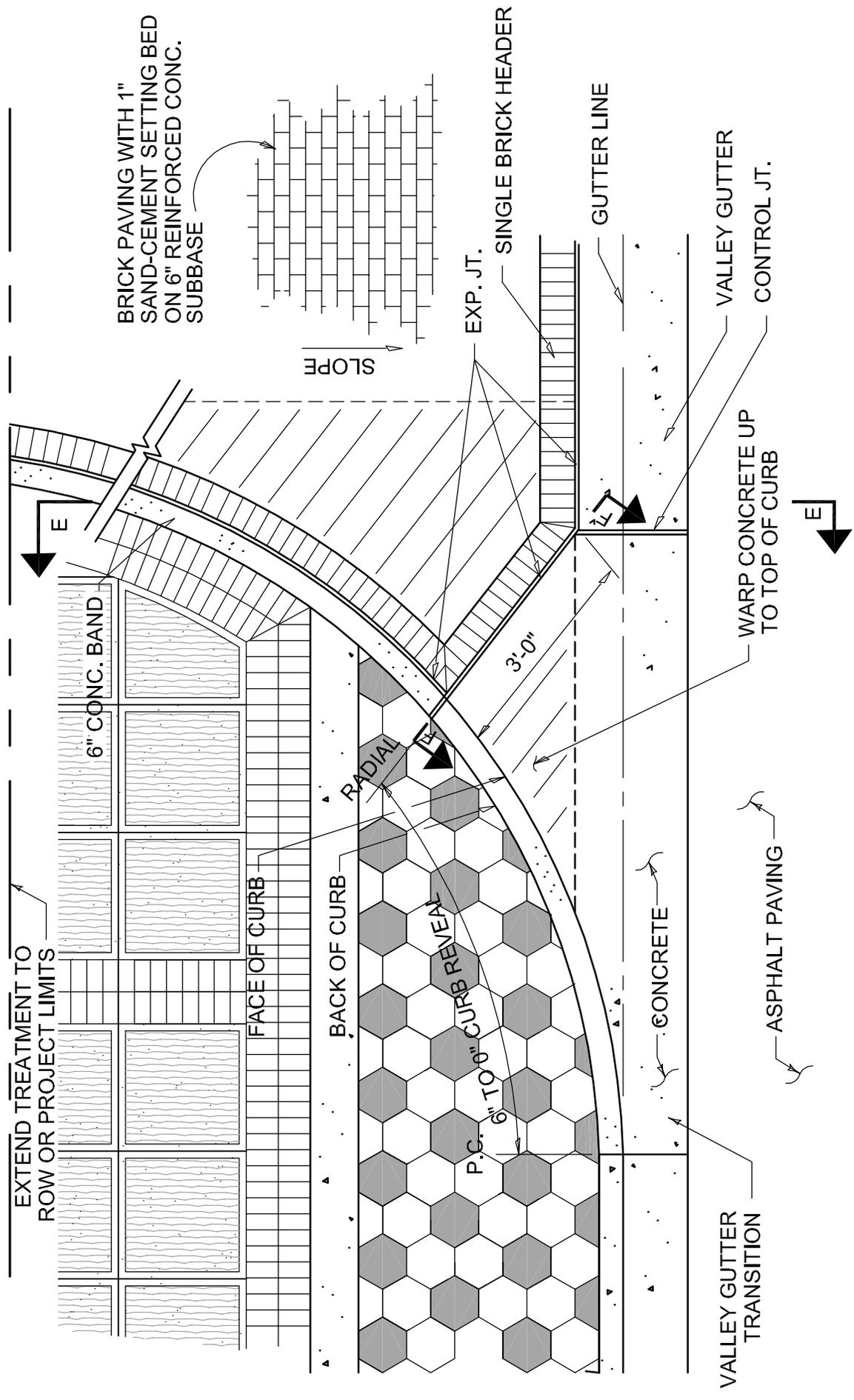
MODIFIED FDOT TYPE 5 INLET TOP

TREATMENT 2

DETAIL 3.2-J

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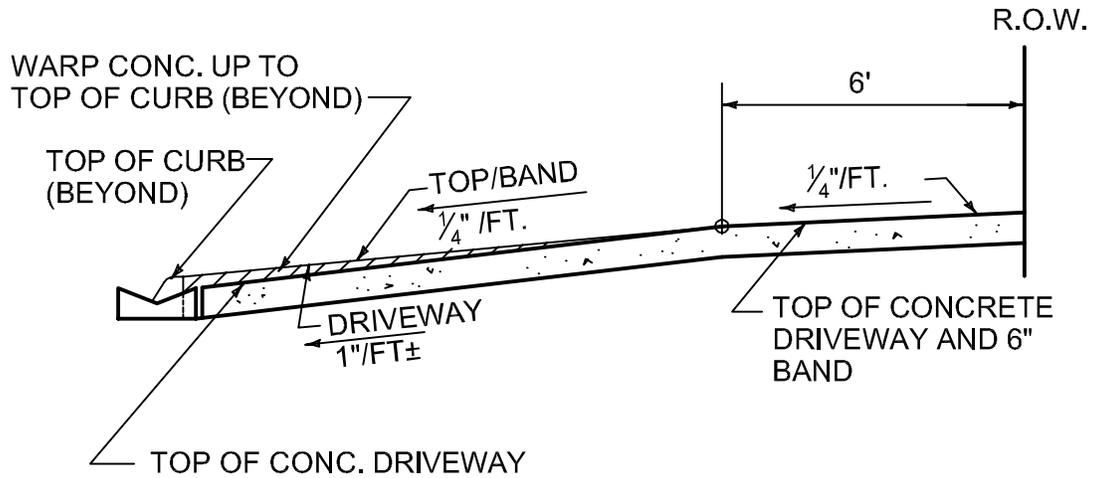
MID-BLOCK DRIVEWAY DETAIL

DETAIL 3.2-K

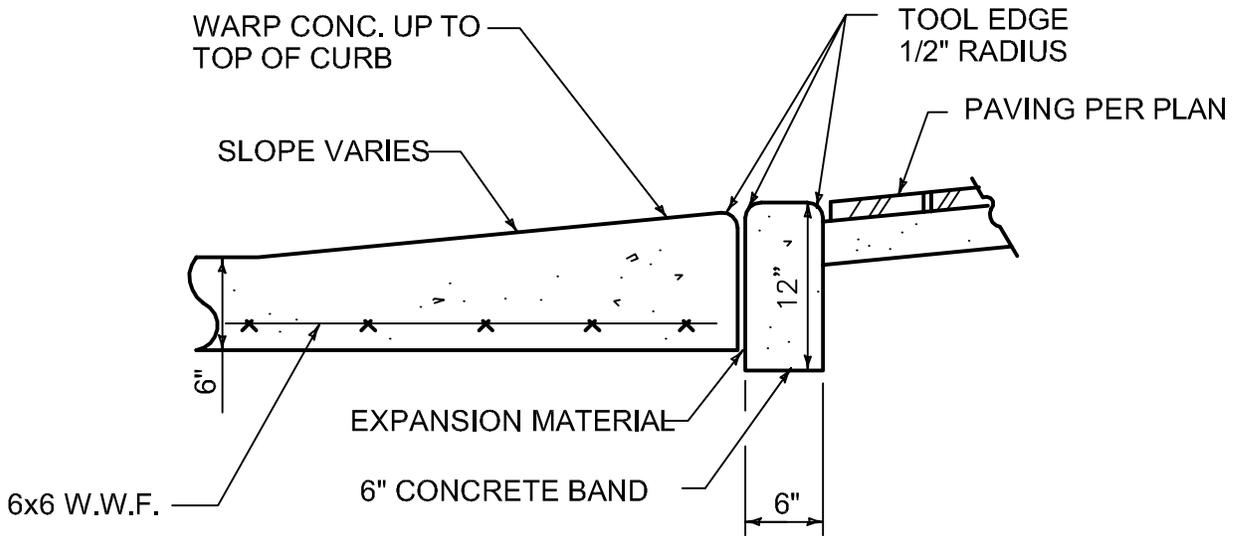
TREATMENT 2

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SECTION E-E



SECTION F-F

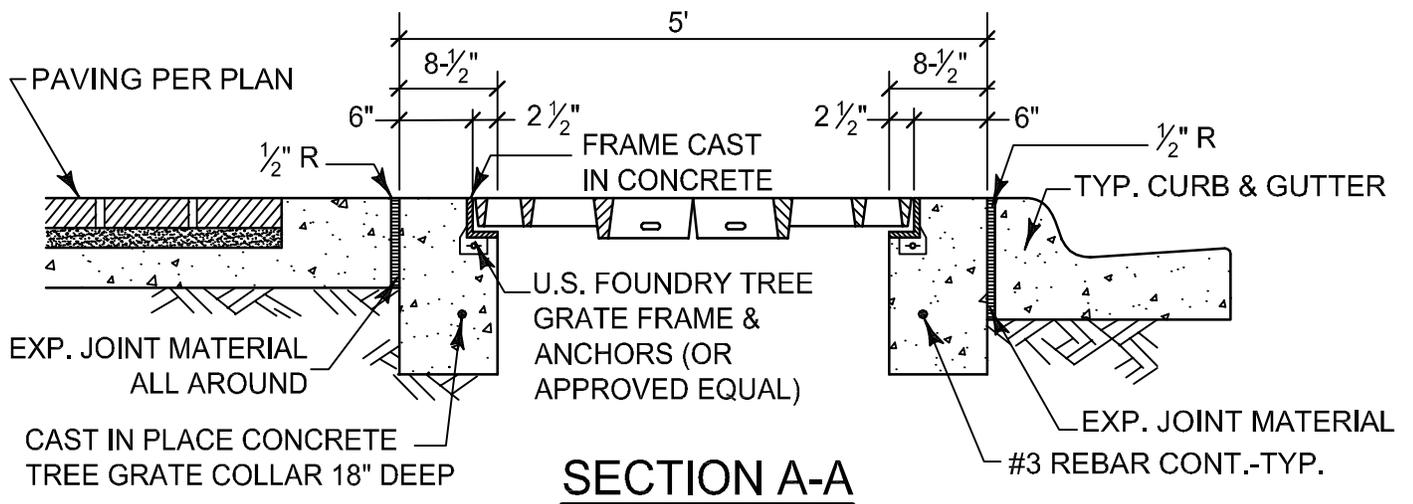
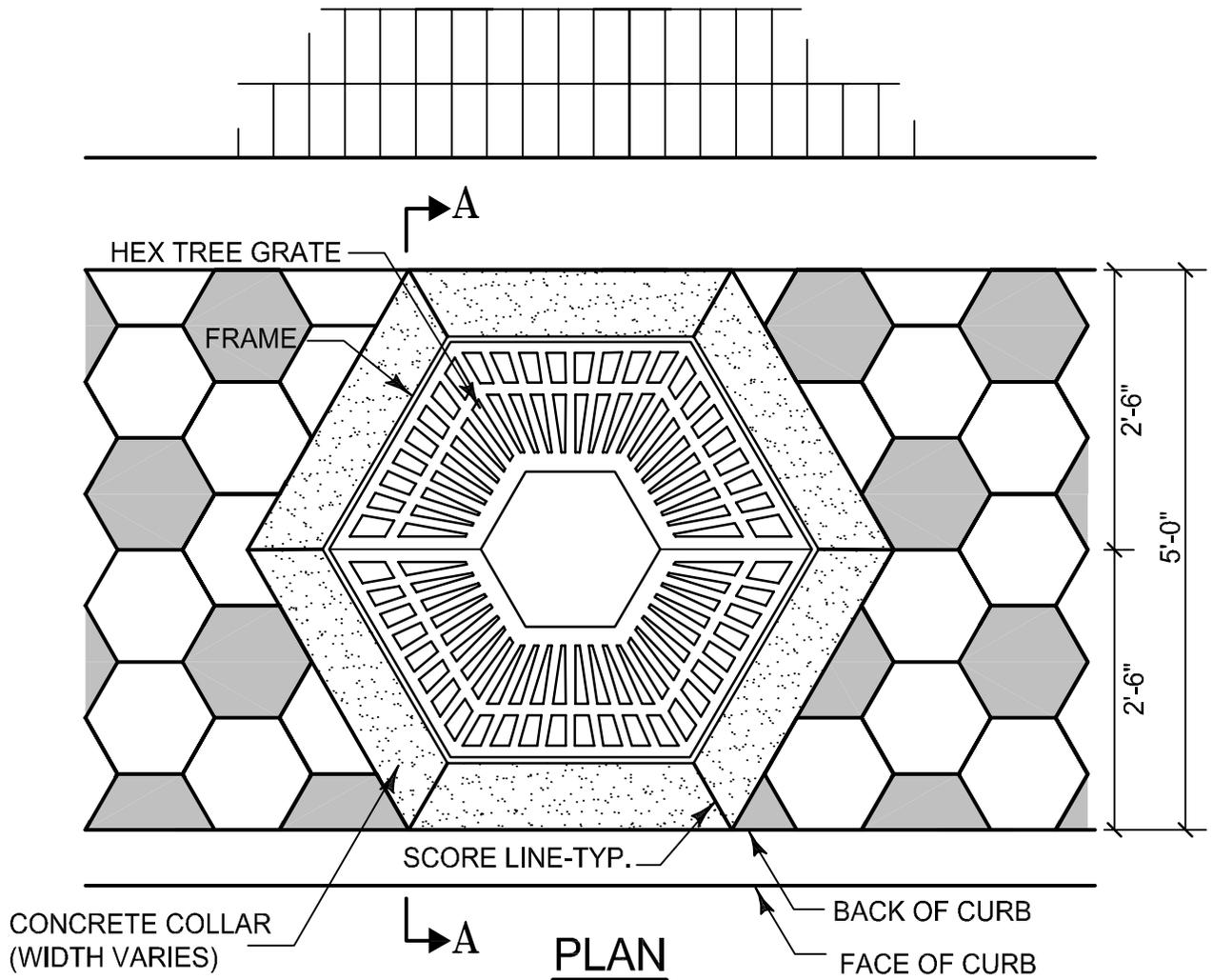


MID-BLOCK DRIVEWAY SECTIONS

TREATMENT 2

DETAIL 3.2-L





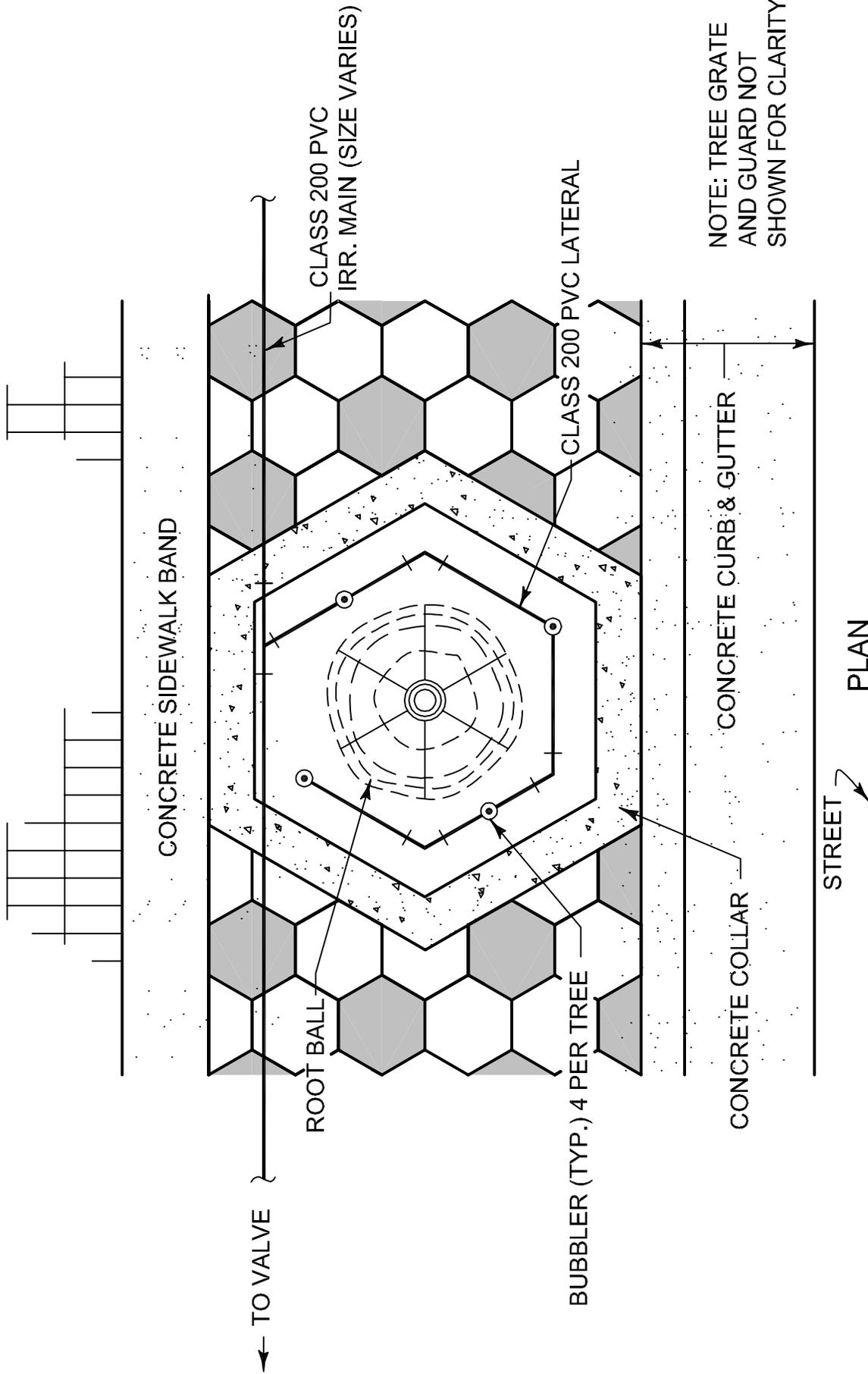
TREE GRATE, FRAME AND COLLAR

TREATMENT 2

DETAIL 3.2-M



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BUBBLER PLACEMENT & PIPE ROUTING WITHIN TREE WELL

DETAIL 3.2-0

TREATMENT 2

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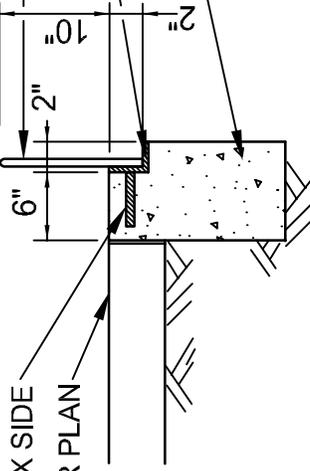


1/2" x 4" STEEL DOWEL 1 EA. PER HEX SIDE
 SIDEWALK TREATMENT PER PLAN

5/8" O.D. STEEL SMOOTH ROD;
 PAINTED BLACK
 1/4" x 2" ANGLE-IRON BASE

CONCRETE TREE WELL FOOTING

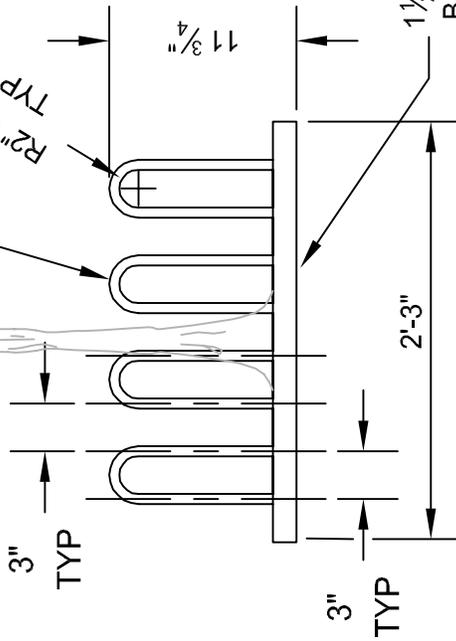
ANCHOR DETAIL



5/8" O.D. STEEL
 SMOOTH ROD;
 PAINTED BLACK

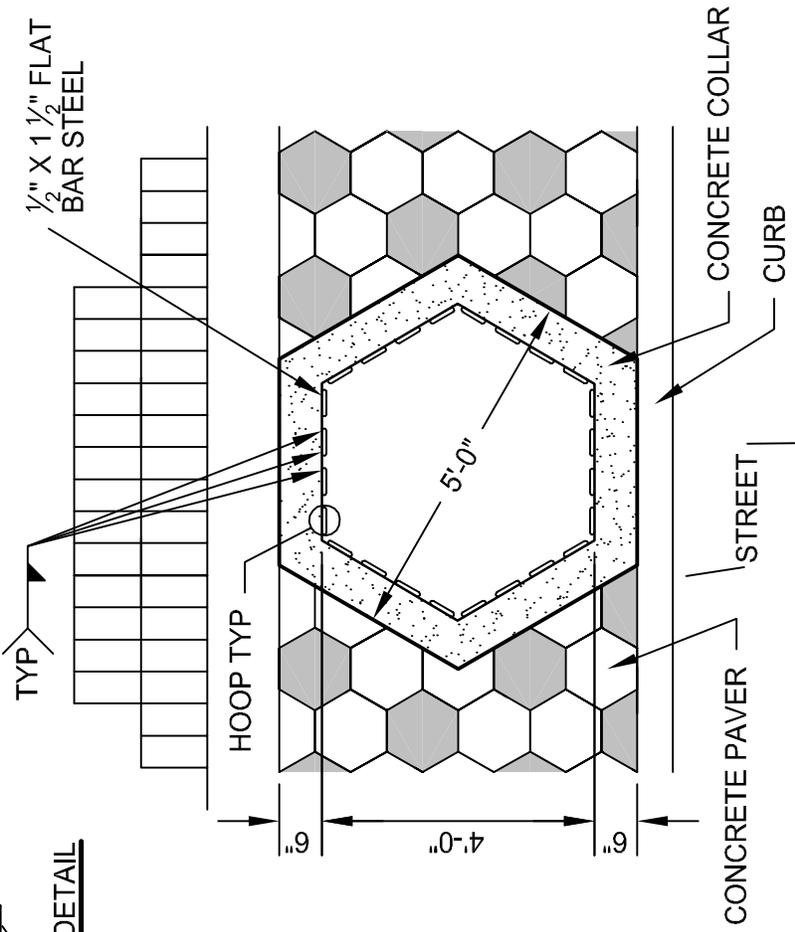
R2" OD
 TYP

1 1/2" X 1 1/2" FLAT
 BAR STEEL



ELEVATION

NOTE:
 HOOP SPACING MAY VARY ACCORDING TO WIDTH OF FRAME.



PLAN



HOOP STYLE TREE GUARD - HEXAGONAL

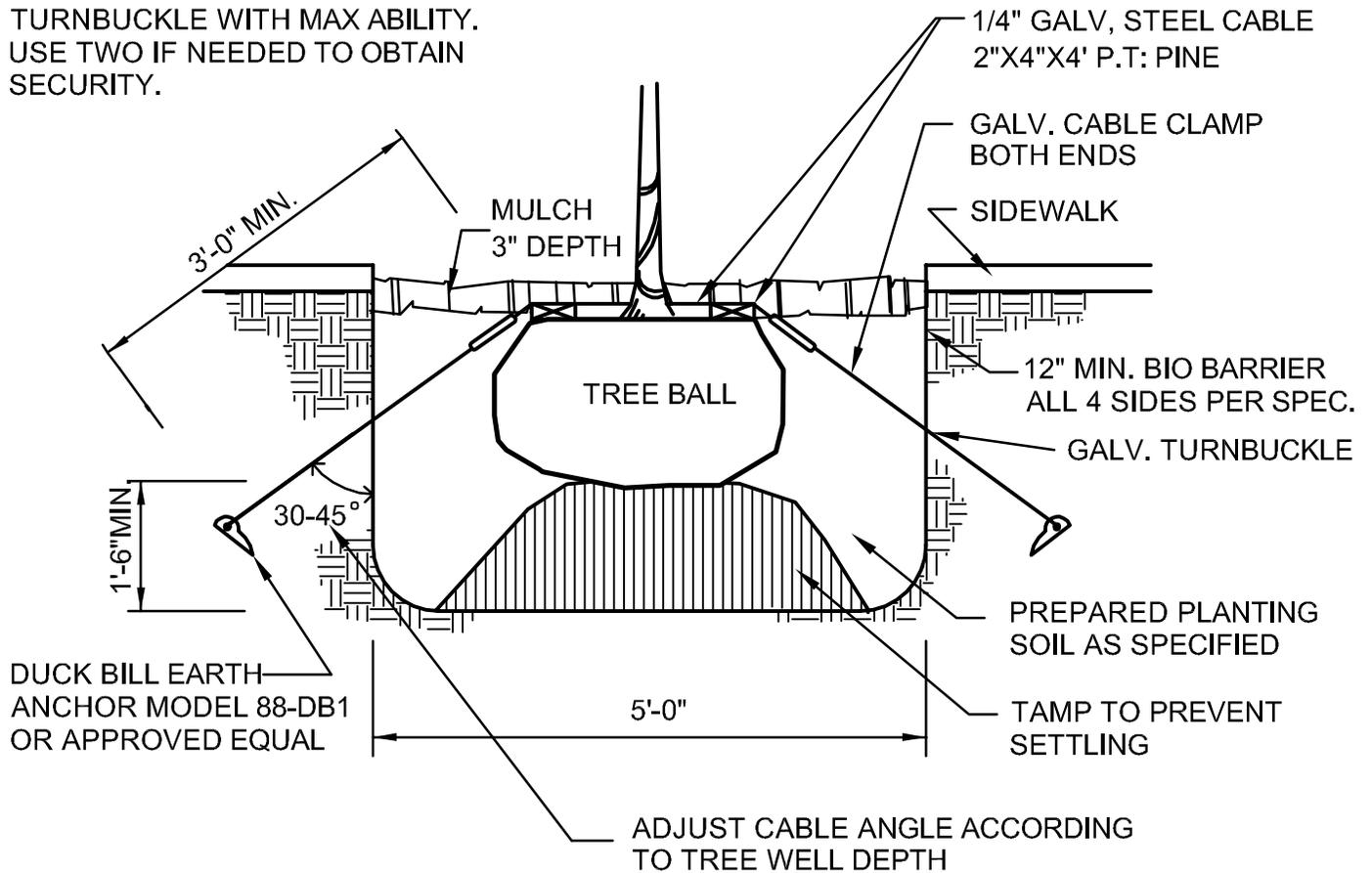
TREATMENT 2

DETAIL 3.2-P

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NOTE: TENSION CONNECTING CABLE TO MAXIMUM TENSION. INSTALL TURNBUCKLE WITH MAX ABILITY. USE TWO IF NEEDED TO OBTAIN SECURITY.



UNDERGROUND TREE GUYING:

A METHOD IN WHICH TWO CABLES ARE STRETCHED ACROSS THE TOP OF THE ROOT BALL AND DOWNWARD AT ABOUT 45° TO DEADMEN PLACED AT BOTTOM OF PLANTING HOLE. TWO BOARDS ARE LAID ACROSS ROOT BALL UNDER AND AT RIGHT ANGLES TO CABLES TO DISTRIBUTE PRESSURE ON ROOT BALL. BACK FILL MUST BE WELL TAMPED TO KEEP ROOT BALL FROM BREAKING AS CABLES ARE TIGHTENED. IN VARIATION OF THIS METHOD, ROOT BALL CAN BE CABLED FIRMLY TO 4 STAKES DRIVEN INTO BOTTOM OF PLANTER'S HOLE, ALONG SIDE AND AROUND BALL.

NOTE: THIS DETAIL SHALL BE USED WHEN VARIATION FROM TREE GRATE, FRAME, AND COLLAR DETAIL IS APPROVED.



UNDERGROUND TREE GUYING

TREATMENT 2

DETAIL 3.2-Q



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STRUCTURAL SOIL PLACEMENT DETAIL PLAN

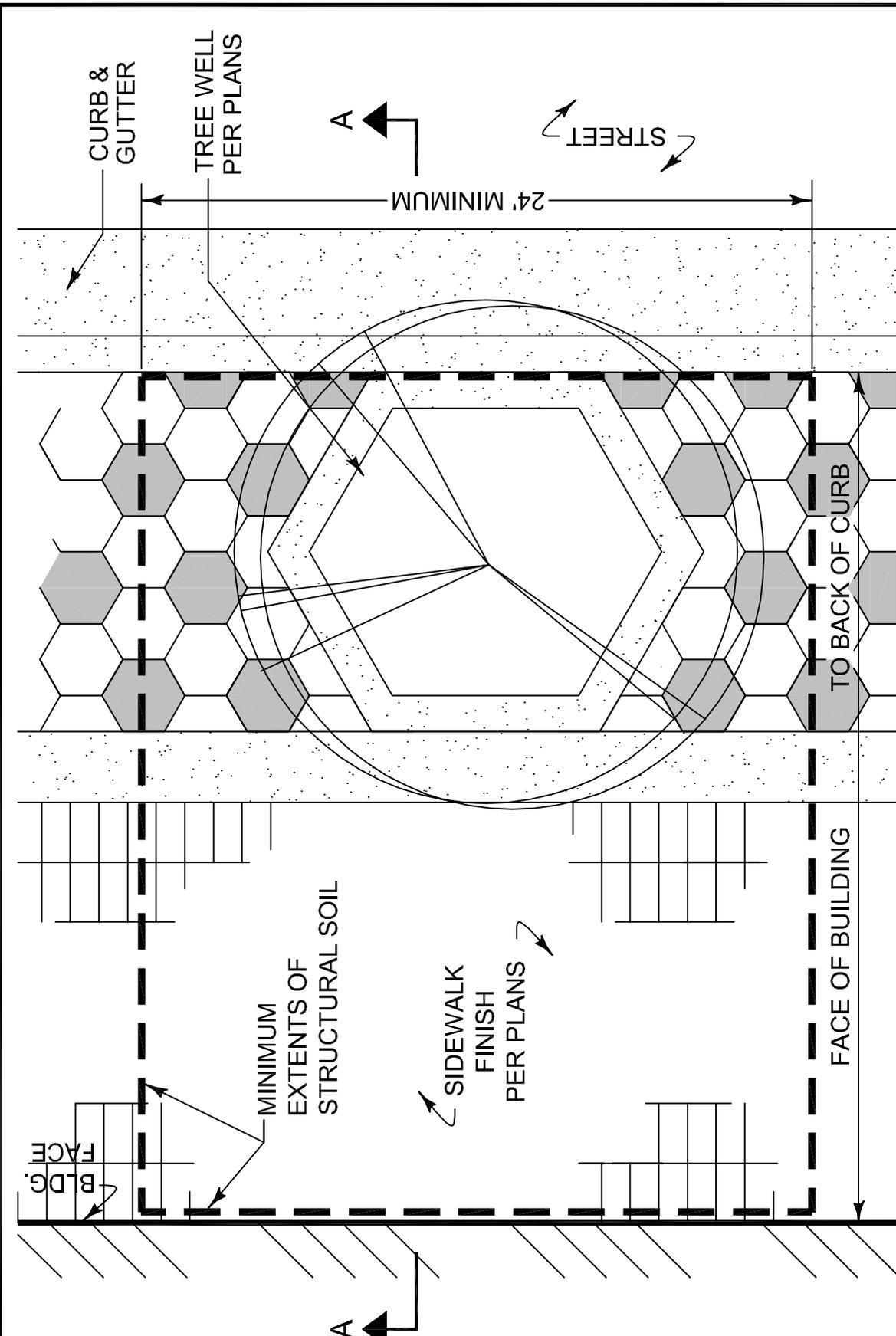
DETAIL 3.2-R

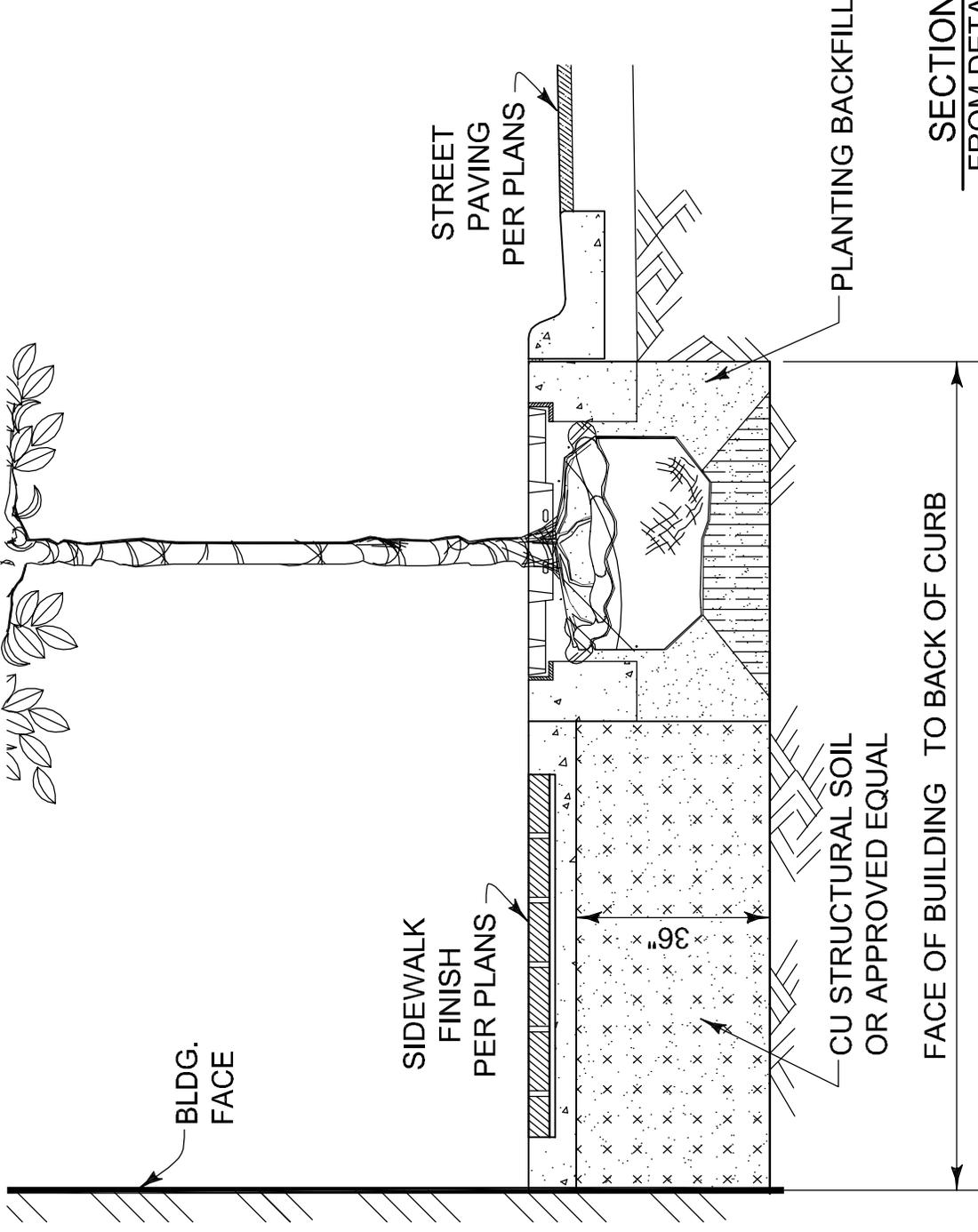
Rev. 07/30/07

TREATMENT 2



NOTE: DEPENDING UPON SPECIFIC SITE AND PROJECT CONDITIONS, STRUCTURAL SOIL MAY BE REQUIRED TO BE PLACED CONTINUOUSLY ALONG THE STREET TO THE EXTENTS OF THE PROJECT.





SECTION A-A
FROM DETAIL 3.1-

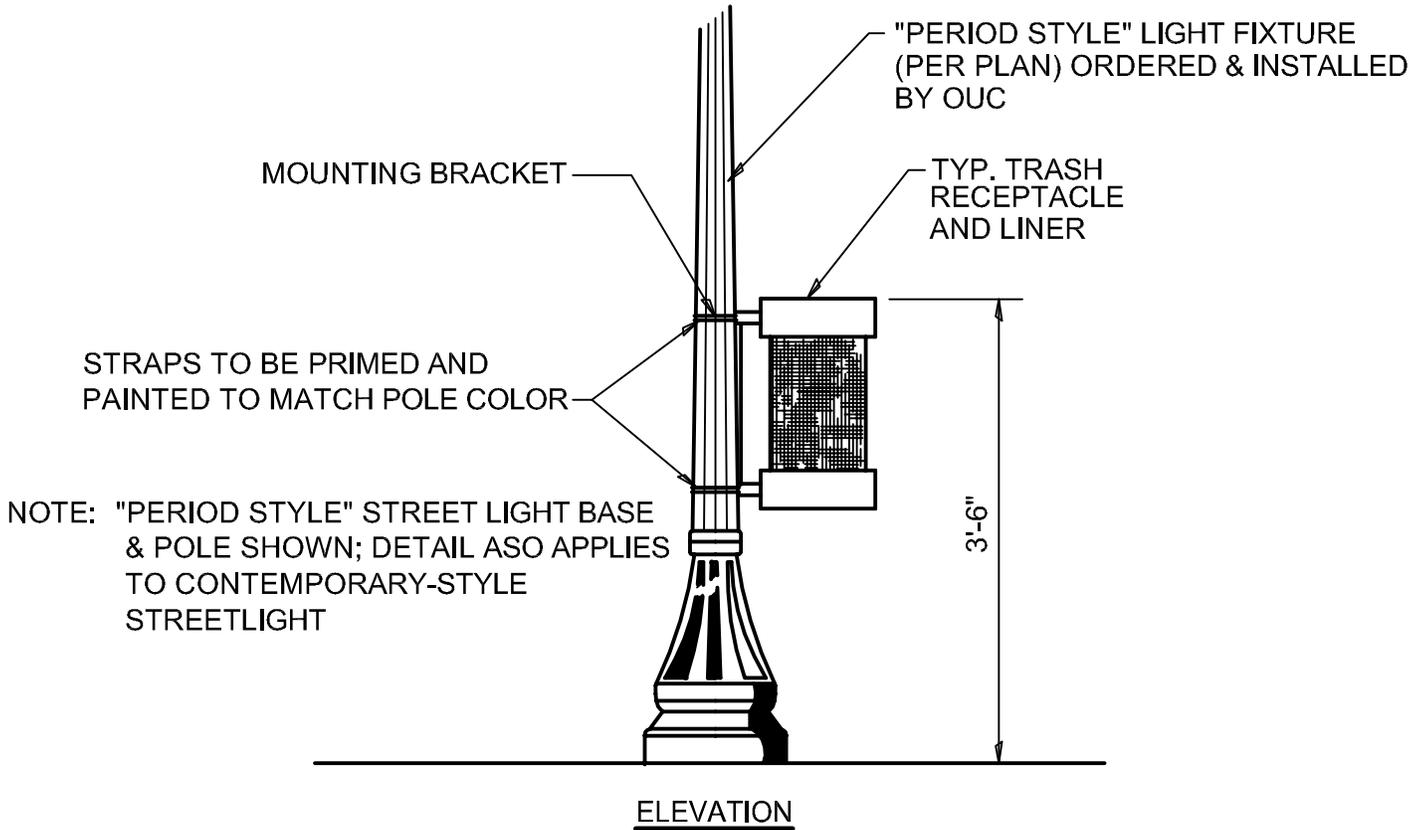
STRUCTURAL SOIL PLACEMENT SECTION

TREATMENT 2

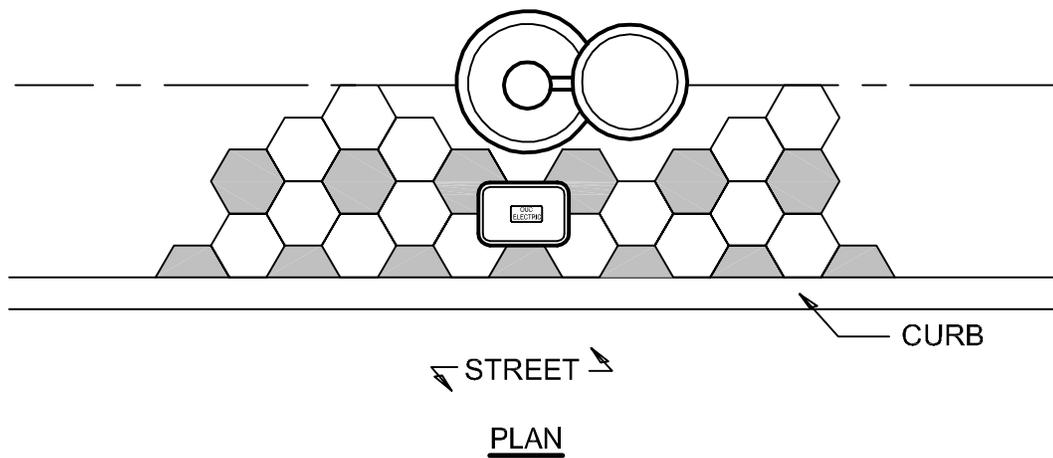
DETAIL 3.1-S

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← PLACE RECEPTACLE SO THAT POLE AND RECEPTACLE ARE PARALLEL TO STREET AND NOT IN PEDESTRIAN MOVEMENT PATH. →



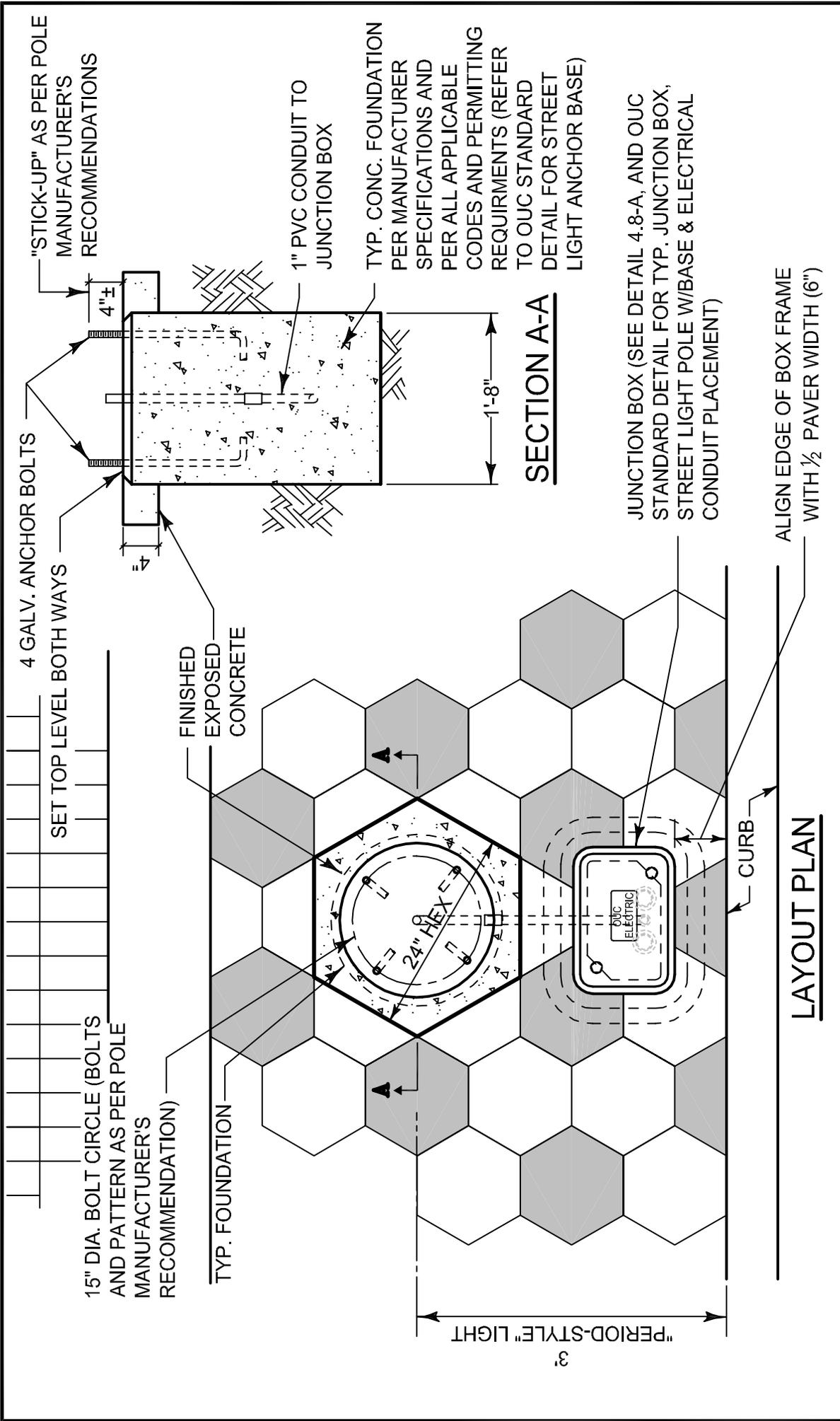
STREET LIGHT w/TRASH RECEPTACLE

TREATMENT 2

DETAIL 3.2-T

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STREETLIGHT POLE FOUNDATION

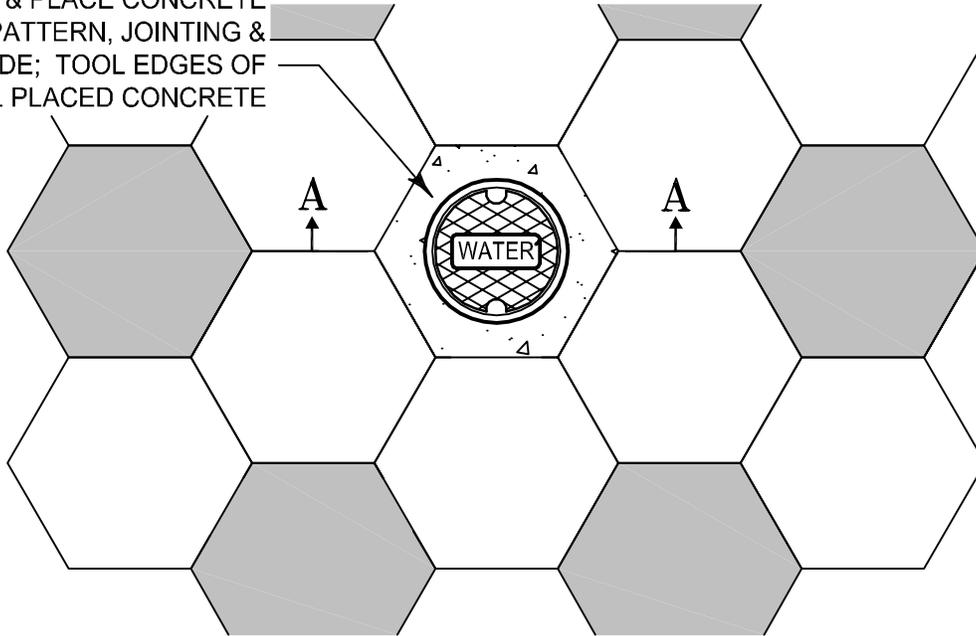
TREATMENT 2

DETAIL 3.2-U

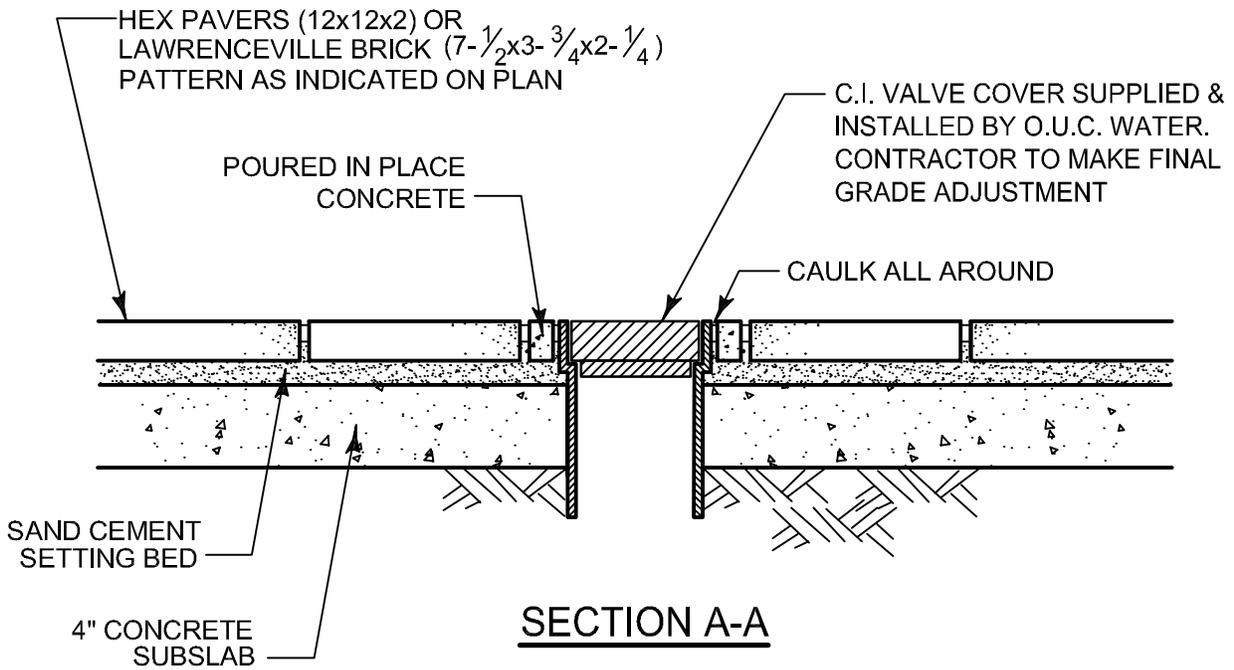
Rev. 07/30/07



OMIT PAVERS WHERE VALVE
COVERS FALL & PLACE CONCRETE
TO MATCH PATTERN, JOINTING &
FINISH GRADE; TOOL EDGES OF
ALL PLACED CONCRETE



PLAN



SECTION A-A



WATER VALVE BOX

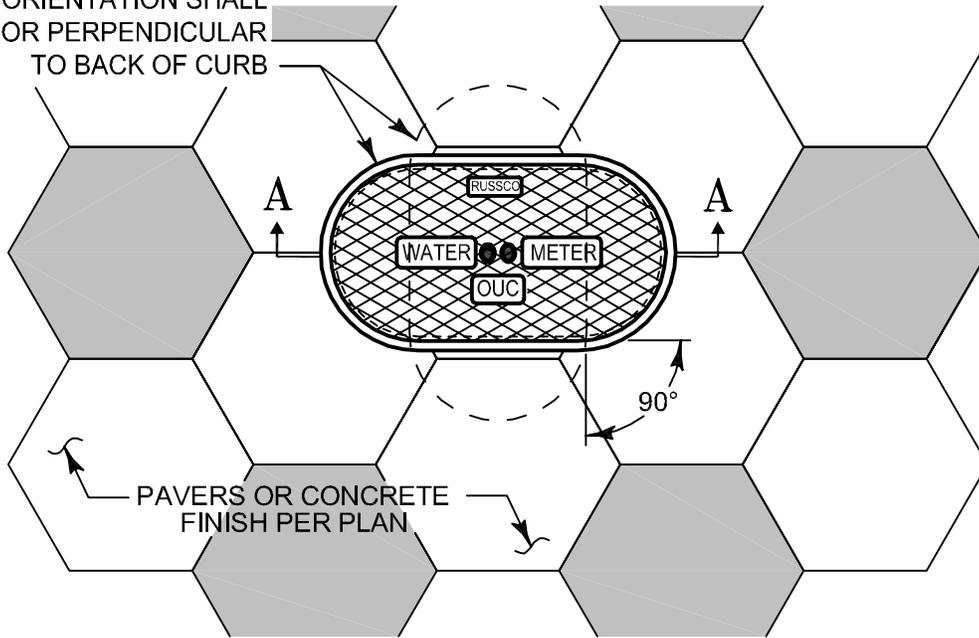
TREATMENT 2

DETAIL 3.2-V

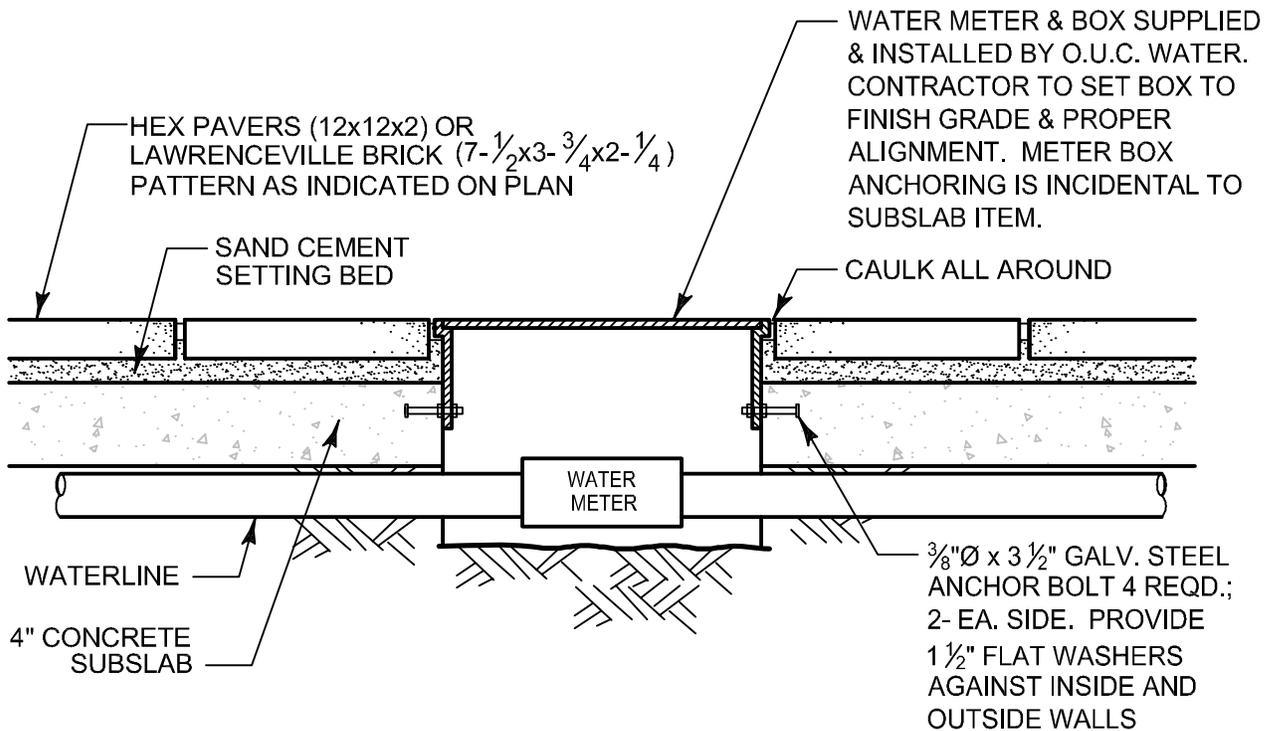


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METER BOX ORIENTATION SHALL BE PARALLEL OR PERPENDICULAR TO BACK OF CURB



PLAN



SECTION A-A



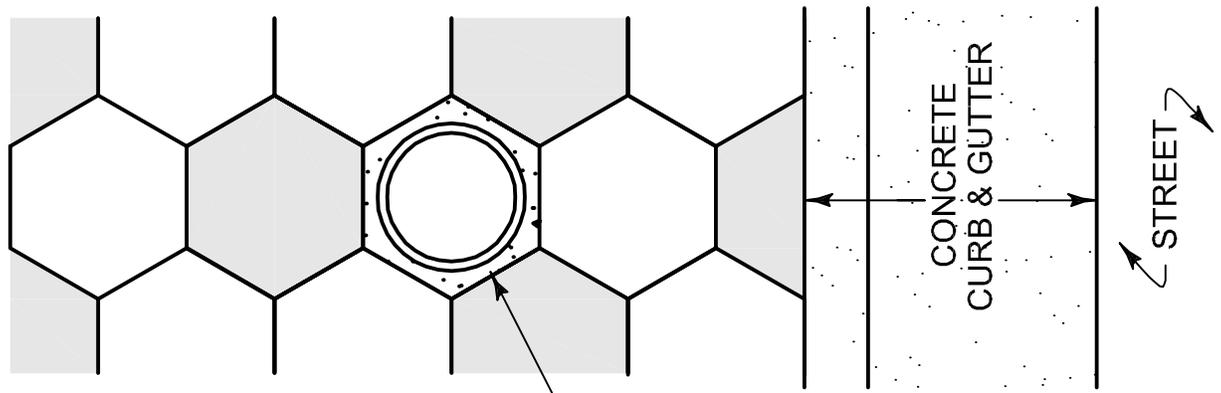
WATER METER BOX

TREATMENT 2

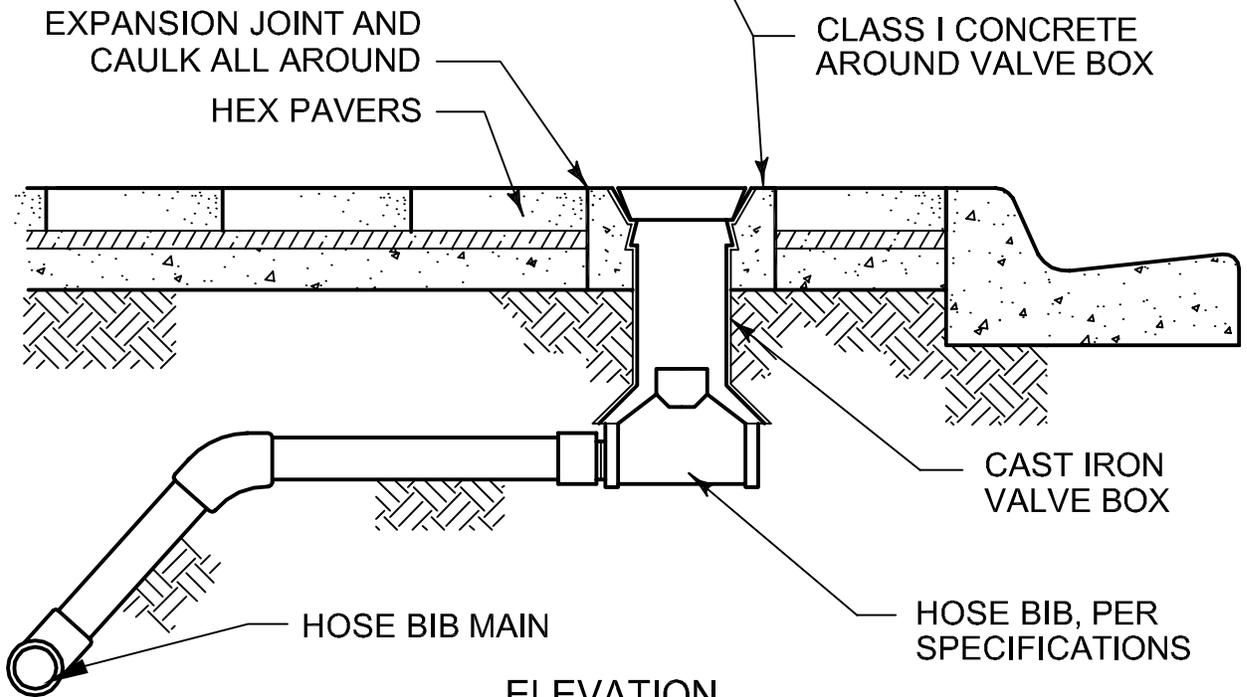
DETAIL 3.2-W



Rev. 07/30/07



PLAN



ELEVATION

NOTES:

1. COMPACT SOIL AROUND VALVE BOX TO SAME SAME DENSITY AS UNDISTURBED ADJACENT SOIL.
2. VALVE AND BOX SHALL BE DIRECTLY CENTERED UNDER A HEX PAVER AS SHOWN.
3. PROVIDE ONE HOSE BIB APPROXIMATELY EVERY 150', MINIMUM ONE BER BLOCK.

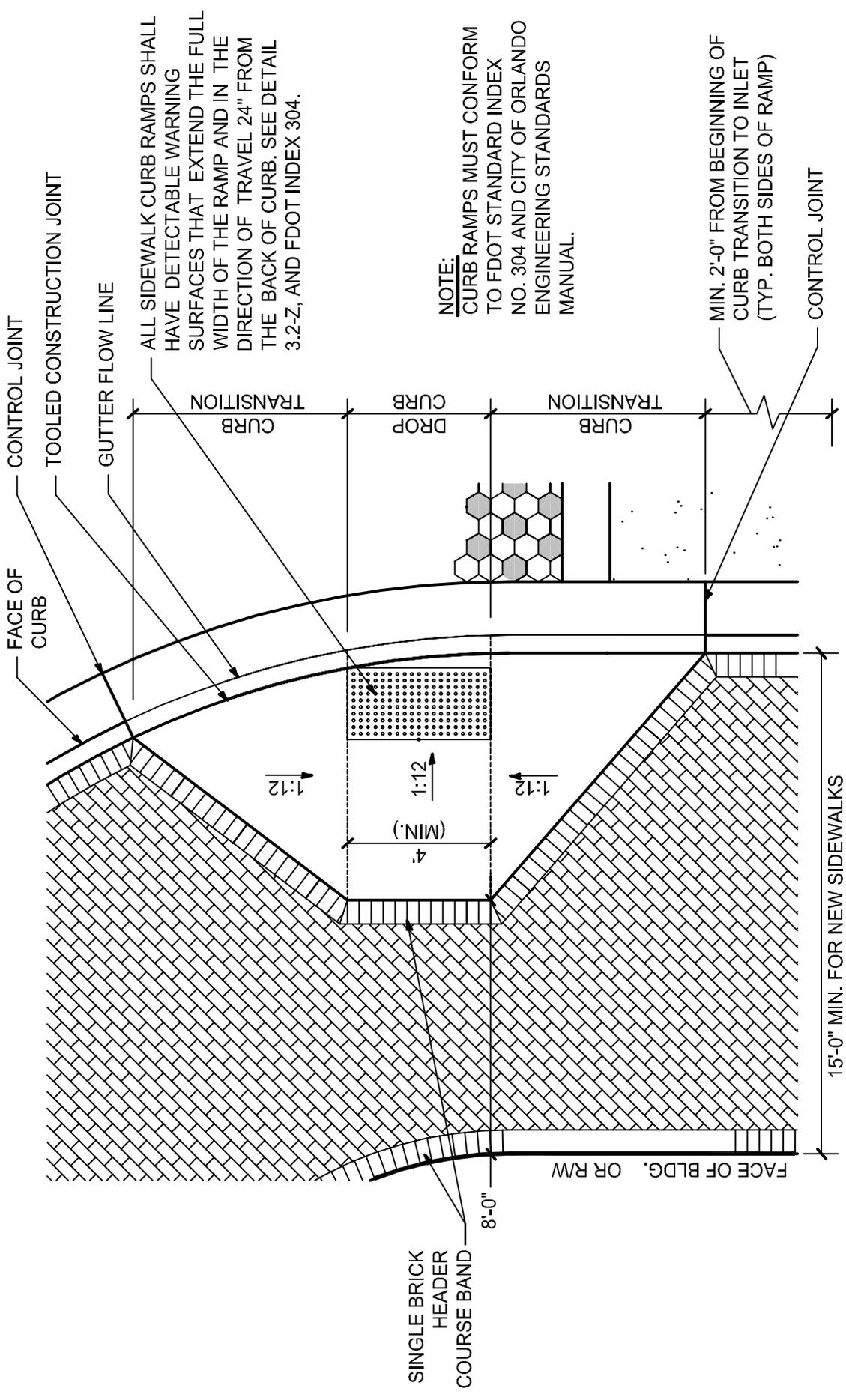


HOSE BIB ASSEMBLY

TREATMENT 2

DETAIL 3.2-X





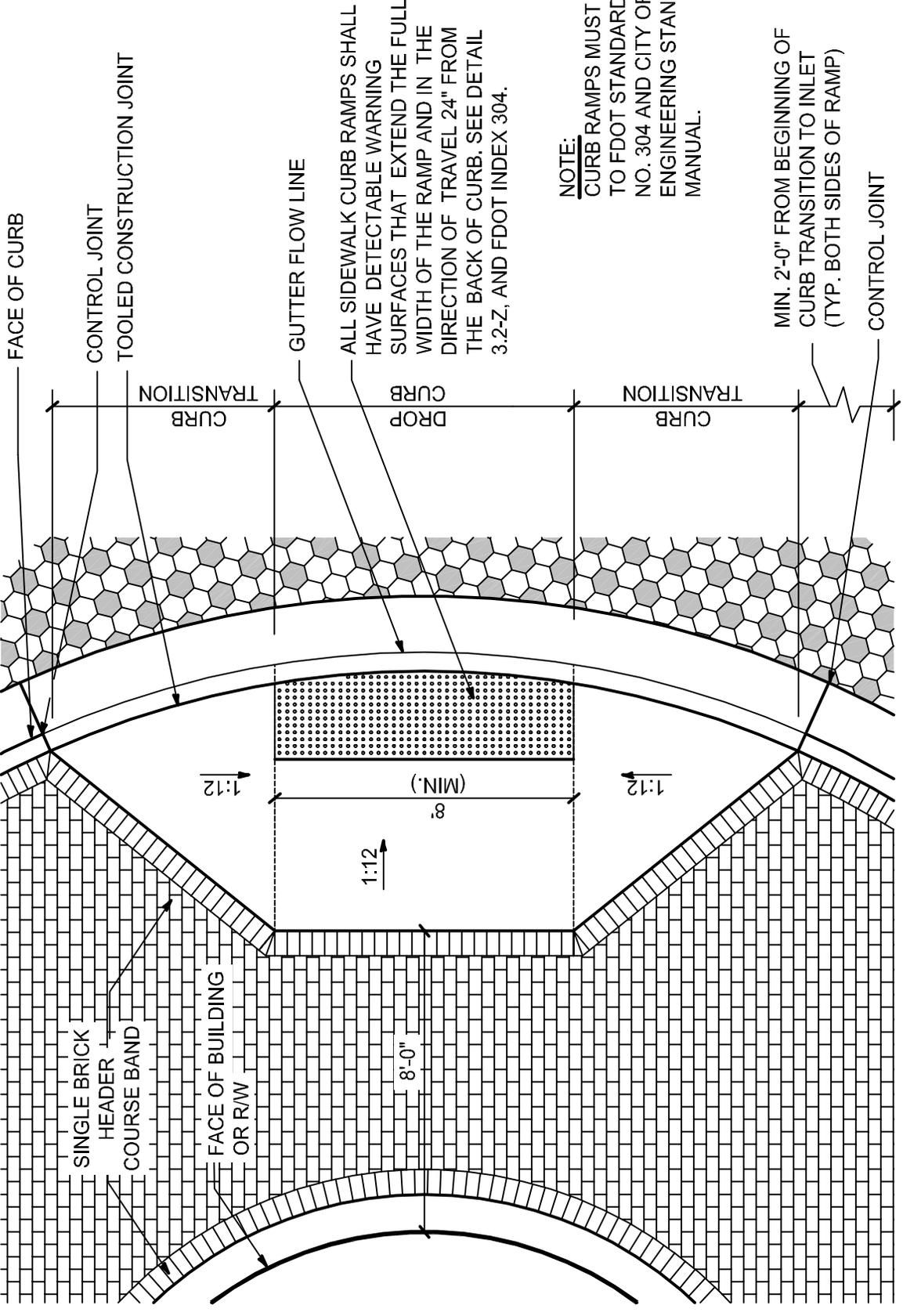
SINGLE PURPOSE HANDICAP RAMP

TREATMENT 2

DETAIL 3.2-Y(1)

Rev. 07/30/07





DUAL PURPOSE HANDICAP RAMP

TREATMENT 2

DETAIL 3.2-Y(2)

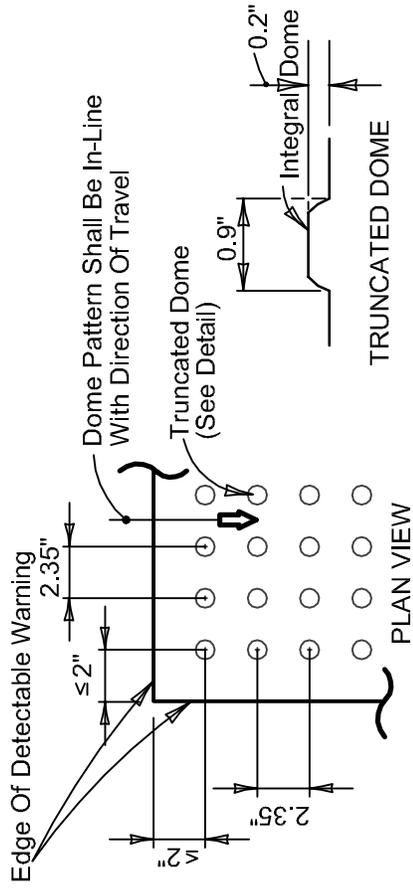
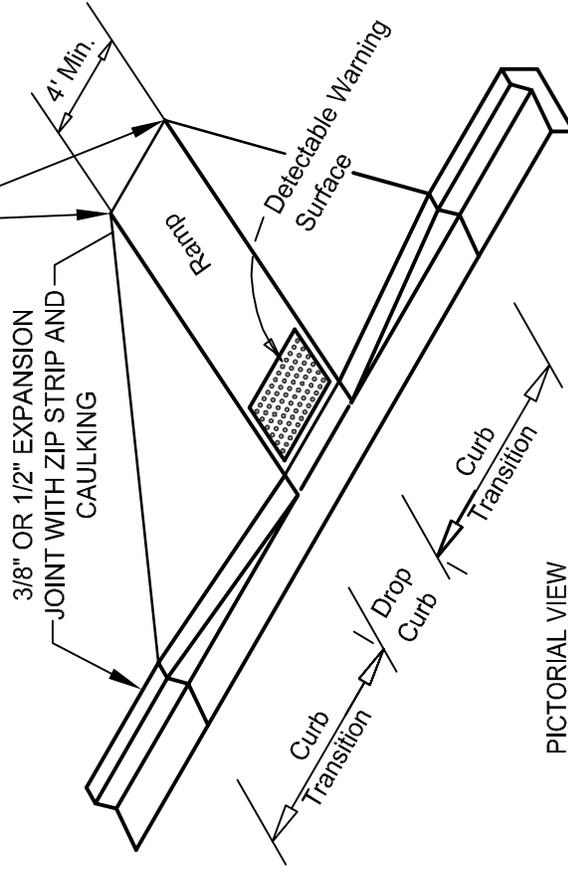
Rev. 07/30/07



NOTES:

1. All curb ramps shall have detectable warning surfaces that extend the full width of the ramp and 24" from the back of curb in the direction of travel. As shown on Detail.
2. Detectable warning surfaces shall be truncated dome pattern in conformance with U.S. Department of Justice A.D.A. Standards. Detectable warning surface shall be cast-in-place concrete, with Scofield 'Chromix' Color Admixture #4821 'Shady Red', or approved equal.
3. Optional 12"x12" Masonry Unit or Granite Truncated Dome Pavers may be used with the approval of the City Architect.
4. The color requirement for detectable warnings is to provide a dark-on-light visual contrast between the detectable warning surface and the adjacent walking surface.
5. Expansion joints shall be placed at all perimeter edges abutting concrete, but no joints shall be made in the ramp itself.
6. Transition curb may be formed at the time of curb construction or may be monolithic with the ramp, but is included with the pay item for the ramp.

GRADING POINTS
SEE SITE PLANS



DETECTABLE WARNING SURFACE DETAIL

ADDITIONAL NOTES:

1. REFER TO FDOT INDEX 300 FOR MORE INFORMATION REGARDING PUBLIC SIDEWALK RAMPS.
2. CONTACT CITY ARCHITECT FOR FIELD CONFLICT RESOLUTION.

PICTORIAL VIEW



CURB RAMP DETECTABLE WARNING

TREATMENT 2

DETAIL 3.2-Z

Rev. 07/30/07



3.3 - TREATMENT 3: HISTORIC STREETS

3.3.1 – Overview

The Treatment 3 (Historic Street) designation is reserved for the streets of historical significance. Classified as Historic Streets are: portions of Pine and Church Streets.

Sidewalks for Historic Pedestrian Streets are paved with precast hexagonal pavers from the curb to the building wall. The furnishing strip is not defined by any additional pattern, but shall be within four feet of the curb. Street trees will be spaced approximately 25 feet on center and are provided with tree grates and guards. Note that furnishing elements, i.e., light fixtures, benches, trash receptacles, telephone kiosks, grates and guards, etc. will be painted black.

Historically, many Orlando streets were paved in brick. Although some of these streets remain, most have been paved over with asphalt. Brick streets, while handsome, are expensive to build and maintain, and supplies of original bricks are limited.



It is recommended that brick streets be utilized downtown as a special treatment to enhance the historic area (or street) and be located where traffic use is low.



The reuse of original brick is encouraged where possible. In several cases, original bricks have been reused to pave parking lots (e.g., at City Hall) and the result is attractive and reminiscent of the past. Surplus bricks may sometimes be obtained from existing streets that are being replaced.

Characteristics of Treatment 3, Historic Streets include:

- Historical significance.
- Strong pedestrian orientation.
- Sidewalks 15 feet in width with hexagonal pavers.
- Roadway paved with bricks.
- Street trees within hexagonal tree wells.
- Double wheelchair-accessible ramps at each street corner.
- Single acorn light fixtures located symmetrically on both sides of the street.

3.3.2 - ALTERNATIVE STREETScape DESIGNS

Any streetscape designs that do not conform to the *Streetscape Guidelines* are subject to review by DDB/CRA for approval. Design may vary from these guidelines due to site conditions and approved conceptual changes.

The City may request that new development projects provide a different style of paver, tree grate, or amenity other than those specified herein. This will be determined on a project-by-project basis.

Hardscape and landscape improvements outside the streetscape area should be compatible with the design of the streetscape and will be reviewed by the City Architect.

3.3.3 – TREATMENT 3 STREET TREES

Street trees are planted generally 25 feet on center (spacing may vary depending upon tree type and site conditions) and are provided with tree grates and guards. Variances from typical tree spacing must be provided by the DDB/CRA. Street tree planting design is subject to approval of City Transportation Engineering Division. On streets which have a speed limit greater than 25 miles per hour, greater setback of the tree from the curb may be required.

See Section 4.15, Trees & Landscaping, and Section 4.16, Irrigation, for technical specifications for all landscaping and irrigation. All tree species shall be selected from list of approved trees in those specifications.

3.3.4 – TREATMENT 3 STREETLIGHTS

Except at intersections where tall streetlights are provided, double acorn streetlights are required. Lights are spaced midway between street trees as necessary to meet City illumination requirements as determined on a project by project basis. All streetlight planning, design, and construction shall be coordinated with OUC. Planning should begin early to ensure logical, uniform lighting schemes that minimize bright and dark spots. A streetlight plan shall be part of the submittal to DRC. See Section 5.5 for specifications.

3.3.5 – TREATMENT 3 CURB RADII

Subject to the approval of the City Transportation Engineering Division, the minimum radii of back of curb at all typical intersections approximating a right angle shall be as follows:

- Local to Local R = 25'
- Local or Collector to Collector R = 35'
- Local or Collector to Arterial R = 45' or greater

Refer to City Land Development Code, Section 2B, Major Thoroughfare Plan, for designations of Collector and Arterial streets.

3.3.6 – SIDEWALK WIDTH

All new buildings constructed within the CRA will be required to provide sidewalks 15 feet in width. Sidewalk widths required for renovations of existing buildings are the exception and shall conform to the site conditions. Where a narrow sidewalk exists, i.e., less than 10 feet from the property line (building) to where the sidewalk meets the curb, it may be necessary to adjust the proportions of sidewalk design details.

A Treatment 3 Street should be adjusted by a reduction in the concrete band from 12 to 6 inches, and by reducing the brick soldier course from a double to a single row.

For tree grates, the concrete collar may be reduced from 12 to 6 inches. Sidewalks less than 10 feet in width may be required to use a smaller tree grate and guard that replicates the reduced proportions the existing grate and guard design.

These requirements will be identified by the DDB/CRA on a special case basis.

3.3.7 – PAVING PATTERN

Surface treatments for pavement in Treatment 3 are as follows:

-
-
- A. Brick Pavers - Sidewalks and Driveways
Used for:
 - 1. Sidewalk corner treatments at intersections.
 - 3. Mid-block driveways.

 - B. 12" Hexagonal Concrete Pavers – Sidewalks
Used for:
 - 1. Sidewalk treatments from back of curb to face of building.

 - D. Thin-Set Pavers - Sidewalks
Used for:
 - 1. All locations where full depth pavers cannot be installed due to vertical clearance limitations, including vault areas and rear portions of inlet tops.

 - E. Plain Concrete Pavement - Sidewalks and/or Driveways (see Section 4.6, Concrete Work)
Used for:
 - 1. Mid-block driveways.
 - 2. For transitioning back to existing sidewalks on side streets.

 - F. Asphalt Pavement – Streets
Used for:
 - 1. Intersections within the 30" concrete circular band area.
 - 2. Transition areas at intersections from 16" concrete banding to limits of construction on side streets.

 - G. 8" Hexagonal Concrete Pavers – Streets
Used for:
 - 1. Intersections.
 - 2. Loading zone areas

 - H. Brick Pavers Street
Used for:
 - 1. Street paving from intersection to intersection.

NOTE: A long lead time should be anticipated when ordering brick and hexagonal pavers.

3.3.8 - WHEELCHAIR ACCESSIBILITY

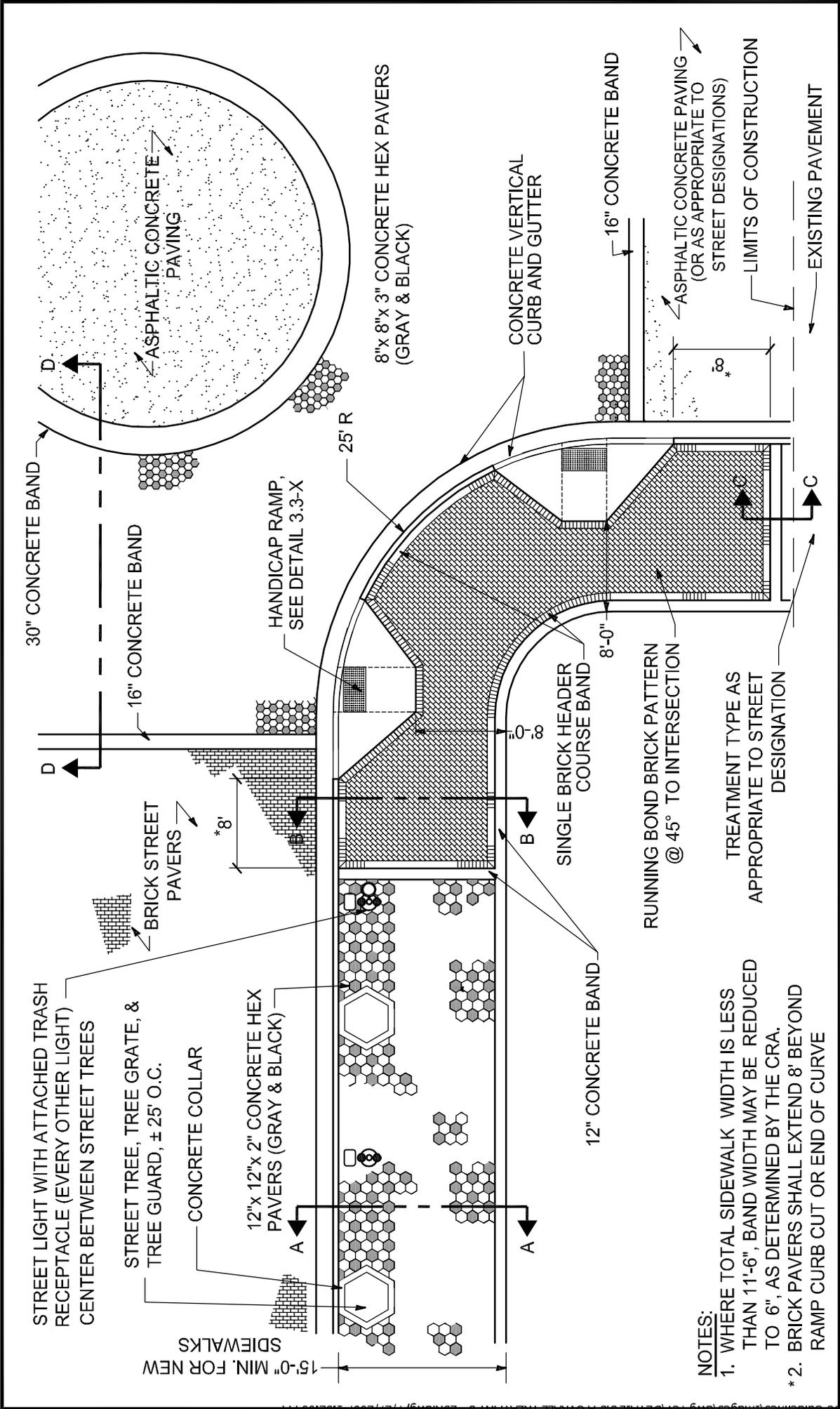
All street corners shall have two wheelchair ramps, unless site conditions dictate otherwise and as approved by the City Architect and Transportation Engineering Division.

3.3.9 - TEMPORARY SIDEWALK IMPROVEMENTS

Any temporary sidewalk provisions that may be required during the construction of streetscape improvements are the responsibility of the property owner and will not be a cost sharing item of the DDB/CRA.

3.3.10 – TREATMENT 3 DETAILS

The following details shall be incorporated into the construction plans. The designer shall modify the details as necessary to fit site conditions. All variations from these details shall be approved by the City of Orlando. See also Section 4.0, Technical Documents, and Section 5.0, Other Site Furniture, for further specifications.



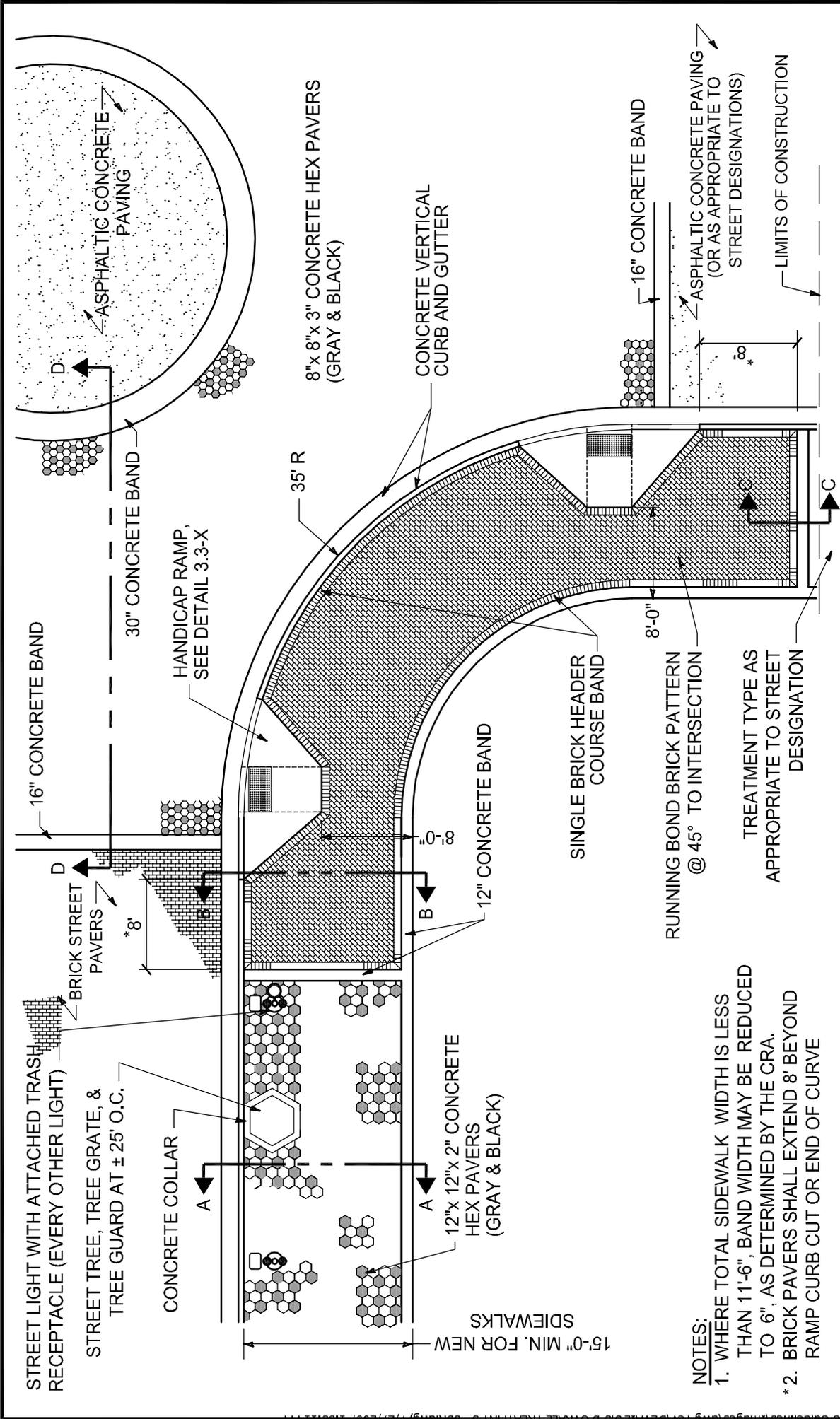
OVERALL STREETSCAPE TREATMENT (25' CORNER RADIUS)



TREATMENT 3

DETAIL 3.3-A

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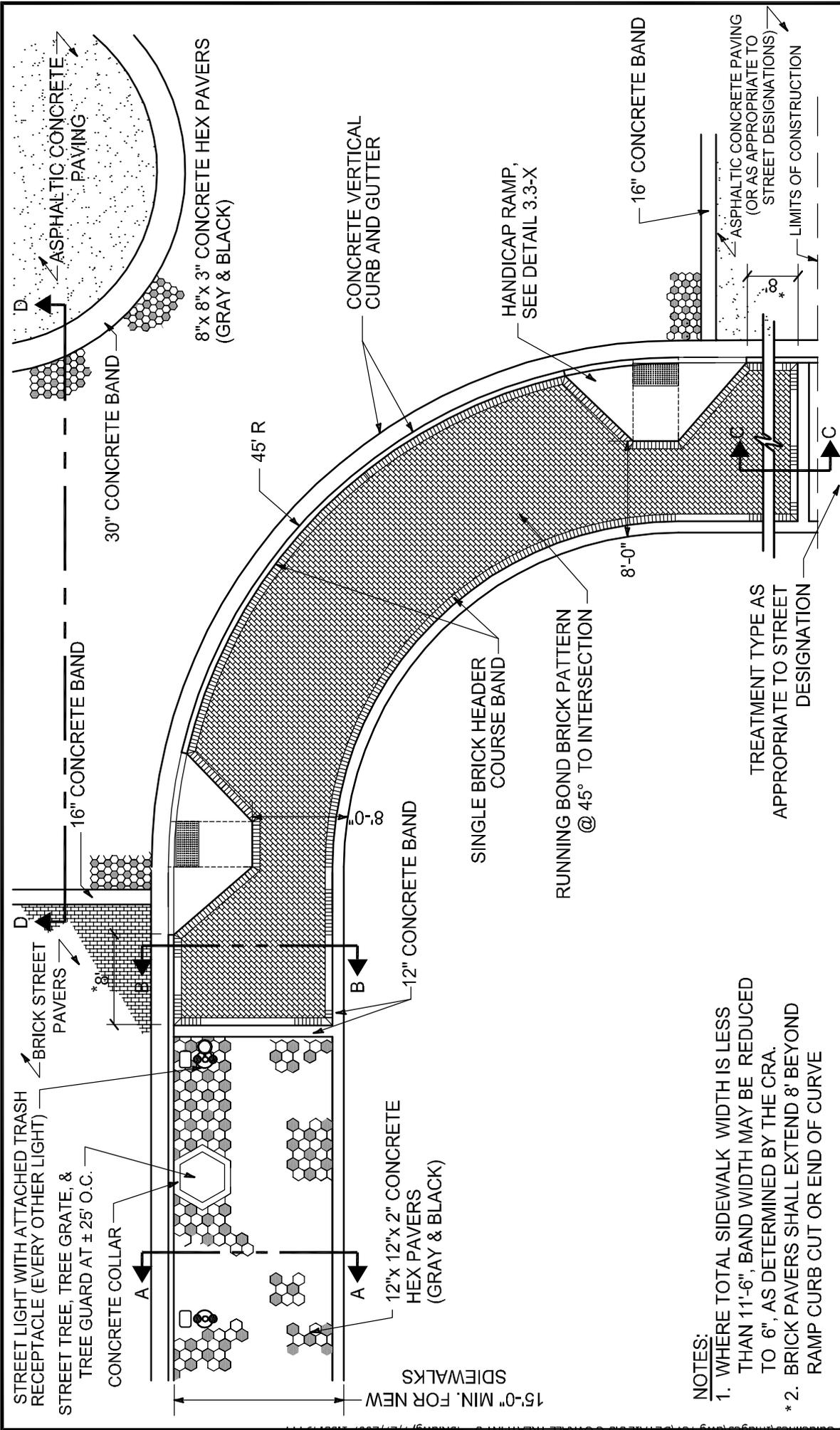
OVERALL STREETSCAPE TREATMENT (35' CORNER RADIUS)



TREATMENT 3

DETAIL 3.3-B

Rev. 07/30/07



- NOTES:**
1. WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE GRA.
 - * 2. BRICK PAVERS SHALL EXTEND 8' BEYOND RAMP CURB CUT OR END OF CURVE



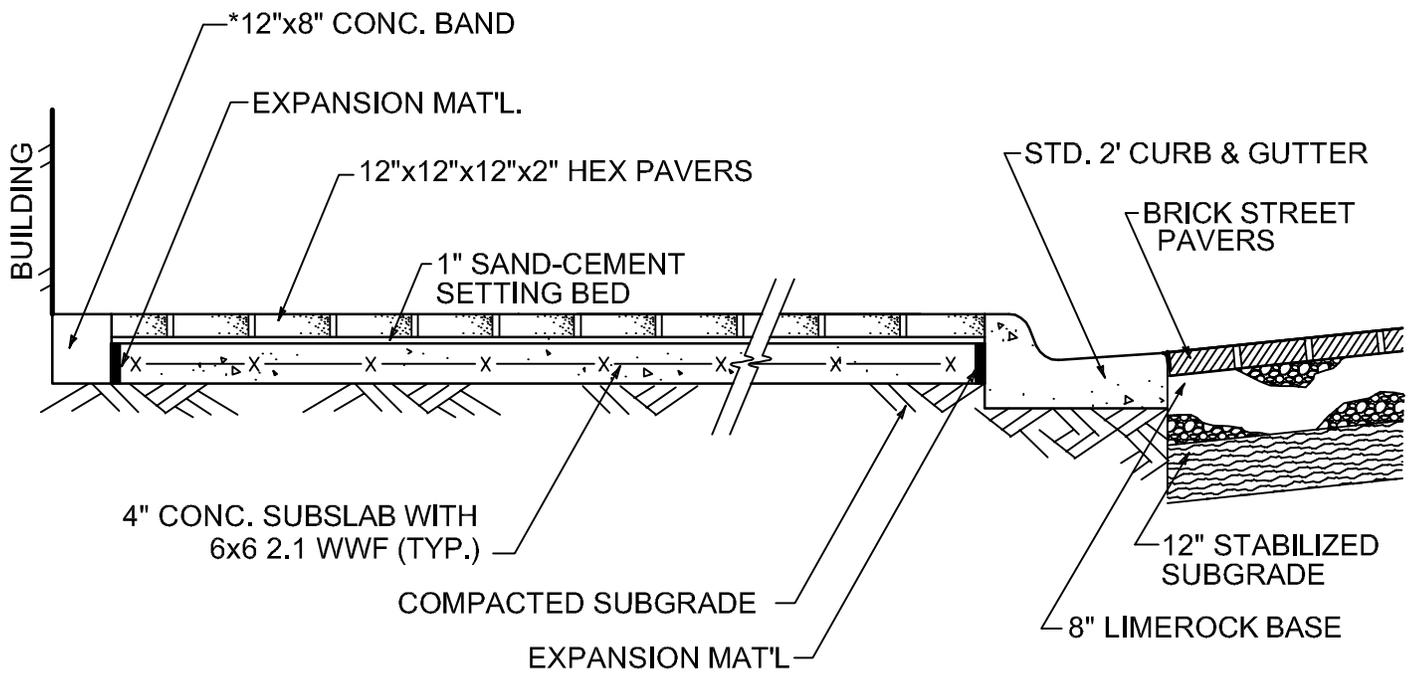
***OVERALL STREETSCAPE TREATMENT
(45' CORNER RADIUS)**

TREATMENT 3

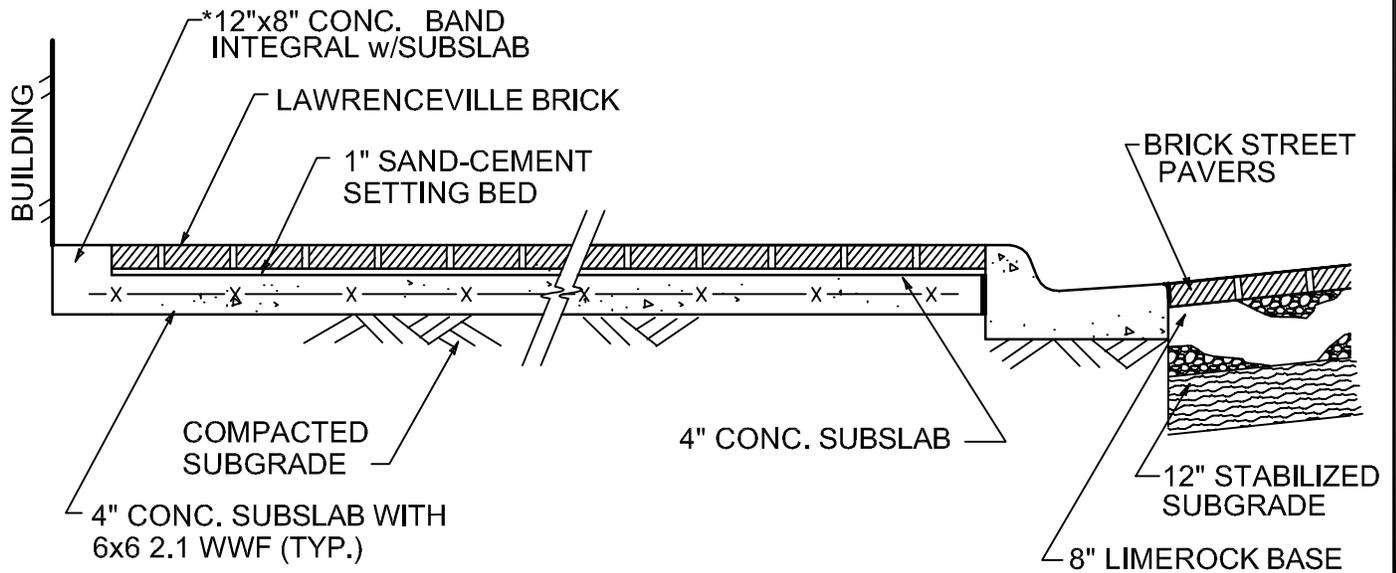
DETAIL 3.3-C

Rev. 07/30/07





SECTION A-A (DETAILS 3.3-A, 3.3-B, 3.3-C)



SECTION B-B (DETAILS 3.3-A, 3.3-B, 3.3-C)

*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.



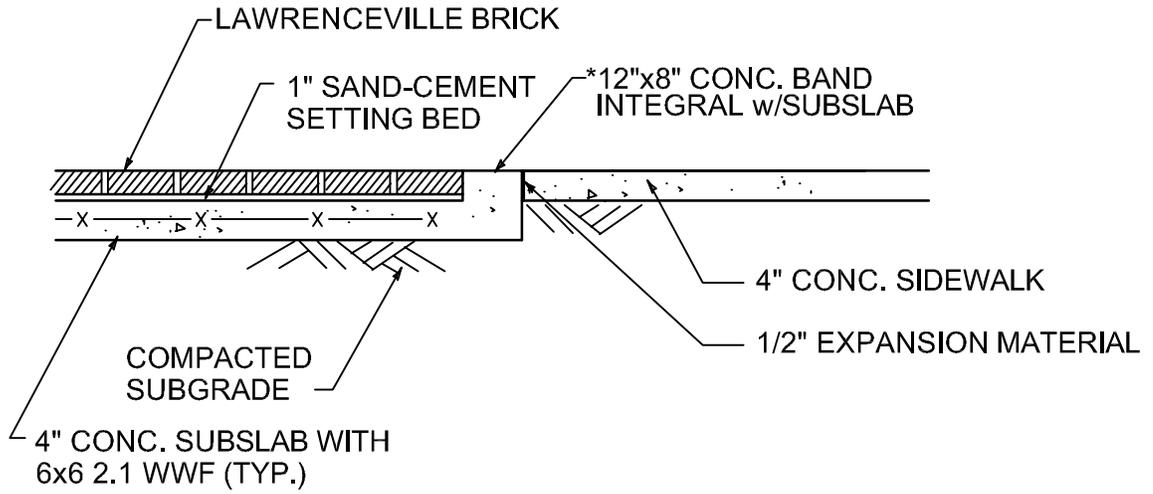
PAVER AND SIDEWALK SECTIONS

TREATMENT 3

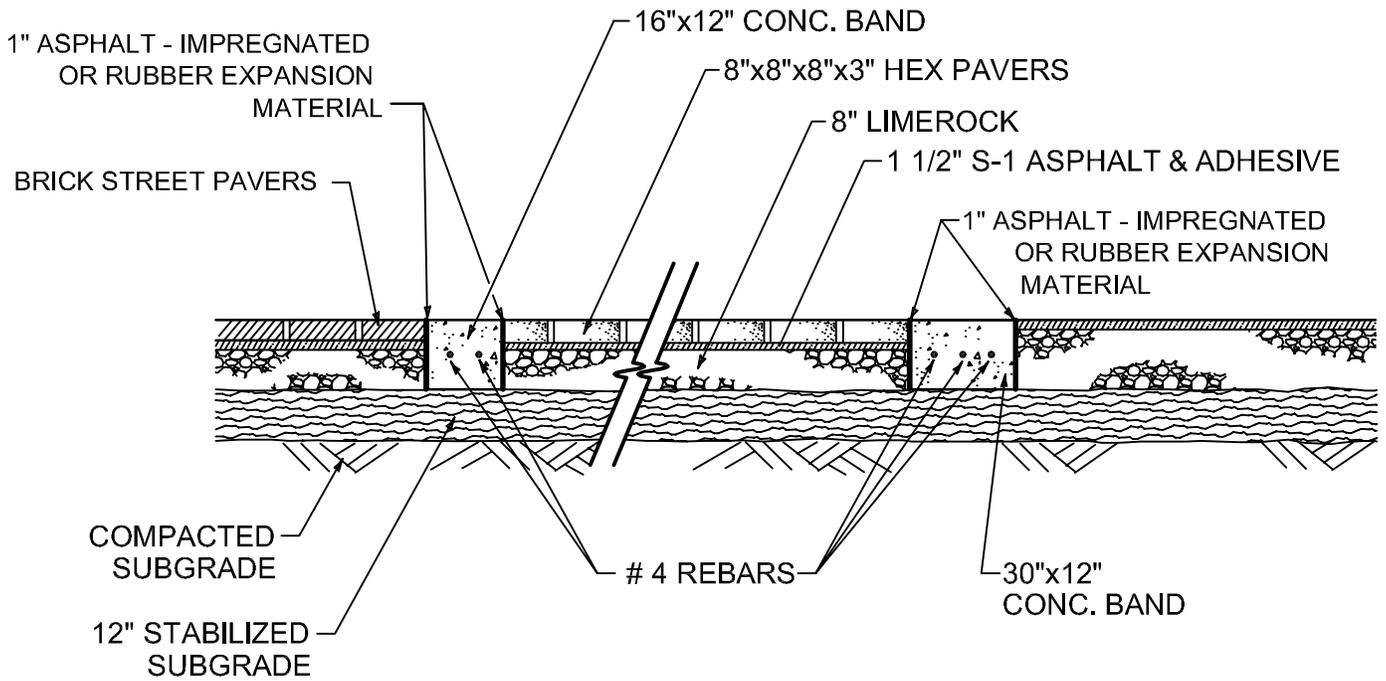
3.3-D



Rev. 07/30/07



SECTION C-C (DETAILS 3.3-A, 3.3-B, 3.3-C)



SECTION D-D (DETAILS 3.3-A, 3.3-B, 3.3-C)

*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.



PAVER AND SIDEWALK SECTIONS

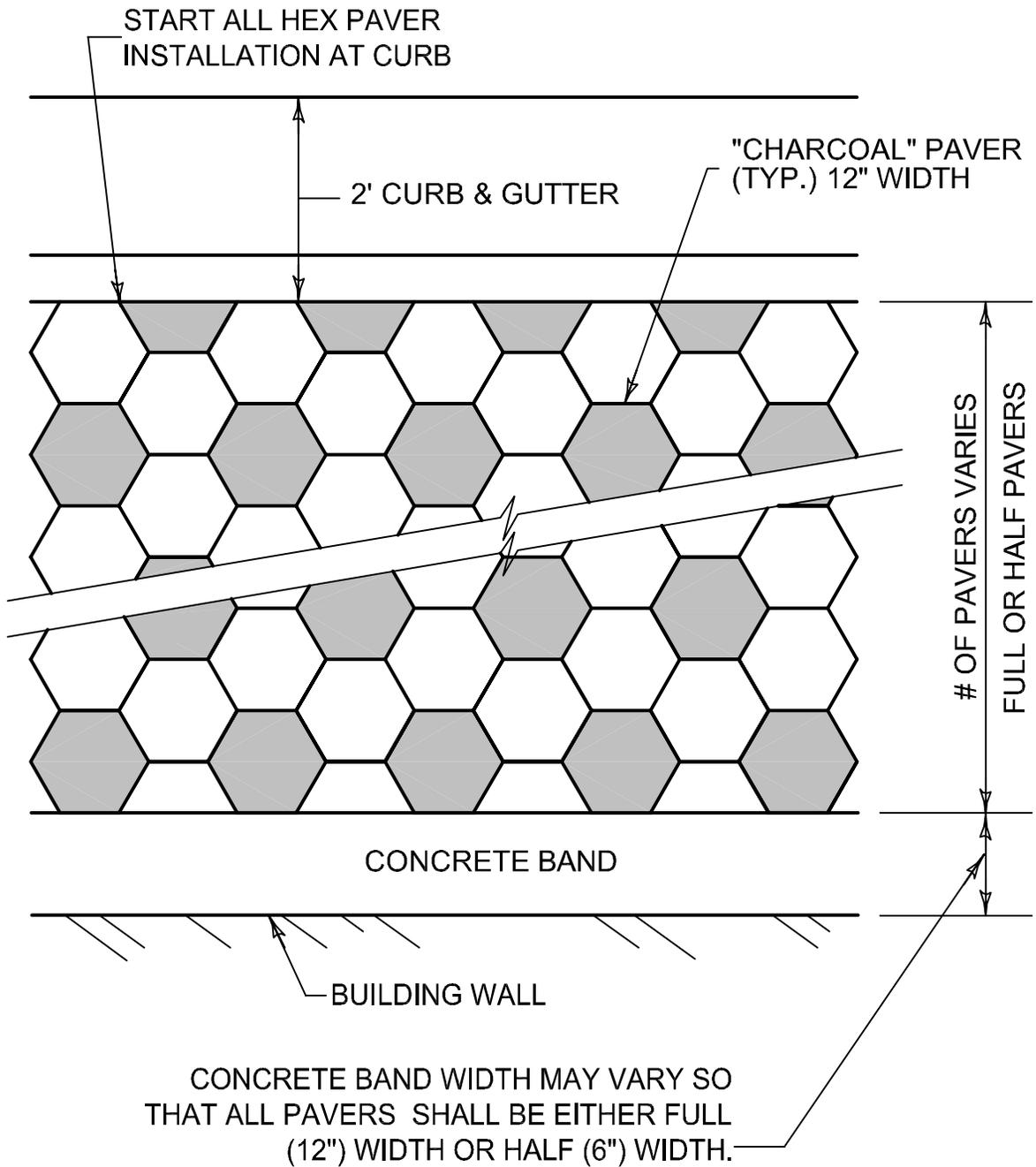
TREATMENT 3

3.3-E



Rev. 07/30/07

R:\PROJ\2006\A000034.10 Orl Stscape Guidelines\Images\dwg-rev\DETAIL 3.3-F HEX PAVER.dwg, 7/27/2007 2:01:28 PM

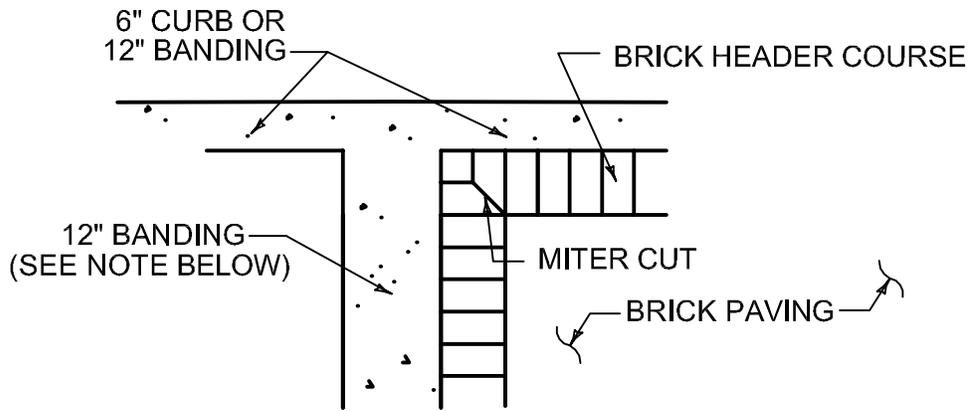


HEX PAVER PATTERN

TREATMENT 3

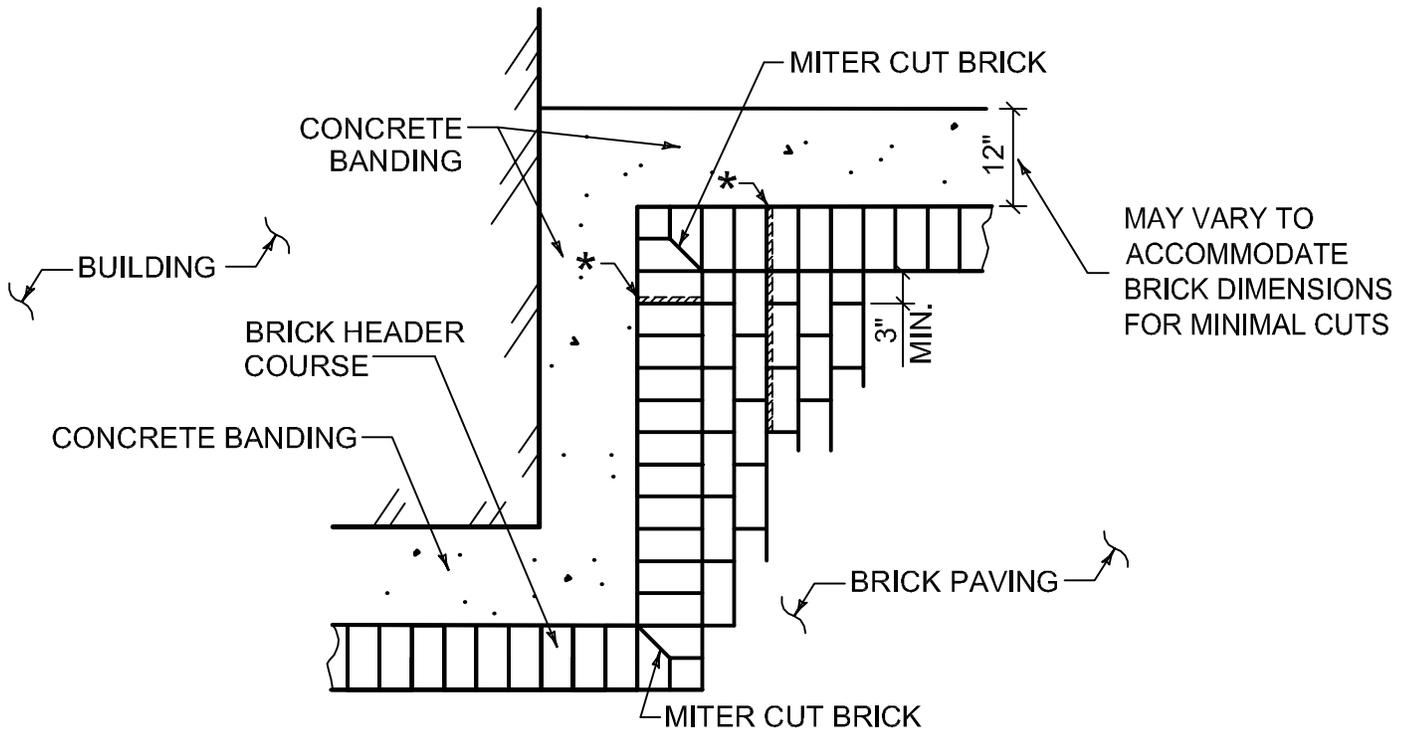
DETAIL 3.3-F





*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.

OUTSIDE CORNER PLAN



*BRICKS CUT TO COMPENSATE FOR FIELD HEADER COURSING SHOULD OCCUR MID-FIELD AND NOT AT ENDS OF PATTERN.

INSIDE CORNER PLAN



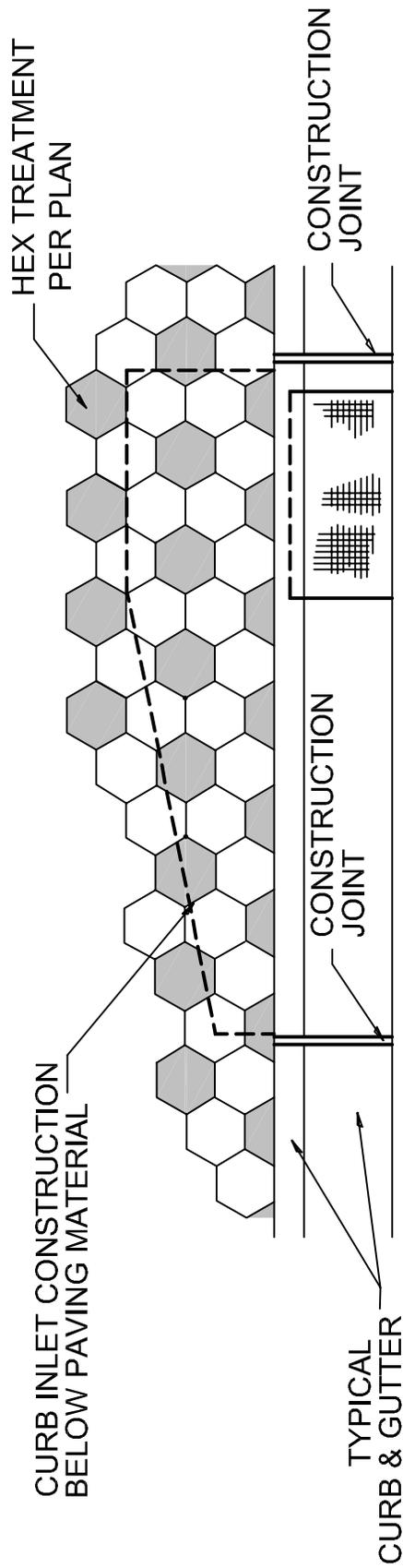
BRICK HEADER CORNER DETAIL

TREATMENT 3

DETAIL 3.3-G



Rev. 07/30/07



PLAN



SECTION



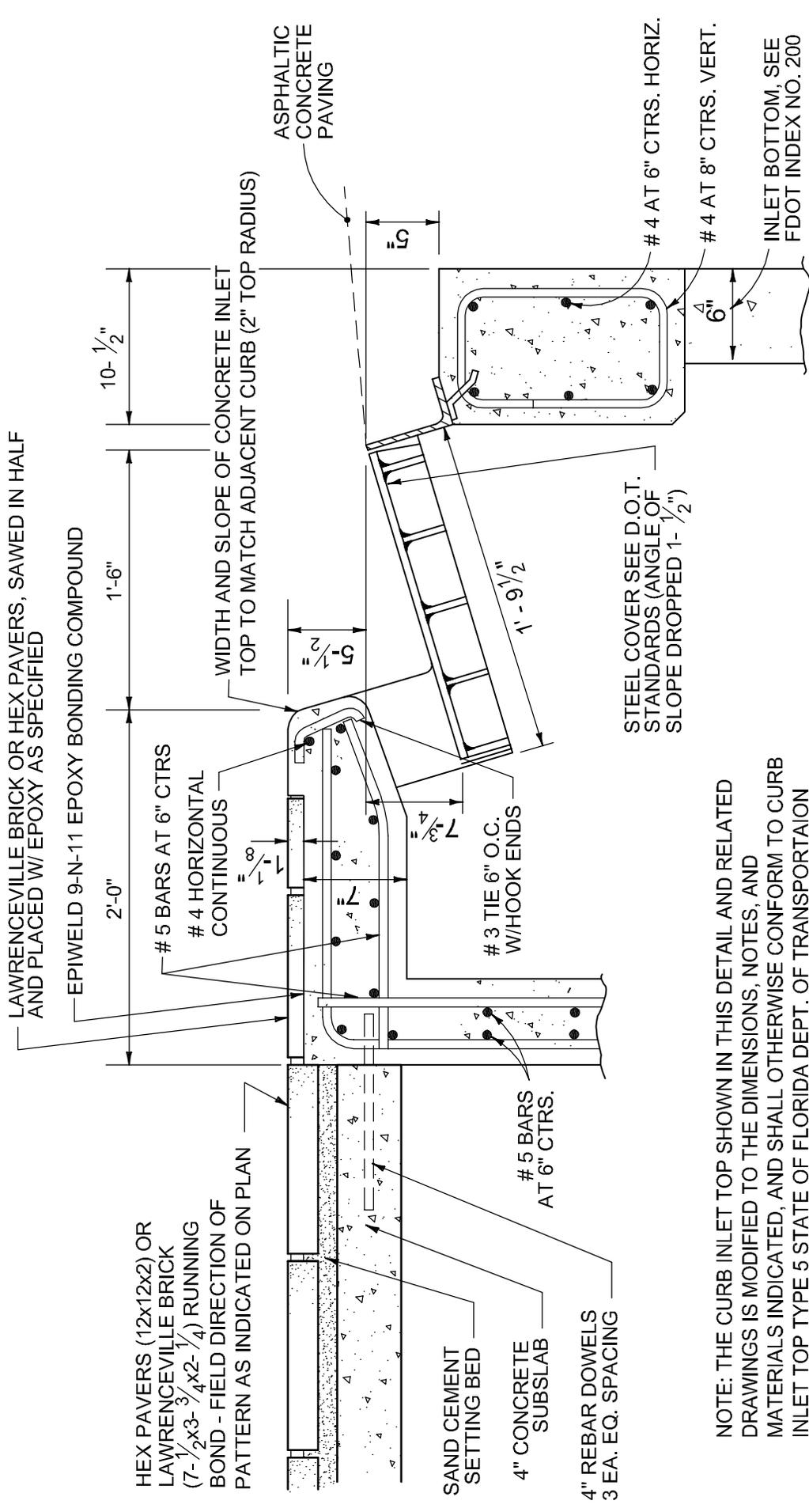
THIN SET PAVERS

TREATMENT 3

DETAIL 3.3-H

Rev. 07/30/07





NOTE: THE CURB INLET TOP SHOWN IN THIS DETAIL AND RELATED DRAWINGS IS MODIFIED TO THE DIMENSIONS, NOTES, AND MATERIALS INDICATED, AND SHALL OTHERWISE CONFORM TO CURB INLET TOP TYPE 5 STATE OF FLORIDA DEPT. OF TRANSPORTATION ROAD DESIGN STANDARDS.

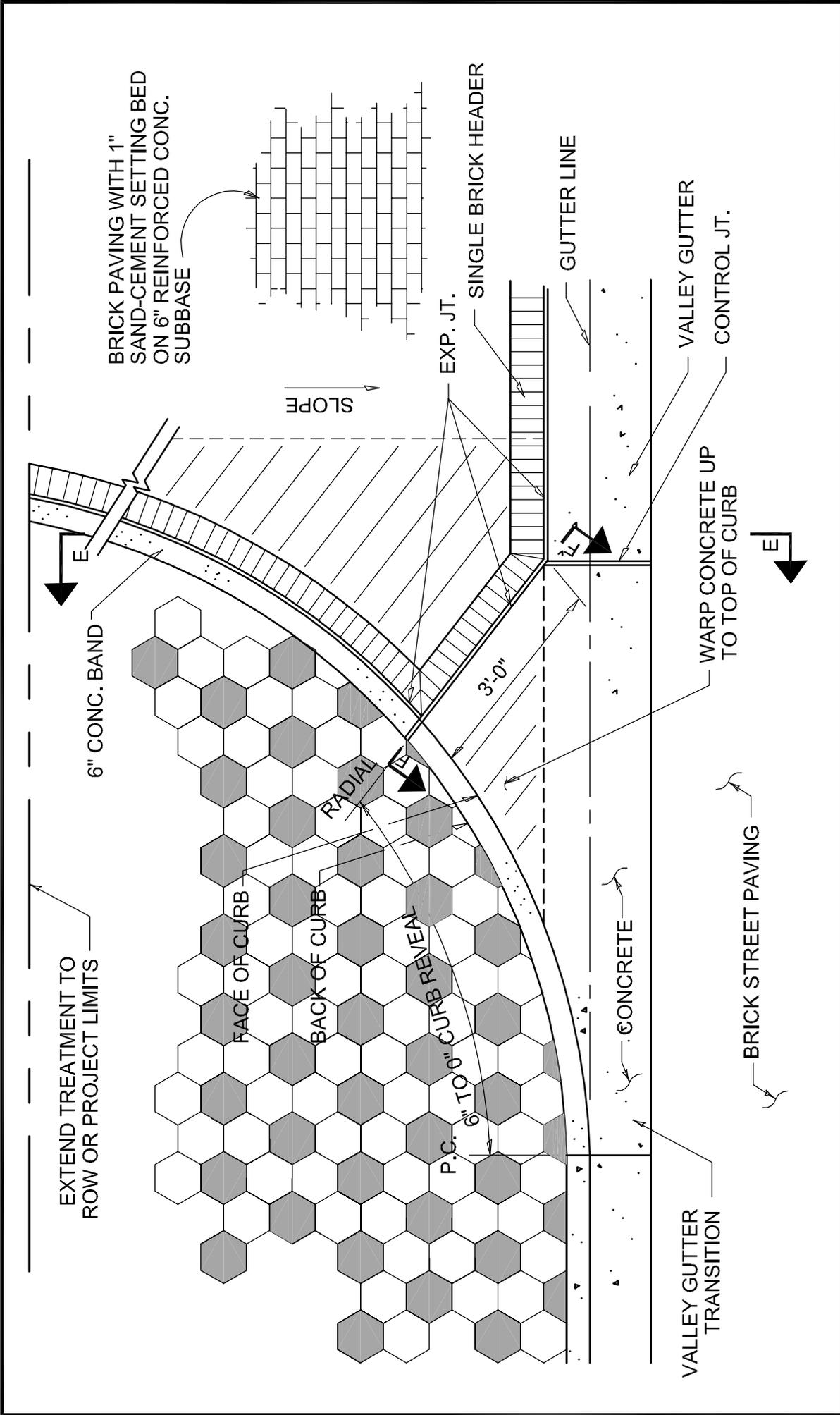
MODIFIED FDOT TYPE 5 INLET TOP

TREATMENT 3

DETAIL 3.3-I

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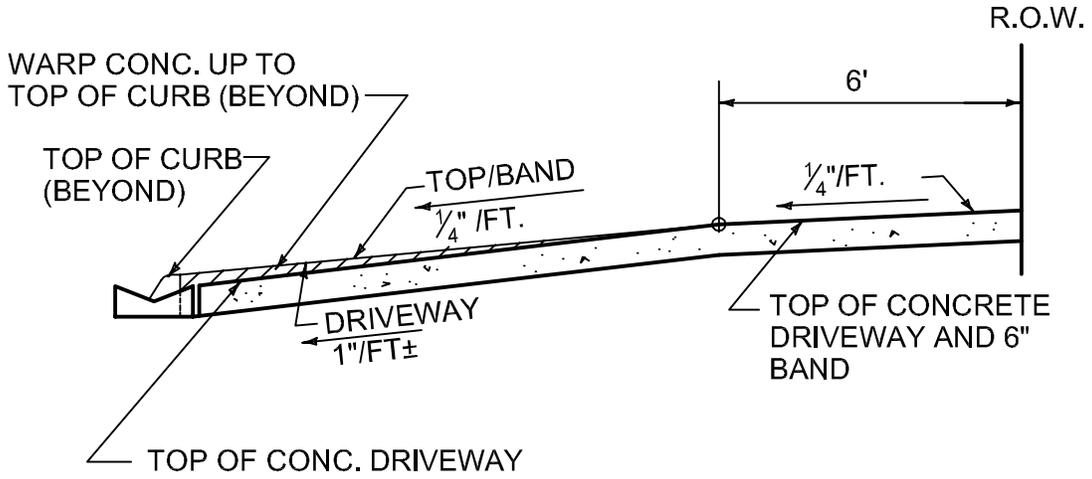
MID-BLOCK DRIVEWAY DETAIL

DETAIL 3.3-J

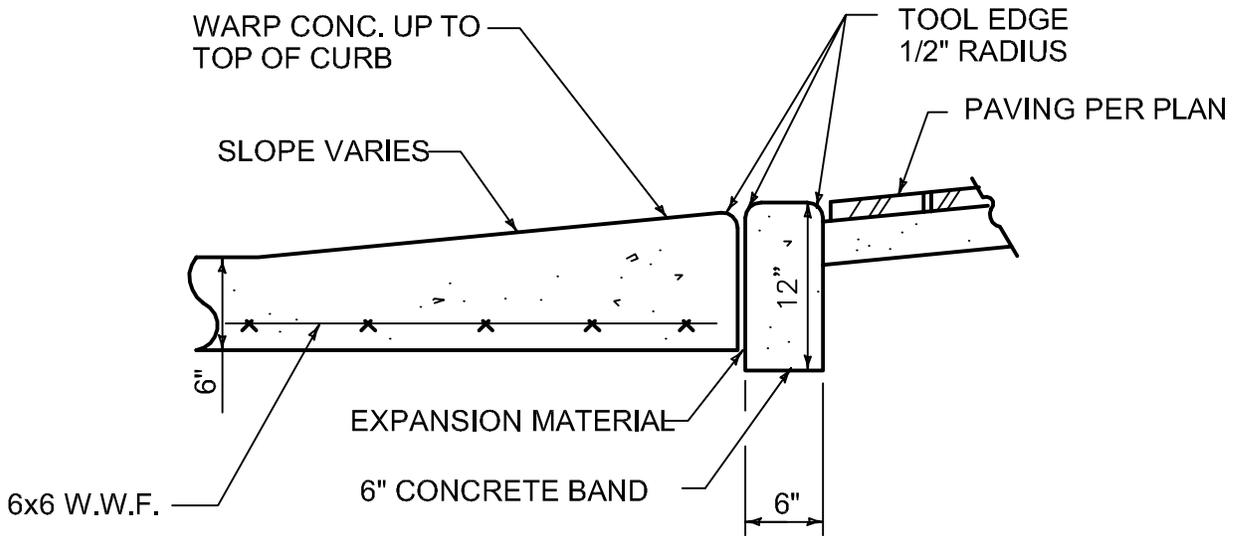
TREATMENT 3

Rev. 07/30/07





SECTION E-E



SECTION F-F



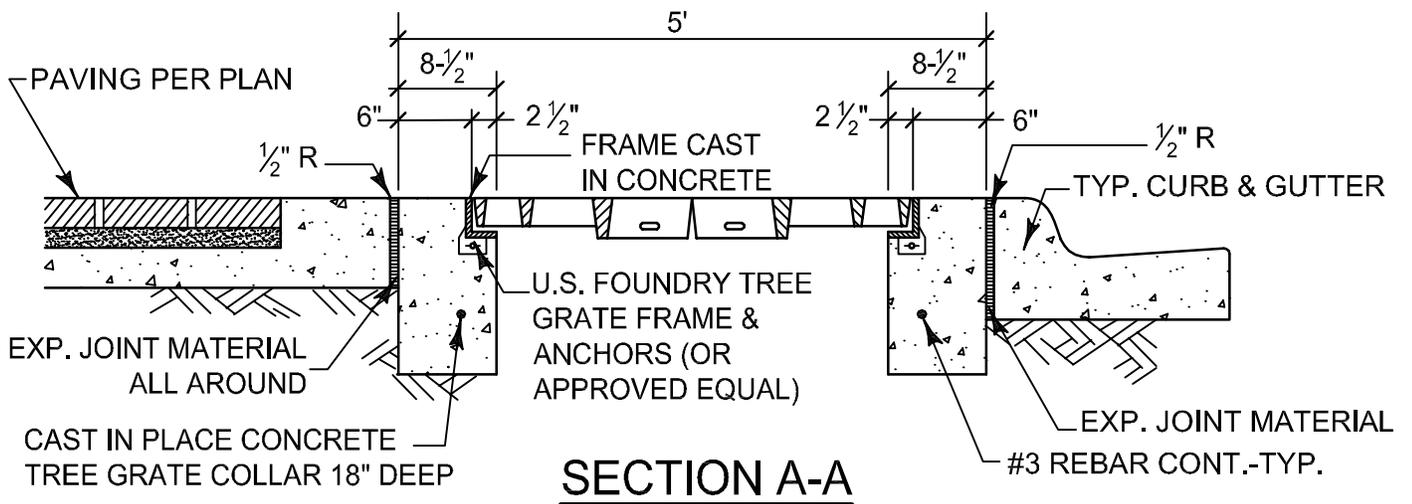
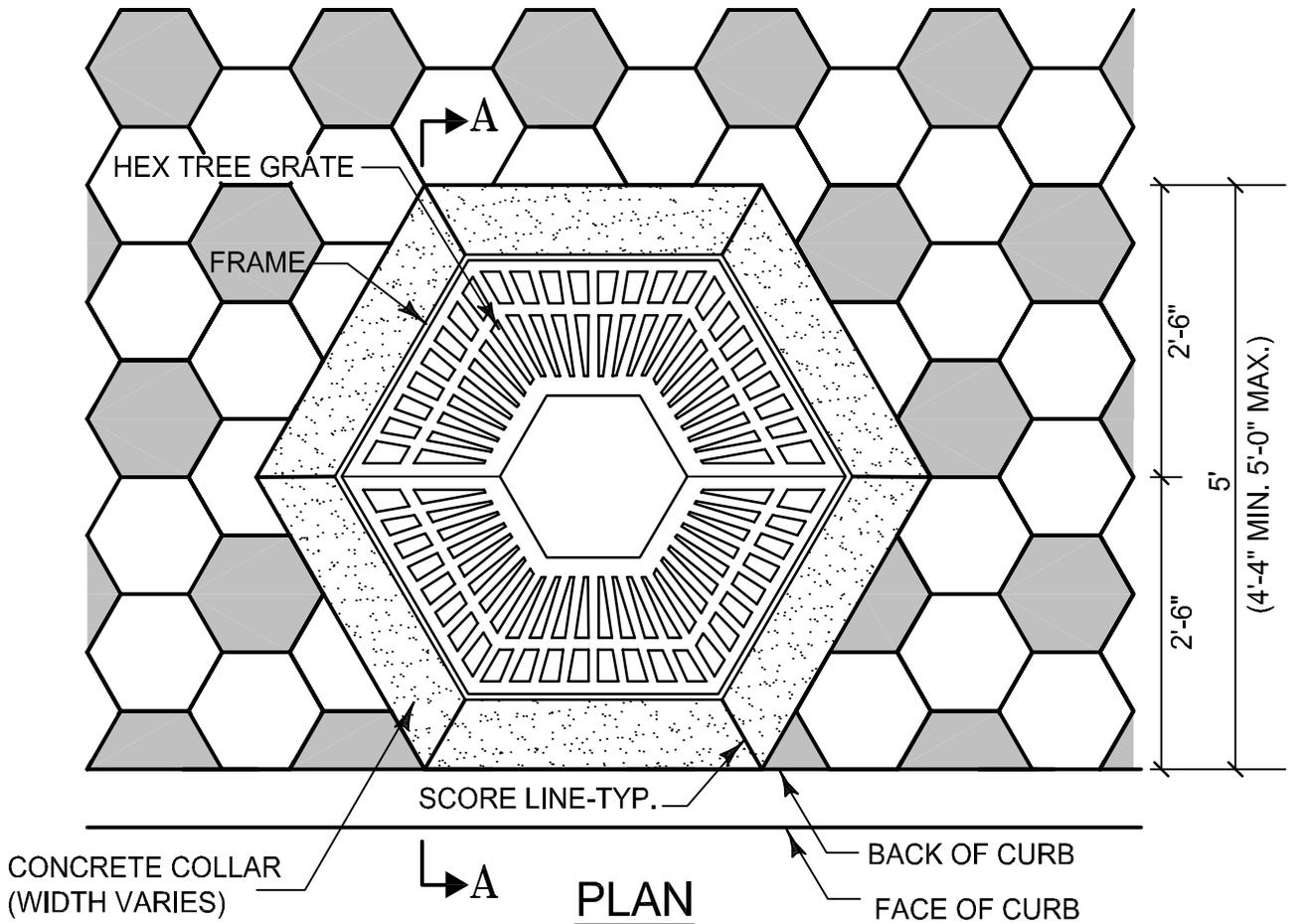
MID-BLOCK DRIVEWAY SECTIONS

TREATMENT 3

DETAIL 3.3-K



Rev. 07/30/07



TREE GRATE, FRAME AND COLLAR

TREATMENT 3

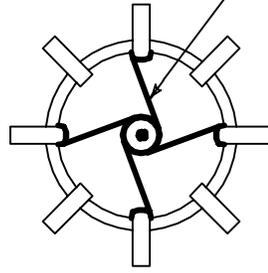
DETAIL 3.3-L



Rev. 07/30/07

R:\PROJ\2006\A000034.10 Orl Stscape Guidelines\Images\dwg-rev\DETAIL 3.3-L TREE GRATE FRAME.dwg, 7/27/2007 2:24:47 PM

'WONDER TIE' OR APP. EQUAL
4 PER TREE AT TOP OF GUARD



PLAN VIEW

TREE GUARD

FLOOD BUBBLER-4 PER TREE
TORO 514-20 (TYP.) OR EQUAL

4'-0"

1/2" FLEX PIPE

PAVER FIELD
PER PLAN

8"

2" MIN. FROM TOP OF ROOT BALL
TO BOTTOM OF TREE GRATE

ROOT BALL

IRRIGATION LATERAL
(MIN. 18" COVER)

COMPACTED
SUBGRADE

18" MIN.
FROM
BOTTOM OF
PIT TO
ROOT BALL

IRRIGATION MAIN
24" MIN. COVER
(SIZE VARIES)

LOOSEN SOIL TO
90% COMPACTION

HOSE BIB MAIN 1" Ø PVC
(WHERE APPLICABLE)

PLANTING SOIL MIX

ELEVATION



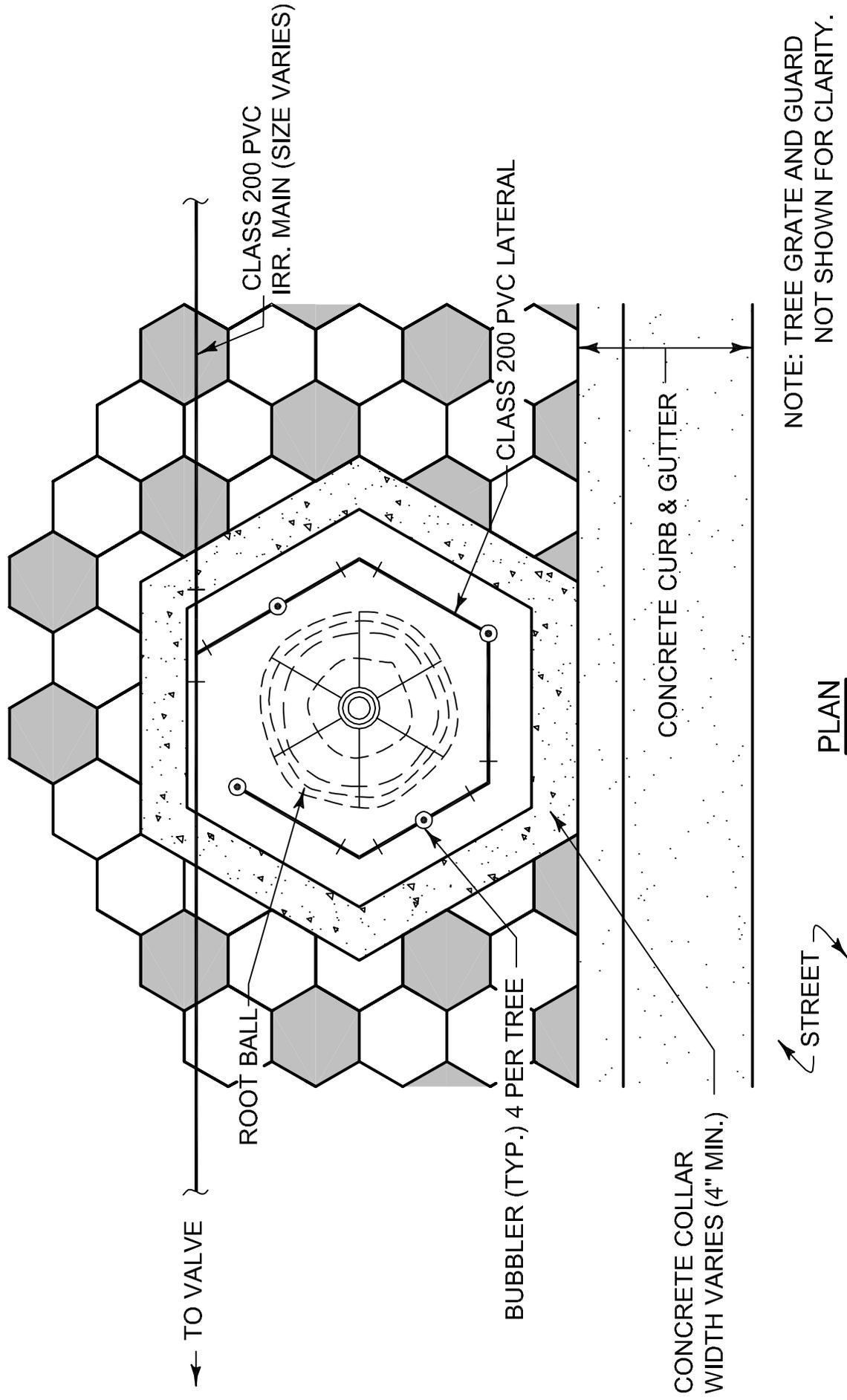
TREE WELL WITH IRRIGATION

TREATMENT 3

DETAIL 3.3-M



Rev. 07/30/07



BUBBLER PLACEMENT & PIPE ROUTING WITHIN TREE WELL

TREATMENT 3

DETAIL 3.3-N

Rev. 07/30/07



1/2" x 4" STEEL DOWEL 1 EA. PER HEX SIDE
 SIDEWALK TREATMENT PER PLAN



5/8" O.D. STEEL
 SMOOTH ROD;
 PAINTED BLACK

R2" OD
 TYP

3"
 TYP

1 1/4"

3"
 TYP

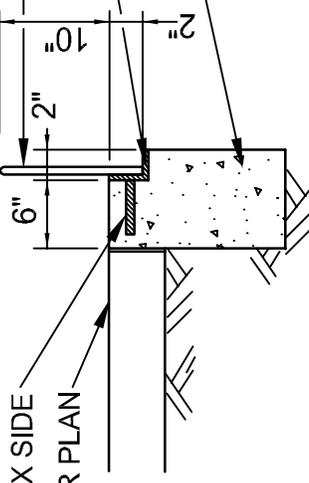
1 1/2" X 1 1/2" FLAT
 BAR STEEL

ELEVATION

NOTE:
 HOOP SPACING MAY VARY ACCORDING TO WIDTH OF FRAME.

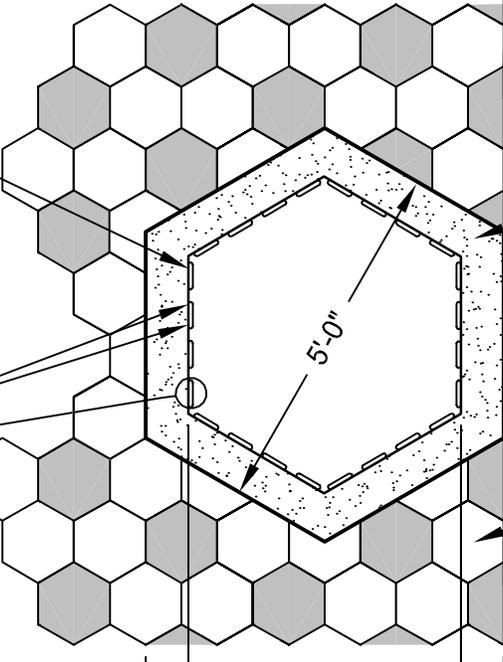
5/8" O.D. STEEL SMOOTH ROD;
 PAINTED BLACK
 1/4" x 2" ANGLE-IRON BASE
 CONCRETE TREE WELL FOOTING

ANCHOR DETAIL



1/2" X 1 1/2" FLAT
 BAR STEEL

TYP
 HOOP TYP



CONCRETE PAVER

CONCRETE COLLAR
 (WIDTH VARIES)

CURB

STREET

PLAN



HOOP STYLE TREE GUARD - HEXAGONAL

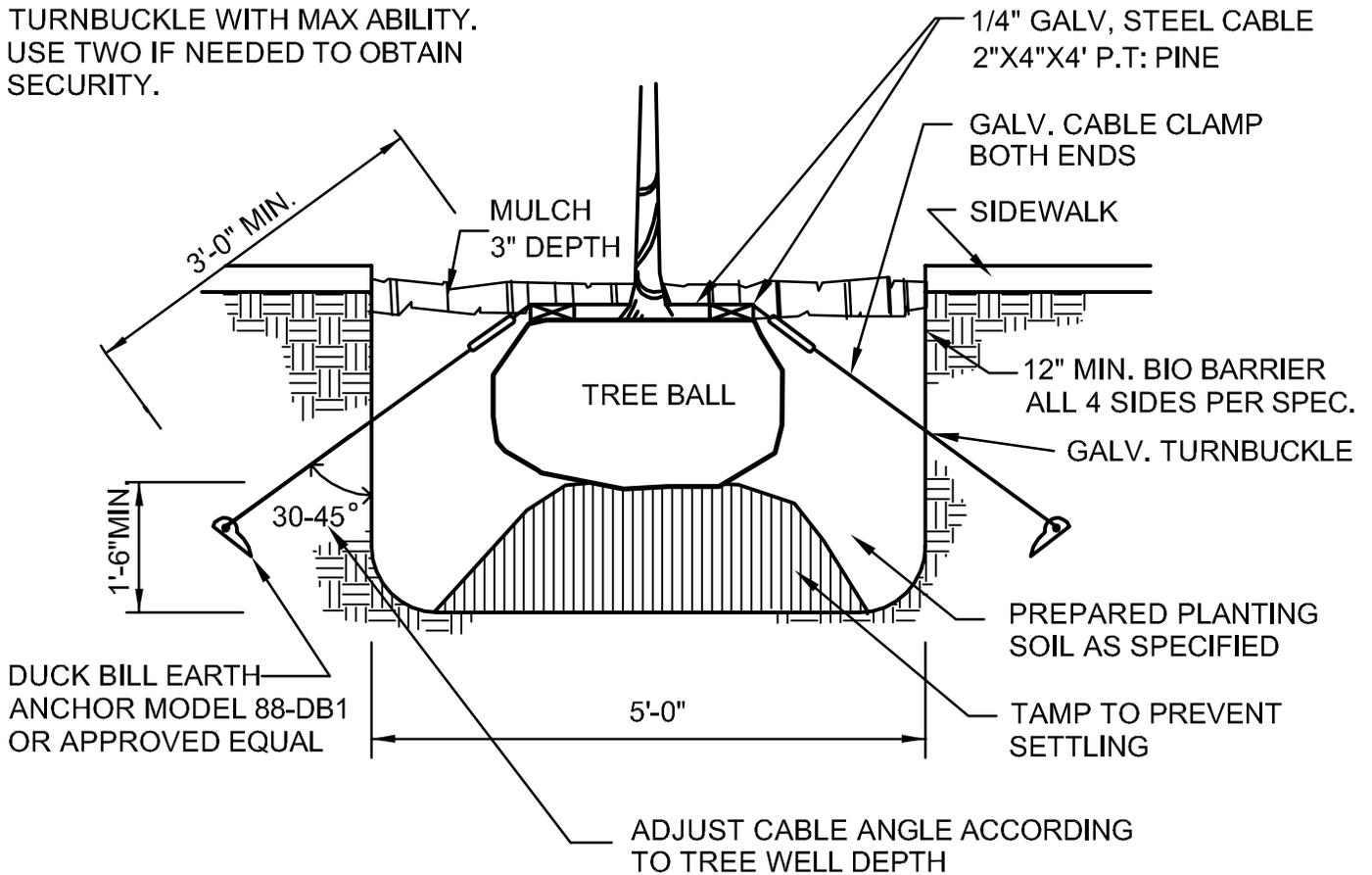
TREATMENT 3

DETAIL 3.3-0

Rev. 07/30/07



NOTE: TENSION CONNECTING CABLE TO MAXIMUM TENSION. INSTALL TURNBUCKLE WITH MAX ABILITY. USE TWO IF NEEDED TO OBTAIN SECURITY.



UNDERGROUND TREE GUYING:

A METHOD IN WHICH TWO CABLES ARE STRETCHED ACROSS THE TOP OF THE ROOT BALL AND DOWNWARD AT ABOUT 45° TO DEADMEN PLACED AT BOTTOM OF PLANTING HOLE. TWO BOARDS ARE LAID ACROSS ROOT BALL UNDER AND AT RIGHT ANGLES TO CABLES TO DISTRIBUTE PRESSURE ON ROOT BALL. BACK FILL MUST BE WELL TAMPED TO KEEP ROOT BALL FROM BREAKING AS CABLES ARE TIGHTENED. IN VARIATION OF THIS METHOD, ROOT BALL CAN BE CABLED FIRMLY TO 4 STAKES DRIVEN INTO BOTTOM OF PLANTER'S HOLE, ALONG SIDE AND AROUND BALL.

NOTE: THIS DETAIL SHALL BE USED WHEN VARIATION FROM TREE GRATE, FRAME, AND COLLAR DETAIL IS APPROVED.



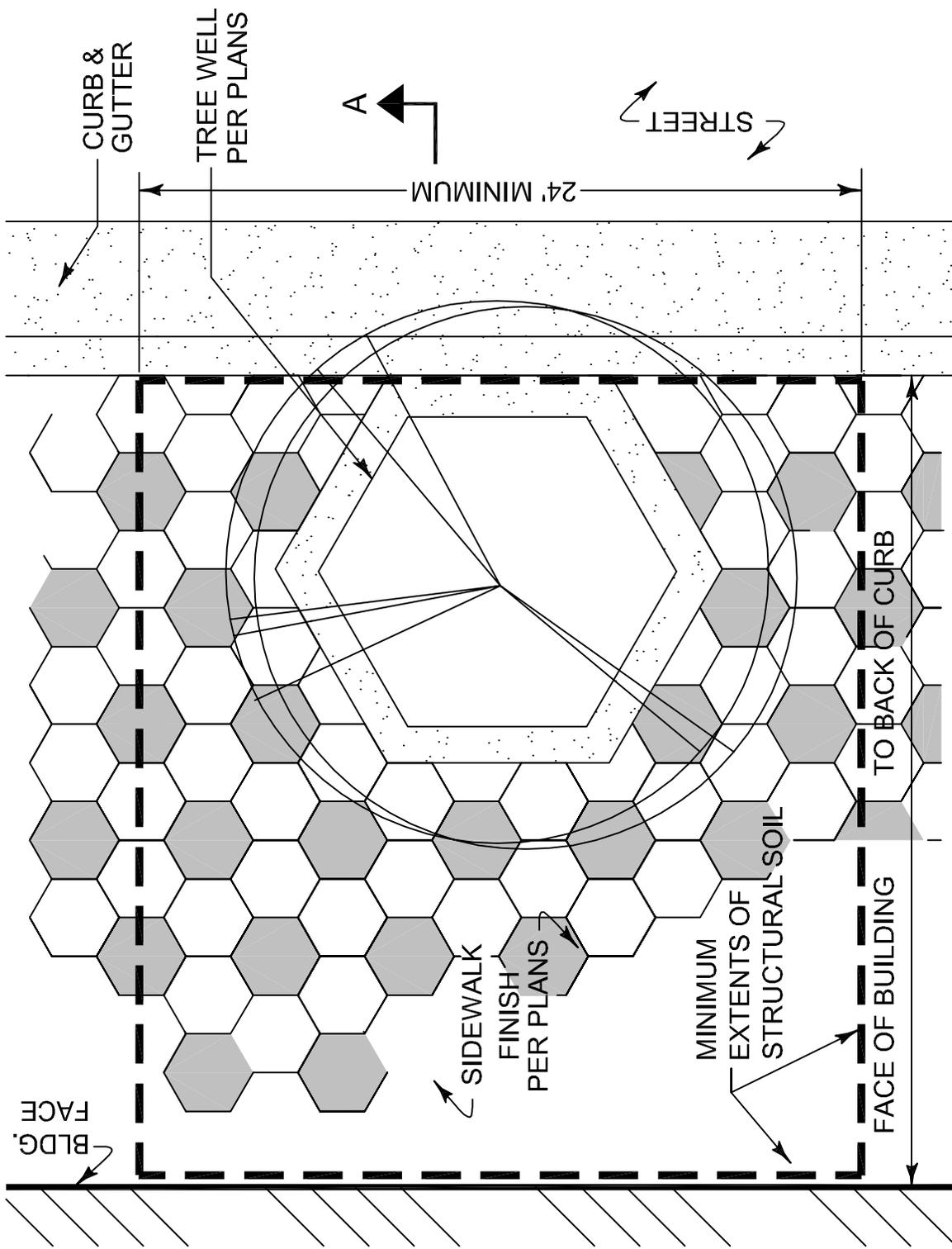
UNDERGROUND TREE GUYING

TREATMENT 3

DETAIL 3.3-P



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STRUCTURAL SOIL PLACEMENT DETAIL PLAN

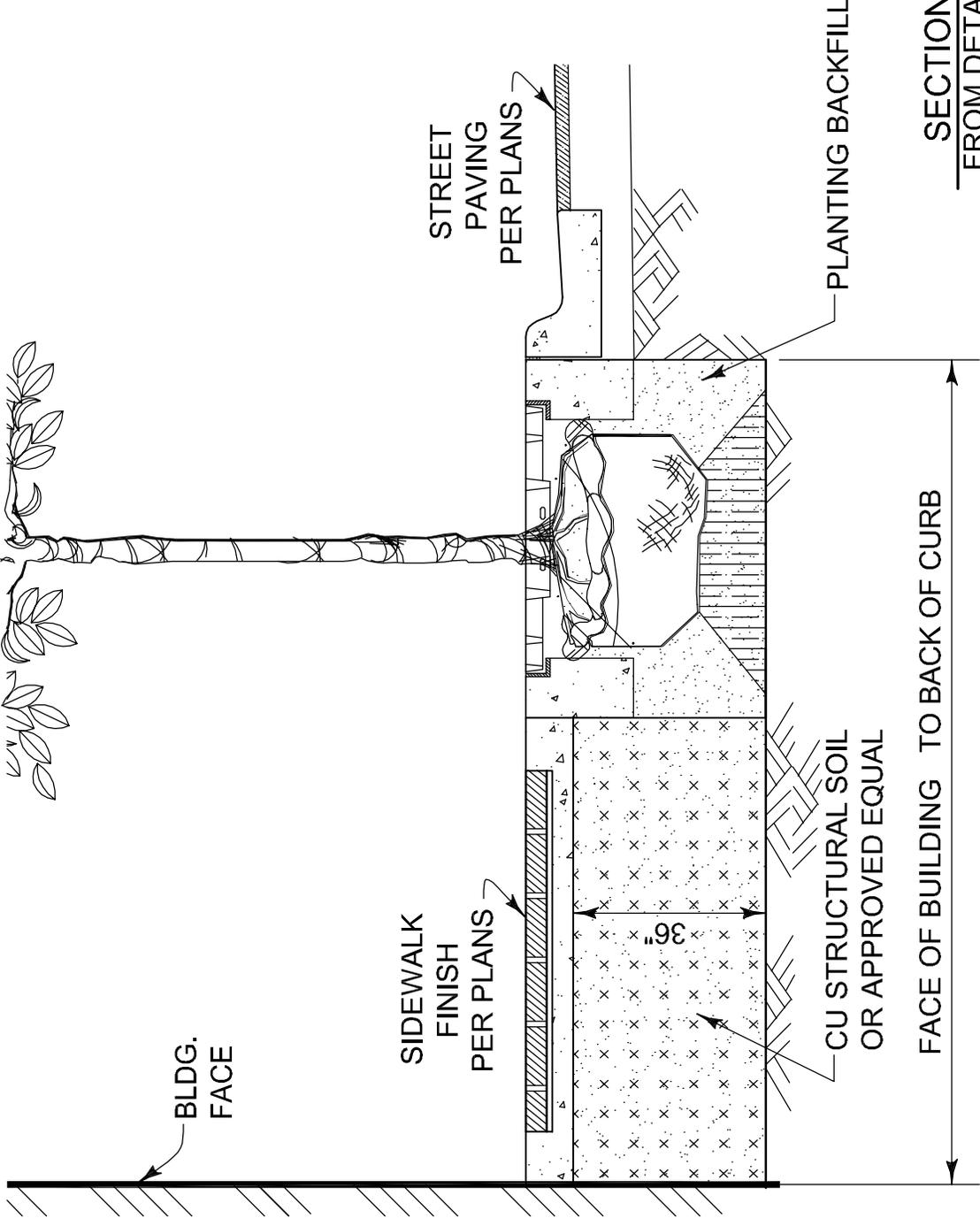
DETAIL 3.3-Q

TREATMENT 3

Rev. 07/30/07

NOTE: DEPENDING UPON SPECIFIC SITE AND PROJECT CONDITIONS, STRUCTURAL SOIL MAY BE REQUIRED TO BE PLACED CONTINUOUSLY ALONG THE STREET TO THE EXTENTS OF THE PROJECT.





SECTION A-A
FROM DETAIL 3.3-Q

STRUCTURAL SOIL PLACEMENT SECTION

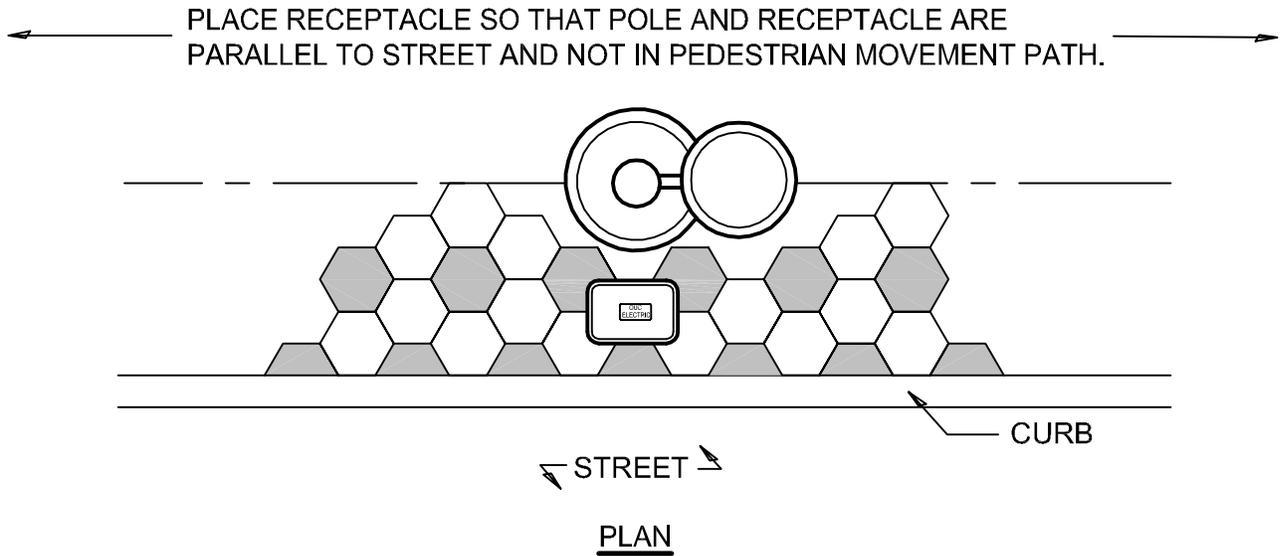
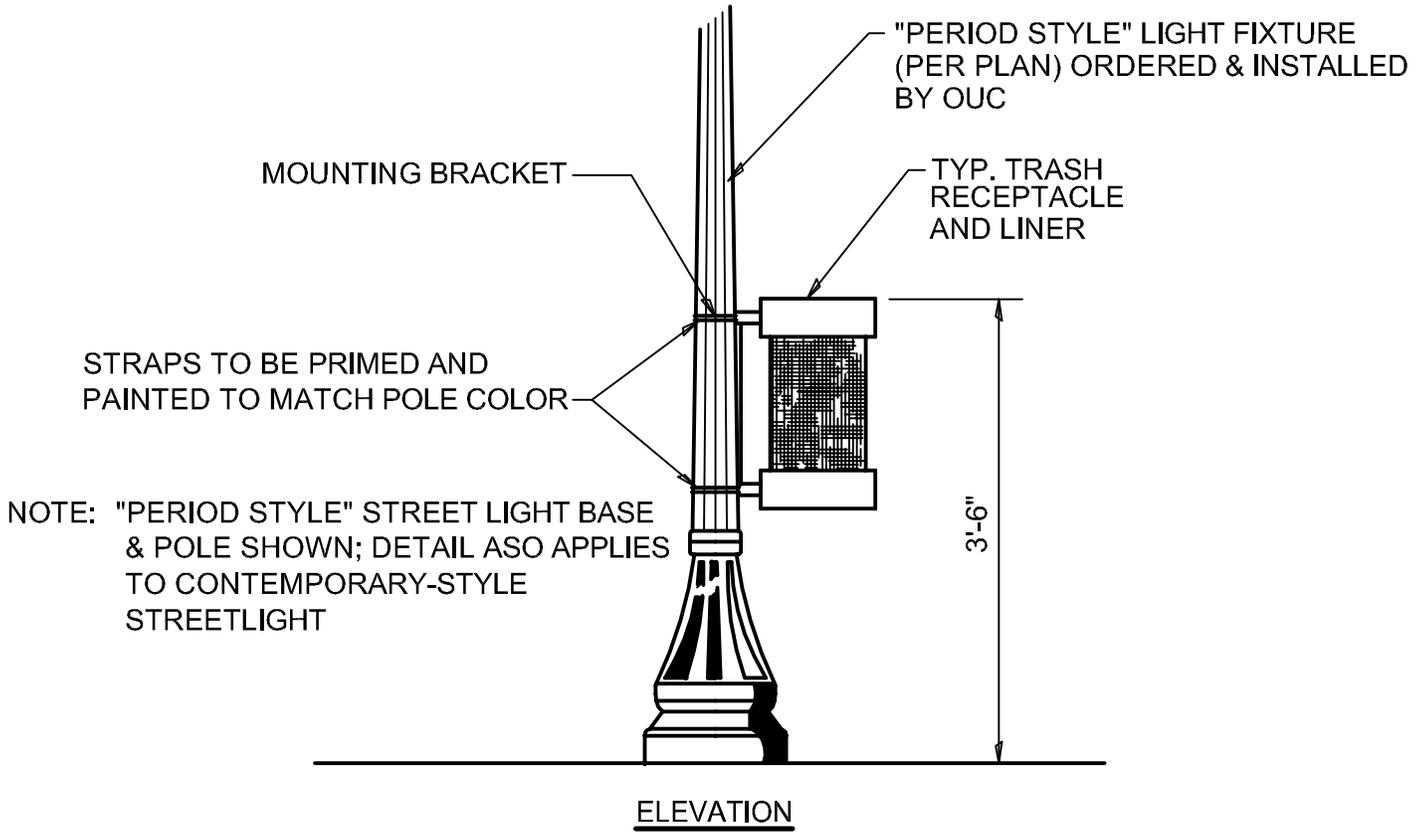
TREATMENT 3

DETAIL 3.3-R

Rev. 07/30/07



R:\[PROJ]2006\A000034.10_Orl Stscape Guidelines\Images\dwg-rev\DETAIL 3.3-S ST LIGHT WITH TRASH.dwg, 7/27/2007 2:55:22 PM



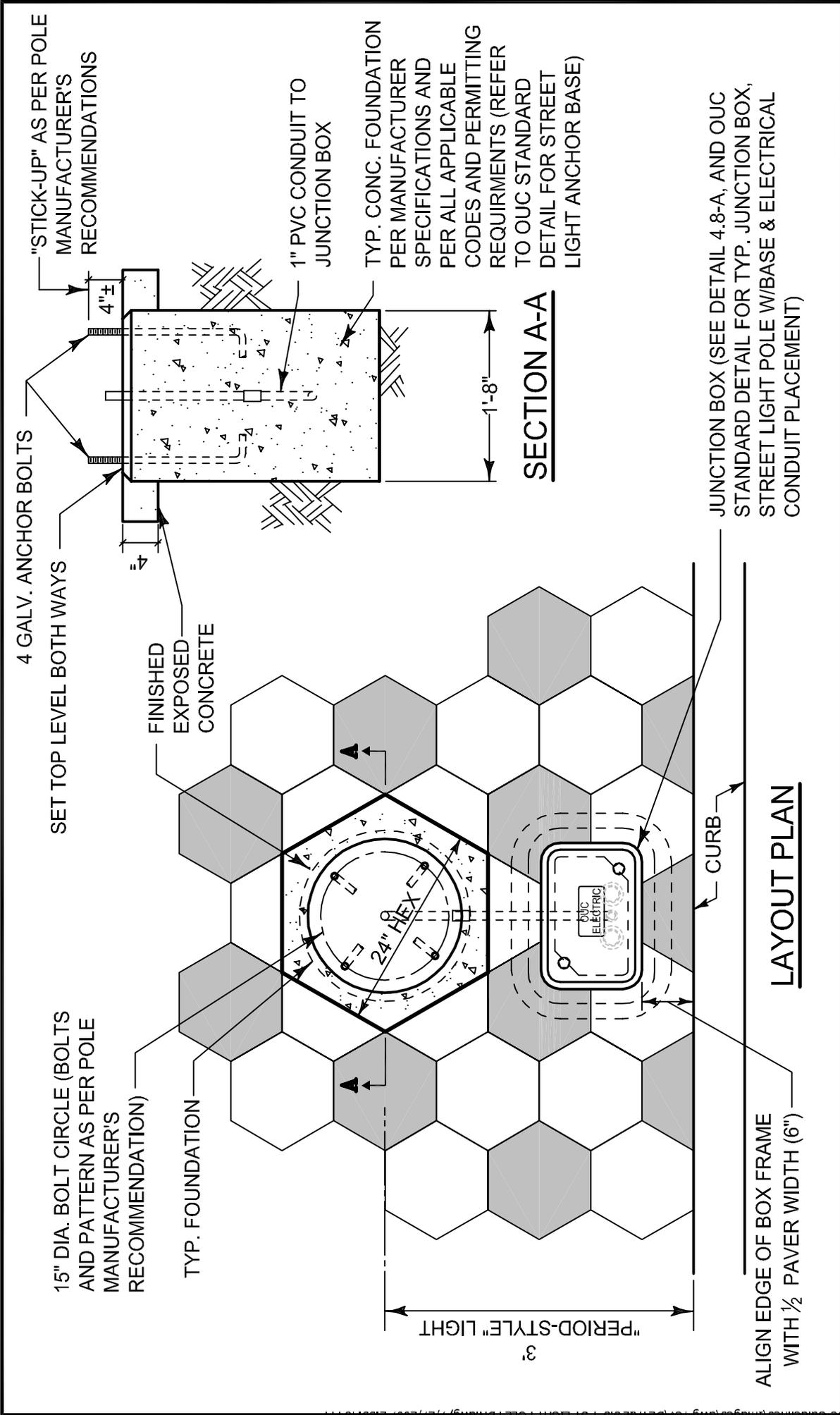
STREET LIGHT w/TRASH RECEPTACLE

TREATMENT 3

DETAIL 3.3-S



Rev. 07/30/07



STREETLIGHT POLE FOUNDATION

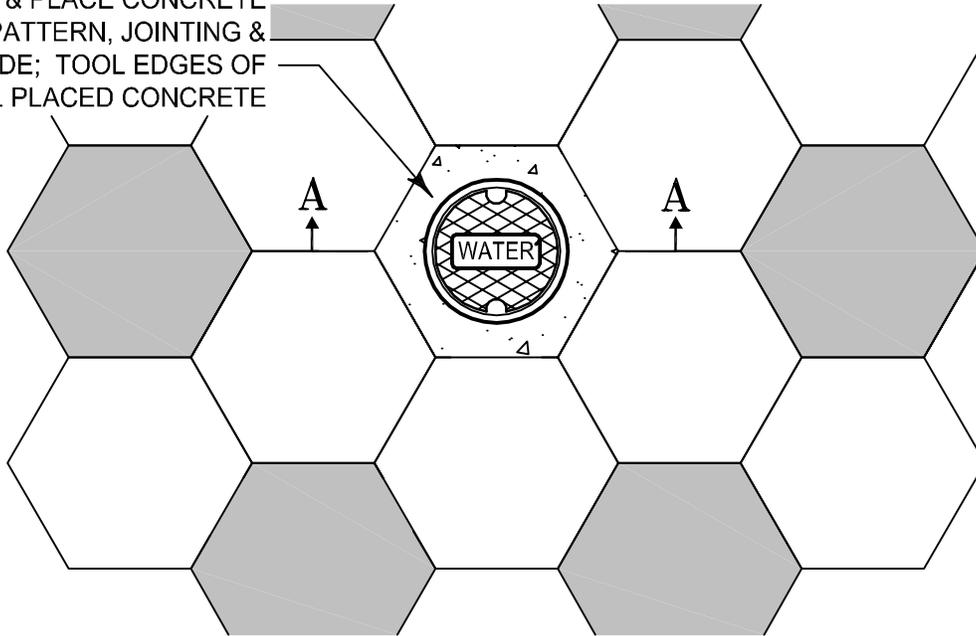
TREATMENT 3

DETAIL 3.3-T

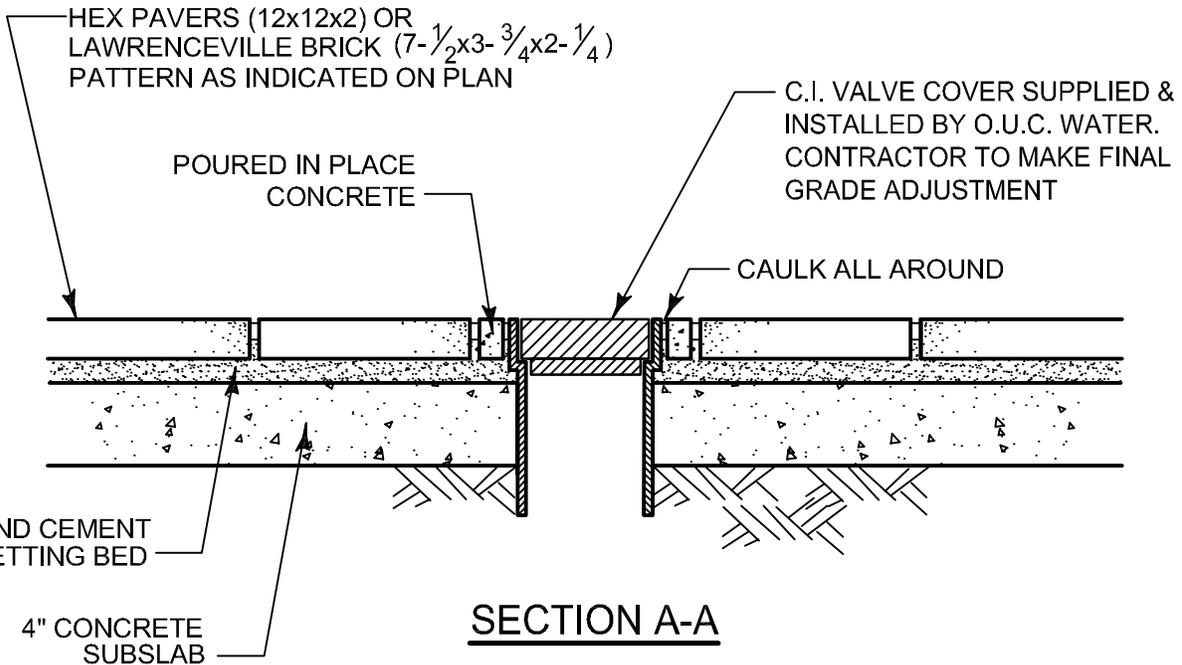
Rev. 07/30/07



OMIT PAVERS WHERE VALVE
COVERS FALL & PLACE CONCRETE
TO MATCH PATTERN, JOINTING &
FINISH GRADE; TOOL EDGES OF
ALL PLACED CONCRETE



PLAN



SECTION A-A



WATER VALVE BOX

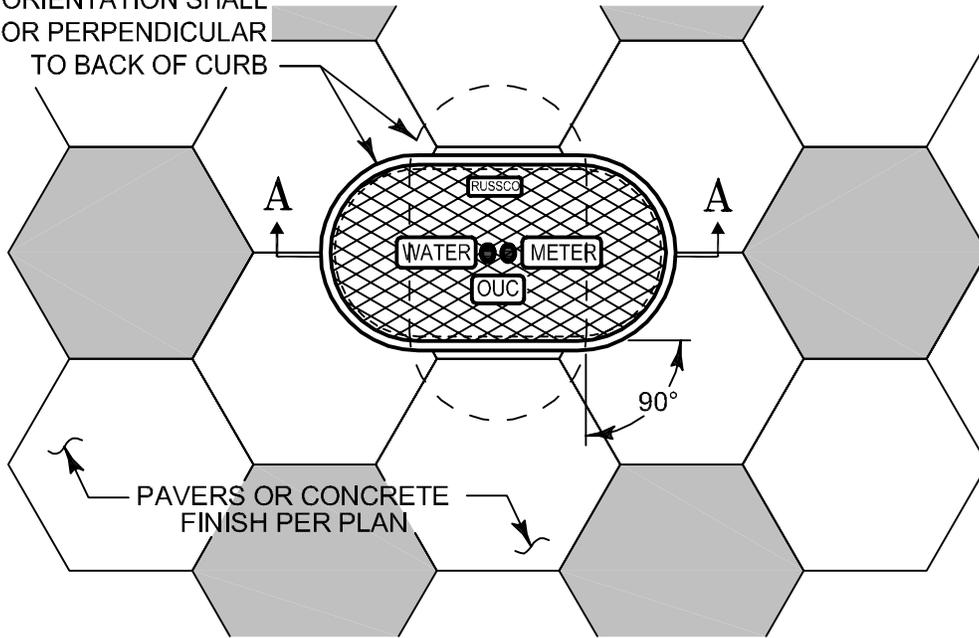
TREATMENT 3

DETAIL 3.3-U

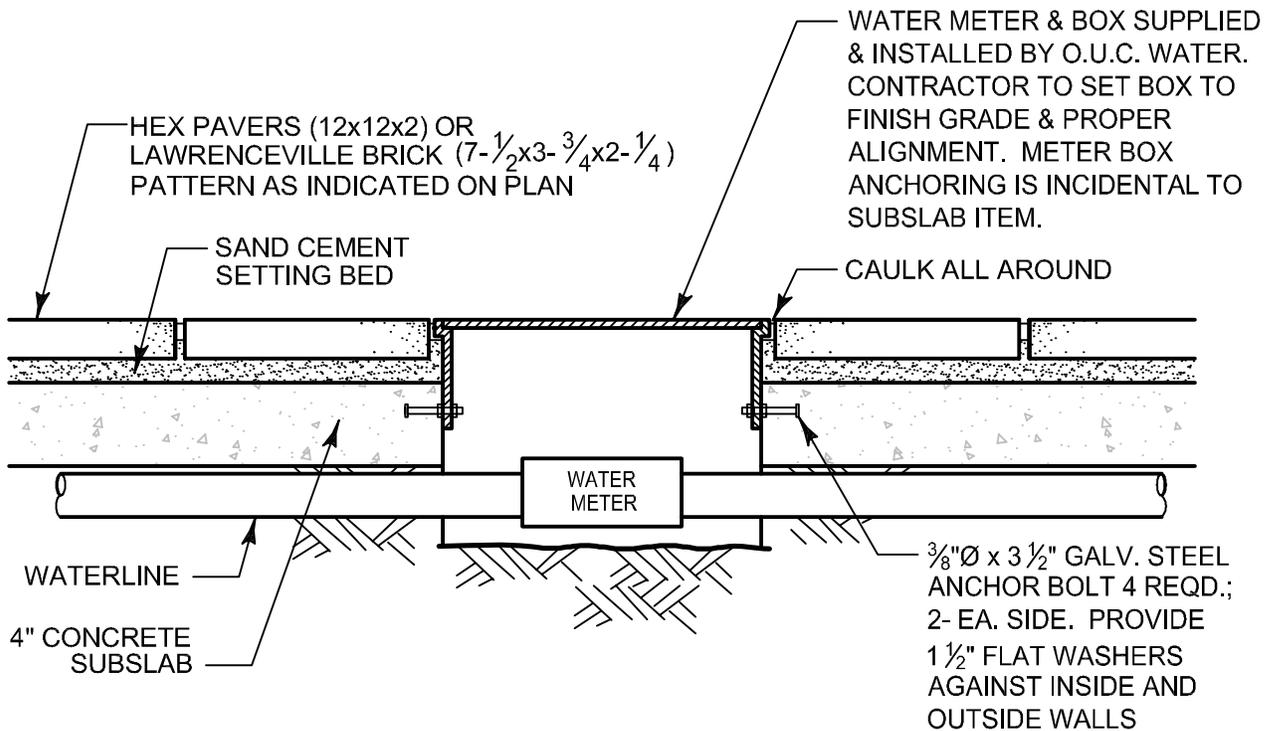


Rev. 07/30/07

METER BOX ORIENTATION SHALL BE PARALLEL OR PERPENDICULAR TO BACK OF CURB



PLAN



SECTION A-A



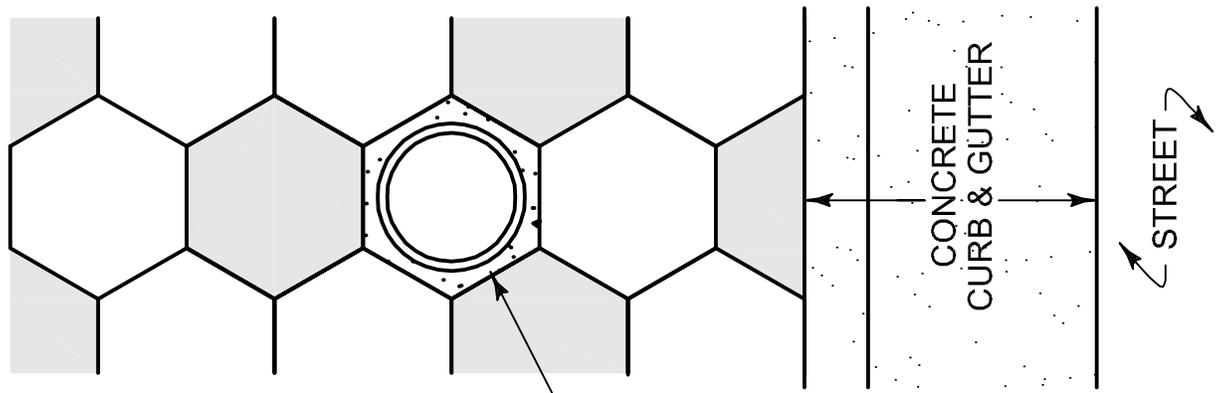
WATER METER BOX

TREATMENT 3

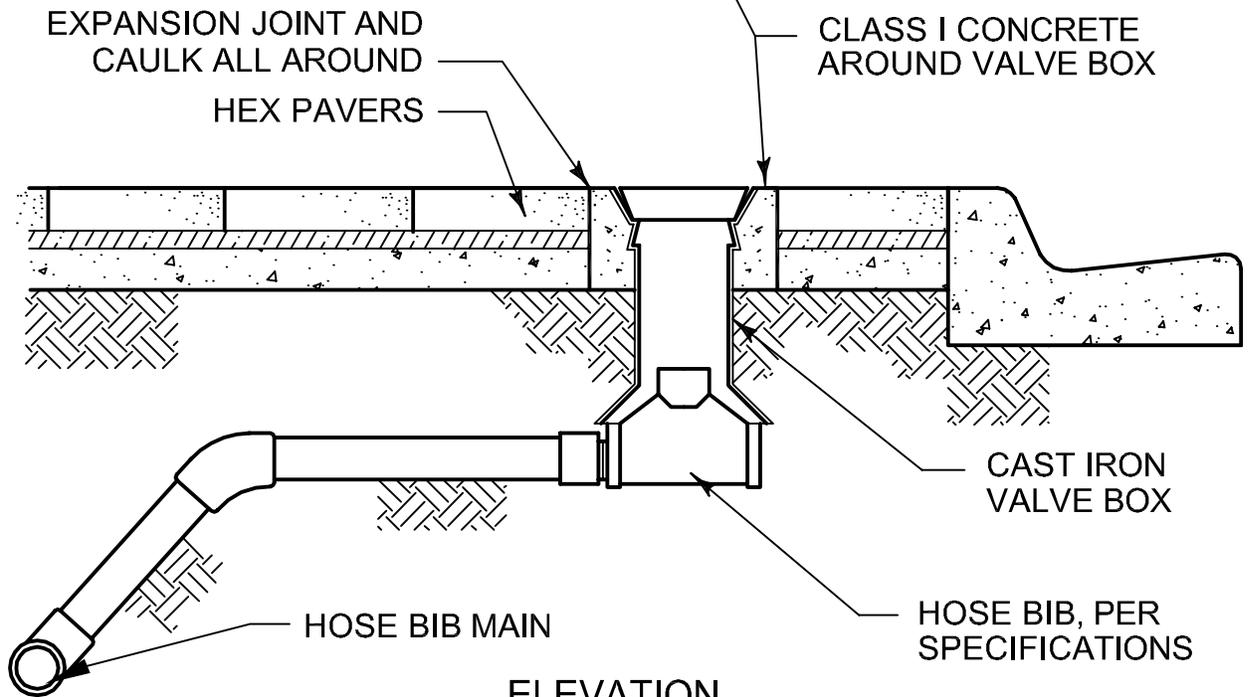
DETAIL 3.3-V



Rev. 07/30/07



PLAN



ELEVATION

NOTES:

1. COMPACT SOIL AROUND VALVE BOX TO SAME DENSITY AS UNDISTURBED ADJACENT SOIL.
2. VALVE AND BOX SHALL BE DIRECTLY CENTERED UNDER A HEX PAVER AS SHOWN.
3. PROVIDE ONE HOSE BIB APPROXIMATELY EVERY 150', MINIMUM ONE PER BLOCK.



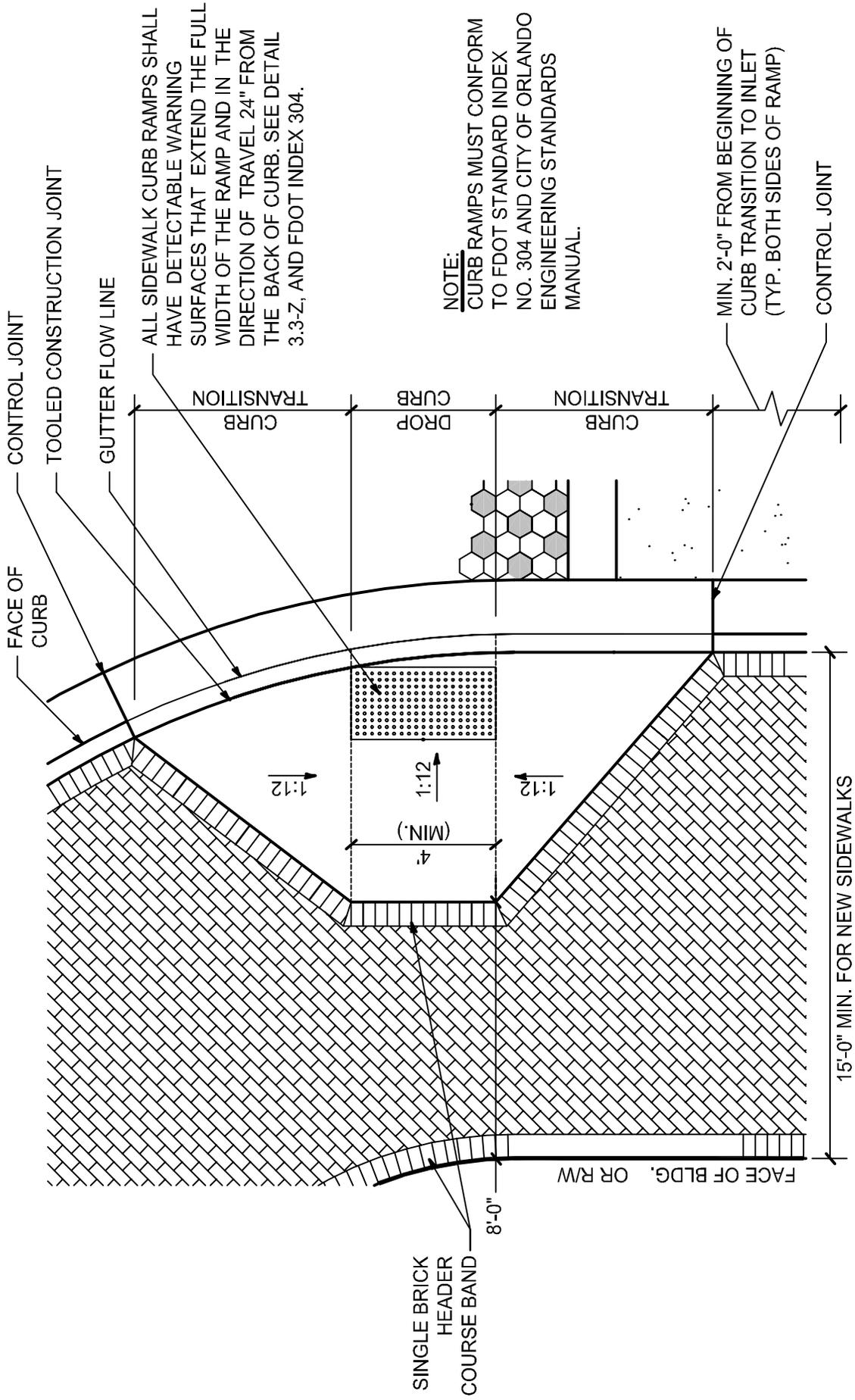
HOSE BIB ASSEMBLY

TREATMENT 3

DETAIL 3.3-W



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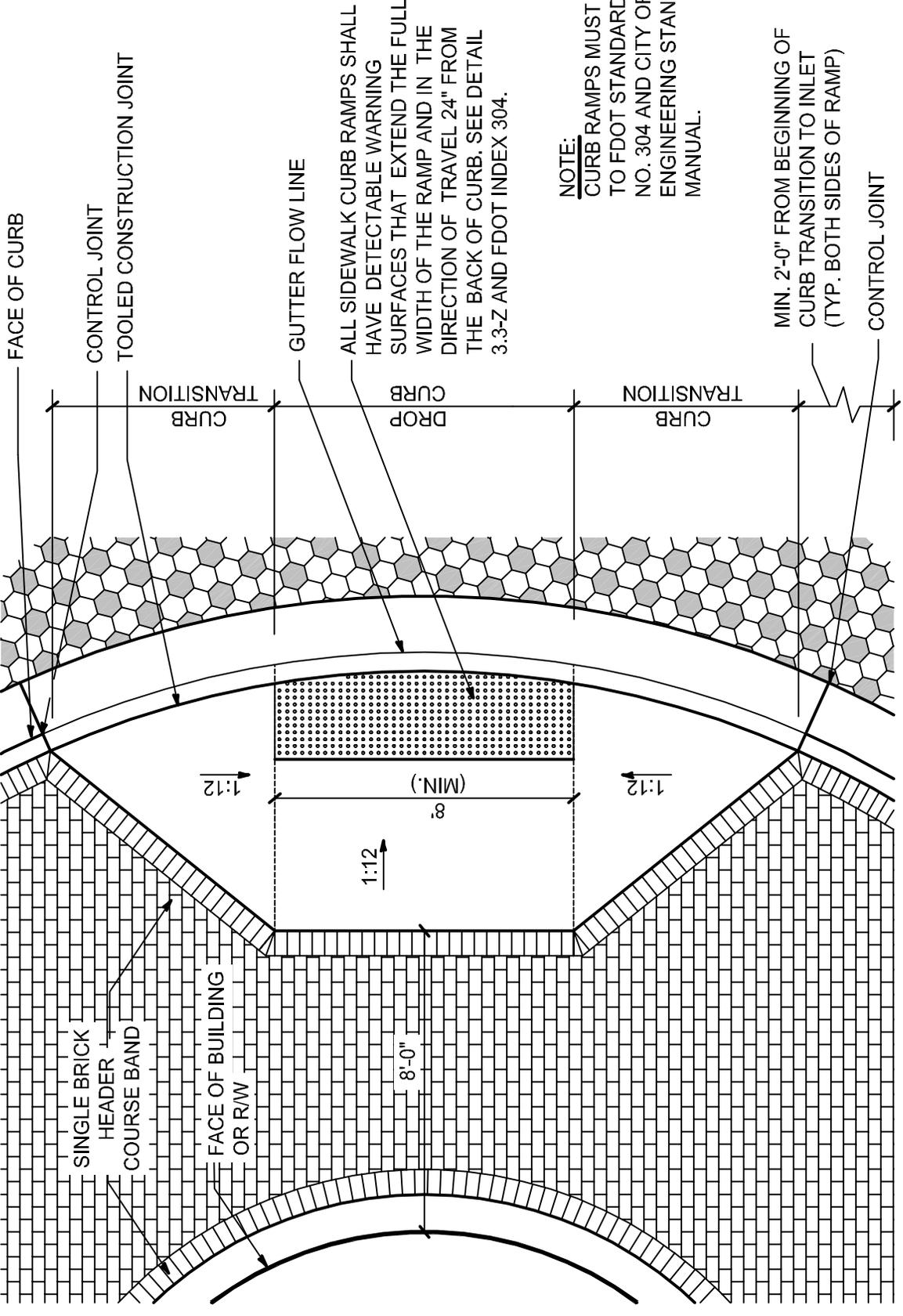
SINGLE PURPOSE HANDICAP RAMP

TREATMENT 3

DETAIL 3.3-X

Rev. 07/30/07





DUAL PURPOSE HANDICAP RAMP

DETAIL 3.3-Y

TREATMENT 3

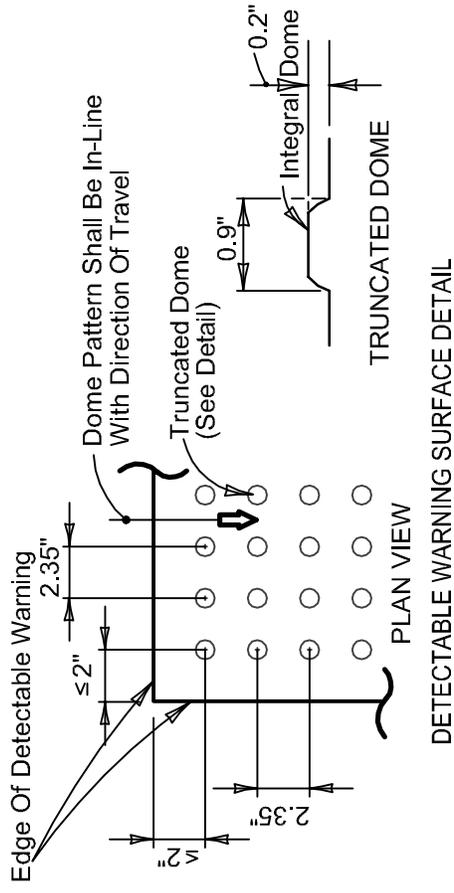
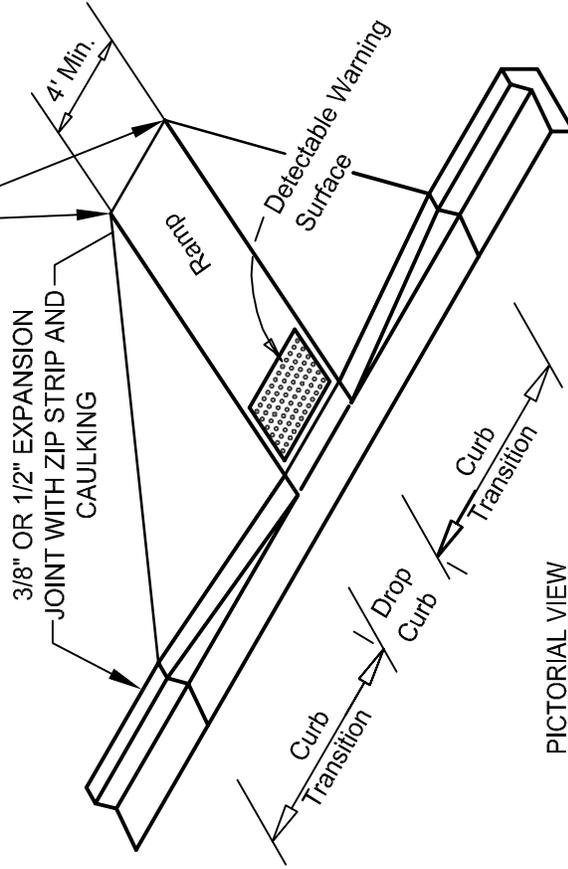
Rev. 07/30/07



NOTES:

1. All curb ramps shall have detectable warning surfaces that extend the full width of the ramp and 24" from the back of curb in the direction of travel. As shown on Detail.
2. Detectable warning surfaces shall be truncated dome pattern in conformance with U.S. Department of Justice A.D.A. Standards. Detectable warning surface shall be cast-in-place concrete, with Scofield 'Chromix' Color Admixture #4821 'Shady Red', or approved equal.
3. Optional Masonry Unit or Granite Truncated Dome Pavers may be used with the approval of the City Architect.
4. The color requirement for detectable warnings is to provide a dark-on-light visual contrast between the detectable warning surface and the adjacent walking surface.
5. Expansion joints shall be placed at all perimeter edges abutting concrete, but no joints shall be made in the ramp itself.
6. Transition curb may be formed at the time of curb construction or may be monolithic with the ramp, but is included with the pay item for the ramp.

GRADING POINTS
SEE SITE PLANS



ADDITIONAL NOTES:

1. REFER TO FDOT INDEX 300 FOR MORE INFORMATION REGARDING PUBLIC SIDEWALK RAMPS.
2. CONTACT CITY ARCHITECT FOR FIELD CONFLICT RESOLUTION.



CURB RAMP DETECTABLE WARNING

TREATMENT 3

DETAIL 3.3-Z

Rev. 07/30/07



3.4 - TREATMENT 4: WINDOW PANE STREETS

3.4.1 – TREATMENT 4 OVERVIEW

Treatment 4 streets have varying intensity of pedestrian activity, but are still significant connections to the Downtown Core. Concrete “window pane” sidewalks will be designated for use in all areas where an existing streetscape treatment does not exist on a block. Developers are encouraged to provide alternate designs of high quality.



Characteristics of Treatment 4, Window Pane Streets, include:

- Standard Treatment to all streets that do not currently have a designated treatment.
- Sidewalks 15 feet in width with scored concrete in a “window pane” (also known as “picture frame”) pattern and corner intersections with brick pavers.
- Street trees within rectangular tree wells.
- Double wheelchair-accessible ramps at each street corner.
- Double acorn light fixtures on both sides of the street.

3.4.2 – ALTERNATIVE STREETScape DESIGNS

Any streetscape designs that do not conform to the *Streetscape Guidelines* are subject to review by DDB/CRA for approval. Design may vary from these guidelines due to site conditions and approved conceptual changes.

The City may request that new development projects provide a different style of paver, tree grate, or amenity other than those specified herein. This will be determined on a project-by-project basis. Granite pavers and curbs are encouraged.

Hardscape and landscape improvements outside the streetscape area should be compatible with the design of the streetscape and will be reviewed by the City Architect.

3.4.3 – TREATMENT 4 STREET TREES

Street trees are planted generally 35 to 40 feet on center (spacing may vary depending upon tree type and site conditions). Variances from typical tree spacing must be approved by the DDB/CRA. Tree wells should be rectangular and fit within the scoring pattern of the concrete. Tree grates and guards may be required. Street tree planting design is subject to approval of City Transportation Engineering Division. On streets which have a speed limit greater than 25 miles per hour, greater setback of the tree from the curb may be required.

See Section 4.15, Trees & Landscaping, and Section 4.16, Irrigation, for specifications for landscaping and irrigation. All tree species shall be selected from list of approved trees in those specifications.

3.4.4 – TREATMENT 4 STREETLIGHTS

Except at intersections where tall streetlights are provided, double acorn streetlights are required. The lighting is generally spaced midway between street trees, to meet City illumination

requirements, and as determined on a project by project basis. All streetlight planning, design, and construction shall be coordinated with OUC and should begin early to ensure uniform lighting schemes that minimize bright and dark spots. A streetlight plan shall be part of the submittal to DRC. See Section 5.5 for specifications.

3.4.5 – TREATMENT 4 CURB RADII

Subject to the approval of the City Transportation Engineering Division, the minimum radii of back of curb at all typical intersections approximating a right angle shall be as follows:

- Local to Local R = 25'
- Local or Collector to Collector R = 35'
- Local or Collector to Arterial R = 45' or greater

Refer to City Land Development Code, Section 2B, Major Thoroughfare Plan, for designations of Collector and Arterial streets.

3.4.6 – SIDEWALK WIDTHS

All new buildings constructed within the CRA will be required to provide sidewalks 15 feet in width. Sidewalk widths required for renovations of existing buildings are the exception and shall conform to the site conditions.

Scoring patterns should be square, generally between 3-1/2 feet to 4-1/2 feet on center, and should equal the width of the sidewalk divided by two or three. When constructed to adjoin other existing or proposed scored sidewalks, the scoring pattern should be adjusted to make a logical, seamless transition.

3.4.6.1 -- Paving Design for Narrow Sidewalks

Where a narrow sidewalk exists, it may be necessary to adjust the proportions of sidewalk design details. Scoring patterns of concrete shall be adjusted accordingly.

These requirements will be identified by the DDB/CRA on a special case basis.

3.4.7 – PAVING PATTERN

Surface treatments for pavement in Treatment 4 are as follows:

- A. Brick Pavers - Sidewalks and Driveways
Used for:
 - 1. Sidewalk corner treatments at intersections.
 - 3. Mid-block driveways.

- D. Thin-Set Pavers - Sidewalks
Used for:
 - 1. All locations where full depth pavers cannot be installed due to vertical clearance limitations, including as a minimum vault areas and rear portions of inlet tops.

- E. Concrete - Sidewalks and/or Driveways (see Section 4.6, Concrete Work)
 - 1. For sidewalks from intersection to intersection.
 - 3. For all new streetscapes in the CRA that do not have a designated treatment.

F. Asphalt Pavement – Streets

Used for:

1. From intersection to intersection.
2. Intersections within the 30" concrete circular band area.
3. Transition areas at intersections from 16" concrete banding to limits of construction on side streets.

NOTE: A long lead time should be anticipated when ordering pavers.

3.4.8 - WHEELCHAIR ACCESSIBILITY

All street corners shall have two wheelchair ramps, unless site conditions dictate otherwise and as approved by the City Architect and City Transportation Engineering Division.

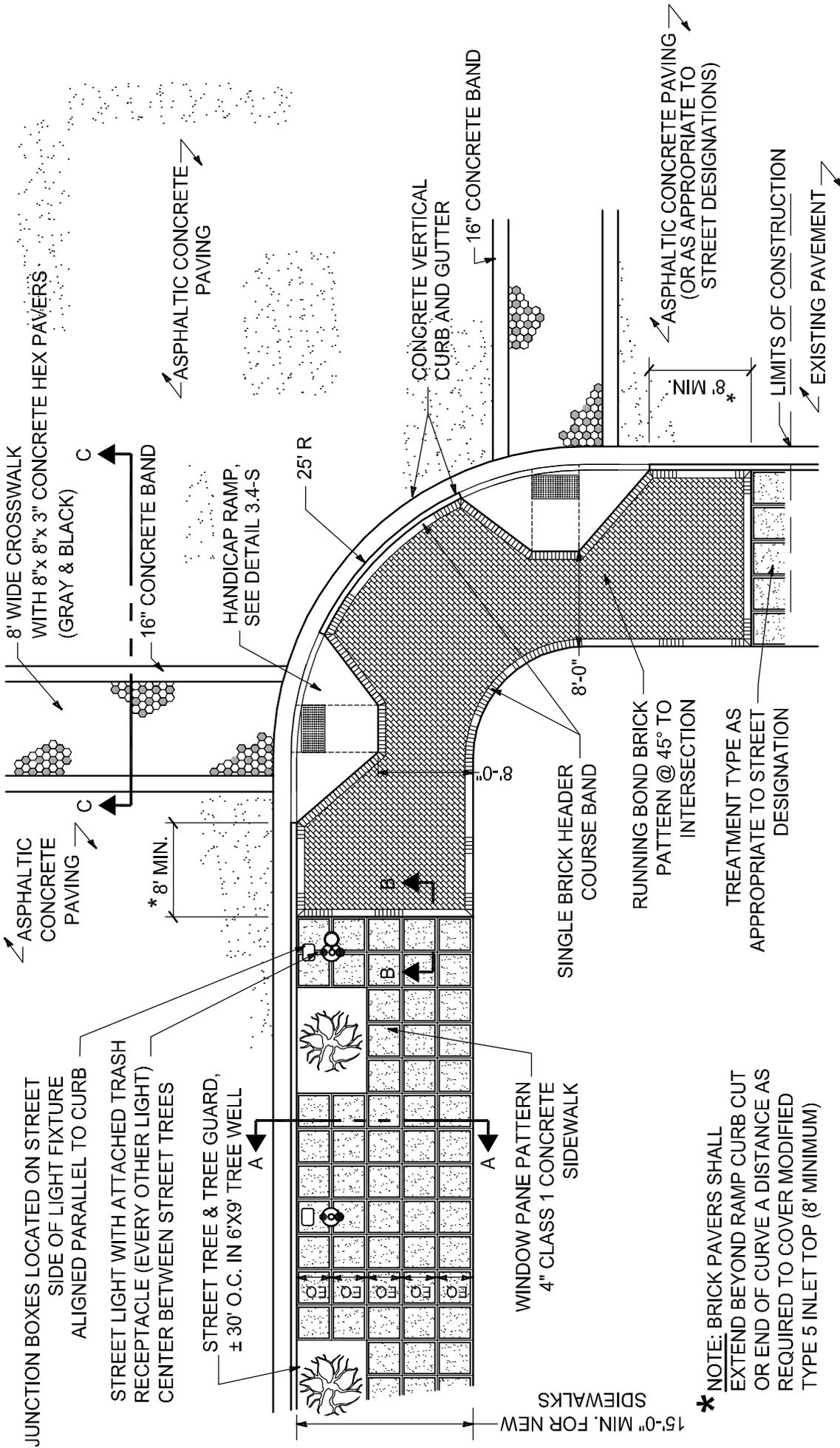
3.4.9 - TEMPORARY SIDEWALK IMPROVEMENTS

Any temporary sidewalk provisions that may be required during the construction of streetscape improvements are the responsibility of the property owner and will not be a cost sharing item of the DDB/CRA.

3.4.10 – TREATMENT 4 DETAILS

The following details shall be incorporated into the construction plans. The designer shall modify the details as necessary to fit site conditions. All variations from these details shall be approved by the City of Orlando.

See also Section 4.0, Technical Documents, and Section 5.0, Other Site Furniture for further specifications.



* NOTE: BRICK PAVERS SHALL EXTEND BEYOND RAMP CURB CUT OR END OF CURVE A DISTANCE AS REQUIRED TO COVER MODIFIED TYPE 5 INLET TOP (8' MINIMUM)

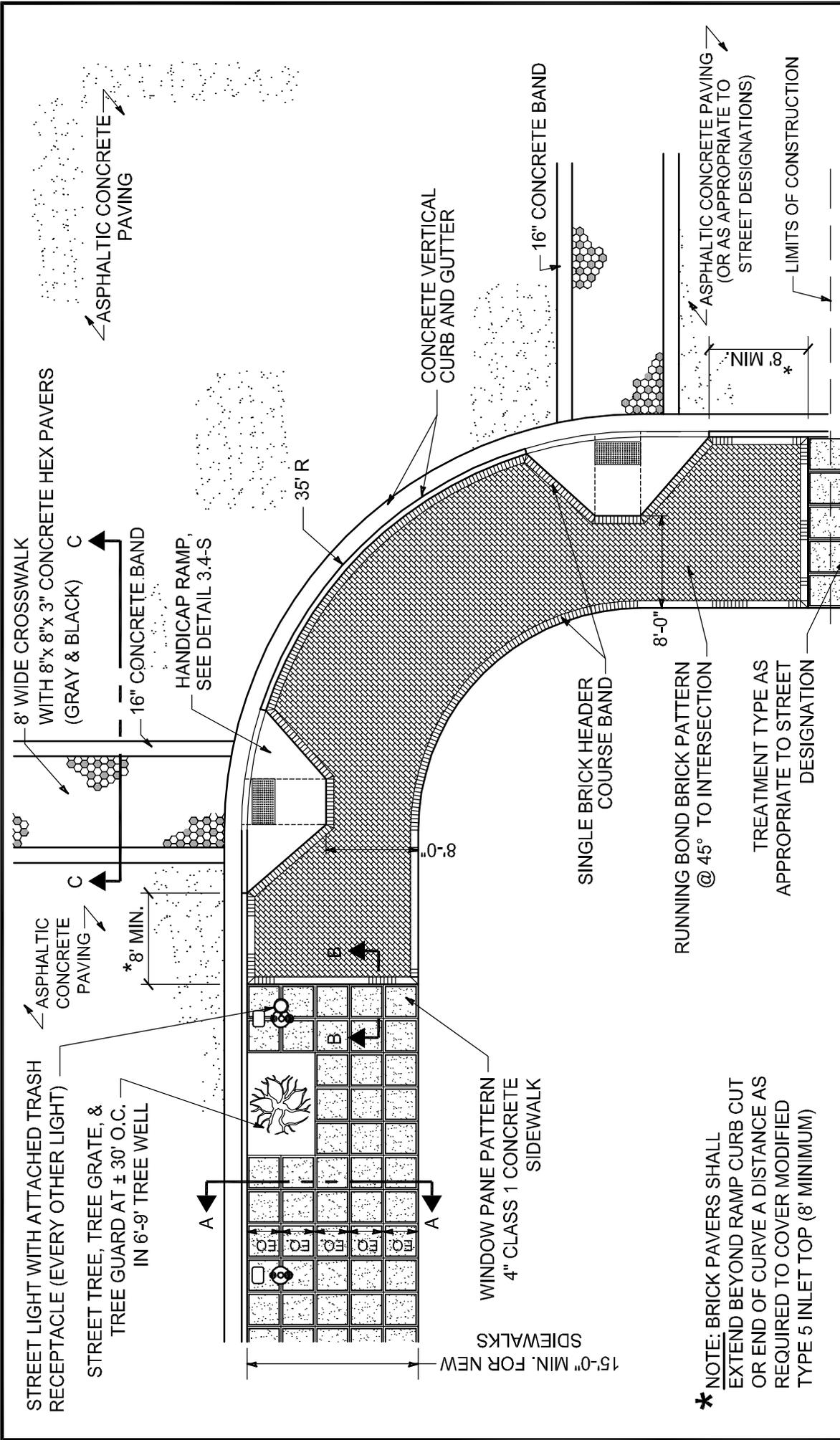


OVERALL STREETSCAPE TREATMENT (25' CORNER RADIUS)



TREATMENT 4

DETAIL 3.4-A



* NOTE: BRICK PAVERS SHALL EXTEND BEYOND RAMP CURB CUT OR END OF CURVE A DISTANCE AS REQUIRED TO COVER MODIFIED TYPE 5 INLET TOP (8' MINIMUM)



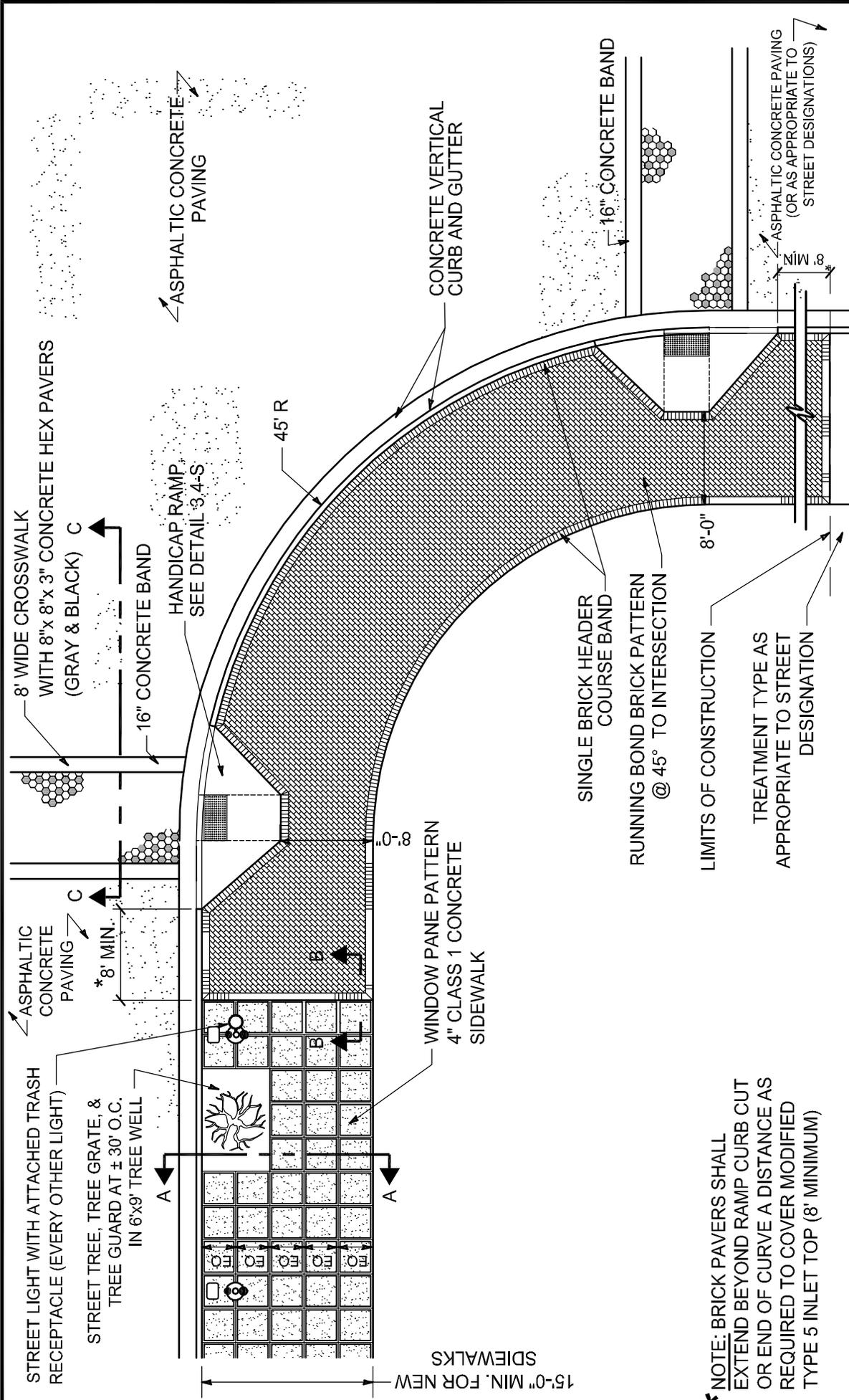
OVERALL STREETSCAPE TREATMENT (35' CORNER RADIUS)



TREATMENT 4

DETAIL 3.4-B

Rev. 07/30/07



*NOTE: BRICK PAVERS SHALL EXTEND BEYOND RAMP CURB CUT OR END OF CURVE A DISTANCE AS REQUIRED TO COVER MODIFIED TYPE 5 INLET TOP (8' MINIMUM)



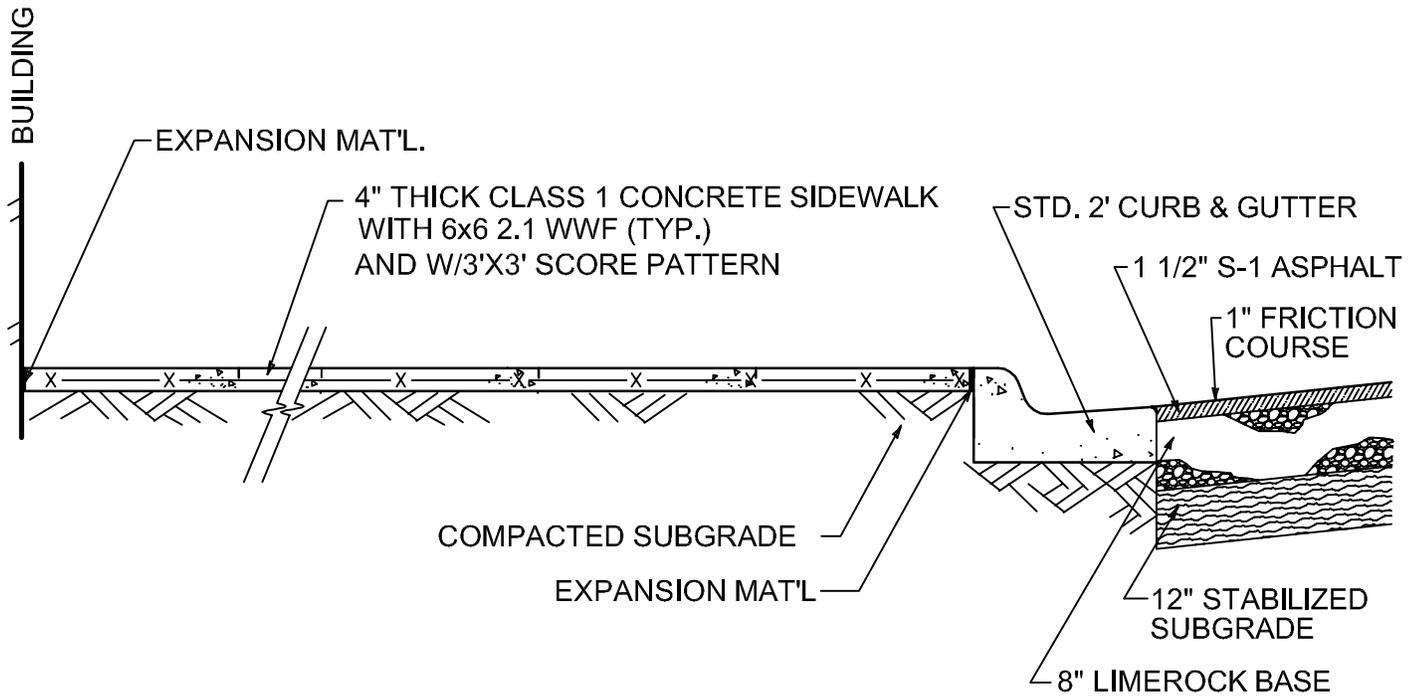
OVERALL STREETSCAPE TREATMENT (45' CORNER RADIUS)



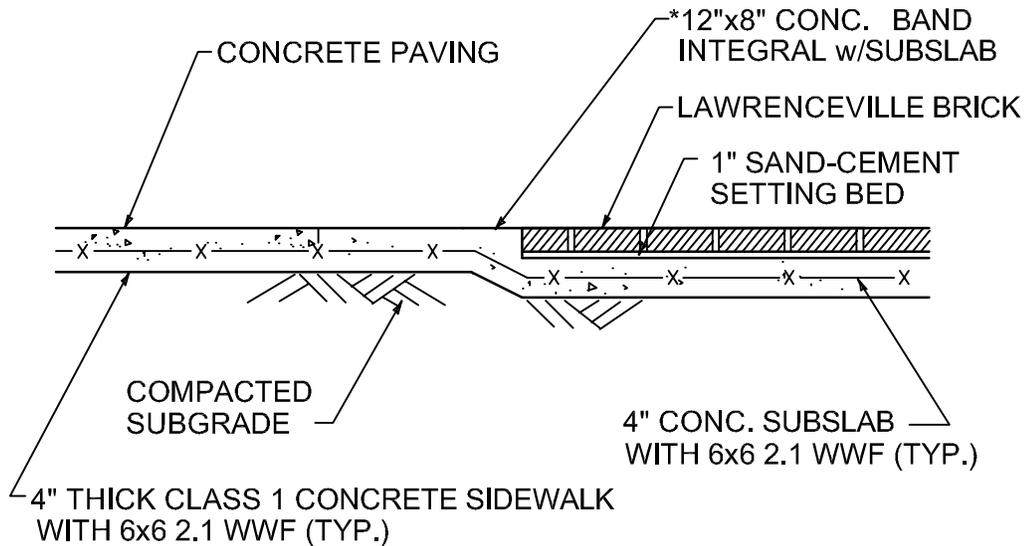
TREATMENT 4

DETAIL 3.4-C

Rev. 07/30/07



SECTION A-A (DETAILS 3.4-A, 3.4-B, 3.4-C)



SECTION B-B (DETAILS 3.4-A, 3.4-B, 3.4-C)

*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.



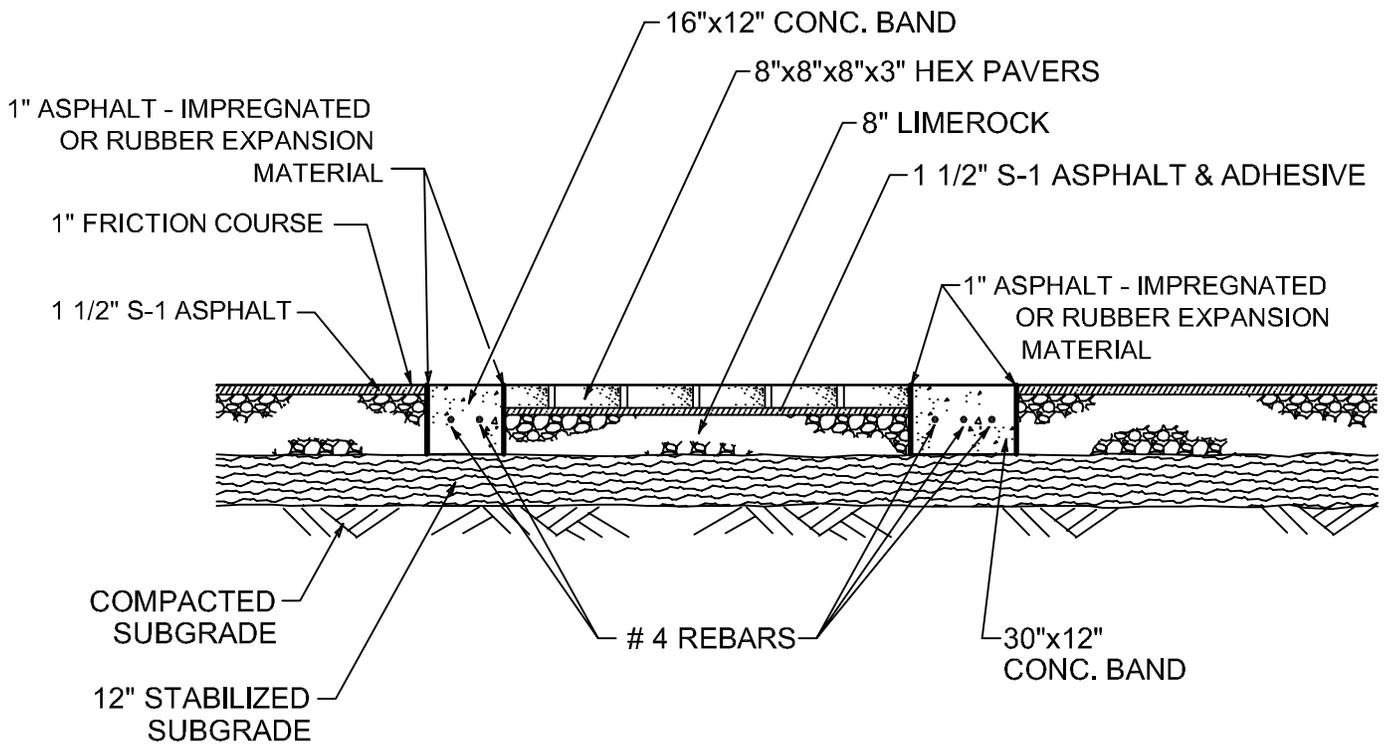
PAVER AND SIDEWALK SECTIONS

TREATMENT 4

3.4-D



Rev. 07/30/07



SECTION C-C (DETAILS 3.4-A, 3.4-B, 3.4-C)

*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.



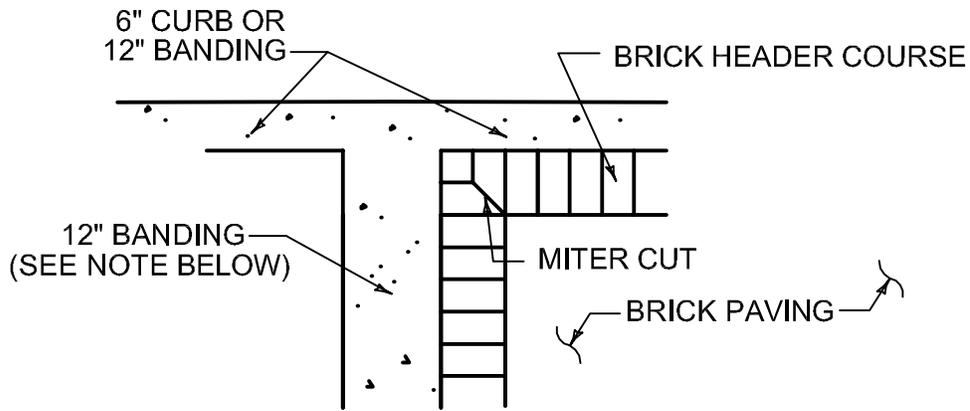
PAVER AND SIDEWALK SECTIONS

TREATMENT 4

3.4-E

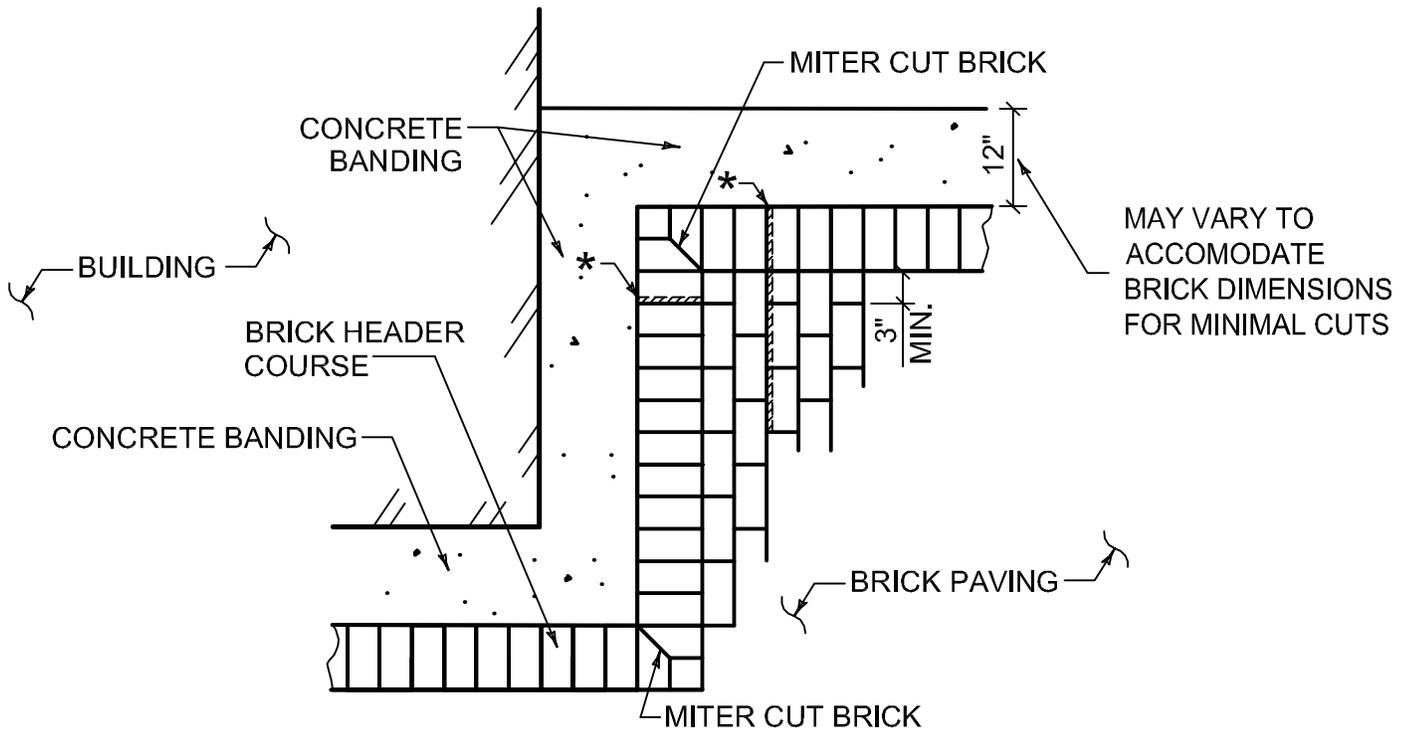
Rev. 07/30/07





*NOTE: WHERE TOTAL SIDEWALK WIDTH IS LESS THAN 11'-6", BAND WIDTH MAY BE REDUCED TO 6", AS DETERMINED BY THE C.R.A.

OUTSIDE CORNER PLAN



*BRICKS CUT TO COMPENSATE FOR FIELD HEADER COURSING SHOULD OCCUR MID-FIELD AND NOT AT ENDS OF PATTERN.

INSIDE CORNER PLAN



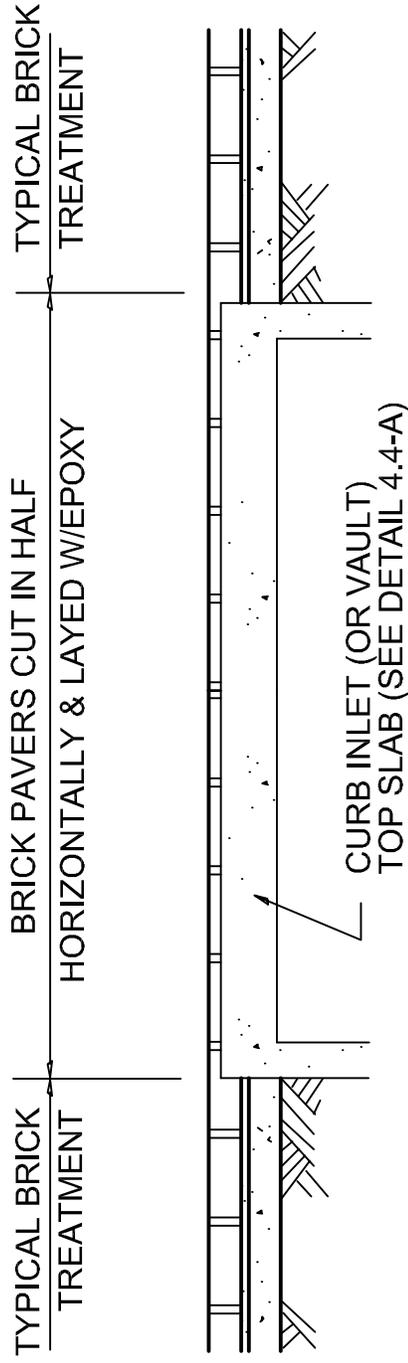
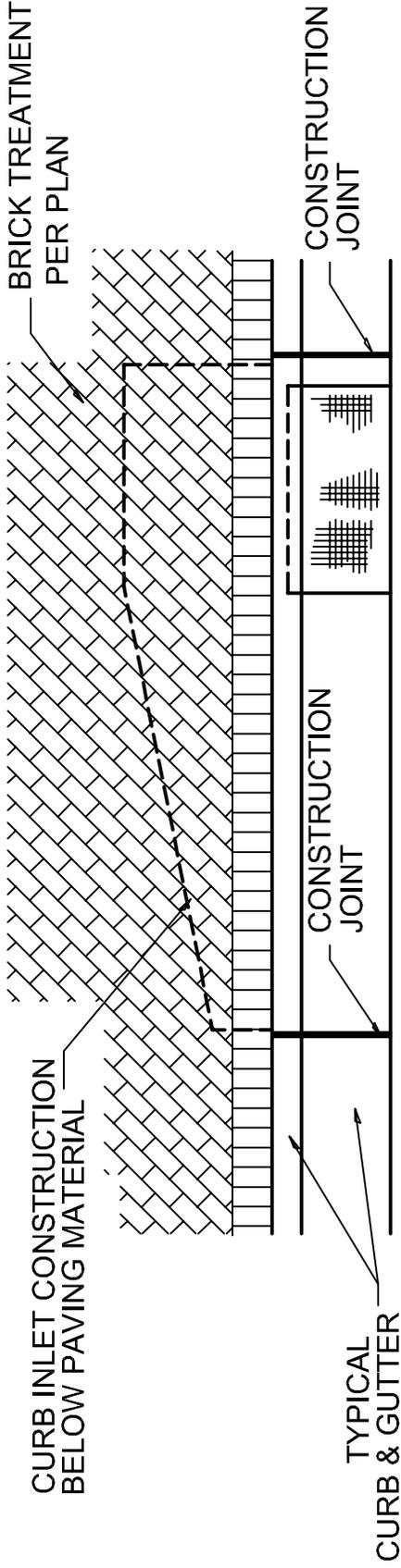
BRICK HEADER CORNER DETAIL

TREATMENT 4

DETAIL 3.4-G



Rev. 07/30/07



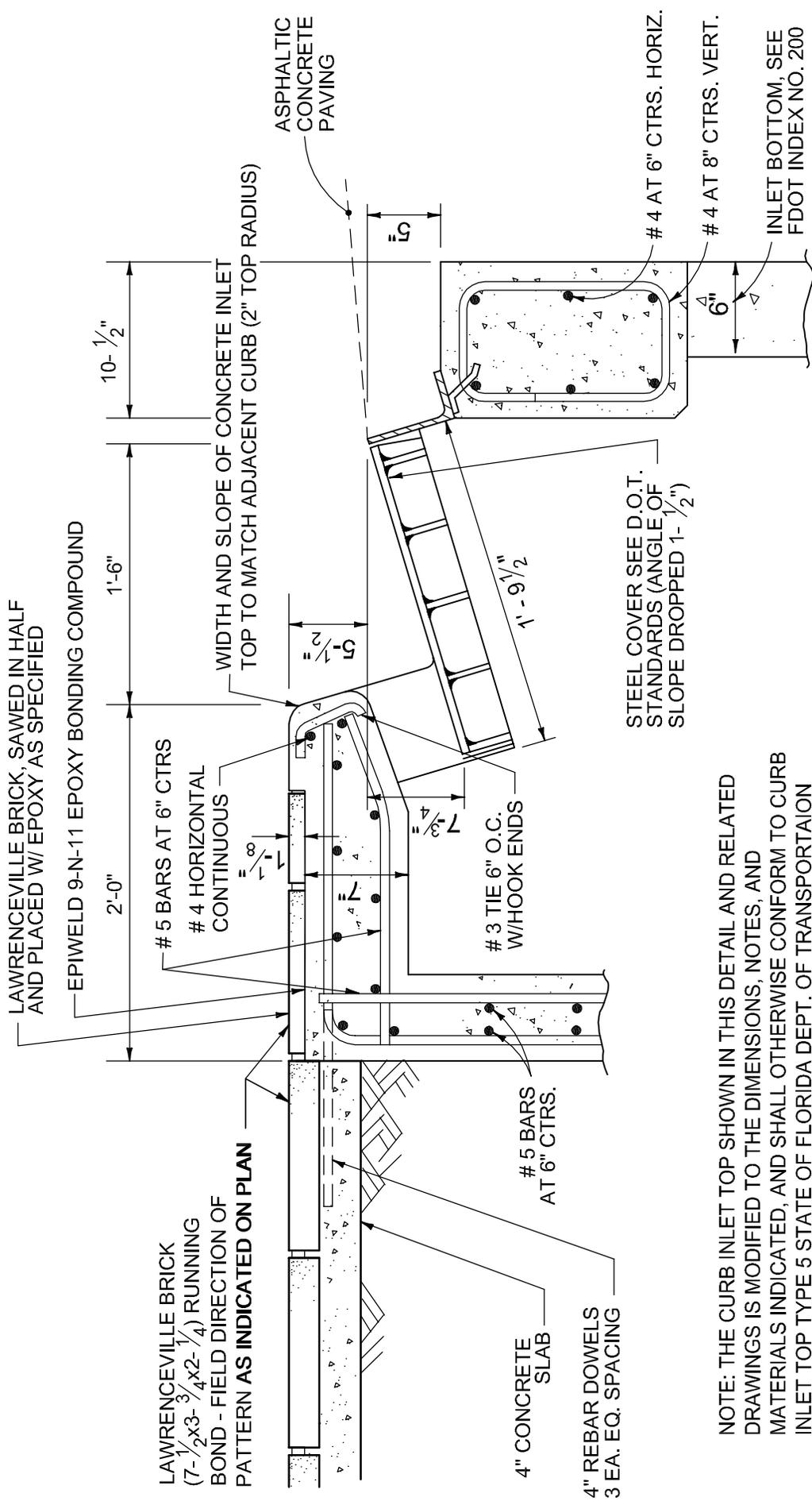
THIN SET PAVERS

TREATMENT 4

DETAIL 3.4-H

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NOTE: THE CURB INLET TOP SHOWN IN THIS DETAIL AND RELATED DRAWINGS IS MODIFIED TO THE DIMENSIONS, NOTES, AND MATERIALS INDICATED, AND SHALL OTHERWISE CONFORM TO CURB INLET TOP TYPE 5 STATE OF FLORIDA DEPT. OF TRANSPORTATION ROAD DESIGN STANDARDS.

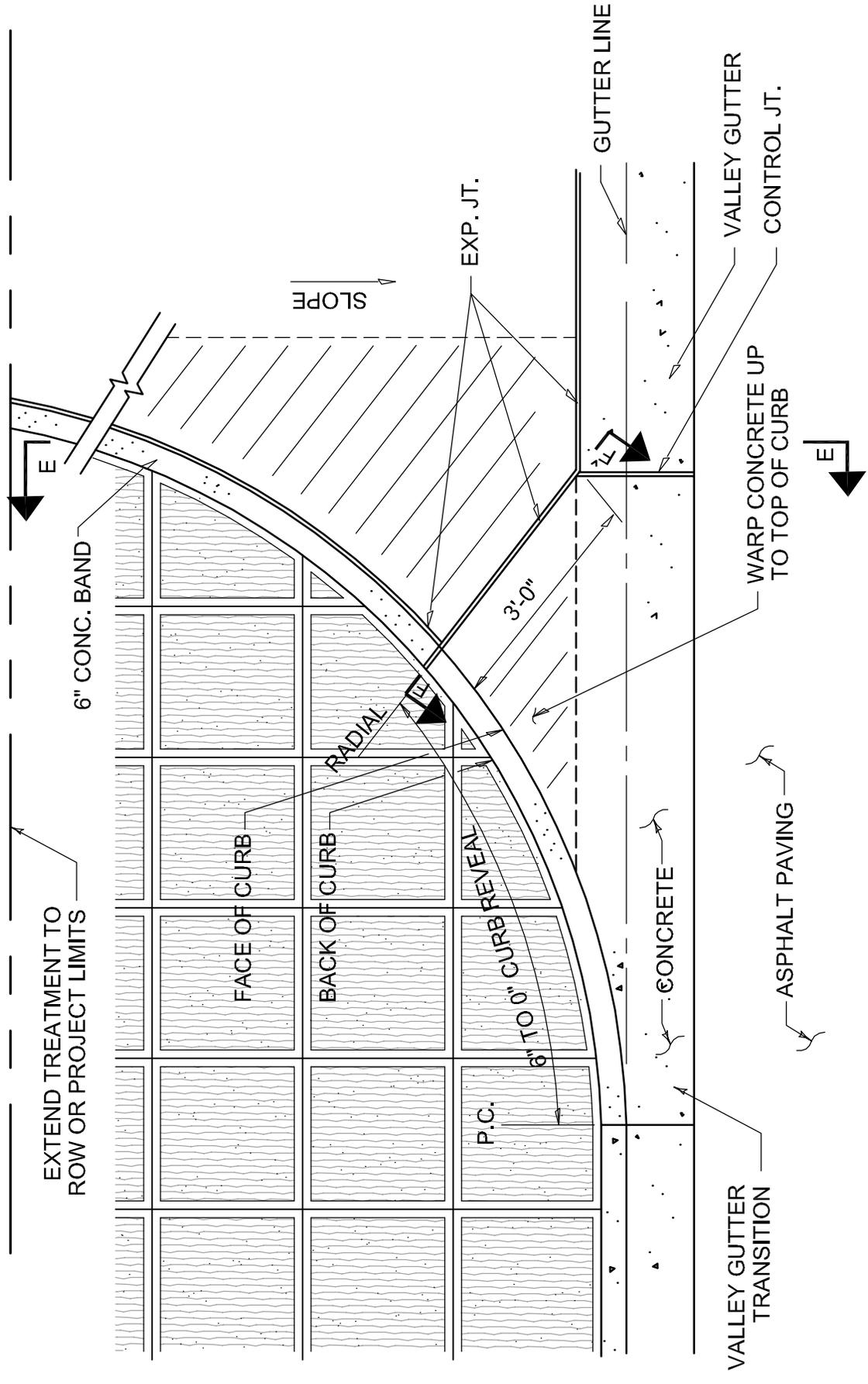
MODIFIED FDOT TYPE 5 INLET TOP

TREATMENT 4

DETAIL 3.4-I

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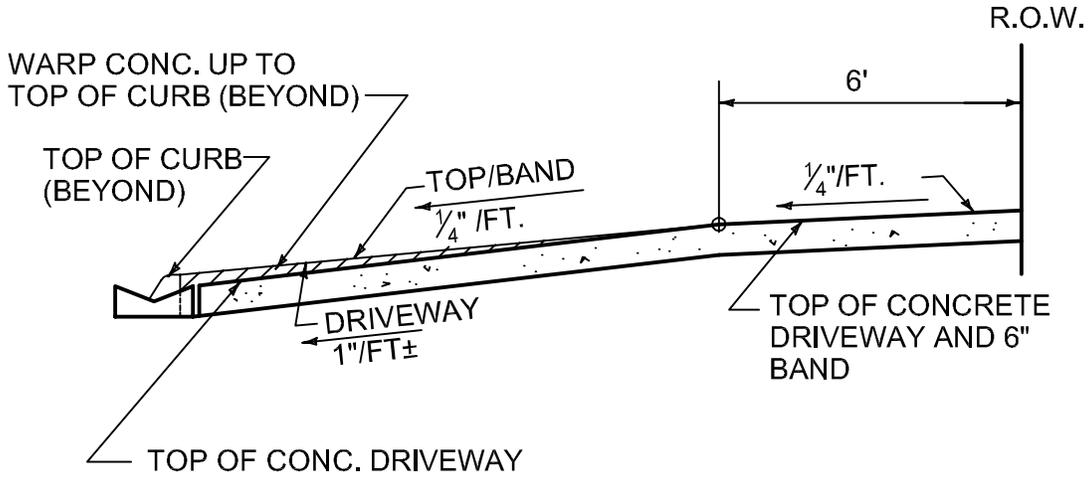
MID-BLOCK DRIVEWAY DETAIL

DETAIL 3.4-J

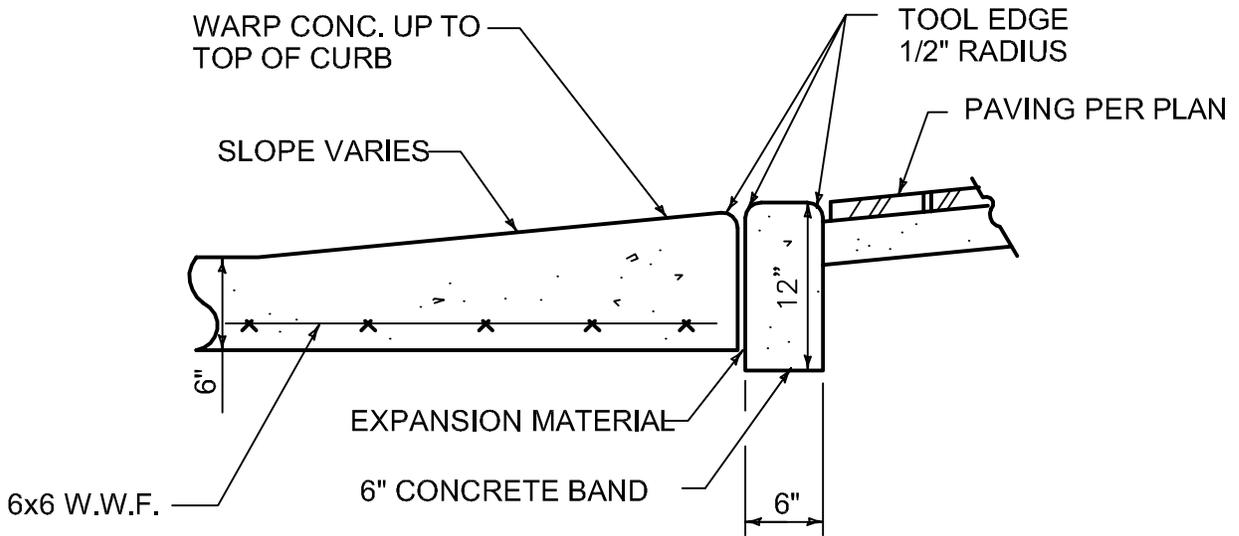
TREATMENT 4

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SECTION E-E



SECTION F-F



MID-BLOCK DRIVEWAY SECTIONS

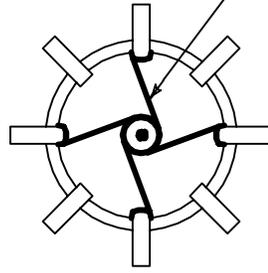
TREATMENT 4

DETAIL 3.4-K



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'WONDER TIE' OR APP. EQUAL
4 PER TREE AT TOP OF GUARD



PLAN VIEW

TREE GUARD

FLOOD BUBBLER-4 PER TREE
TORO 514-20 (TYP.) OR EQUAL

1/2" FLEX PIPE

CONCRETE SIDEWALK
PER PLAN

8"

4'-0"

2" MIN. FROM TOP OF ROOT BALL
TO BOTTOM OF TREE GRATE

ROOT BALL

COMPACTED
SUBGRADE

IRRIGATION LATERAL
(MIN. 18" COVER)

IRRIGATION MAIN
24" MIN. COVER
(SIZE VARIES)

LOOSEN SOIL TO
90% COMPACTION

18" MIN.
FROM
BOTTOM OF
PIT TO
ROOT BALL

HOSE BIB MAIN 1" Ø PVC
(WHERE APPLICABLE)

PLANTING SOIL MIX

ELEVATION



TREE WELL WITH IRRIGATION

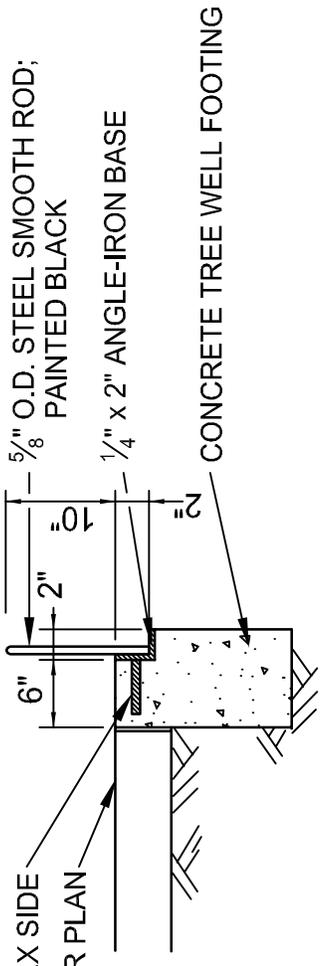
TREATMENT 4

DETAIL 3.4-L

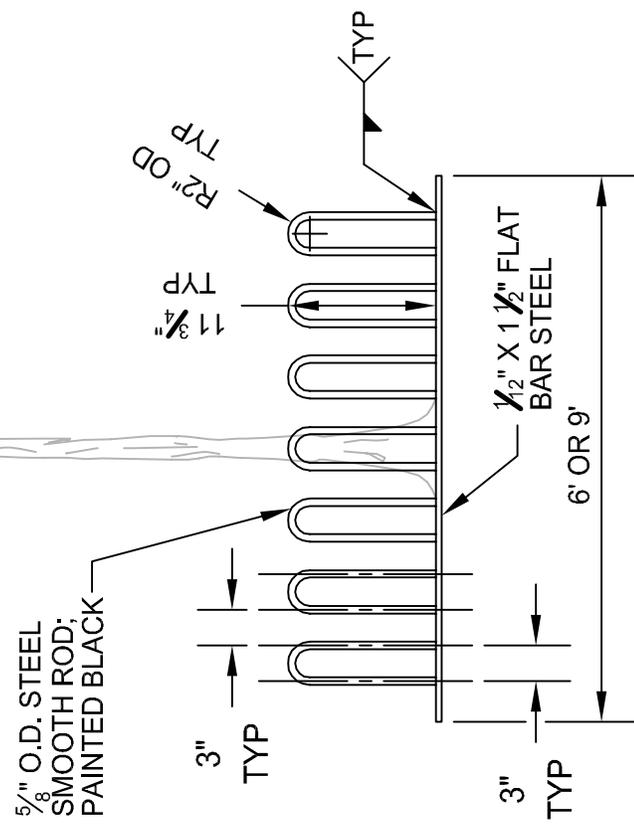


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1/2" x 4" STEEL DOWEL 1 EA. PER HEX SIDE
 SIDEWALK TREATMENT PER PLAN

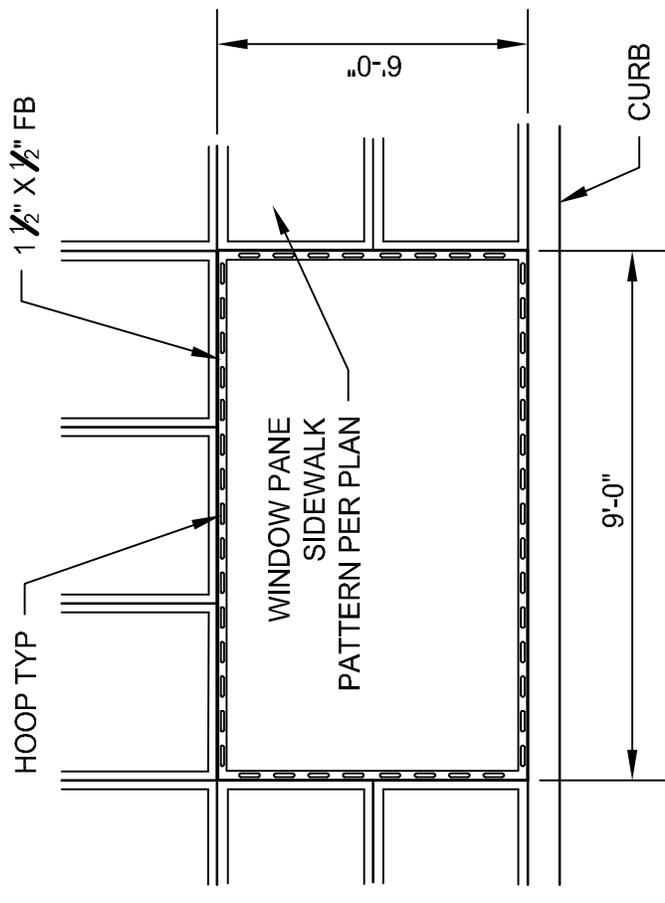


ANCHOR DETAIL



ELEVATION

NOTE:
 HOOP SPACING MAY VARY ACCORDING TO WIDTH OF FRAME.



PLAN



HOOP STYLE TREE GUARD - RECTANGULAR/SQUARE

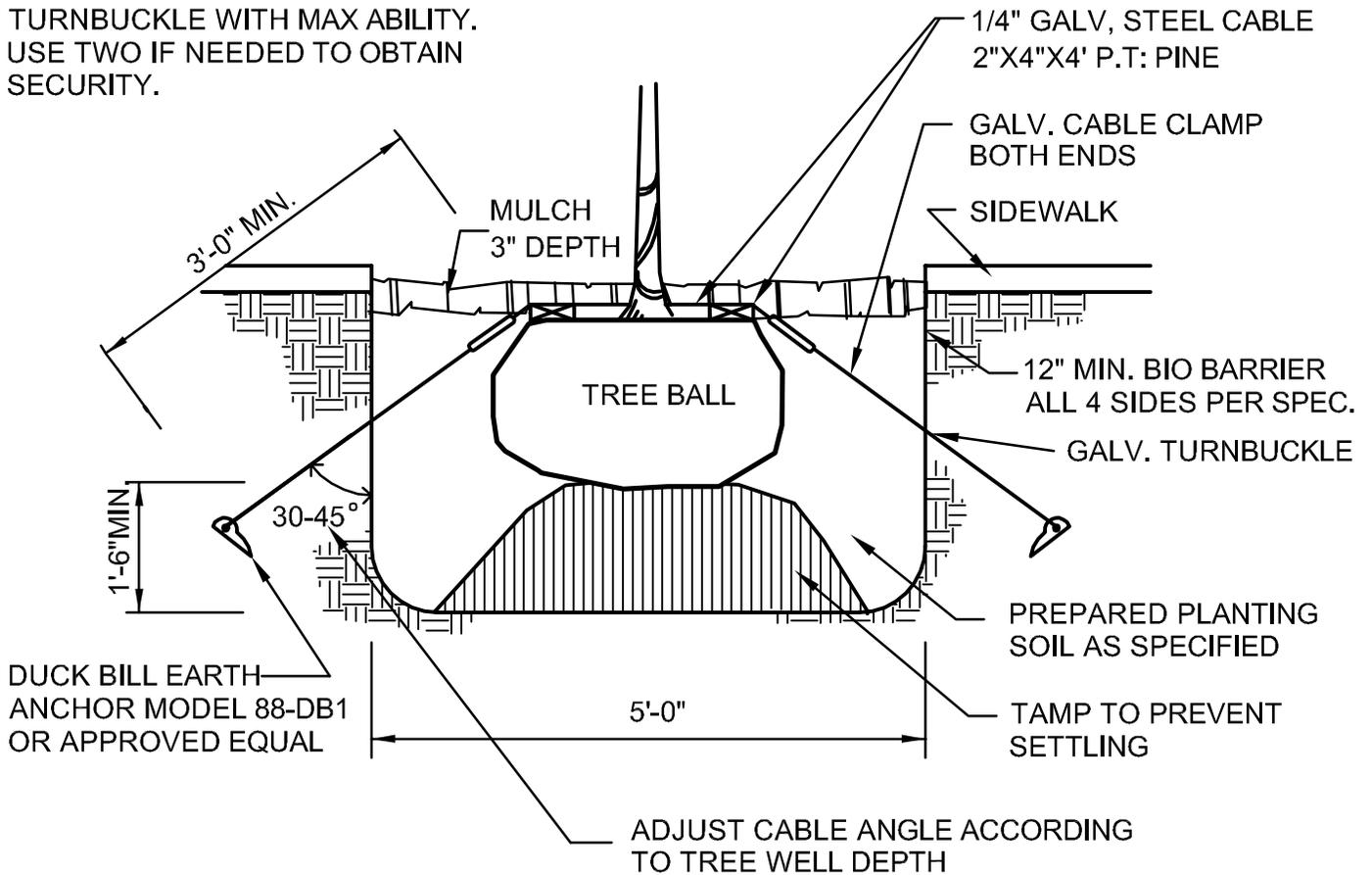
TREATMENT 4

DETAIL 3.4-M

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NOTE: TENSION CONNECTING CABLE TO MAXIMUM TENSION. INSTALL TURNBUCKLE WITH MAX ABILITY. USE TWO IF NEEDED TO OBTAIN SECURITY.



UNDERGROUND TREE GUYING:

A METHOD IN WHICH TWO CABLES ARE STRETCHED ACROSS THE TOP OF THE ROOT BALL AND DOWNWARD AT ABOUT 45° TO DEADMEN PLACED AT BOTTOM OF PLANTING HOLE. TWO BOARDS ARE LAID ACROSS ROOT BALL UNDER AND AT RIGHT ANGLES TO CABLES TO DISTRIBUTE PRESSURE ON ROOT BALL. BACK FILL MUST BE WELL TAMPED TO KEEP ROOT BALL FROM BREAKING AS CABLES ARE TIGHTENED. IN VARIATION OF THIS METHOD, ROOT BALL CAN BE CABLED FIRMLY TO 4 STAKES DRIVEN INTO BOTTOM OF PLANTER'S HOLE, ALONG SIDE AND AROUND BALL.

NOTE: THIS DETAIL SHALL BE USED WHEN VARIATION FROM TREE GRATE, FRAME, AND COLLAR DETAIL IS APPROVED.



UNDERGROUND TREE GUYING

TREATMENT 4

DETAIL 3.4-N



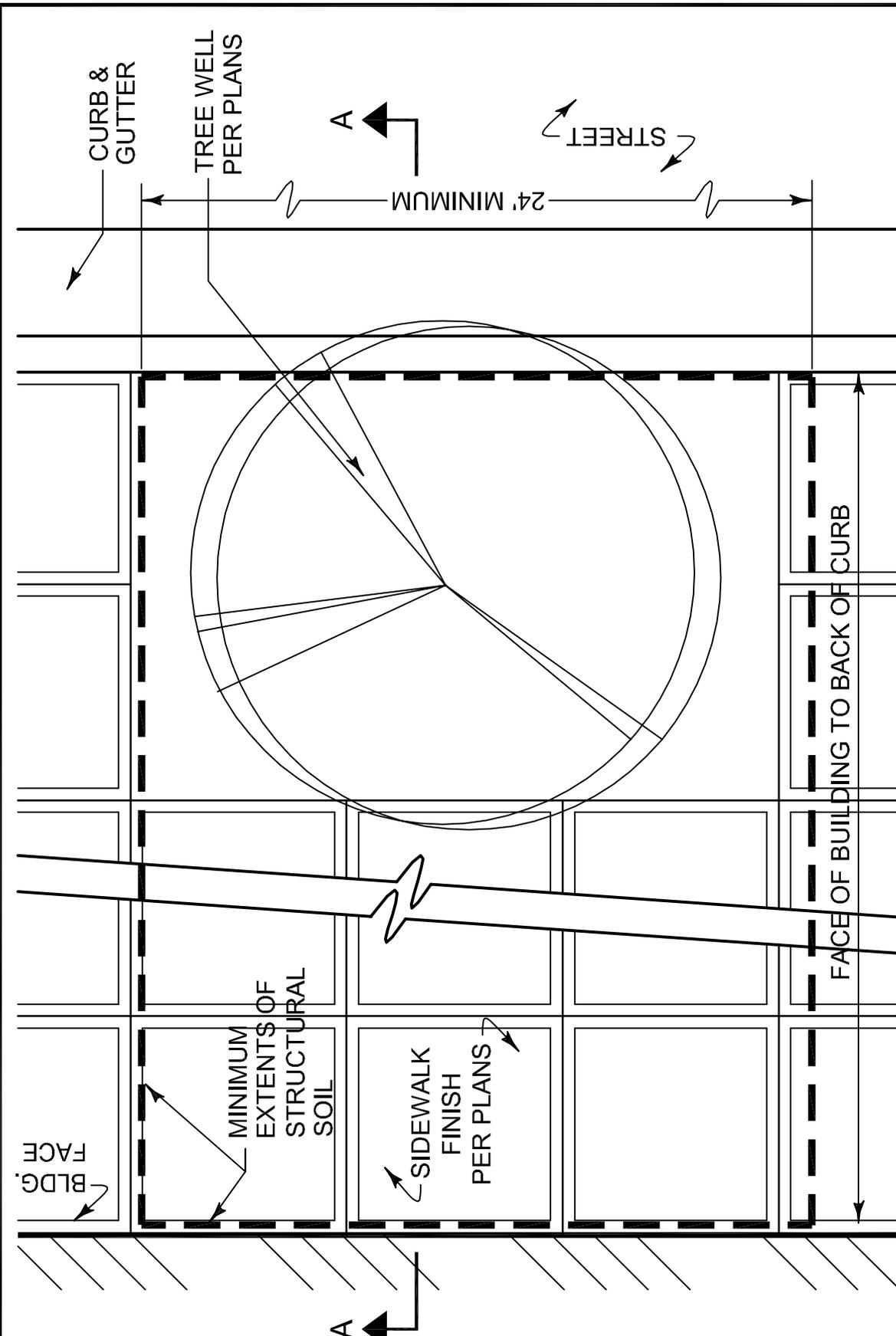
Rev. 07/30/07

STRUCTURAL SOIL PLACEMENT DETAIL PLAN

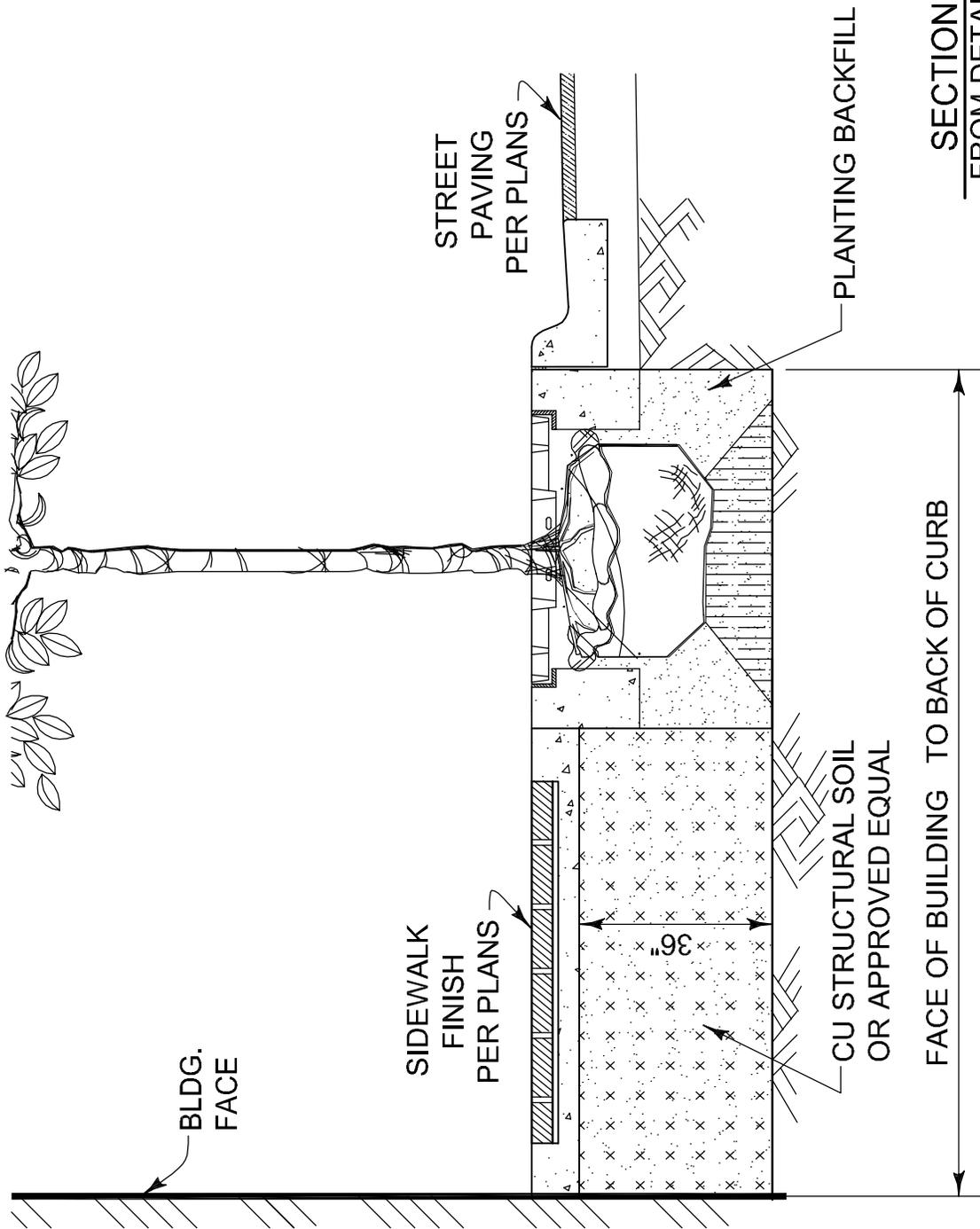
DETAIL 3.4-0

TREATMENT 4

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NOTE: DEPENDING UPON SPECIFIC SITE AND PROJECT CONDITIONS, STRUCTURAL SOIL MAY BE REQUIRED TO BE PLACED CONTINUOUSLY ALONG THE STREET TO THE EXTENTS OF THE PROJECT.



SECTION A-A
FROM DETAIL 3.4-O

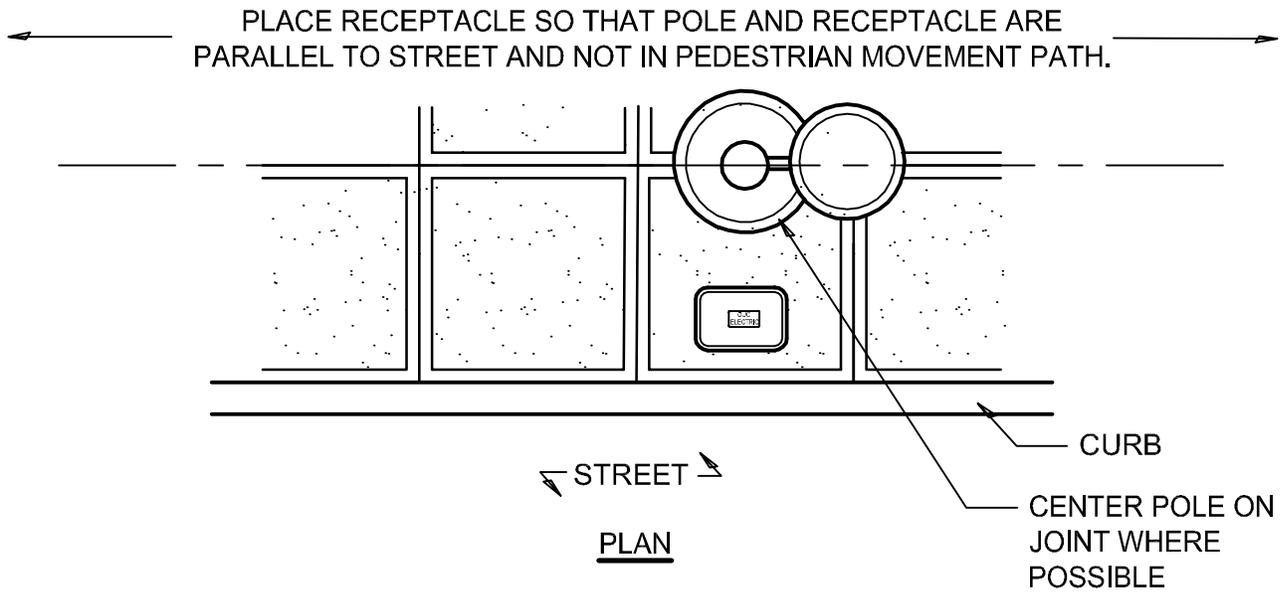
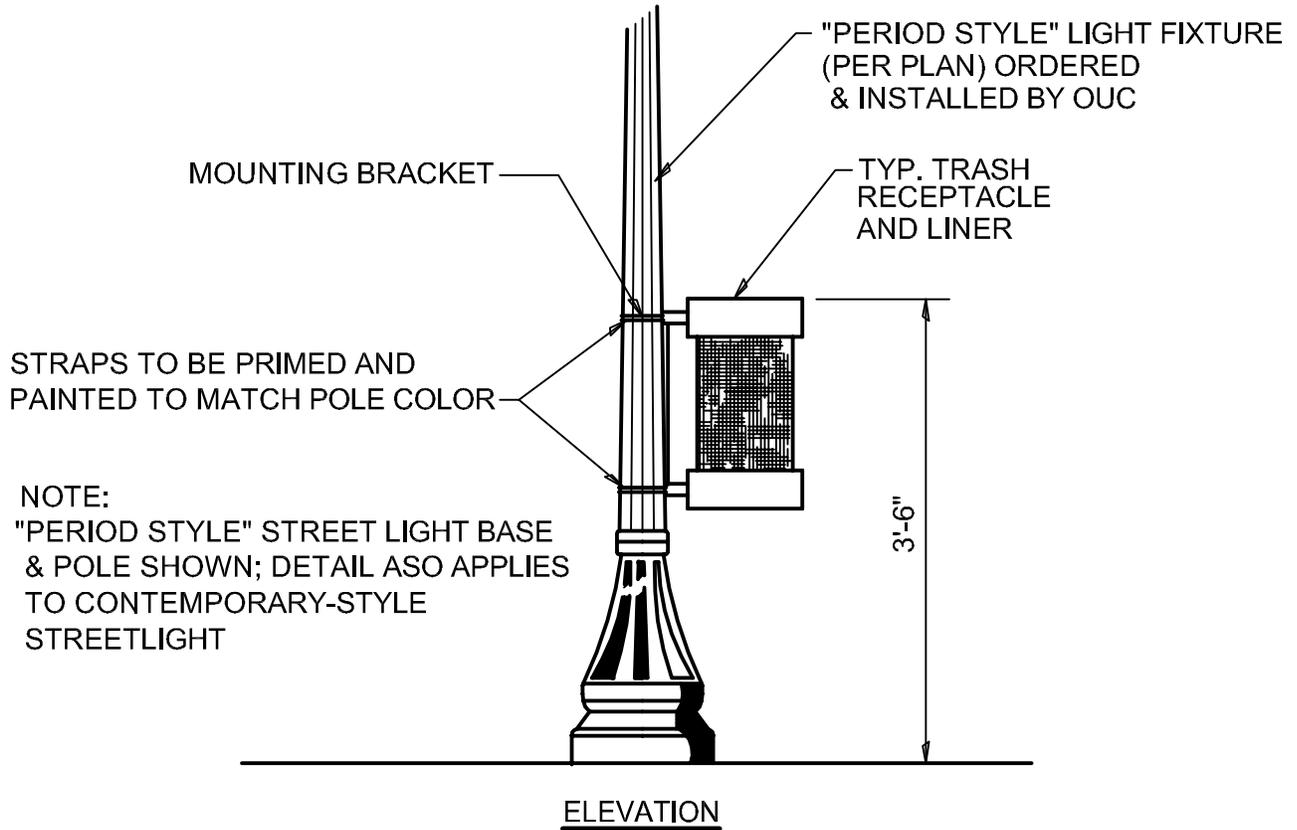
STRUCTURAL SOIL PLACEMENT SECTION

TREATMENT 4

DETAIL 3.4-P

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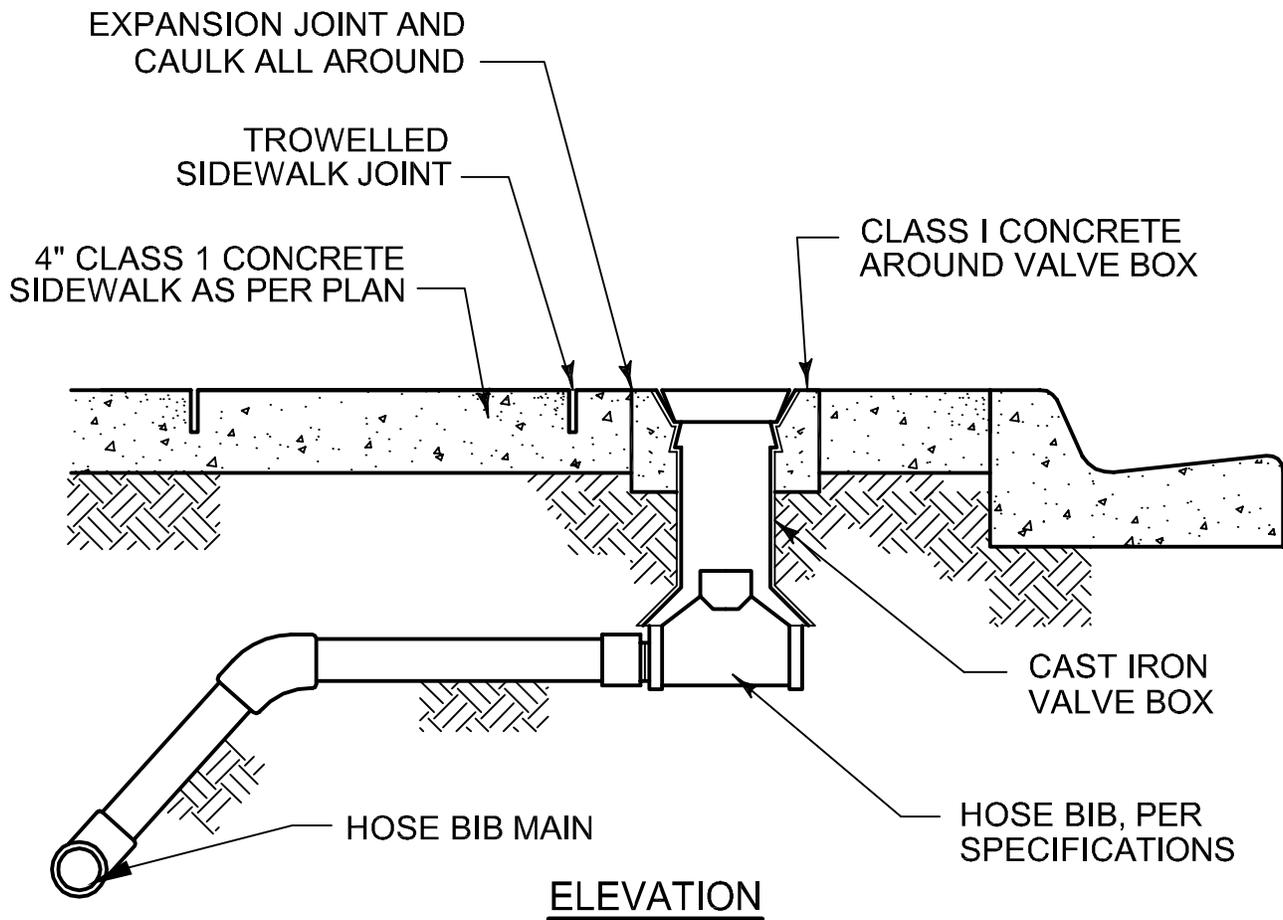
STREET LIGHT W/TRASH RECEPTACLE

TREATMENT 4

DETAIL 3.4-Q



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NOTES:

1. COMPACT SOIL AROUND VALVE BOX TO SAME SAME DENSITY AS UNDISTURBED ADJACENT SOIL.
2. VALVE AND BOX SHALL BE PLACED WITHIN A SIDEWALK "WINDOW PANE", AND NOT ON A TROWELLED JOINT.
3. PROVIDE ONE HOSE BIB APPROXIMATELY EVERY 150', MINIMUM ONE BER BLOCK.



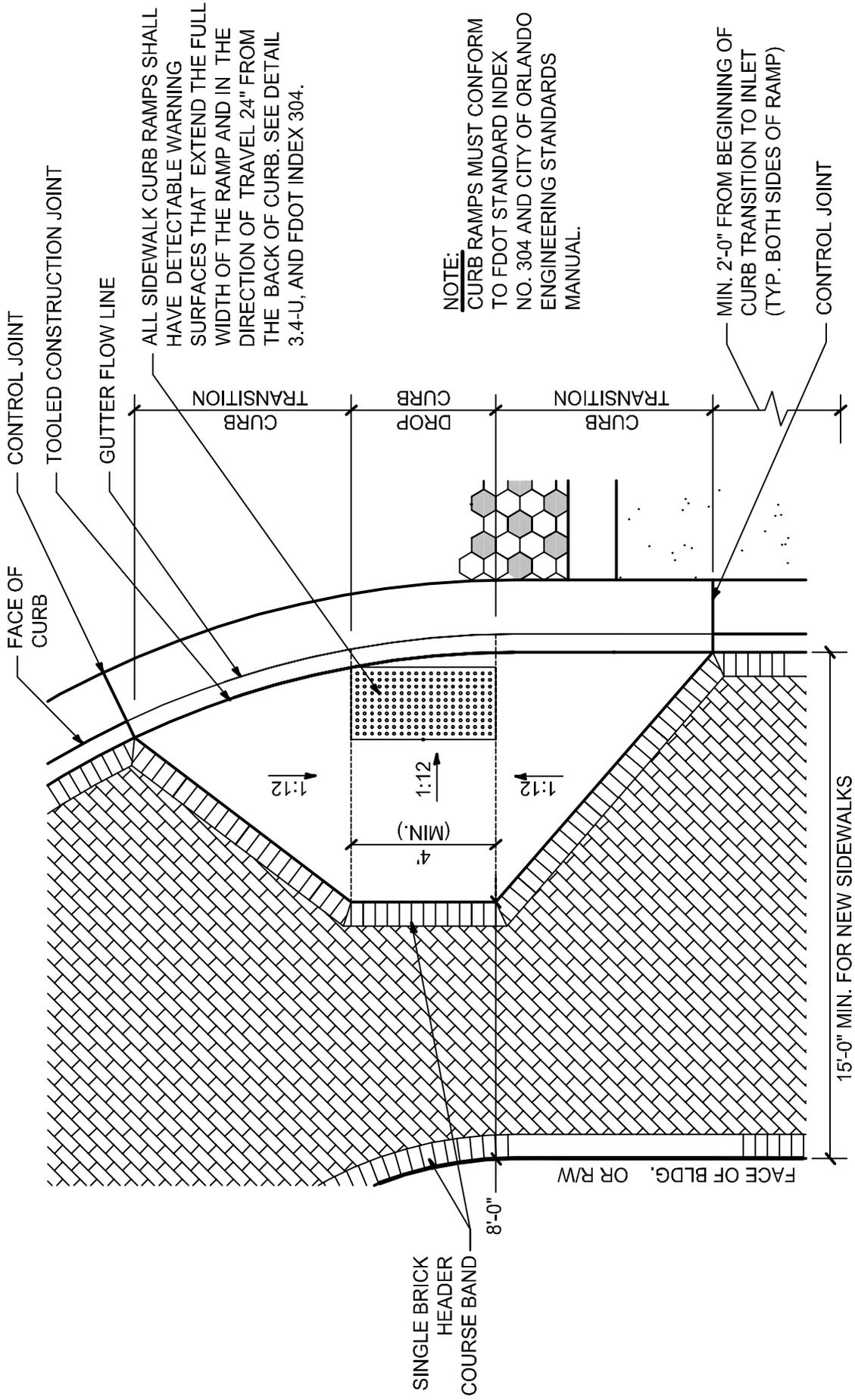
HOSE BIB ASSEMBLY

TREATMENT 4

DETAIL 3.4-R



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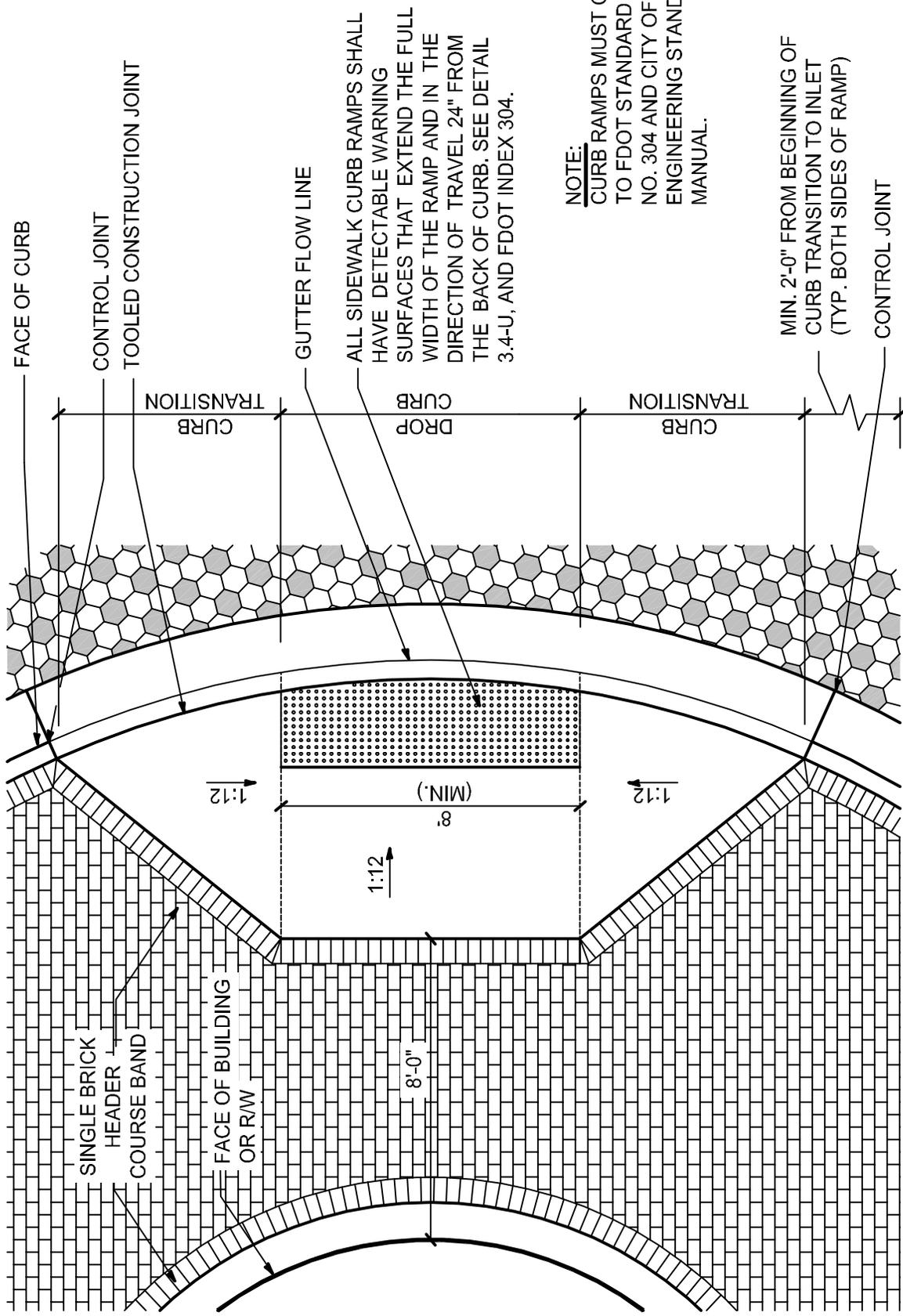
SINGLE PURPOSE HANDICAP RAMP

TREATMENT 4

DETAIL 3.4-S

Rev. 07/30/07





ALL SIDEWALK CURB RAMP SHALL HAVE DETECTABLE WARNING SURFACES THAT EXTEND THE FULL WIDTH OF THE RAMP AND IN THE DIRECTION OF TRAVEL 24" FROM THE BACK OF CURB. SEE DETAIL 3.4-U, AND FDOT INDEX 304.

NOTE:
CURB RAMP MUST CONFORM TO FDOT STANDARD INDEX NO. 304 AND CITY OF ORLANDO ENGINEERING STANDARDS MANUAL.

MIN. 2'-0" FROM BEGINNING OF CURB TRANSITION TO INLET (TYP. BOTH SIDES OF RAMP)

DUAL PURPOSE HANDICAP RAMP

TREATMENT 4

DETAIL 3.4-T

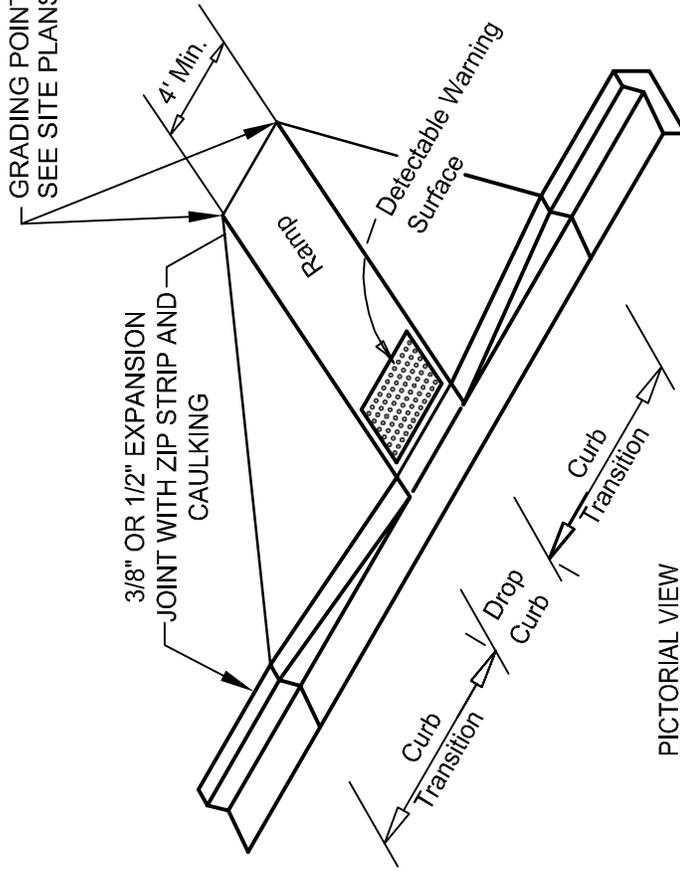
Rev. 07/30/07



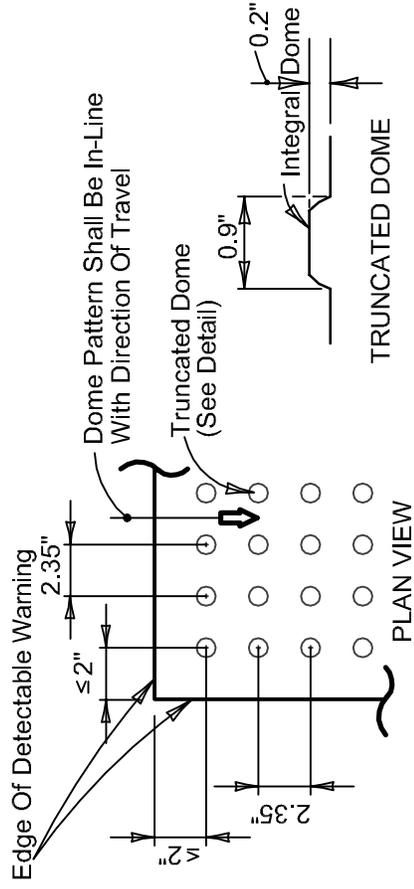
NOTES:

1. All curb ramps shall have detectable warning surfaces that extend the full width of the ramp and 24" from the back of curb in the direction of travel. As shown on Detail.
2. Detectable warning surfaces shall be truncated dome pattern in conformance with U.S. Department of Justice A.D.A. Standards. Detectable warning surface shall be cast-in-place concrete, with Scofield 'Chromix' Color Admixture #4821 'Shady Red', or approved equal.
3. Optional 12"x12" Masonry Unit or Granite Truncated Dome Pavers may be used with the approval of the City Architect.
4. The color requirement for detectable warnings is to provide a dark-on-light visual contrast between the detectable warning surface and the adjacent walking surface.
5. Expansion joints shall be placed at all perimeter edges abutting concrete, but no joints shall be made in the ramp itself.
6. Transition curb may be formed at the time of curb construction or may be monolithic with the ramp, but is included with the pay item for the ramp.

GRADING POINTS
SEE SITE PLANS



PICTORIAL VIEW



DETECTABLE WARNING SURFACE DETAIL

ADDITIONAL NOTES:

1. REFER TO FDOT INDEX 300 FOR MORE INFORMATION REGARDING PUBLIC SIDEWALK RAMPS.
2. CONTACT CITY ARCHITECT FOR FIELD CONFLICT RESOLUTION.



CURB RAMP DETECTABLE WARNING

TREATMENT 4

DETAIL 3.4-U

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3.5 – TREATMENT 5: PARKWAY STREETS

3.5.1—Overview

Residential streets and streets that experience low volumes of traffic may be classified as Parkways. These streets are typified by sidewalks with a grass 'parkway' between the street curb and the sidewalk, planted with trees.



Characteristics of Treatment 5, Parkway Streets include:

- Priority for re-bricking projects, sidewalk replacements, and/or improvements.
 - Sidewalks 5 to 7.5 feet in width and parkways 6 to 10 feet in width. The combination of sidewalks and parkways should total a minimum of 15 feet in width in new building projects.
 - Street trees within the parkways.
 - Single acorn light fixtures 100' feet on center located symmetrically on both sides of the street.
- Planting beds of groundcovers are encouraged in lieu of grass strips.
 - Overhead utilities within the parkway shall be placed underground.

3.5.2 – ALTERNATIVE STREETScape DESIGNS

Any streetscape designs that do not conform to the *Streetscape Guidelines* are subject to review by DDB/CRA for approval. Design may vary from these guidelines due to site conditions and approved conceptual changes.

Hardscape and landscape improvements outside the streetscape area should be compatible with the design of the streetscape and will be reviewed by the City Architect.

3.5.3 – TREATMENT 5 STREET TREES

Street trees are planted generally 40 feet on center (spacing may vary depending upon tree type and site conditions). Variances from typical tree spacing must be approved by the DDB/CRA. Street tree planting design is subject to approval of City Transportation Engineering Division. On streets which have a speed limit greater than 25 miles per hour, greater setback of the tree from the curb may be required.

See Section 4.15, Trees & Landscaping, and Section 4.16, Irrigation, for specifications for landscaping and irrigation. All tree species shall be selected from list of approved trees in those specifications.

3.5.4 – TREATMENT 5 STREETLIGHTS

Except at intersections where tall streetlights are provided, single acorn streetlights are required. The lighting is generally spaced midway between street trees, to meet City illumination requirements, as determined on a project by project basis. All streetlight planning, design, and construction shall be coordinated with OUC. Planning should begin early to ensure logical, uniform lighting schemes that minimize bright and dark spots. A streetlight plan shall be part of the submittal to DRC. See Section 5.5 for specifications.

3.5.5 – TREATMENT 5 CURB RADII

Subject to the approval of the City Transportation Engineering Division, the minimum radii of back of curb at all typical intersections approximating a right angle shall be as follows:

- Local to Local R = 25'
- Local or Collector to Collector R = 35'
- Local or Collector to Arterial R = 45' or greater

Refer to City Land Development Code, Section 2B, Major Thoroughfare Plan, for designations of Collector and Arterial streets.

3.5.6 – SIDEWALK WIDTHS

All new buildings constructed within the CRA will be required to provide a combination of parkway strip and sidewalks totaling 15 feet in width in Treatment 5 streets. Sidewalk widths required for renovations of existing buildings are the exception and shall conform to the site conditions.

See also Section 4.0, Technical Documents, and Section 5.0, Other Site Furniture for further specifications.

3.5.7 - WHEELCHAIR ACCESSIBILITY

All street corners shall have two wheelchair ramps, unless site conditions dictate otherwise and as approved by the City Architect and City Transportation Engineering Division.

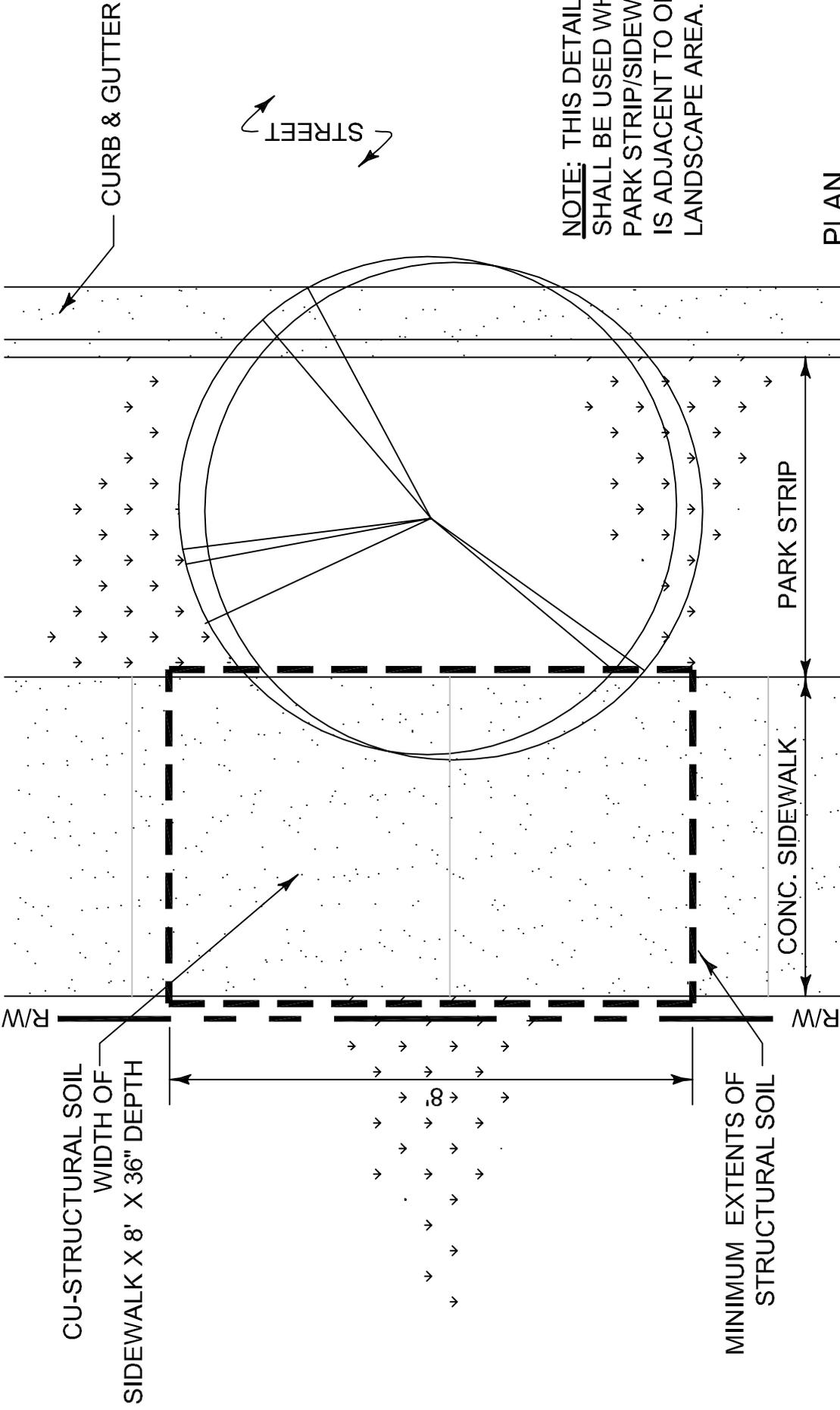
3.5.8 - TEMPORARY SIDEWALK IMPROVEMENTS

Any temporary sidewalk provisions that may be required during the construction of streetscape improvements are the responsibility of the property owner and will not be a cost sharing item of the DDB/CRA.

3.5.9 – TREATMENT 4 DETAILS

The following details shall be incorporated into the construction plans. The designer shall modify the details as necessary to fit site conditions. All variations from these details shall be approved by the City of Orlando.

See also Section 4.0, Technical Documents, and Section 5.0, Other Site Furniture, for further specifications.



NOTE: THIS DETAIL SHALL BE USED WHEN A PARK STRIP/SIDEWALK IS ADJACENT TO OPEN LANDSCAPE AREA.

PLAN



STRUCTURAL SOIL PLACEMENT DETAIL

DETAIL 3.5-A

TREATMENT 5 (URBAN)

Rev. 07/30/07



3.6 -- Gertrude's Walk & Railroadscape

3.6.1 – Gertrude's Walk & Railroadscape Overview

Gertrude's walk is an historic pedestrian pathway adjacent to the Seaboard Coastline Railroad along Gertrude Avenue, from Church Street to Washington Street. It will be part of the proposed Orlando Urban Trail, a multi-use trail.

Characteristics of the existing Gertrude's Walk include:

- 16 to 18-foot wide sidewalks with combinations of concrete and brick pavers.
- Trees within square tree wells, 25 to 40 feet on center.
- Combination of brick columns/walls and black wrought-iron fencing.
- Single acorn light fixtures incorporated into the columns.
- Planters incorporated into the wall and fence.

New projects adjacent to and across the railroad tracks from Gertrude's Walk, plus along the railroad north of Gertrude's Walk to Colonial Drive, shall provide corridor space to supplement existing corridor space so that the total corridor width is 25 feet.

New projects shall incorporate street trees, pavement, columns, walls, fencing, and lighting elements of the existing pathway and structures into the design. Where space allows, trees shall be located within an adjacent park strip, a minimum of 6 feet in width.



Hardscape and landscape improvements outside the streetscape area should be compatible with the design of the streetscape and will be reviewed by the City Architect.

All streetlight planning, design, and construction shall be coordinated with OUC. Planning should begin early to ensure logical, uniform lighting schemes that minimize bright and dark spots. A streetlight plan shall be part of the submittal to DRC.

See also Section 4.0, Technical Documents, and Section 5.0, Other Site Furniture for further specifications.

3.7 - Other Treatments

Other streetscape treatments may be developed for specific projects.

Currently, specific projects which are receiving treatments which vary from the concepts presented previously include Division Avenue Streetscape and Church Street Streetscape.



3.7.1 - DIVISION AVENUE STREETScape

Division Avenue, from West Church Street to West Washington Street, shall receive a variation on Treatment 4. It will include 12" X 12" specialty pavers (other than brick) in running-bond pattern in the sidewalks at intersections, and in crosswalks, window-pane concrete sidewalks scored on a grid pattern, double-acorn streetlights, street trees, custom steel guards around rectangular tree wells, planter pots, and street names etched onto crosswalk pavers.

3.7.2 - CHURCH STREET STREETScape

Church Street, because of its importance to the linking of downtown and the proposed arena to the Citrus Bowl, will receive special design consideration, and will receive a variation on the treatments included in these guidelines.

3.8 – Plazas (RESERVED)

SECTION 4.0

TECHNICAL DOCUMENTS

4.1 - MOBILIZATION

GENERAL

The initial section generally applies to start-up items associated with streetscape projects in excess of \$350,000.

On smaller projects the cost of items such as bonds, insurance, safety equipment, and sanitary facilities is totaled and spread uniformly throughout the individual work items. Project signs, if required are handled as a separate work item.

DESCRIPTION

- A. The work included in this item shall include- but not be limited to the preparatory work and operations in mobilizing for beginning work on the project.
- B. Operations and costs are included that are necessary for the movement of personnel, equipment, supplies, and incidentals to the project site, and for the establishment of field offices, safety equipment and first aid supplies, project signs, sanitary and other facilities, staging area, construction layout survey by a registered surveyor, and other incidental items as required by these Contract Documents, and State and local laws and regulations.
- C. The costs of bonds and required insurance, permits, fees, and any other preconstruction expenses necessary for the start of work, excluding the cost of construction materials, shall also be included in this item.

PRODUCTS

- A. Field Office and Facilities
 - 1. The Contractor shall provide and maintain a weather-proof office for use by the Engineer's representative. This office shall be heated and provided with windows which operate doors with locks, tables, benches, and racks for Drawings, one (1) telephone, file cabinets, and air conditioning. The office shall be located on site and within the area of work by renting vacant office space or by providing a suitable trailer office or rental office as approved by the Engineer.
- B. Project Signs
 - 1. The Contractor will be required to supply and install project signs as directed by the Engineer. These signs must be professionally painted to the Engineer's specifications. No other signs or advertising will be permitted, without the approval of the Owner, except signs for safety purposes. Details of the signs are contained on the Drawings.

EXECUTION

- A. Staging Area
 - 1. Staging area locations must be approved by the Owner.

2. Sidewalks shall not be used for staging area.
3. Fence and gate staging area for security purposes.
4. No automobiles or trucks shall be permitted to park within the staging area except for delivery and pickup purposes.
5. Upon completion of work, vacate the staging area and repair all damage to existing streets, curbs, walks, and/or utilities caused by the occupancy and use of this area, essentially returning the area to the condition prior to occupancy.

B. Parking

1. Construction workers shall not be permitted to park their vehicles within the work site. All workmen shall park their vehicles legally in city or private parking lots.
2. Delivery trucks with supplies or materials shall be unloaded immediately and driven off the site upon removal of materials or supplies from the truck.
3. Contractor shall be permitted to have one (1) truck per trade on site.

4.2 - MAINTENANCE AND PROTECTION OF VEHICULAR AND PEDESTRIAN TRAFFIC

GENERAL

The purpose of this section is to provide ideas on the safety of vehicular and pedestrian traffic during construction. Other methods of safe pedestrian and vehicular control should be anticipated and designed according to the specific needs, on a site by site basis, as approved by the Engineer.

Typically, vehicular traffic is detoured, and new roadway construction is done in the first phase while existing sidewalks are maintained for pedestrian walkways. Subsequently, new sidewalk construction is done in the second phase while the new roadway is used for the pedestrian walkways.

The methods used for handling vehicular traffic on the intersecting side streets, however, cannot be as easily shown. Each street being unique, the method used should be approved by State and/or Local traffic departments. If street closure is not practical, construction phasing could be on half the street while occurs on the other half.

Since pedestrians will generally be allowed to walk near or through the construction area, care and consideration shall be used when designing systems to safely handle these movements.

DESCRIPTION

- A. Provide all labor, material, and services, and perform all operations required for the maintenance and protection of vehicular and pedestrian traffic.

All traffic related design and work items shall be subject to approval and permits by City and/or State Agencies.

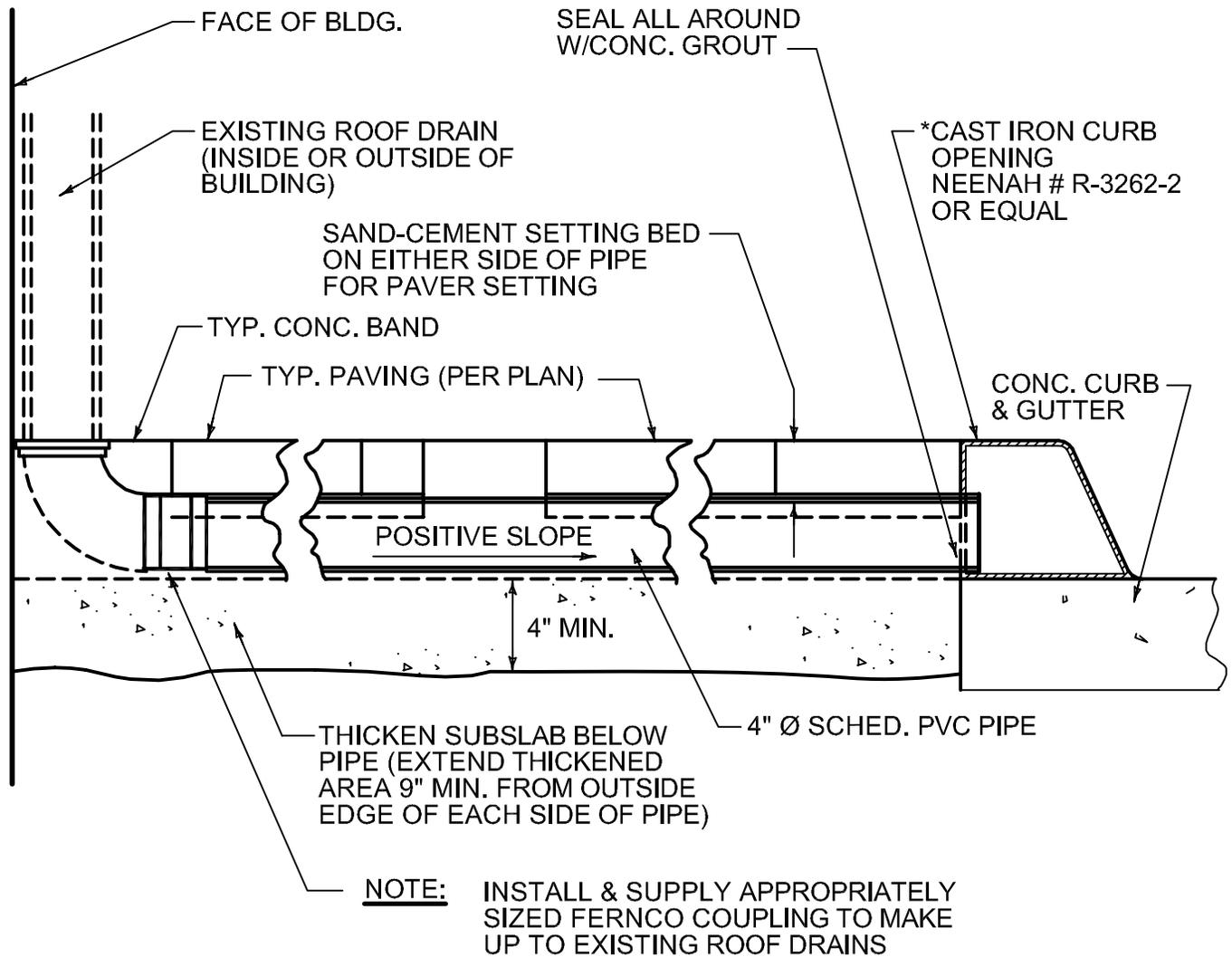
- B. Work Specified in Other Documents: Maintenance and protection of traffic shall be in accordance with applicable portions of Section 102 of the Florida Department of Transportation Standard Specifications for Road and Bridges (the Florida Department of Transportation Manual on Traffic Control, Safe Practices, Highway Construction, and Maintenance and Utility Operations), and the latest edition of the Manual of Uniform Traffic Control Devices."

PRODUCTS

- A. Wooden barricades shall meet the material requirements specified. Barricades shall not be painted in any fashion other than as indicated in these specifications unless otherwise approved by the DDB/CRA. (See Details 4.2-B, and 4.2-C).
- B. Signs shall meet the requirements of the FDOT Specifications, and City of Orlando Transportation Engineering Division.

EXECUTION

- A. **Occupancy:** Before any construction work begins, the following should be considered:
1. Methods of barricading for pedestrian control and safety, as well as methods for movement of pedestrian traffic within the construction area.
 2. Method of handling pedestrian traffic onto and off work area.
 3. All signs required for pedestrian and vehicular control.
 4. Night lighting and barricades.
- B. The cost incurred for rental of on-site, unusable, metered parking spaces should be included as part of the maintenance and protection of vehicular and pedestrian traffic work items.
- C. The cost incurred for rental of off-site metered parking spaces that may be used to accommodate relocated on-site loading zones, should be included as part of these work items.
- D. Detail 4.2-A shows typical phasing for a street closure. Variations of this phasing can be used to maintain vehicular traffic if necessary, and as approved by City and/or State staff.



ROOF DRAIN NOTES

1. ALL CONNECTIONS TO EXISTING ROOF DRAINS SHALL BE MADE AS WATERTIGHT AS POSSIBLE USING CONVENTIONAL METHODS.
2. ALL ROOF DRAINS SHALL BE INSTALLED TO PROVIDE POSITIVE DRAIN WITH A CONSTANT SLOPE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. ANY WORK DONE OUTSIDE OF THE RIGHT-OF-WAY SUCH AS DEMOLITION AND PAVEMENT REPLACEMENT WILL BE INCIDENTAL TO THE RESPECTIVE ITEMS.



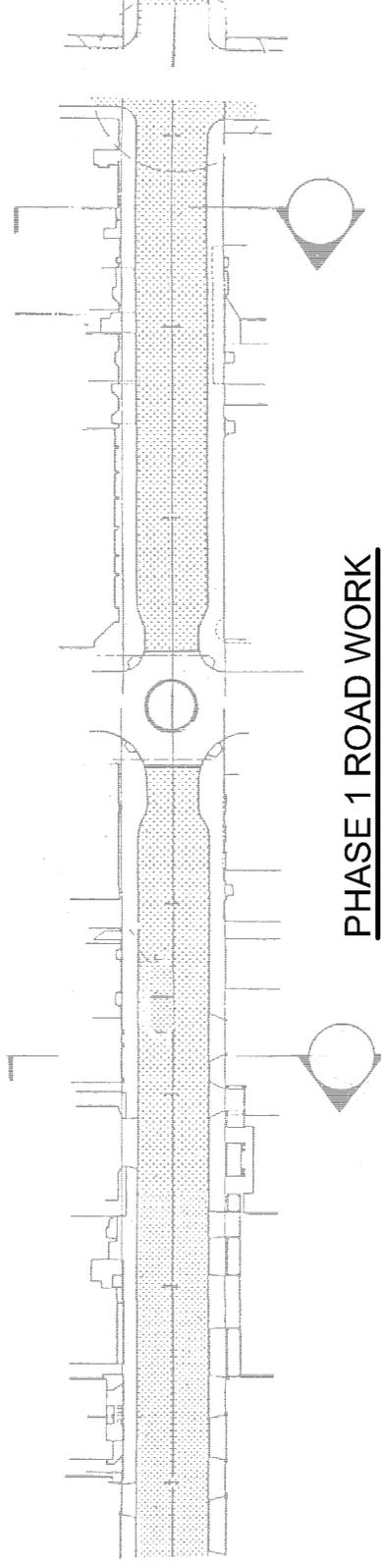
ROOF DRAIN

ALL TREATMENTS

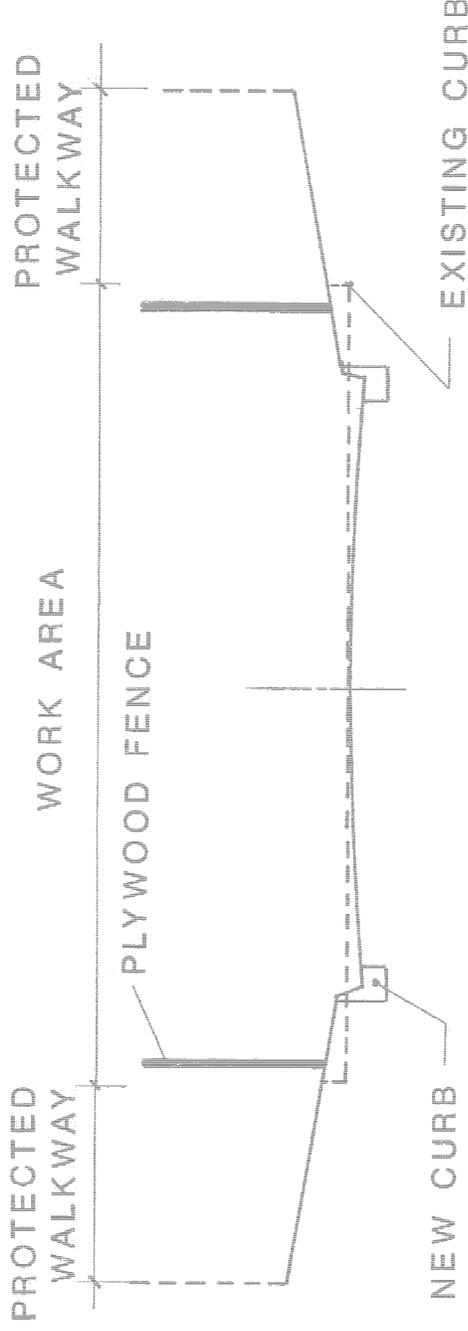
DETAIL 4.17.4-A



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PHASE 1 ROAD WORK
NTS



BARRICADING & ACCESS-ROAD WORK

SECTION



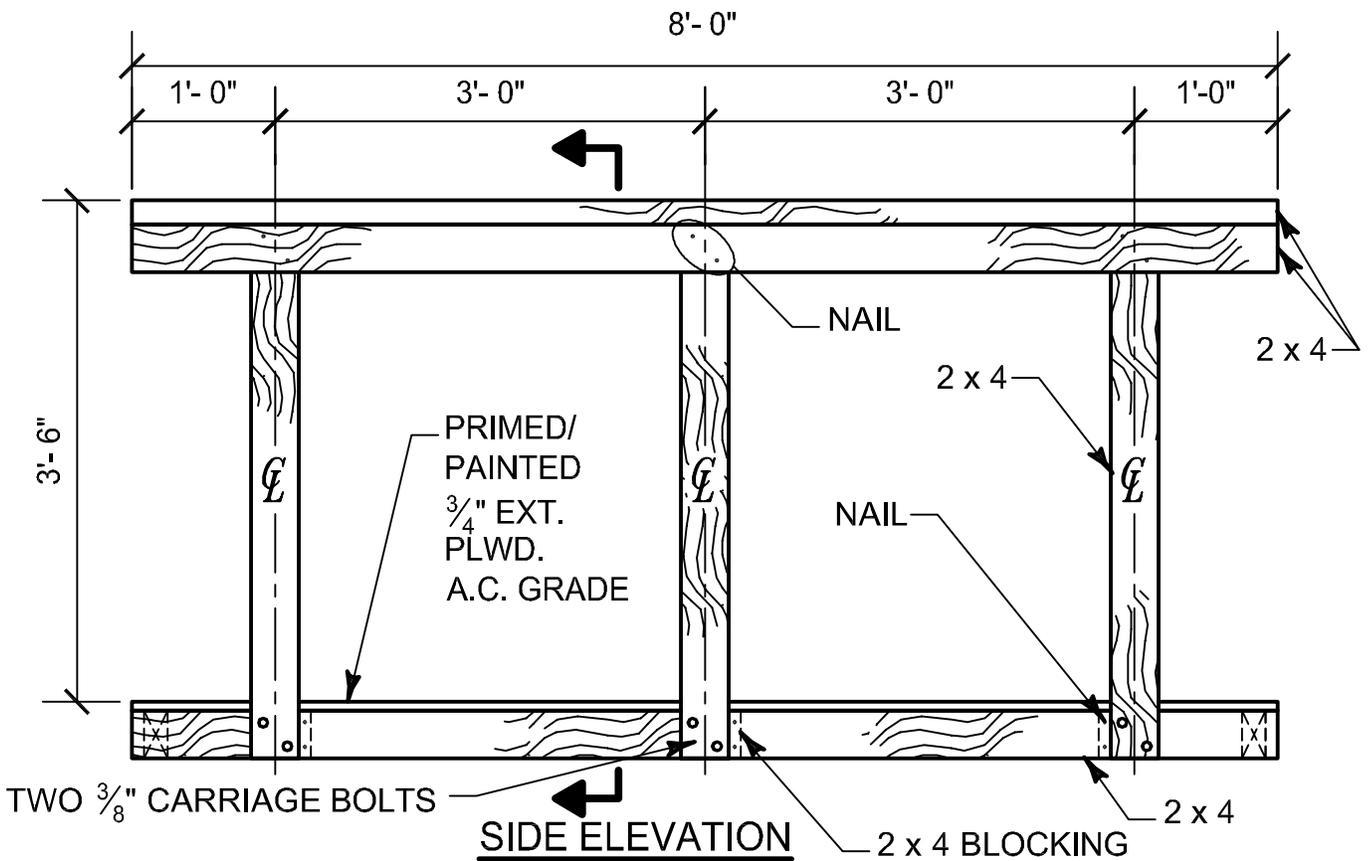
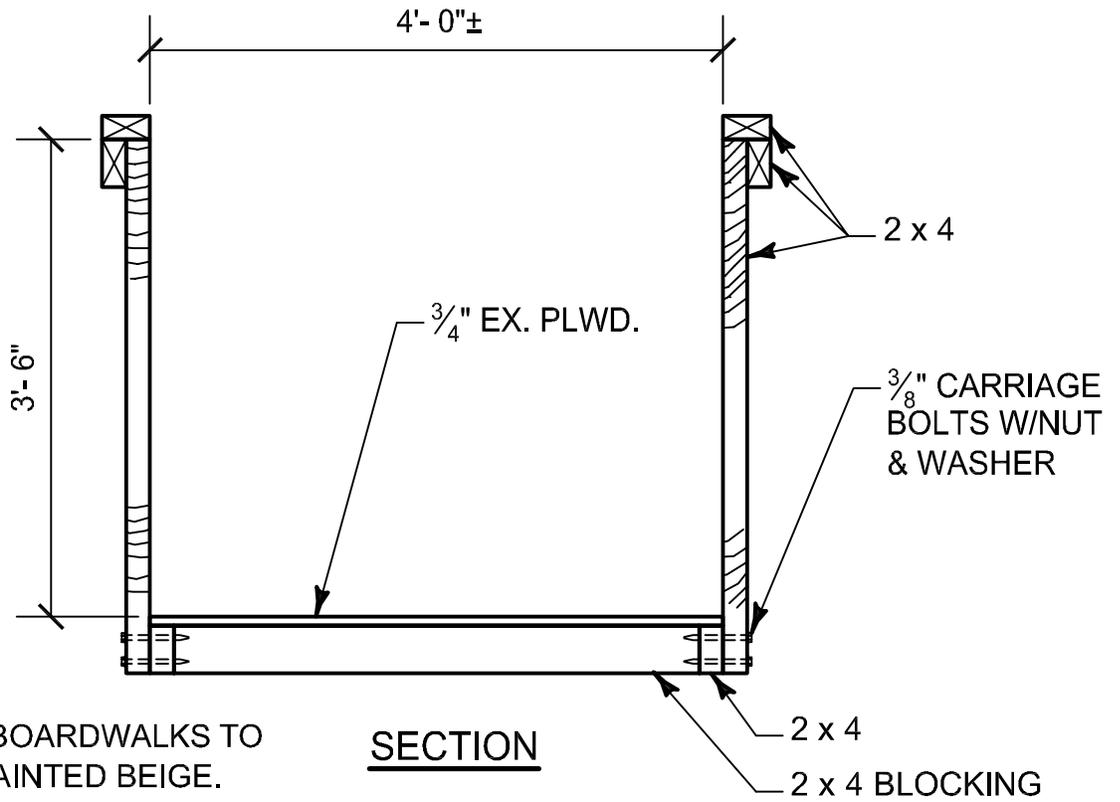
PEDESTRIAN ACCESSING - PHASE 1

ALL TREATMENTS

DETAIL 4.2-A

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PEDESTRIAN BOARDWALK

ALL TREATMENTS

DETAIL 4.2-B



Rev. 07/30/07

4.3 - DEMOLITION

GENERAL

This section discusses the scope of work and procedures involved to prepare the construction site prior to the start of any earthwork or underground utility construction.

DESCRIPTION

- A. Provide all labor, material, and services, and perform all operations required for demolition and all conditions for general site preparation.
- B. All saw-cutting, backfilling, disposal of surplus materials, etc., required for demolition shall be included.
- C. Existing underground utility removal. All utilities and water facilities will remain intact until new facilities have been installed and completed.
- D. All trees shall be permitted to be removed and disposed of legally off the site, unless designated to be removed and saved by the CRA Architect.

POLLUTION CONTROLS

- A. Use water sprinkling and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection. Do not use water when it may create hazardous or objectionable conditions such as flooding and pollution.
- B. Clean adjacent pavements, roads, and other improvements of dust, dirt, and debris caused by demolition operations, as required by the governing authorities. Return adjacent areas to condition existing prior to the start of the work.
- C. Construct temporary drainage ways or bulkheads as needed to control stormwater runoff into existing drainage structures.
- D. Construct silt or soil arresting devices as directed by the Engineer to keep silt and soil from entering storm sewer system.

BELOW-GRADE DEMOLITION

- A. Demolish and remove below-grade footings and structures scheduled for removal. DO NOT DISTURB possible thrust blockings for water mains. All other footings for buildings and/or vaults and underground structures shall remain undisturbed.
- B. Fill all voids caused through removal of demolition work with approved fill material and place as specified under Earthwork Section.

CONCRETE SIDEWALK CURB, AND CURB AND GUTTER REMOVAL

- A. Saw cut at limits of construction.
- B. Protect all above and below grade existing utilities and services from damage.
- C. Remove concrete walks and curbing where shown on plan.
- D. Grade and shape work area for positive drainage to roadway and remove all broken debris and rubble from subgrade and on grade.
- E. Place and maintain boardwalk and crosswalk system to business establishments.

ROADWAY PAVING REMOVAL

- A. Saw cut through asphaltic concrete and/or brick paving at limits of construction.
- B. Remove all asphalt, brick pavement, or other road construction materials encountered to natural earth subgrade.
- C. Shape and smooth grade for positive drainage. Remove all rubble from surface grade.

ROOF DRAINS

- A. Remove horizontal roof drains between building downspouts and curbing.

NOTE: Prior to demolition of roof drains, care should be taken to determine the size and locations of all roof discharge lines for buildings adjacent to construction area. This information should be recorded for future reference.

- B. Install temporary 4" diameter PVC drainage system to carry stormwater from face of building to the street. Remove at time of permanent installation of specified roof drain system.

EXECUTION

- A. Soil borings indicating subsurface conditions may be made available for Contractor's use but are not intended as representations of warrants of continuity of such conditions between soil borings. Soil boring logs that are made available from the Engineer are for reference only. It is expressly understood that the Owner will not be responsible for interpretations or conclusions drawn there from by the Contractor. Data is made available for the convenience of the Contractor.
- B. Use of explosives is not permitted.
- C. Temporary Protection: Protect structures, utilities, sidewalks, pavements, and other facilities that are to remain, from damages caused by settlement, lateral movement, undermining, washout, and other hazards created by demolition operations.
- D. Condition of Paving and Structures

1. The actual thickness or condition of pavement or structures to be demolished may vary
2. Road base information is usually unknown.

E. Existing Utilities

1. Protect all existing utilities at grade and below grade from damage during demolition work.
2. Where existing utilities are to remain in place, provide adequate means of protection during demolition and duration of work.
3. Protect all new utilities installed or constructed during the course of the project.
4. Locate existing underground utilities in advance of demolition work.
5. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation. Water facility repairs will be made by OUC forces.
6. Damaged Utilities: Report damaged utility immediately to respective utility company representative. Repair of damaged utility will be as directed by the respective utility company.
7. Interruptions to existing utilities shall be permitted only after acceptable temporary utility services have been provided.
8. Demolish and completely remove from the site underground utilities indicated to be removed. Coordinate with local utility companies for shut-off of services if lines are active.
9. All existing utilities that are encountered during trenching and excavation work, and are determined to be abandoned or are scheduled for abandonment, shall be demolished and removed. Removal shall mean the full width of the trench and/or the full width of the excavation work.

All existing storm and sanitary lines 8" or greater in diameter that are to be abandoned but not removed and are deeper than 5' shall be filled with a sand/cement slurry consisting of 95% sandy soil, 5% cement, and water. All abandoned storm and sanitary pipes 8" or greater in diameter and 5' or less from finished grade shall be removed.

After the demolition and removal of existing utilities within the trench and excavation area, plug all ends of inactive, small diameter pipes exposed during this operation with concrete or brick and grout as directed by Engineer.

10. Manholes, storm inlets, and vaults.

All structures scheduled for demolition and abandonment shall be completely removed, legally disposed of off-site and backfilled according to applicable portions of the Earthwork Section.

- F. Damages: Promptly report damages caused to any adjacent facilities by demolition operations to the Owner.
- G. Traffic: Conduct demolition operations and the removal of debris with efforts required to ensure minimum interference with traffic, adjacent streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct adjacent streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways as shown on the Drawings.
- H. Protection: Ensure the safe passage of persons around the area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.

DISPOSAL OF DEMOLISHED MATERIALS

- A. All rubbish, demolished materials, trees, and other materials resulting from work described herein and not indicated to become the Owner's property are to be removed from the site and disposed of legally.

DISPOSAL OF STREET BRICK

- A. All street brick shall remain as City's property. Contractor shall clean, palletize, and secure bricks with shrink wrap and deliver to a site specified by the City of Orlando Streets & Stormwater Division. Contact (407) 246-2238 for location and delivery coordination.

4.4 - NEW UTILITY CONSTRUCTION

GENERAL

This section discusses the scope of work and labor involved for storm and sanitary system construction that may be involved during a streetscape project. Many existing systems need to be upgraded to meet present day demands. Designs for new storm and/or sanitary systems are to be approved by applicable State and/or City Agencies.

DESCRIPTION

- A. The work includes excavating, trenching, and backfilling for the construction and installation of sanitary and stormwater system pipelines, structures, and other utilities.
- B. All existing storm and sanitary pipes that are to be removed that fall within the excavations required for new pipeline installation should be considered incidental.
- C. Excavations shall be open cut unless required otherwise due to field conditions.
- D. Cribbing, shoring, bracing, cofferdams, dewatering, should be considered incidental to the work.
NOTE: Rigid shoring requirements are in effect for all excavations.
- E. Whenever any piping, cable, telephone lines, or other utilities are encountered during excavation or other work, notify the applicable utility company immediately.
- F. Furnish all labor, materials, equipment, and incidentals required to modify, alter, and/or convert existing structures as required for the installation of new piping and appurtenances. Existing piping shall be removed and dismantled as necessary for the performance of structural alterations in accordance with the requirements specified under the Demolition Section.
- G. Supply all labor, equipment, materials, and incidentals necessary to install and test all piping and appurtenances.
- H. This work shall include, but not be limited to, the following. PVC, ductile iron pipe, reinforced concrete pipe with rubber gasket joints, aluminum pipe and related fittings. All excavation, backfilling, sheeting, slope protection, drainage, concrete work, dewatering, grading, and all other work necessary to complete the construction, installation, and testing of the piping.

PRODUCTS

- A. All precast structures shall be furnished by a single manufacturer who is fully experienced, reputable, and qualified in the manufacture of items to be furnished. The structures shall be designed, constructed, and installed in accordance with the best practices and methods.
- B. All cast-in-place concrete structures shall conform to the requirements of the Concrete Work Section.

C. PVC Pipe

1. PVC pipe construction shall conform to the applicable sections of the City of Orlando Specifications for Sewer Review. PVC pipe and fittings shall conform to ASTM D-3034, SDR 35, and shall have integrally-formed bell and spigot with factory installed rubber sealing ring gaskets.
2. The PVC pipe shall be backfilled sufficiently to withstand construction equipment loading which may be encountered during the progress of the work.

D. Steel-Reinforced Concrete Pipe

1. Reinforced concrete pipe shall conform to Section 941 of the FDOT Standard Specifications for Road and Bridge Construction, Class III, Wall B. Reinforcement shall be full circular cage. Neither elliptical nor quadrant reinforcement will be allowed.
2. The reinforced concrete pipe shall be backfilled sufficiently to withstand construction equipment loading which may be encountered during the progress of the work.

E. Ductile Iron Pipe

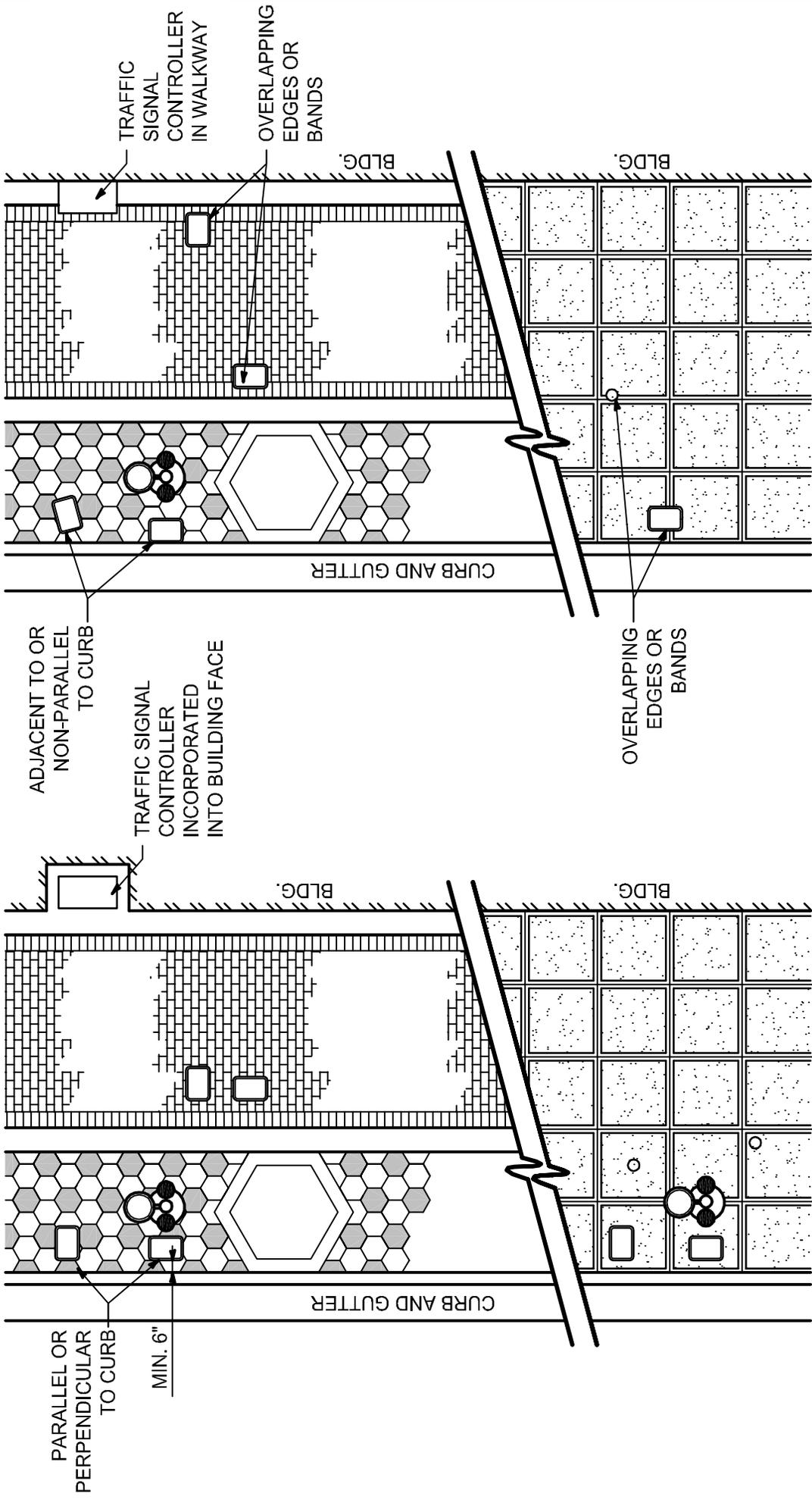
1. Pipe shall be centrifugally cast ductile iron pipe, Class 51, with push on joints.
NOTE: For sanitary applications, all D.I.P. to be polylined.

F. Materials and Design for Structures

1. Precast storm drainage structures shall conform to Section 425 of the FDOT Standard Specifications for Road and Bridge Construction.
2. Precast sanitary sewer structures shall conform to the applicable sections of the City of Orlando Specifications for Sewer Review.
3. All cement concrete shall comply with the requirements of Concrete Work Section.
4. Inlet tops should be modified to accept thin set pavers used on streetscape projects. (See Details included in Treatment Sections 3.1, 3.2, 3.3, and 3.4)

EXECUTION

- A. All sanitary sewer related construction should conform to the City of Orlando Specifications for Sewer Review.
- B. All storm sewer related construction should conform to the FDOT Standard Specifications for Road and Bridge Construction.
- C. All trenching and backfilling should conform to applicable portions of the Earthwork Section.



INCORRECT

CORRECT

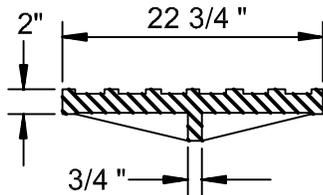
UTILITY BOXES & COVERS IN PAVEMENT

ALL TREATMENTS

DETAIL 4.4-A



Rev. 07/30/07



MANHOLE FRAME & COVER FOR USE IN DEDICATED PUBLIC R.O.W.:

SPECIFICATIONS

1. PAMREX OR SIMILAR APPROVED MANHOLE COVER & FRAME
2. COVERS & FRAMES SHALL BE MANUFACTURED FROM DUCTILE IRON IN ACCORDANCE WITH ISO 1083
3. COVERS TO BE HINGED AND INCORPORATE A 90° BLOCKING SYSTEM TO PREVENT ACCIDENTAL CLOSURE
4. COVERS SHALL BE ONE-MAN OPERABLE USING STANDARD TOOLS AND SHALL BE CAPABLE OF WITHSTANDING AN AVERAGE LOAD OF 120,000 LBS
5. FRAMES SHALL BE CIRCULAR AND INCORPORATE A SEALING GASKET; FRAME DEPTH SHALL NOT EXCEED 4"
6. THE FLANGE SHALL INCORPORATE BEDDING SLOTS AND BOLT HOLES
7. ALL COMPONENTS SHALL BE BLACK COATED

*REFER TO CITY OF ORLANDO ENGINEERING STANDARDS MANUAL, SHEET 1, FOR MORE INFORMATION



STANDARD MANHOLE COVER

ALL TREATMENTS

DETAIL 4.4-B



4.5 - EARTHWORK

GENERAL

This section discusses the scope of work and materials used for the excavation and backfilling needed to obtain subgrades for new roadway construction and for trenching and backfilling for new underground structures, pipelines, and utilities.

DESCRIPTION

- A. All labor and equipment required to obtain all excavations, trenching and backfilling.

PRODUCTS

- A. Satisfactory soil materials are defined as those complying with the American Association of State Highway and Transportation Officials (AASHTO), Designation M145, Soil Classification Groups A-1, A-24, A-2-5, and A-3.
- B. Unsatisfactory soil materials are defined as those described in AASHTO, M145, Soil Classification Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7; also, peat and other highly organic soils unless otherwise acceptable to the Engineer.
- C. Cohesion-less Soil Materials shall include gravels, sand-gravel mixtures, sands, and gravelly-sands.
- D. Cohesive Soil Materials include clayey and silty gravels, sand-clay mixtures, gravel-silt mixtures, clayey and silty sands, sand-silt mixtures, clays, silts, and very fine sands.

Codes and Standards: Perform earthwork in compliance with applicable requirements of governing authorities having jurisdiction, particularly to related work covered by "Florida Department of Transportation" Standard Specifications.

Testing and inspection service shall be done by the Owner.

EXECUTION

- A. Sheeting and Shoring: As a minimum all excavations shall be sheeted and braced if required by any governing State laws and municipal ordinances, and as may be necessary to protect life, property, or the work. When close sheeting is required, it shall be so driven as to prevent adjacent soil from entering the trench either below or through such sheeting. Where sheeting and bracing are used, the trench width shall be increased accordingly. Additional sheeting or bracing beyond these conditions may be required.
- B. Existing Utilities: Locate existing underground utilities in the area of work before starting earthwork operations. Where utilities are to remain in place, provide adequate means of protection during earthwork operations.
1. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation.

2. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others.

SOIL MATERIALS

- A. **Backfill and Fill Materials:** Shall be satisfactory soil material for backfill and fill, free of rock or gravel larger than two inches (2") in any dimension, debris, waste, vegetable and other deleterious matter. Use excavated or borrow material that has been sampled, tested, and certified as suitable soil material.
- B. **Unsuitable Material:** If unsuitable materials are encountered at the required subgrade elevations, carry excavations deeper and replace the excavated material as directed by the Engineer.
- C. **Dewatering:** Prevent surface water and subsurface or groundwater from entering excavations, and flooding the project site and surrounding area.
 1. Do not allow water to accumulate in excavations. Remove water from excavations to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrade and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering components necessary to convey the water away from the site.
 2. Convey water removed from excavations and rain water to collecting or run-off areas. Do not use trench excavations for site utilities as temporary drainage ditches.
- D. **Material Storage:** Stockpile excavated materials classified as suitable soil material until required for fill. Place, grade, and shape stockpiles for proper drainage. Dispose of excess unsuitable soil material, trash, and debris legally off the site.
- E. **Excavation for Pavements:** Cut the surface under pavements to comply with cross-sections, elevations, and grades as shown.
- F. **Trench and Structure Excavation**
 1. **Excavation Dimensions:** Provide 18" of clear working space between the exterior lines of the structure and the face of the excavation or shoring. In all cases extend to solid bearing.
 2. **Dewatering:** Remove all water from excavation before placing concrete and maintain the excavations free of water until concrete is placed. Provide dewatering equipment as necessary to conform to this requirement.
 3. **Foundation Preparation:** Excavate to specified depth and width for placing structures. Compact bottom to 98% maximum dry density, by ASTM D-1557 (modified proctor).

4. General: Excavate trenches to lines, grades, and elevations indicated or staked in the field. Fine grade the trench bottom throughout and excavate to accommodate joints and connections so the barrel of the pipe or conduit will receive bearing pressure throughout the trench bottom.
5. Trenching Guidelines: For excavation, trench width and depth shall be as follows: Ample width to allow a minimum free working space; width of hand excavated trenches may be reduced providing approval is given, stability of soil is consistent with depth of trench required, and pipe can be satisfactorily installed to line and grade and properly backfilled. Grade and trim sides upward to original ground at the required slopes necessary to safely install the pipe; pump off water which has accumulated in low ground, and keep excavation drained of water.
6. If water is allowed to stand and the earth is softened, the earth shall be completely dried or replaced with firm material and the proper backfill placed before construction can proceed.

COMPACTION

- A. General: Control soil compaction during construction providing the minimum percentage of density specified for each classification.
- B. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum dry density determined in accordance with ASTM D-1557 (modified proctor):
 1. Unpaved Areas: Compact top 6 inches of subgrade and each layer of backfill or fill material at 95 percent maximum dry density.
 2. Walkways: Compact top 6 inches of subgrade and each layer of backfill or fill material at 95 percent maximum dry density.
 3. Pavements: Compact top 12 inches of subgrade and each layer of backfill or fill material at 98 percent maximum dry density.
 4. Trenches: If any trenching is performed after compaction is completed, or structures are in place, Contractor must restore trenches to the compaction as indicated for that item.
- C. Moisture Control: Where the subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to the surface of subgrade, or layer of soil material, to prevent free water appearing on the surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

FILL AND BACKFILL

- A. Ground Surface Preparation: Remove vegetation, debris, unsuitable soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. When the existing ground surface has a density less than that specified under "Compaction for the particular area classification, break up the ground surface,

pulverize, moisture-condition to the optimum moisture content, and compact to the required depth and percentage of maximum density.

B. Placement and Compaction: Place backfill and fill materials in layers not more than twelve inches (12") in loose depth for material compacted by heavy compaction equipment, and not more than four inches (4") loose depth for material compacted by hand-operated equipment.

1. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content of the soil material. Compact each layer to the required percentage of maximum dry density for surfaces that are muddy.
2. Backfill excavations as promptly as the work permits, but not until completion of inspection, testing, approval, and recording location of underground utilities, as required.

C. Trench Backfill:

1. Backfill trenches immediately after approval of the line construction.
2. Utility Line Backfill: Where lines are placed within the roadway and under walks, each layer of the backfill shall be clean approved soil mixture, compacted to 98 percent maximum dry density as determined by ASTM D-1557 (modified proctor) Use suitable backfill carefully placed in uniform layers not exceeding 6 inches in thickness to a depth of 1 foot over the top of the pipe. Place material and fill the area under the pipe haunches. Place each layer, moisten, then uniformly compact by use of pneumatic or mechanical tampers exercising care to prevent lateral displacement. Areas of backfill 1 foot over top of pipe to top of trench shall be backfilled with a suitable material containing rocks no larger than 4 inches in the greatest dimension, and shall be free of organic material with an exceptionally high void content. Moisten backfill above 1 foot over the top of the pipe and place in 8" layers. Puddling or flooding of trench for consolidation of backfill or use of wheel rolling by construction equipment shall not be done. Compact each layer with pneumatic or mechanical compactor.

GRADING

A. General: Uniformly grade areas within the limits of site grading including adjacent transition areas. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades. The degree of finish required will be that ordinarily obtainable from either blade-grader, scraper operations, or shovel and rake.

B. Roadways and Walkways: Shape the surface of the areas under pavement to line, grade, and cross-section, with the finish surface not more than 3/8 inch above or below the required subgrade elevation, compacted as specified, and graded to prevent ponding of water after rains. Include such operations as plowing, discing, and any moisture or aerating required to provide the optimum moisture content for compaction. Fill low areas resulting from removal of unsuitable soil materials, obstructions, and other deleterious materials, using suitable soil material. Shape to line, grade, and cross-section as shown on drawings.

FIELD QUALITY CONTROL

- A. Quality Control Testing During Construction: Engineer shall inspect and approve subgrades and fill layers before further construction work is performed, and may require at the Owner's expense, but not necessarily be limited to, the following:
1. Field density tests in accordance with ASTM D-1556 (sand cone method), or ASTM D-2167 (rubber balloon method) or nuclear densometer.
 2. At least one field density test of the subgrade for every 2000 square feet of paved area.
 3. In each compacted fill layer, one field density test for every 2000 square feet of overlaying paved area, but in no case less than three tests.
 4. If, in the opinion of the Engineer, based on reports of the testing service and inspection, the subgrade or fills which have been placed are below the specified density, additional compaction and testing will be required until satisfactory results are obtained.

MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to the specified tolerances.
- B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

4.6 - CONCRETE WORK

GENERAL

This section discusses the scope of work and labor involved for the construction of concrete items that are used in typical streetscape projects.

DESCRIPTION

- A. **General:** Provide all labor, materials, equipment, and services, and perform all operations required for complete installation of all concrete curbs, walks, bands, slabs, etc., and do any or all related work.
1. The work specified in this Section shall conform to all regulations of local, State, and Federal authorities having jurisdiction, including safety, health, and anti-pollution requirements, in effect.
 2. The work specified in this section shall also conform to all applicable sections of the FDOT Standard Specifications for Road and Bridge Construction.
- B. **Work Included:** The work shall include, but not be limited to, the following.
1. Concrete curb, and curb and gutter.
 2. Concrete walks and handicap ramps.
 3. Concrete banding.
 4. Concrete slabs and subslabs, and concrete banding integral with subslabs.
 5. Concrete street light pole bases.
 6. Concrete tree grate collar.
 7. Concrete traffic signal pole base.
 8. Concrete valley gutter.
 9. Inlet tops.

NOTE: Details of pole bases, bands, slabs, subslabs, and tree grate collars are shown in Treatment Sections 3.1, 3.2, 3.3, and 3.4.

PRODUCTS

- A. Materials shall comply with requirements of applicable sections of the FDOT Standard Specifications for Road and Bridge Construction including, but not limited to, the following.
1. Concrete - all per the following FDOT Specifications

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- a. Concrete curb, curb and gutter, 6" driveway banding, header curb, and valley gutter - Class II
 - b. Concrete walks, sidewalk banding, bench foundations, and handicap ramps - Class I
 - c. 16", 30", and other special roadway banding - Class III
 - d. Concrete sidewalk subslabs and integral banding- Class I
 - e. Concrete street light pole and traffic signal pole bases, and tree grate collars - Class II
 - f. Concrete driveway slabs and subslabs - Class H.
 - g. Inlet tops - Class H.
2. Admixtures
 3. Bonding Materials
 4. Curing Materials
 5. Formwork
 6. Joint Material
- B. Welded Wire Mesh: ASTM A-185 (6" x6", 2.1 W.W.F.)
- C. Reinforcing, Bar and Dowels: ASTM A-615, Grade 60.
- D. Metal Expansion Caps: Furnish with one end of each dowel bar in expansion joints. Design caps with one end closed and a minimum length of 3" to allow bar movement of not less than 1", unless otherwise indicated. Plastic coated dowel bars may be used if approved by Engineer.
- E. Galvanized anchor bolts and sleeving for street light and traffic signal pole bases.
- F. Joint Material: Joint sealer is to be gray Sonolastic SLI, manufactured by Rexnord Chemical Products, Inc., Minneapolis, MN, or approved equal.

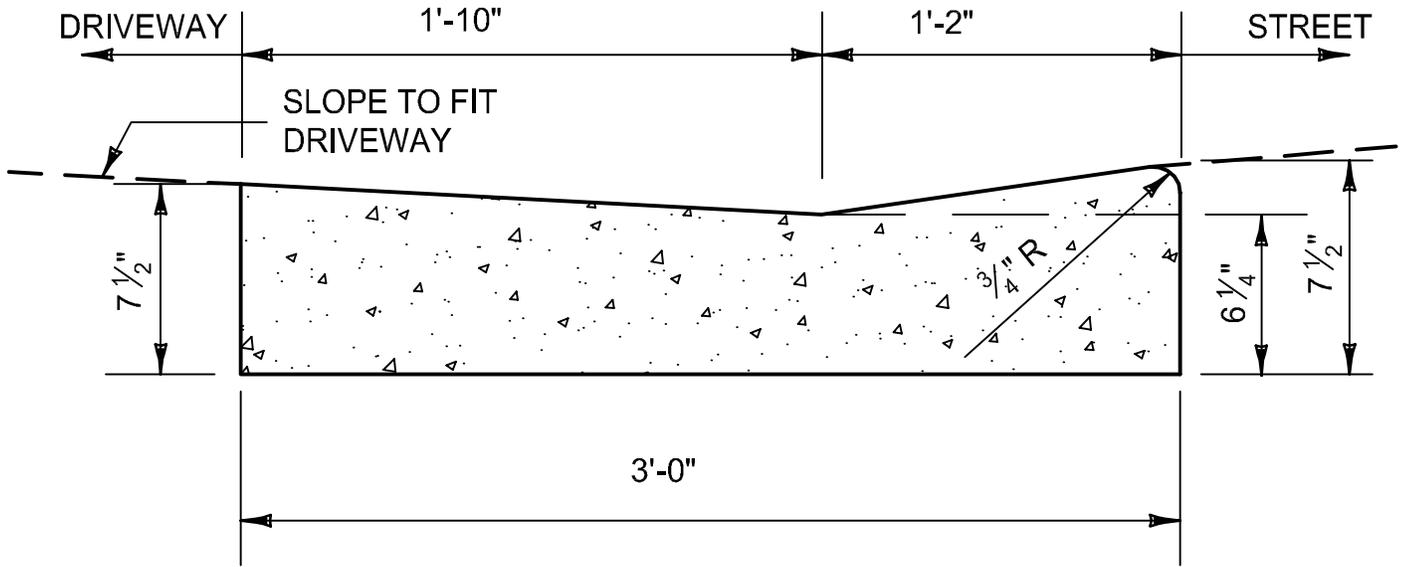
EXECUTION

- A. The following items shall comply with FDOT Standard Specifications for Road and Bridge Construction Section 520, except for concrete class.
 1. Curb and Gutter, and Valley Gutter. (See Detail 4.6-A)
 2. 6" Banding at driveways.

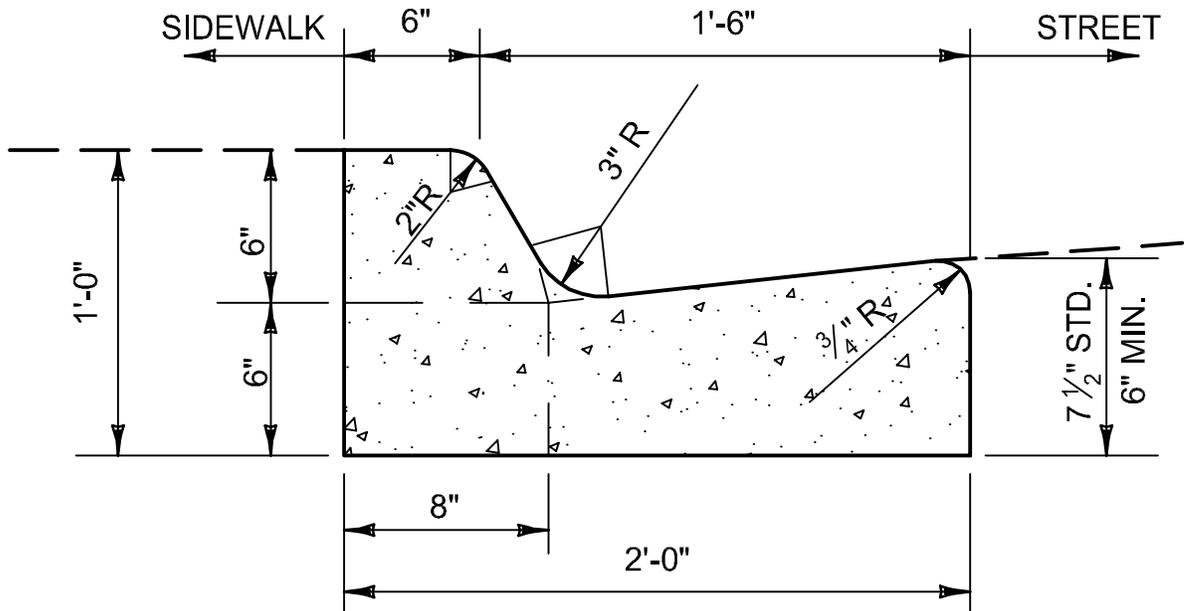
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- B. The following items shall comply with FDOT Standard Specifications for Road and Bridge Construction Section 522. (See Details included in Treatment Sections 3.1, 3.2, 3.3, and 3.4)
1. Slabs, Subslabs, and integral banding
 2. Handicap Ramps
 3. Sidewalk Banding
- C. The following items shall comply with FDOT Standard Specifications for Road and Bridge Construction Section 400. (See Details included in Treatment Sections 3.1, 3.2, 3.3, and 3.4)
1. 16" Street Banding
 2. 30" Street Banding
 3. Street Light and Traffic Signal Pole Bases
 4. Tree Grate Collars
 5. Modified Type 3 & 5 Inlet Tops.
- D. All exposed expansion joint material shall be recessed 1/4 inch and sealed with expansion joint sealer as specified in "Products" this Section.
- E. Contraction Joints: Provide contraction joints, sectioning concrete into areas as shown on the drawings. Construct joints for a depth equal to at least 1/4 concrete thickness, as follows:
1. **Tooled Joints**: Form joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with jointer.
 2. **Sawed Joints**: If required, form joints using powered saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut joints into hardened concrete as soon as surface will not be torn, abraded, or otherwise damaged by cutting action.
 3. **Curb Joints**: Construct contraction joints for curb work at 10 foot intervals and exactly where steel spacers were installed for curb forming. Joint to be hand-tooled from top of curb through and across the gutter plane.
 4. Contraction joints shall be placed at intervals equal to the width of the slab for walks; intervals shall not exceed 10 feet.
 5. Contraction joints for concrete banding in the street and sidewalk shall be at 10 foot intervals.
 6. Contraction joints shall be placed at the point of curvature, at the point of tangency, and at the point of reverse curve for all curb and gutter work.

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- F. Construction Joints: Place construction joints at the end of all pours and at locations where placement operations are stopped for a period of more than 1/2 hour, except where such pours terminate at expansion joints.
- G. Expansion Joints:
1. Provide expansion joints between abutting concrete curbs, walks, walls, columns, and other non-yielding materials, unless otherwise indicated on detail sheets and plan.
 2. For curb and gutter work expansion joints shall be placed at every one hundred linear feet.
 3. Provide 1" expansion joint material between all concrete bands within the street and the adjacent asphalt or masonry pavement.
- H. Concrete Finishes:
1. After striking-off and consolidating concrete, smooth the surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust the floating to compact the surface and produce a uniform texture. The use of additional water will be prohibited in all phases of the finishing.
 2. After floating, test surface for trueness with a 10 foot straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
 3. Work edges of gutters, back top edge of curb, score lines and formed joints with an edging tool and round to 1/2" radius, unless otherwise indicated. Eliminate any tool marks on concrete surface.
 4. After completion of floating, and when excess moisture or surface sheen has disappeared, complete surface finishing.
 5. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects.
- I. General: Construct expansion, contraction, and construction joints true-to-line with face perpendicular to surface of the concrete, unless otherwise indicated. Construct transverse joints at right angles to the centerline, unless otherwise indicated.

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STANDARD FDOT 3' VALLEY GUTTER



STANDARD FDOT TYPE F 2' CURB AND GUTTER



VALLEY GUTTER AND STANDARD CURB AND GUTTER

ALL TREATMENTS

DETAIL 4.6-A



Rev. 07/30/07

4.7 - HEXAGONAL CONCRETE PAVERS – SIDEWALKS

GENERAL

This section discusses the scope of work and labor involved for the construction of hexagonal concrete unit pavers for use in sidewalks in typical streetscape projects.

DESCRIPTION

- A. Provide all materials and labor to construct precast hexagonal pavers on sidewalks on 4" concrete subslab with one inch (1") sand cement setting bed. Concrete banding is integral with paver subslab.

PRODUCTS

- A. Precast Hexagonal Pavers - Sidewalk: 12"x12"x12"x2" solid concrete hexagonal units, in two (2) tones, natural concrete color and charcoal gray, texture finish, as manufactured by Matstone, Inc., P.O. Box #4095, Clearwater, Florida 33518, phone No. (813)577-4978 or approved equal. Minimum 5000 psi design per ASTM C-140, tested with the unit in the horizontal position.
- B. Water: Shall be clean and free from deleterious material, suitable for drinking, and range from 50 to 70 F.
- C. Portland Cement: To comply with Standard Specifications for American Society for Testing Materials, C-150, Type 1. Cement shall be a standard product, the name of which shall be submitted to Engineer for approval.
- D. Sand: For setting bed mixture shall conform to ASTM designation C-144-66T, and shall be small sharp grains.
- E. Sand: For filling paving jointing shall be washed silica sugar type.
- F. Concrete Subslab and Integral Banding: To be in accordance with Concrete Work Section.
- G. Mortar/Sand Setting Bed: Three (3) parts sand to one (1) part Portland cement by volume and thoroughly dry mixed mechanically.

EXECUTION

- A. General: Do not use pavers with cracks, voids, discolorations, or other defects which might be visible or cause staining in the finished work.
- B. Cut all paver units with motor driven saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible.
- C. Set units in the patterns shown on the drawings, starting pattern at longitudinal concrete band, working toward curb. Any irregular cuts should occur at curb line.

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- D. Tolerances: All paving units shall be individually placed with final surface tolerance between individual units not to exceed 1/8". Surface plane for finished work shall not exceed a tolerance of 1/4" in ten feet (10') when measured with a ten foot (10') straightedge."
- E. Hot Weather Requirements: Protect masonry paving in hot weather to prevent excessive evaporation of setting beds. Provide artificial shade, wind breaks, and use cooled materials as directed by the Engineer.
- F. Placement
1. Compact subgrade to density required in Earthwork Section.
 2. Place concrete subslab and integral banding in accordance with the Concrete Work Section and to thickness shown in details.
 3. Clean concrete subslab of dirt or debris.
 4. Place machine mixed sand cement setting material on concrete subslab and carefully tamp and screed dry sand cement material to proper elevation to receive pavers.
 5. Set and level each paver immediately to adjacent paving or prepared finished grade or elevation.
 6. All pavers to be set with a joint equal to the thickness of a putty-knife blade, approximately 1/32".
 7. All installed pavers are to be smoothed out to finish lines and grade by operating a vibrator over the paver with a rubber mat material between the vibrator and the paver surface. Equipment and exact procedures are subject to Engineer's approval.
 8. Fog or mist all pavers sufficiently to set sand cement setting bed. This shall be done on the same working day as the placement of the setting bed.
 9. After laying the pavers and fogging or misting setting bed, contractor shall place dry sugar sand over laid pavers and shall sweep the sand in two different directions, filling all joints between laid pavers. All surplus sand shall be thoroughly removed from surface and off the site.
 10. Protect all completed work from vehicular or pedestrian traffic for a period of 48 hours.
- G. Reinforced concrete subslab shall be in accordance with Concrete Work Section.
- I. Reinforcing: For concrete subslab: ASTM A-185 (6" x 6", 2.1 WWF)

EXECUTION

F. Placement

1. Place concrete subslab and integral banding in accordance with the Concrete Work Section and to thickness shown in details. Concrete banding is integral with paver subslab.
2. Clean concrete subslab of dirt or debris.
3. Place machine-mixed dry sand cement setting material on concrete subslab and carefully tamp and screed dry sand cement material to proper elevation to receive brick.

4.8 - CONCRETE/BRICK PAVING - SIDEWALKS

GENERAL

This section discusses the scope of work and labor involved for the construction of brick unit pavers set on concrete bases, as used in typical streetscape projects.

DESCRIPTION

- A. Reinforced concrete slab with recessed border to accept brick pavers and one inch (1") sand-cement setting bed.

PRODUCTS

- A. Brick Paving: Lawrenceville bricks, historic color range - number 1-175 (7 1/2" x 3 3/4" x 2 1/4") or approved equal.
- B. Water: Shall be clean and free from deleterious material, suitable for drinking and range from 50° to 70° F.
- C. Portland Cement: To comply with Standard Specifications for American Society for Testing Materials, C-150, Type 1. Cement shall be a standard product, the name of which shall be submitted to Engineer for approval.
- D. Sand: For setting bed mixture shall conform to ASTM designation C-144-66T, and shall be small sharp grains.
- E. Sand: For filling brick paving jointing shall be washed silica sugar type.
- F. Concrete Subslab and Integral Banding: Shall be in accordance with Concrete Work Section.
- G. Mortar/Sand Setting Bed: Three (3) parts sand to one (1) part Portland cement by volume and thoroughly dry mixed mechanically.

EXECUTION

- A. General: Do not use bricks with cracks, voids, discolorations, or other defects which might be visible or cause staining in the finished work.
- B. Cut all units with motor driven saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible. Avoid brick layouts which require the need for cut brick less than 3" in length.
- C. Set units in the patterns shown on the drawings.
- D. Tolerances: All units shall be individually placed with final surface tolerance between individual units not to exceed 1/8". Surface plane for finished work shall not exceed a tolerance of 1/4" in ten feet (10') when measured with a ten foot (10') straightedge.

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- E. Hot Weather Requirements: Protect masonry paving in hot weather to prevent excessive evaporation of setting beds. Provide artificial shade, wind breaks, and use cooled materials as directed by the Engineer.
- F. Placement
1. Compact subgrade to density required in Earthwork Section.
 2. Place reinforced concrete with recessed channels to receive brick and sand-cement setting bed in accordance with the Concrete Work Section.
 3. Finish concrete to proper grade, score lines, broom finish and edge panels.
 4. Clean recessed channels of dirt or debris.
 5. Place machine-mixed dry sand-cement setting bed in recessed channels and carefully tamp and screed to proper elevation to receive brick.
 6. Set and level each brick immediately to adjacent paving or prepared finished grade or elevation.
 7. All brick to be set with a joint equal to the thickness of a putty-knife blade, approximately 1/32".
 8. All installed brick paving is to be smoothed out to finished lines and grades by operating a vibrator over the brick with a rubber mat material between the vibrator and the brick surfacing. Equipment and exact procedure subject to Engineer's approval.
 9. Fog or mist with water to set sand-cement setting bed. This shall be done during the same working day as the placement of the setting bed.
 10. After laying the brick and fogging or misting the setting bed, Contractor shall place dry sugar sand over the brick surface and shall sweep the sand in two different directions, filling all joints between brick. All surplus sand shall be thoroughly removed from surface and off the site.
 11. Protect all completed work from vehicular or pedestrian traffic for a period of 48 hours.

4.9 - THIN-SET PAVERS - SIDEWALKS

GENERAL

This section discusses the scope of work and labor involved for the construction of thin-set brick or concrete pavers that are used in sidewalks where it is impractical to employ the standard-thickness pavers.

DESCRIPTION

- A. Thin cut brick or concrete hexagonal pavers, attached with epoxy bonding compound. See details included in Treatment Sections 3.1, 3.2, 3.3, and 3.4.

PRODUCTS

- A. Hexagonal pavers and brick shall meet the product requirements of the previous sections respectively except that pavers shall be saw-cut horizontally in equal halves.
- B. Epoxy bonding compound shall be Epiweld 9-N-11 or approved equal.

EXECUTION

- A. Pavers shall be saw cut true and parallel to the top and bottom faces.
- B. Manufacturer's instructions shall be rigidly adhered to in the surface preparation, handling, mixing, application, and curing of the epoxy bonding compound.
- C. Inspect the condition of all existing surfaces and hexagon and brick pavers prior to the start of the operation at a specific location.
- D. Where thin set pavers are to be applied on irregular surfaces, a fine sand aggregate may be mixed with the Epiweld 9-N-11 product or approved equal per manufacturer's recommendation and used as leveling mortar.

4.10 - ASPHALT PAVING – STREETS

GENERAL

This section discusses the scope of work and labor involved for the construction of asphalt pavement in typical streetscape projects.

DESCRIPTION

All asphalt paving shall meet Engineering Standards Manual requirements.

PRODUCTS

- A. Stabilized subgrades, base courses, bituminous base courses and surface courses shall comply with applicable sections of the FDOT Standard Specifications for Road and Bridge Construction.

EXECUTION

- A. Construct surface courses and limerock or durarock base in accordance with the applicable sections of the FDOT Specifications.
- B. Subgrade Preparation

1. Construction Methods - Stabilized Subgrade (Section 160 of the FDOT Specifications): Generally, test local material for compliance with the required Limerock Bearing Ratio. If the natural soils do not meet the required stability, uniformly mix to depth shown on the drawings sufficient cohesive borrow material for stabilization with the in-place soils to produce the required bearing value. Compact the stabilized subgrade in both cut and fill areas to a density of ninety-eight per cent (98%) of the maximum density as required by AASHTO T-180 (modified). Shape the subgrade to within one-quarter inch (1/4") of the cross section grade shown on the drawings prior to making the density tests. Make the density tests before other work proceeds. Maintain the required density and cross section until the base has been spread.
2. Required Bearing Value: Stabilized subgrade shall have a minimum Limerock Bearing Ratio of 40.
3. Subgrade Material: Use native or imported clean sand and clay. Stabilizers shall meet the requirements for Type B Stabilization per FDOT Specifications.

4.11 - HEXAGONAL CONCRETE PAVERS - STREETS

GENERAL

This section discusses the scope of work and labor involved for the construction of hexagonal concrete unit pavers for use in street pavement in typical streetscape projects.

DESCRIPTION

- A. Items:
 1. 8"x8"x8"x3 1/4" precast hexagonal pavers.
 2. 2% neoprene modified asphalt adhesive.
 3. 1 1/2 " S-1 Asphalt.
 4. 8" Limerock or durarock base.
 5. 12" stabilized subgrade, Type B

PRODUCTS

- A. Stabilized subgrade, base course, and bituminous treatment shall comply with applicable sections of the FDOT Standard Specifications for Road and Bridge Construction and as described in "Asphalt Paving-Street" in this section.
- B. Precast Hexagonal Pavers - Street: 8"x8"x8"x3 1/4" solid concrete hexagonal units in two (2) tones, natural concrete color and charcoal gray color, texture finish, as manufactured by Paver Systems, Inc., P.O. Box #10027, Riviera, Florida 33404, phone no. (305) 844-5202, or approved equal, minimum 5000 psi design per ASTM C-140 with the unit tested in the horizontal position.

EXECUTION

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- A. Construct stabilized subgrade and Limerock or durarock base in accordance with the applicable sections of the FDOT Specifications.
 - B. Construction Methods: Stabilized Subgrade (Section 160 of the FDOT Specifications): Generally, test local material for compliance with the required Limerock Bearing Ratio. If the natural soils do not meet the required stability, uniformly mix to depth shown on the drawings sufficient cohesive borrow material for stabilization with the in-place soils to produce the required bearing value. Compact the stabilized subgrade in both cut and fill areas to a density of ninety-eight per cent (98%) of the maximum density as required by AASHTO T-180 (modified). Shape the subgrade to within one-quarter inch (1/4") of the cross section grade shown on the drawings prior to making the density tests. Make the density tests before other work proceeds. Maintain the required density and cross section until the base has been spread.
 - 1. Required Bearing Value: Stabilized subgrade shall have a minimum Limerock Bearing Ratio of 40.
 - 2. Subgrade Material: As indicated in "Asphalt Paving" Section of the guidelines.
 - C. The work shall be coordinated with asphalt contractor to assure quality control and optimum workmanship.
 - D. Immediately after 1 1/2" S-1 asphaltic setting bed has been placed and rolled to precise line and grade, the two per cent (2%) neoprene modified asphalt adhesive shall be placed.
 - E. After the modified asphalt adhesive is applied, carefully place the pavers by hand in straight courses with hand tight joints and uniform top surface. Good alignment must be kept and the pattern shall be that shown on the plans. Hand tight joints shall be maximum one-eighth inch (1/8").
 - F. The vertical jointing between adjacent paving units shall not exceed one-eighth inch (1/8").
 - G. Joint Treatment: A dry mixture of sugar sand shall be swept over the paved surface until all hand tight joints are filled.
 - H. Surface plans for finished work not to exceed a tolerance of one-half inch (1/2") in ten feet (10') when tested with a ten foot (10') straightedge.
 - I. Remove all sand from paved area by thoroughly sweeping the entire work area and removing from the site.
 - J. Remove all surplus sand from work area and dispose of legally.
 - K. Protect all completed work from vehicular and pedestrian traffic for a period of forty-eight (48) hours.

4.12 - BRICK PAVING – STREETS

GENERAL

This section discusses the scope of work and labor involved for the construction of brick unit pavers for use in street paving in typical streetscape projects.

DESCRIPTION

- A. Items:
1. New brick as per approved supplier.
 2. 4" Select native soil setting bed.
 3. 8" Limerock or Durarock Base.
 4. 12" stabilized subgrade, Type B.

PRODUCTS

- A. Stabilized subgrade, and base course preparation shall comply with applicable sections of the FDOT Standard Specifications for Road and Bridge Construction and as described in "Asphalt Paving-Street" in this section.
- B. Brick Paving – Street
1. Purchase new brick from an approved source.
 2. Soil for setting bed shall be native materials occurring within the limits of work. It shall be free of deleterious substances and have no particles larger than one inch (1"). Compact to 95% density.
 3. Sand for filling brick paving joints will be washed silica sugar sand.

EXECUTION

- A. Construct limerock or durarock base in accordance with the applicable sections of the FDOT Specifications.
- B. Construction Methods: Stabilized Subgrade (Section 160 of the FDOT Specifications): Generally, test local material for compliance with the required Limerock Bearing Ratio. If the natural soils do not meet the required stability, uniformly mix to depth shown on the drawings sufficient cohesive borrow material for stabilization with the in-place soils to produce the required bearing value. Compact the stabilized subgrade in both cut and fill areas to a density of ninety-eight per cent (98%) of the maximum density as required by AASHTO T-180 (modified). Shape the subgrade to within one-quarter inch (1/4") of the cross section grade shown on the drawings prior to making the density tests. Make the density tests before other work proceeds. Maintain the required density and cross section until the base has been spread.
1. Required Bearing Value: Stabilized subgrade shall have a minimum Limerock Bearing Ratio of 40.

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- C. Carefully screed, level, and compact setting bed to receive brick paving.
 - D. Set brick 1/2" high to planned final grades.
 - E. Layout: When laying brick pavement, allow one-sixteenth inch (1/16") joint between bricks for layout of full and half courses.
 - F. Brick shall be hand cut and fitted hand tight with joints not to exceed three-sixteenths inch (3/16") for cut brick only.
 - G. Vertical joints shall not exceed one-quarter inch (1/4").
 - H. Compact brick with a dual drum, band operated, vibratory roller.
 - I. Surface plane for finished work not to exceed a tolerance of one-half inch (1/2") in ten feet (10') when tested with a ten foot (10') straightedge.
 - J. Joint Treatment: A dry mixture of sugar sand shall be swept over the paved surface in two (2) directions until all joints are filled. The surface shall then be flooded lightly with water at low pressure. This procedure shall be performed twice.
 - K. Remove all sand from paved area by thoroughly sweeping the entire work area and removing from the site.

4.13 - WHEELCHAIR-ACCESSIBLE RAMPS

GENERAL

Provide two wheelchair-accessible single-purpose ramps at each intersection corner. All ramps shall comply with local, State, and Federal regulations.

In locations at which two ramps at each corner cannot be accommodated, one dual-purpose ramp shall be installed.

All ramps shall line up with to the extent possible with ramps on opposite sides of the streets. In some instances, the Developer may be required to modify or construct ramps across the street in order to provide appropriate alignment and accessibility.

Detectable warning surface on each ramp shall be cast in place concrete with integral color. If approved by the City Architect, alternatives may include granite or cast unit pavers. See Wheelchair Ramp details included in Treatment Sections 3.1, 3.2, 3.3, and 3.4.

Concrete work shall be as specified in Section 4.6.

4.14 - STREET LIGHT CONDUIT SYSTEM

GENERAL

This section discusses the scope of work and labor involved to install conduit for street lighting. The actual design of the system and location of power sources should be approved by OUC

DESCRIPTION

- A. Provide all labor, materials, and services, and perform all operations required for the installation of the conduit/duct system complete with the installation of junction boxes and sweeps into contractor installed light pole bases.
- B. Work shall include ordering and payment for streetlights through OUC Electric, and furnishing and installing conduit/duct system and electrical service wire as follows:
 - 1. Supply and install two inch (2") diameter conduit system for street lights and make up to existing conduits, junction boxes and pole bases. Set and adjust junction boxes to finish grade.
 - 2. Make up to existing duct systems.
 - 3. Make up to electrical source.
 - 4. Complete all trenching and backfilling required.
 - 5. Plug and/or lap all ends of work where work is to be continued at a later date or where related work is to be continued by others.
 - 6. Install pull wire through all conduit/duct systems.
 - 7. Make all runs through and into junction boxes, light pole bases, service connections, and vaults, as may be required to complete the system.
 - 8. Furnish, locate and install junction boxes adjacent to street light bases. Junction boxes to be as specified by OUC Electric Dept. (Streetlight installation by OUC Electric.)

PRODUCTS

- A. Rigid Nonmetallic Conduit and Rigid Metallic EII Sweeps.
 - 1. PVC conduit shall be composed of High Impact PVC (polyvinyl chloride C-200 compound) and shall conform to industry standards, and be UL listed in accordance with Article 347 of the National Electrical Code for underground and exposed use. Materials must have tensile strength of 55 PSI, at seventy degrees (70°) F., flexural strength of 11,000 PSI, and compression strength of 8600 PSI.
 - 2. PVC joints shall be solvent welded. Threads will not be permitted on PVC conduit and fittings except for rigid steel to PVC couplings. Installation of PVC conduit

shall be in accordance with manufacturer's recommendations. Field bends shall be made with approved hotbox. Heating with flame and hand held dryers is prohibited.

3. Hot dipped galvanized rigid steel. Federal Specification WW-C-581. All terminations to be made with locknuts and steel or malleable iron bushings with integral bakelite insulator, as manufactured by O. Z. Mfg. Co., or Efcor. All heavywall couplings and terminals to be threaded.

B. Pull Wire

1. Fish wire to be "Polyolefin" or approved equal.

C. Wiring Devices

1. At each street light location furnish and install wiring device.
2. All wiring devices shall be by the same manufacturer, either Arrow-Hart-Hegeman, Hubbell, Pass and Seymour, Bryant, Sierra, or Slater, or approved equal. All wiring devices shall be ivory. All wiring devices shall be specification grade.

D. Conductors

1. All conductors shall be refined, soft drawn copper of the highest commercial conductivity, tinned with insulation compounds UL listed and suitable for the duty or application in question and subject to the following:
 - a. No. 10 minimum.
2. Manufactured by General Electric, Anaconda, Collyer, Simplex Hatfield, or Triangle, or approved equal.
3. All power feeders and branch circuits No. 8 and smaller shall be wired with color-coded wire with the same color used for the system throughout. Power feeders above No. 8 shall either be fully color-coded or shall have black insulation and be similarly color-coded with tape or paint in all junction boxes and panels. Tape or paint shall completely cover the conductor insulation within the box or panel with the exception that the manufacturer's name, cable type, size, and insulation type shall remain readable.
4. Unless otherwise approved, color-code shall be as follows: Neutrals to be white for 208Y/102V, Phase A - black; Phase B - red; Phase C - blue. Ground wire green, bare, or green with yellow strips.
5. In general: Code Grade, Type THWN.

EXECUTION

- A. Shop Drawing and Product Data shall be submitted for approval on the following:
1. Conduit

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2. Conduit fittings
 3. Pull wire
 4. Wiring Devices
- B. Codes, Permits, and Inspection
1. Installation to comply with all laws and governing local ordinances and codes that apply to electrical installations.
 2. Installation to comply with the requirements of local Utility Companies and City Departments serving the project.
- C. Quality Assurance
1. U.L. listing of all materials, equipment, and devices is required where such is available. Installation shall comply with requirements of the listing of materials, equipment, and devices.
- D. Storage
1. All materials shall be stored in a protected and secured area.
 2. Stockpiling of material should be limited to material that is to be installed within forty-eight (48) hours.
- E. Installation
1. Install all ducts, vaults, electric service (wires) as per plan, specifications, and as directed by the Engineer.
 2. Runs shall be straight and true, offsets/bends shall be uniform and symmetrical. Installation and workmanship shall be of the best quality and skill. All conduit shall be installed a minimum of thirty inches (30") below grade.
 3. Cap and seal conduit ends during installation. Clean any accumulation of water, dirt, concrete, or other foreign matter prior to installation of fish wire. Replace any run of conduit which cannot be properly cleaned.
 4. Pitch conduit to drain.
 5. Use approved sealing method and materials where conduit enters vaults, junction boxes, and light bases.
 6. Use concrete-tight couplings for connectors.
 7. Install all conduit for concrete street light bases. Assure method of installation is approved by OUC prior to concrete placement.

4.15 – TREES & LANDSCAPING

GENERAL

This section discusses the scope of work and labor involved to install all landscape plants.

DESCRIPTION

- A. Work includes the delivery, equipment, labor, materials, planting, and maintenance of all trees and landscaping.
- B. All work shall be guaranteed for a period of one year after the date of acceptance by the Owner. All plant material shall be alive and in satisfactory growth at the end of the guarantee period.

TREE TYPE AND SIZE

- A. Trees shall be of a type and minimum size listed below.
 - 1. Trees shall have a minimum height, branch spread and clear trunk as indicated in the Recommended Streetscape Trees Matrix in this section.
 - 2. Tree type shall be selected from the following list; final approval by the CRA/DDB shall be required.

Live Oak "High Rise"	<i>Quercus virginiana</i>	14'-16' ht. X 8'-10' sp.
Bosque Elm	<i>Ulmus parvifolia</i>	14'-16' ht. X 8'-10' sp.
Drake Elm	<i>Ulmus parvifolia</i>	14'-16' ht. X 8'-10' sp.
Bald Cypress	<i>Taxodium distichum</i>	14'-16' ht. X 8'-10' sp.
Southern Magnolia	<i>Magnolia grandiflora</i>	14'-16' ht. X 8'-10' sp.
Magnolia 'Greenback'	<i>Magnolia grandiflora</i>	14'-16' ht. X 8'-10' sp.
Yellow Tabebuia	<i>Tabebuia caraiba</i>	14'-16' ht. X 8'-10' sp.
Pink Tabebuia	<i>Tabebuia heterophylla</i>	14'-16' ht. X 8'-10' sp.
Hamlin Orange	<i>Citrus sinensis</i>	25 gallon and larger
Desert Fan Palm	<i>Washingtonia filifera</i>	18' C.T. min.
Wild Date Palm	<i>Phoenix sylvestris</i>	18' C.T. min.
Cabbage Palm	<i>Sabal palmetto</i>	18' C.T. min.
Queen Palm	<i>Syagrus romanzoffianum</i>	18' C.T. min.
Date Palm	<i>Phoenix dactylifera</i>	18' C.T. min.

Other species, including Silk Floss Tree, White Silk Floss Tree, Bauhinia, Jacaranda, Shumard Oak, and Redbud, may be installed with review and approval by the representative of the CRA. Other species suggested by the Developer may be considered.

PRODUCTS

- A. Nomenclature: Trees shall conform to the names given in "Standardized Plant Names", 1942 edition, prepared by the American Joint Committee on Horticultural Nomenclature, or by the Bureau of Plant Industry, State of Florida.

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- B. Names of varieties not included therein should conform generally with names accepted in the nursery trade.
 - C. Plants shall have a habit of growth that is normal for the species and shall be sound, healthy, vigorous, and free from insect pests, plant diseases, and injuries. Plants shall be nursery stock grown in containers or freshly dug, and balled-and-burlapped. Container-grown trees will be inspected for girdling or encircling roots; root balls shall be scarified (cut vertically) to promote outward growth of roots. Scarification shall be accomplished by cuts made from top of root ball to bottom of root ball. Cuts shall be 6" to 12" apart and 4" to 6" deep.
 - D. Trees shall have a clear trunk of six feet (6') single clear trunk (measured from top of root ball), unless otherwise directed by the City Architect. Trees shall be heavily branched. Limbs larger than 12'-0" shall not be pruned without prior approval of the City. There shall be no indication of basal "suckers" on clear trunk of accepted trees. Pruning cuts within one foot of root ball will be cause for rejection.
 - E. All plants to be used within public rights-of-way or within easements dedicated to public use shall be graded "Florida Fancy" or better as outlined under the most recent edition of Grades and Standards for Nursery Plants, State Plant Board of Florida. Plants used outside public rights-of-way or public easements shall be of a minimum grade of 'Florida Number 1' or better.
 - F. All shipments or orders of plant material shall be properly inspected by the Contractor at the nursery for compliance with these specifications.
 - G. All necessary inspection certificates shall accompany the invoice for the necessary transportation.
 - H. The caliper of tree trunks is to be measured one foot (1') above the root ball.
 - I. Plant materials shall be protected from weather and adequately packed to prevent breakage and drying out during transit. Trees transported more than ten (10) miles or which are not planted within three (3) days of delivery to site shall be sprayed with an anti-transpirant product ("Wiltpruf" or approved equal) to minimize transpirational water loss.
 - J. The City representative shall have the right, at any stage of the operations, to reject any and all work and materials which, in his opinion, do not meet with the requirements of these specifications. Notify the City representative in advance when trees are to be delivered.
 - K. The minimum acceptable size of all trees, measured after pruning, with branches in normal positions, shall conform to the measurements as stated herein.
 - L. Substantial deviations from these measurements must be approved by the City Architect.
 - M. Topsoil material shall be free from subsequent hard clods, stiff clay, hard pan, stones larger than one inch (1") in diameter, noxious weeds and plants, sods, partially

disintegrated debris, insects, or any other undesirable material, plants, or seeds, that would be toxic or harmful to growth, shall be obtained from naturally drained sources, and shall contain at least sixty per cent (60%) organic matter. Acidity shall range from pH 5.5 to pH 6.5, inclusive.

- N. The fertilizer mixture shall contain minor elements suitable for the plants or trees being used.
- O. Tree fertilizer tablets shall be installed in tree wells at a rate and in a method recommended by the manufacturer.
- P. Mulch shall consist of 2" shredded eucalyptus, melaleuca, recycled oak pallets, or pine bark nuggets. Pine straw will be considered for certain projects. Cypress mulch shall not be used.
- Q. Tree ties shall be "Wonder Tree Ties," manufactured by Alden Enterprises, or approved equal.
- R. Structural Soil for tree planting areas shall be "CU-Structural Soil" as developed by Cornell University, or approved equal. Structural soil shall be required for all trees planted within public rights-of-way or public easements. Replacements of existing trees which do not have a planting medium that includes structural soil shall be done with structural soil. Alternatives to structural soil proposed by the Developer may be considered for approval.

EXECUTION

- A. Subgrade Elevations: Excavation, filling, and grading as required to establish elevations for new items. Any existing hardpan conditions shall be eliminated at this time.
- B. Furnish nursery's certificate of compliance with all requirements as herein specified and required.
- C. General: Comply with all applicable Federal, State, County, and local regulations governing landscape materials and work.
- D. The work shall be coordinated with other trades to prevent conflicts. Coordinate the planting with the irrigation work to assure availability of water and proper location of irrigation items and plants.
- E. All planting shall be performed by personnel familiar with planting procedure and under the supervision of a qualified planting foreman. Proper "jetting in" shall be assured to eliminate air pockets around the roots. "Jet Stick" or approved equal is recommended.
- F. Prior to the preparation of tree pits, ascertain the location of all electrical cables, conduits, utility lines, oil tanks and supply lines, so that proper precautions may be taken not to disturb or damage any subsurface improvements. Properly maintain and protect existing utilities. It is the responsibility of the Contractor to verify and locate all subsurface utilities. If a conflict between planting locations and utilities, the Contractor shall immediately bring this to the attention of the City Architect before proceeding.

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- G. Prior to placing planting mix and backfill, or commencing with planting of trees, hand loosen all areas within planting pit to ninety percent (90%) modified Proctor.
 - H. All tree pits shall be excavated to size and depth in accordance with the USA Standard for Nursery Stock 260.1, unless shown otherwise on the drawings, and backfilled with the prepared Planting Soil as specified herein. Test all tree pits with water before planting to assure proper drainage percolation is available. No allowance will be made for lost plants due to improper drainage. Trees shall be set plumb and held in position until the planting mixture has been flushed into place with a slow full hose stream.
 - I. Structural Soil shall be placed to the minimum dimensions shown in the details for all trees and in accordance with manufacturer's recommendations.
 - J. Take all necessary precautions to avoid damage to buildings and building structures while installing trees.
 - K. Inspect and select plant materials before plants are dug at nursery or growing site. The City reserves the right to inspect plant materials at the nursery for approval prior to delivery to the site.

On City-initiated projects, a representative of the CRA may be contacted to assist the Contractor in selecting trees that meet specifications. Trees selected by this method must be identified with permalock tags as provided by the City. The Contractor shall contact the City's representative 24 hours prior to delivery to the site for an on-site inspection to ensure that plants have not been damaged or infected with disease between tagging and delivery.

- L. All planting shall be backfilled with a homogeneous mixture of 2/3 approved topsoil 1/3 peat.

Water absorbent crystals ("Terrasorb" or approved equal) shall be incorporated per manufacturer's recommendations.
- M. Fertilizer or equivalent fertilizer briquets shall be evenly applied at the rate of one-quarter pound (1/4 lb.) of 6-6-6 fertilizer per tree pit at the time of planting.
- N. Conform to accepted horticultural practices as used in the trade. Plants shall be protected upon arrival at the site by being thoroughly watered and properly maintained until planted. Plants shall not remain unprotected for a period exceeding twenty-four (24) hours. At all times workmanlike methods customary in good horticultural practice shall be exercised.
- O. Take all necessary precautions to insure that the tree remains centered in the hole during the entire planting operation. The tree shall be centered to within one (1) trunk diameter within the tree frame, measured diagonally in two (2) directions.
- P. Plants shall be set on prepared planting soil, backfilled, and brought to a height permitting planting at the same depth the plants grew in the nursery. Upright plants shall be kept in a vertical position. All plants shall be handled by earth ball only. Handling the plant itself will be cause for rejection of plants. After placing the plant in the pit, the planting soil specified hereinbefore shall be watered and firmly tamped to insure backfill mixture in and about all the roots.

All tamping shall be such that no plants will settle lower than the depth above specified.

After filling half way on the earth ball, the burlap shall be removed, after which the balance of the pit shall be back-filled and tamped.

All plants shall be thoroughly watered at time of planting and kept adequately watered until time of acceptance.

Pruning shall be done at the time of planting and with due regard to the natural form and growth characteristics of each species. Pruning cuts shall be such as to assure preservation of branch collar. No flush cuts or stubs accepted. All cuts over one-half inch (1/2") in diameter shall not be painted with approved tree wound dressing. No pruning paint will be allowed. No topped trees will be acceptable.

All ropes, twine, wires, plastic strapping, or banding material shall be cut away from root ball prior to backfilling.

During the course of planting, excess and waste materials shall be removed daily. All reasonable precautions shall be taken to avoid damage to all structures and plants. When planting in an area that has been completed, the area shall be thoroughly cleaned of all waste materials.

- Q. Plants shall be mulched to depth shown on the plans. Mulching will be accomplished only after planting beds are weed free and level. Trees to be installed in tree wells with tree grates SHALL NOT be mulched. Trees to be installed in tree wells without grates SHALL be mulched.
- R. Guying and Staking: Guy and stake plant materials (per tree-tie manufacturer's recommended installation) as needed to assure upright form as directed on plans. Prevent plants from falling or being blown over, straighten and replant all plants which lean or fall, and replace all plants which are damaged due to lack of guying or staking. Plants blown over by high winds shall be replaced. Assure that crown of root ball of all trees is of sufficient depth to allow for gravel and correct seating of grate. Trees girdled by guy wires will not be accepted. See tree planting details included in Treatment Sections 3.1, 3.2, 3.3, and 3.4 for guying.
- S. Maintenance Prior to Final Inspection: Plant maintenance shall include watering, pruning, weeding, tightening and repairing of guys, replacement of sick or dead plants, resetting plants, resetting plants to proper grade or upright position, and all other care needed for proper growth of the plants.
- T. Maintenance Before Acceptance: Maintenance shall commence after each plant is installed, and the maintenance period shall continue until the job or specific phase of the job is accepted. Extreme care shall be taken to instruct the Owner or his representatives in general maintenance procedures. Planting should be maintained by watering, removal of dead branches, resetting plants to proper grades or upright positions, and any other operation necessary to complete maintenance.
- U. Inspection: Upon completion of all planting an inspection for acceptance of work should be held. At the time of inspection, if the materials are in whole or substantially acceptable, the Maintenance Period and the Guarantee Period begin.

GENERAL NOTES

1. Contractor shall be responsible to conduct a field visit along the entire length of the landscape project become familiar with all above and below ground utilities, existing to remain and proposed. Contractor shall be responsible to notify the engineer of any conflict between the proposed landscaping and site improvements. Field adjustments may be made subject to approval by the engineer or landscape architect.
2. All plantings shall be installed per FDOT current and supplements of Index Nos. 544 and 546 and Specification Section 580.
3. Note that many of the proposed trees are within area of existing utilities. Special care must be conducted by the contractor during installation. Plans note existing utilities to greatest extent possible. However, this does not elevate the contractor's responsibility to verify any and all utilities prior to beginning any work. All installation shall be hand excavation. It is desirable that trees not be located closer than 5' from any underground utility. All trees and palms shall be located and approved by City of Orlando representative to avoid all overhead and underground utilities and wiring to greatest extent possible.
4. Prior to installation of any planting material, all existing asphalt, limerock and compacted subgrade shall be removed to a depth of 30" for trees and palms and 24" for shrubs. Proper percolation and growing conditions for healthy plant growth must be available prior to installation of any tree, palm or shrub.
5. Planting soil for trees and shrubs shall consist of 1/3 topsoil, 1/3 clean builder sand and 1/3 approved native soil. Planting soil for the wild date palms shall be 1/2 builder sand, 1/4 topsoil, and 1/4 approved native soil. Remove all construction debris, limerock, compacted grade, concrete or asphalt or any other or any other material detrimental to healthy plant growth prior to installing any plantings. Planting soil depth shall be determined in the field to ensure proper percolation for healthy plant conditions.
6. All planting areas adjacent to pavement shall have a finish grade of soil no less than 2 1/2" below the top of curb per Standard Index No. 105 to allow for mulch application.
7. Trees, palms or shrubs within the right-of-way not designated to be removed shall not be disturbed. Should during construction of the project, existing material be disturbed, the contractor shall be responsible for replacement of species, quantities and current heights at their expense.
8. Set all trees and palms 2" above grade.
9. Place shrubs an additional 12" away from roadway median curbing.
10. All palms shall match in height and character, unless otherwise approved by the City Architect.
11. Install sod for all medians and parkway strips between the sidewalk and curbing where landscaping and irrigation is present.

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12. Replace all disturbed sod beyond that has been disturbed by construction with like species. Install Bahia sod if no other sod is present unless noted.
 13. Mulch for shrubs shall be 2" in depth. Trees and palms shall have 3" mulch depth with the exception that no mulch shall be located adjacent to the tree or palm trunks.
 14. Provide four (4) foot mulch ring around all free-standing trees and palms in tree wells that do not have grates.

4.16 - IRRIGATION

GENERAL

This section discusses the scope of work and labor required to install the irrigation system, including distribution and controllers. The irrigation system shall provide a piping network to accommodate each tree well with water, and shall be designed according to individual streetscape needs.

Notes

1. Irrigation systems for trees in City right-of-way shall be kept separate from private landscape irrigation systems.
2. Irrigation control shall be accomplished by automatic timers. These controllers shall be set outdoors and shall be accessible to CRA staff and shall have a lockable hasp; lock and key to match standard City irrigation panel boxes. Irrigation controllers on city initiated projects shall be computer adaptable. Contact CRA Clean Team representative for list of compatible units.

DESCRIPTION

- A. Manufacturing Qualifications: Provide the landscape irrigation system as a complete unit produced by acceptable manufacturers for all portions of the work, including heads, valves, piping circuits, controls, hosebibs, and accessories.
- B. The work includes supplying and installing all materials and equipment required for a complete operational automatic irrigation system. It is the intent to provide an installation complete and ready for the Owner's use.
- C. The information herein contained indicates the type of materials, quality of workmanship, and manner of execution which shall be complied with in effecting the irrigation installation.
- D. Design modifications may be made as necessary to meet field conditions. Route piping to avoid conflict with specimen plants and adjust as necessary to landscape construction.
- E. Guarantees:
 1. Furnish warranties in WRITING certifying that the quality and workmanship of all materials and installation furnished are in accordance with these specifications and with the original manufacturer's warranties. All equipment and installation shall be guaranteed against defects for a period of one year from the date that the system or any accepted portion is completed and accepted.

2. All water meters, valve covers, boxes and covers required for the complete installation of the irrigation system shall be included as part of this ITEM. All meters and related appurtenances shall be furnished and installed by OUC Cost of meters, assemblies, service, and installation to be paid by Contractor.

PRODUCTS

- A. Qualifications of Installers: At least one (1) person, acceptable to all parties involved on the job, should be present at all times during the execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the material manufacturer's recommended methods of installation, and who should direct all work performed under this Section.
- B. All PVC mains shall be PR-200 PSI polyvinyl chloride (PVC1120) pipe conforming to the ASTM D-2241, Type 1, NSF Approved (except as noted on the Drawings).
- All other PVC pipe shall be polyvinyl chloride Schedule 40 pipe conforming to ASTM D-175-76, Type 1, NSF Approved (except as noted on the Drawings).
- C. All PVC fittings shall be Schedule 40, Type 1, NSF Approved conforming to ASTM D-2466 requirements (except as noted on the Drawings).
- D. All sleeves or crossings under paved areas for electrical and water lines shall be Schedule 40 PVC pipe conforming to ASTM D-1785 requirements.
- E. Provide concrete thrust blocks at changes in direction on irrigation mains above 22" in diameter.
- F. PVC Flex, Connections: These connections shall be Spears Heavy Wall Flexible PVC Pipe or approved equal, average length of each connection is referred to on the drawings. Special flex-cement shall be utilized for making these connections.
- G. Sprinklers: All sprinkler heads shall be as indicated on the drawings.
- H. Valves: Shall be electric, Toro 252 Series or approved equal in steel valve box.
- I. Valve Box: Shall be as specified in details included in Treatment Sections 3.1, 3.2, 3.3, and 3.4.
- J. Gate Valves: Shall conform to Federal Specifications WWV 54, Type 1, Class A, with all bronze body, non-rising stem.
- K. Backflow Preventer: Backflow preventer should be Rainbird PVB Series or approved equal.
- L. Hosebibs: Hosebibs shall be Rainbird 33D NP Quick Coupling valve or approved equal with key and SH-1 hose attachment in valve box. Hosebib main shall be 1" minimum, on a separate, manually operated circuit.
- M. Automatic Irrigation Controller: Controller shall be computer adaptable and be set in a vandal-proof box with lock. List of approved controllers will be provided by city parks

department upon request. Location as approved by the City. Power source to be in auxiliary electric panel, on a segregated circuit, separate from timer.

0. Wiring From the controller to valves shall be OF 14/1 direct burial cable placed in Schedule 40 PVC conduit. All wire splices shall be made in valve boxes only, using snaptite connectors and sealant.

EXECUTION

A. Existing Conditions

1. Exercise care in digging and other work so as not to damage existing work including underground cables and pipes. Any pavement cut, broken or undermined during installation of the irrigation system shall be fully replaced with identical materials so that there is no visible indication of patching and repaving.

2. Damaged Utility: Should the contractor damage any utility he shall notify the respective utility company and shall bear the full cost accrued by the utility company (labor and material) for its repair.

3. Any objectionable materials such as old concrete, bricks, or other debris encountered during the installation operations shall be removed from the site.

B. Codes and Standards: Ensure that all work conforms to any and all applicable codes and regulations in the area where work is to be performed.

C. Permits and Fees: Acquire any and all permits and licenses required relevant to the irrigation system.

D. Examine the area and conditions under which the landscape irrigation is to be installed.

E. Trenches for pipe shall be excavated of sufficient depth and width to permit proper handling and installation of pipe and fittings. Trenches shall be trimmed to a uniform bed free from rocks, clods, or other sharp edged objects. A radius of four inches (4") from the pipe shall be clean soil or sand, free from rocks, large stones, or other suitable material. All pipes shall be firmly supported by compact soil or sand.

Installation/Application/Performance

A. All main lines shall be buried to a depth as to have a minimum cover of twenty-four inches (24"). All other piping shall have a minimum cover of eighteen inches (18") except as noted on the drawings.

B. Where practical, pipe shall be assembled and welded on the surface and when lowered into trench shall be snaked from side to side of trench bottom to allow for expansion and contraction.

C. Plastic pipe and fittings shall be solvent welded using solvents and methods as recommended by the manufacturer of the pipe and meeting ASTM standards. Pipe and fittings shall be thoroughly cleaned of dirt, dust, and moisture before applying solvent with a non-synthetic bristle-brush.

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- D. Pipe openings shall be plugged during construction to prevent entrance of foreign materials.
 - E. All connections between plastic pipe and metal valves or steel pipe shall be made with screw fittings using plastic male adapters and a non-hardening pipe dope applied to male thread. Make-up with light wrench pressure. Steel pipe shall not be screwed into plastic fittings.
 - F. All pipe under paving shall be placed in separate Schedule 40 PVC sleeves for the full pavement covered length. Burial depth of sleeves shall be the same as that required for pipes contained therein.
 - G. Pipe location may be adjusted to facilitate construction and minimize cost insomuch that design intent of computation criteria is not affected.
 - H. All heads shall be set at locations specified in Detail 3.3-H to ensure adequate and even coverage.
 - I. All trenches that are opened during any particular working, day shall be closed and backfilled the same day or shall be adequately barricaded and marked to ensure protection and safety. Backfill shall be thoroughly compacted and evened off with adjacent soil level. Do all necessary excavations, backfilling, and compaction required for complete installation of the system. Compaction shall be per earthwork section.
 - J. All irrigation valves, manifold, and hose bibs shall be located no more than 12" below grade.
 - K. Backflow preventer shall be placed in an inconspicuous location, preferably in an area screened by landscaping materials.

Tests

- A. Tests: After all welded joints have cured at least 24 hours, flush out lines and hydrostatically test all lines upstream from tree well risers at a pressure of 100 psi. Pressure shall be maintained on pipe for a minimum of one hour. Should any leaks be found, the line shall be repaired and the line retested until satisfactory. All lateral lines within the tree wells shall be visually inspected for leaks. Should any be found, it should be repaired.
- B. When the sprinkler system is completed, a coverage test should be performed to determine if the covering of plant areas is complete and adequate.

Maintenance

- A. Maintenance responsibility shall include full operation and maintenance of the irrigation system.
- B. Provide sufficient full time personnel who are fully trained in irrigation operation and maintenance procedures.

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- C. Operation and maintenance shall include, but not be limited to, the following.
1. Cleaning all equipment, valves, spray heads, and pipe.
 2. Make repairs necessary for proper operation and functioning of the system.
 3. Maintain all spray heads to assure proper emission of designed water quantities.
 4. Replace all broken or malfunctioning equipment with new equipment.

Field Quality Control

A. Final Inspection

1. Demonstrate the entire system proving that all valves are properly balanced, that all heads are properly adjusted for radius and arc of coverage, that the system is workable, clean, and efficient.

4.17 - MISCELLANEOUS

GENERAL

This section discusses the scope of work for the following items:

- A. Painting: all exposed surfaces within the sidewalk area are to be painted to blend in with new sidewalk paving.
- B. Signing and Striping: to be designed to accommodate present and future traffic patterns. All layouts to be approved by Local and/or State traffic departments/divisions.
- C. Water Meter Boxes/Water Valve Boxes shall be supplied and installed where either new or existing services are located.
- D. Roof Drains shall be installed where existing roof drains are located.
- E. Clean-Up and Protection of New Streetscape Work.

4.17.1 - PAINTING

DESCRIPTION

- A. Furnish all labor, materials, equipment, and such related items and services as to do all work specified herein. Included as part of the work but not necessarily limited by it, are the following items:
 - 1. Field touch up tree grates, tree guards, and benches.
 - 2. Painting and finishing of utility structures:
 - a. Manholes within sidewalk area.
 - b. Valve boxes.
 - c. Electrical junction boxes.
 - d. Traffic control boxes.
 - e. Water meter boxes.
 - f. Fire hydrants.
 - 3. Painting and finishing of trash receptacle straps.

The work includes painting and finishing of exterior exposed items and surfaces throughout the project, except as otherwise indicated.

- B. Prefinished items shall be benches, tree grates, and tree guards. (Primed and painted by supplier.)
- C. Pre-primed items shall be auxiliary electrical receptacles and boxes.

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- D. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.
 - E. All work shall meet requirements and recommendations of applicable portions of Standards listed. In case of conflict between the referenced specifications or Standards, the one having the more stringent requirements shall govern.
 - F. This work shall include all required masking tape, ladders, scaffolding, drop cloths, markings, scrapers, tools, sandpaper, dusters, and cleaning solvents as required to perform the work and achieve the results herein specified.

PRODUCTS

- A. Product Data: Submit manufacturers' technical information including paint label analysis and, application instructions for each material proposed for use.
- B. Samples: Submit color chips for City Architect's verification of colors.
- C. Acceptable Manufacturers: All materials and accessories in connection with the work in this Section shall be products of the following manufacturer's subject, (or approved equal) however, to compliance with specification requirements:
 - 1. "Break-Through" as supplied by Star Scenic Supply, Inc., 2400 N. Orange Blossom Trail, Orlando, FL 32804, 407.246.5118
 - 2. 9800 Urethane Mastic (Direct to Metal) Paint, Vendor - Hagemeyer, 7616 Southland Blvd., Ste 112 Orlando, FL 32809 Phone 407.448.7655
- D. Applicator: An applicator approved by the manufacturer and Engineer shall furnish all labor, materials, equipment, and supervision for installing all work required by this Section. Upon completion of the work, if requested, a certificate shall be furnished to the Engineer stating that the materials were installed in accordance with manufacturers' specifications. See manufacturer's specifications for application.
- E. Substitutions: All materials or products specified herein and/or indicated on Drawings by trade name, manufacturers' names, or catalog number shall be provided as specified, Substitutions shall only be accepted if approved as equal products by the City Architect.
- F. All painting materials, such as linseed oil, shellac, and turpentine, shall be pure and of the highest quality and shall be approved by the Engineer. They shall bear identifying labels on the containers with the manufacturer's instructions printed thereon.
- G. Paint shall be well ground, shall not settle badly, cake, or thicken in the container, shall be readily broken with a paddle to a smooth consistency, and shall have easy brushing properties.
- H. All thinning and two (2) part materials shall be as recommended by the manufacturers for the particular material thinned or combined.

EXECUTION

- A. This work shall be scheduled and coordinated with other trades and shall not proceed until other work and/or job conditions are as required to achieve satisfactory results.
- B. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.
- C. Deliver painting materials to the site in the manufacturers' original, sealed, and labeled containers.
- D. Store and handle materials to prevent damage to materials or to work in place and to eliminate unnecessary fire hazards. Store materials in well ventilated spaces. Promptly remove from site paints and containers not meeting requirements.
- E. Application to be by brush or air brush per manufacturers' specifications.
- F. Workmanship:
 - 1. The workmanship shall be the very best. Only skilled mechanics shall be employed. Application to be by brush.
 - 2. Equipment shall be kept clean and in proper condition to provide the first quality job which is the intent of this Specification.
 - 3. All materials shall be mixed, thinned, modified, and applied only as specified by the manufacturer's directions on the container.
 - 4. Secure approval of color samples before applying any paint or finish. All priming coats and undercoats shall be tinted to the approximate shade of the final coat.
 - 5. The succeeding coats shall not be applied until Engineer has had the opportunity to inspect the completed coat.
 - 6. Coverage and hide shall be complete. When prime coat or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance, and coverage, at no additional cost to the Owner. All coats shall be thoroughly dry before applying succeeding coats.
- G. Protection:
 - 1. Protect work at all times and also protect all adjacent work and materials by suitably covering or other method during progress of work. Upon completion of the work remove all paint spots from paving, glass, and other surfaces. Remove from the premises all rubbish and accumulated materials of whatever nature not caused by others, and leave work in clean, orderly, and acceptable condition.

2. Protect painting work from damage by weather, moisture, pedestrian traffic, and construction. Install necessary protective coverings and barricades as needed or as directed.

H. Environmental Conditions:

1. Exterior painting shall not be done when the temperature is below fifty degrees (50°) F., while the surfaces are damp, during cold, rainy, or frosty weather, or when the temperature is likely to drop to freezing within twenty-four (24) hours. Avoid painting surfaces while they are exposed to hot sun, or when air, surface, or material temperature is in excess of one hundred degrees (100°) F.

I. Surface Preparation:

1. General: Perform preparation and cleaning procedures in accordance with paint manufacturers' instructions and as herein specified, for each particular substrate condition.

2. Cementitious Materials:

- a. Prepare cementitious surfaces of concrete, concrete block, cement grout, plaster, and cement-asbestos board to be painted by removing efflorescence, chalk, dust, dirt, grease, and oils, and by roughening as required to remove glaze, or as directed by the Engineer.

- b. Surface shall be dry before painting and moisture content shall be less than fifteen per cent (15%).

3. Ferrous Metal and Other Metal Surfaces:

- a. Remove dirt and grease with mineral spirits and wipe dry with clean cloths.

- b. Remove rust, mill scale, and defective paint down to sound surface or bare metal using scraper, sandpaper, or wire brush as necessary. Grind, if necessary, to remove shoulders at edge of sound paint to prevent flaws from photographing through finish coats.

- c. Refinished: Touch up all bare metal and damaged shop coats with specified matching paint. Lightly sand prior to spot painting.

4. Plastic Water Meter Boxes with Covers and Electrical Junction Boxes:

- a. Verify with paint manufacturer for compatibility of specified primer with plastic material.

- b. Clean surface of all cementitious material, dust, and grease and prepare work area to manufacturers' specifications.

J. Painting Schedule – Throughout the Public Right of Way Downtown:

1. **Surface: Tree Grates, Guards, Sheet Metal Planter Boxes, Bollards, Trash Cans, Painted Bicycle Racks, Various Fence Railings**

TYPE: Epoxy

LUSTER: Gloss

Two (2) coats Break-Through "Downtown Black". Assure complete coverage with pores filled.

2. **Surface: Utility Lids within Sidewalk Areas**

TYPE: Epoxy

LUSTER: Gloss

Two (2) coats Break-Through tinted to one of the following colors 'Downtown Tile Red', 'Downtown Rose', 'Downtown Silver'. Assure complete coverage with pores filled.

3. **Surface: Historic Acorn Lamppost**

TYPE: 9800 Urethane Mastic (Direct to Metal) Paint

One (1) coat to a minimum of three (3.0) mils dry film thickness

4. **Lymmo Route:**

Surface: **Bus Stations, Lamppost, Railings, Trash Cans, Kiosks Cabinets, Planter Poles, Banner Poles:**

TYPE: Break-Through Water Born Acrylic, Color - 'Downtown Green'

Surface: **Bus Station seats and roof, Kiosk Cabinet side Detail**

TYPE: Break-Through Water Borne Acrylic, Color - 'City Gold'

Surface: **Planter Bowls**

TYPE: Break-Through Water Borne Acrylic, Color #1524

'Terracotta Clay'

K Cleanup:

1. Maintain site in neat condition during operations. Keep area free of trash and debris.

2. Remove all trash and work materials created by work and dispose of legally off the site.

4.17.2 - SIGNING AND STRIPING

DESCRIPTION

A. All work shall be in accordance with the Drawings and applicable portions of sections 992 through 996 of the FDOT Standard Specifications for Road and Bridge Construction and the Manual of Uniform Traffic Control Devices.

B. This work shall include, but is not limited to, the following:

1. Permanent Signs
2. Painted Striping
3. Pavement Markers

PRODUCTS

- A. Signs - City type as supplied by the City or Universal Signs & Accessories, Bob's Barricades, Vulcan Signs & Stamping, or approved equal. All subject to approval by City Transportation Engineering Division.
- B. Paint Type - Alkyd as supplied by Thermoplastic Pavemark Corporation (or approved equal), or pavement marking, preformed plastic (may include tape), or paint with beads, as approved by City Transportation Engineering Division.
- C. Reflectors - Stimsonite Brand or approved equal.

EXECUTION

- A. All installation shall be in accordance with applicable standard FDOT requirements as outlined herein.
- B. Skip line patterns and reflective pavement markers shall be in accordance with FDOT Standard #17352.
- C. All signs, painted lettering and arrows, and striping must conform with standards established by the "Manual of Uniform Traffic Control Devices".
- D. Where possible mount new signs onto the new streetlight poles instead of standard sign/pole installation. Mounting brackets shall be as approved by City Transportation Engineering Division.

4.17.3 – WATER METER BOXES & WATER VALVE BOXES

DESCRIPTION

- A. The work shall consist of purchase and installation of water meter and water valve boxes.

PRODUCTS

- A. As supplied by OUC Water Department.

EXECUTION

- A. Installation shall be complete and true to the final grades of the surrounding work per the specification of the respective division of OUC Temporary installations are acceptable and may be required to protect certain facilities as directed.

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- B. Final grade adjustments of any utility box shall be incidental to these items of work.
 - C. Any additional utility boxes of any kind or additional utility service features afflicted by the department unit shall receive the appropriate utility box as decided.
 - D. Where possible these items should be located within five feet (5') from the back of curb so as to provide a clear pedestrian path between the tree wells and building faces.
 - E. See Details included in Treatment Sections 3.1, 3.2, 3.3, and 3.4.

4.17.4 – ROOF DRAINS

DESCRIPTION

- A. Install a complete roof drain system at all existing roof drain locations. This system shall consist, as a minimum, of sufficient drain pipe, fittings, reducer, modified curb casting, and appurtenances to effect a watertight system from the existing roof drain at or within a building to the flow-line of the curb and gutter. An inspection of every roof should be done to ensure that no roof drains have been omitted prior to sidewalk placement.
- B. Coordinate installation of modified curb casting with curb and gutter.
- C. Paint curb casting per specifications in this section.

PRODUCTS

- A. Pipe and Fittings - Schedule 40 virgin PVC drain pipe, reducer, and fittings.
- B. Curb Outlet - Cast iron, Neenah, Catalog No. 3262-2, or approved equal, modified to be installed flush with the rear face of the curb.

EXECUTION

- A. Modification and installation of curb casting shall be incidental to construction of the roof drain and shall be included as part of this item.
- B. All PVC fittings shall be solvent welded fully watertight.
- C. All connections to existing roof drains shall be made as watertight as possible using conventional methods.
- D. All roof drains shall be installed to provide positive drain with a constant slope unless otherwise directed by the Engineer.

4.17.5 – CLEAN-UP AND PROTECTION OF NEW STREETScape WORK

- A. The contractor shall be responsible for general clean-up of all adjacent properties affected by the work.
- B. The contractor and/or developer shall take whatever precautions necessary to protect completed streetscape work when other construction (i.e., facade improvements, building renovations, etc.) is planned. Ideally, streetscape construction should be scheduled after the building construction activity.

SECTION 5.0

**OTHER SITE FURNITURE
and
AMENITIES**

5.1 – HOOP STYLE TREE GUARDS & TREE GRATES

DESCRIPTION

- A. Supply and install tree grates, frames, guards, and appurtenances as specified herein.
- B. Coordinate work with Concrete, Electrical, Landscape, and Irrigation sections.

PRODUCTS

- A. Tree grates, frames, guards, and appurtenances (see tree grate details included with Treatment Sections 3.1, 3.2, 3.3, and 3.4).
 - 1. Cast iron as manufactured by U.S. Foundry Company, 8351 N.W. 93 Street, Medley, FL 33166, phone (800) 432-9709, or approved equal
 - 2. Special order hexagonal tree grate and frame, Model #USF 9505 (or approved equal), 2-piece, with frame anchor (1/2" x 4" studs; 12/frame) and leveling lugs for attachment and leveling of matching tree guard. Special order fabricated hexagonal steel tree guard, 4 feet high with 18 vertical members. Allow eight (8) weeks minimum for shipment from factory to Job Site.
 - 3. Paint finish to be factory applied per paint specifications in Section 4.17.1.
 - 4. All bolts, fasteners, etc. for tree grates and guards are to be stainless steel.

EXECUTION

- A. Bolt frame sections together and cast into concrete collar (see Hoop Style Tree Guard Detail included with Treatment Sections 3.1, 3.2, 3.3, and 3.4). To provide a level non-rocking grate the frame must be set in a true flat plane. Set frame segments flush with adjoining surfaces. Modify frames as required to install along the lines and grades shown.
- B. Install and plumb guards on grates in accordance with manufacturer's recommendations.

HOOP STYLE TREE GUARDS FABRICATED AND INSTALLED FOR THE DOWNTOWN MAINTENANCE PROGRAM.

Hoop style tree guards may be fabricated for installation within a rectangular, square or hexagonal tree well. The City Architect and CRA downtown maintenance staff will determine and direct this issue. Fabrication consists of 5/8" O.D. smooth steel rod (manufactured – formed into "U" shape 11 and 3/4" in height and 4" wide). Each "U" shape is welded to flat bar

steel 1½"x ½" (varies in length depending on tree well size and shape). Each assembly shall consist of solid welds using welding rods of the 70,000 psi series (low hydrogen rods or wire). Installation shall include a custom fit within each tree well area and utilize enough welds, and or possible anchor bolts (3/8" x 4") to insure an interlocking single Tree Guard Unit comprised of individual pieces. Downtown tree wells are constructed of a concrete framework with or without an interior steel collar. Tree guard installation within tree wells with an interior steel collar shall require welding. Tree guard installation within tree wells without an interior steel collar shall require the use of anchor bolts. All pieces shall be primed and painted, using products determined by staff of the Downtown Maintenance Program.

EXISTING EXAMPLES AND CONFIGURATIONS:



5.2 – TREE WELL PLANTINGS

Downtown Planting Schedule 2007/2008

LOCATION	SEASON	PLANTING
Orange Avenue	Fall (October thru March)	Mixed Grandiflora Petunias in Palm Planter Pots. Orange Colored Impatiens in Tree Boxes with Ficus (Ficus well be puff-balled and trunked up).
	Christmas	Add poinsettias to Orange Tree Pots, and to Tree boxes with Ficus Trees.
	Winter (post Holiday planting) (January thru March)	Remove all poinsettias and install Orange Colored Impatiens in Tree Boxes with Ficus, and multi-colored Grandiflora Petunias to the Orange Tree Pots.
	Spring (March Planting depending on Spring's arrival)	Install Orange Colored Impatiens to Tree Boxes, Orange Lantana to the Citrus Pots, and Orange Impatiens or Orange Flowering Gerber Daisy's to the Palm Planter Pots.
	Summer (June thru September)	Install Orange Impatiens to the Tree Boxes, Orange Bromeliads to the Palm Planter Pots, and Orange Marigolds in the Citrus Tree Planter Pots.
	Lymmo Planter Bowls	Fall (October thru March)
Christmas		Install Silk Poinsettias around existing Petunias.
Spring (March Planting depending on Spring's arrival)		Install New Gold Lantana to all Planter Bowls.
Summer (June thru September)		Install Green Ipomoea. The in-ground Planter areas underneath the Shumard Oak Trees will have Purple colored Dwarf Pentas added as needed (between Church St. and Jefferson St.).
East Washington Street	Fall (October thru March)	Install Multicolored Grandiflora Petunias to the planter pots.
	Christmas	Install Poinsettias to the raised planter pots; around the center foliage piece.
	Spring (March Planting depending on Spring's arrival)	Install New Gold Lantana to all Planter Pots; around the center foliage piece.
	Summer (June thru September)	Install Ipomoea to all raised planter pots; around the center foliage piece.
Side Street Plantings: (Including Pine Street, Central Boulevard and Washington Street)	All Year	A combination of Ficus standards, Queen and Butia palms will be grown in the center of the 30" Planter Pots. A additional planting combining Agaves and Thorny Bromeliads around the base of each palm will be installed to stop vandalism and people from seating on top of these planters.
		Installation of Madagascar Palms will be added to the center of all 24" Planter Pots. In addition, Agave and Thorny Bromeliads will be installed around the edges of each planter to minimize vandalism and stop people from seating on top of these planters.
Church Street.	Fall (October thru March)	Install red only Grandiflora Petunias within Palm Planters, Tree boxes and 24" Round Concrete Planter Pots after all lantana has been trimmed back to 3" - 4", and all Dragon Wing Begonias have been removed.
	Christmas	Install poinsettias to the tree boxes. Both Red Petunias and Poinsettias will be grown together.
	Spring (March Planting depending on Spring's arrival)	Install 4 - 3 Gallon Blue Plumbago and 4 - 3 Gallon William Jennings Bryant Crotons (red/orange leaf variety) to all Tree Boxes.
	Summer (June thru September)	Remove Plumbago Plants/leave Crotons and install Gold Mound Lantana Plants to Tree Boxes.

Parramore Avenue	Fall (October thru March)	Install Red and White Petunia to Planter Pots and Tree Boxes.
	Christmas	Install Poinsettias to Planter Pots and Tree Boxes.
	Spring (March Planting depending on Spring's arrival)	Install Green Ipomoea plants to Planter Pots around the base of Variegated Yucca Plants.
		Install 4 - 3 Gallon Blue Plumbago Plants and 4 - 3 Gallon Sanseveria laurentii Plants to all tree Boxes.
Summer (June thru Sept)	Remove Plumbago Plants/leave Sanseveria Plants and install Gold Mound Lantana Plants to all Tree Boxes. Also remove Green Ipomoea from Planter Pots and replace with Gold Mound Lantana Plants.	
East Central Boulevard (Rosalind Avenue to Eola Drive) and North Rosalind Avenue.	Fall (October thru March)	Remove Lantana and Dragon Wing Begonias and replant with Red and White Petunias.
	Christmas	Install Poinsettia Plants in with Red and White Petunias.
	Spring (March Planting depending on Spring's arrival)	Install 4 - 3 Gallon Plumbago Plants to the center areas of each planter box and Raspberry Ice Lantana to all four corner of each Planter Box. The Variegated Ficus will stay in place.
	Summer (June thru September)	Replace Raspberry Ice Lantana with Gold Mound Lantana assess Plumbago condition; replace if needed with Song of India Dracaena. This treatment will be unified for all Planter Boxes along East Central.

EXISTING EXAMPLES AND CONFIGURATIONS



5.3 – PLANTERS

PLANTERS: EXISTING EXAMPLES AND CONFIGURATIONS



5.4 - TRASH RECEPTACLES

DESCRIPTION

- A. Supply and install trash receptacles and appurtenances as specified herein.
- B. Coordinate with installation of light poles and traffic signal poles to which containers may be attached.

PRODUCTS

- A. As manufactured by Howard Products Division of United Receptacle Corporation, 14th and Laurel Streets, Pottsville, Pennsylvania 17901, or approved equal (See Detail 10-B), distributed locally by Gem Supply Co., (305) 849-6163.
- B. Capacity: Ten (10) gallon container - Howard Products Model #H-1 or equal.
- C. Dimensions: 24"H x 12" Diameter.
- D. Material: Heavy duty 16 gauge perforated steel.
- E. Finish: Architectural brown or black baked enamel finish, to match pole.
- F. Mounting Device: Howard Products Model #HP-06 strapping kit for size 4.5" O.D. pole, or equal.
- G. Liner: Howard Products Model #LHI rigid plastic liner to match color, or equal.

EXECUTION

- A. Install receptacles on street light poles with strapping kit following manufacturer's instructions.
- B. Install receptacles on traffic signal poles with strapping kit following manufacturer's instructions. Also, with approval of Traffic Department, trash receptacles may be bolted as follows:
Using mounting holes in bracket as a guide drill two 1/4" holes in pole and tap with 5/16 tap. Insert 5/16 bolt with lock washers, through bracket and tighten securely to pole.

TRASH RECEPTACLES: EXISTING EXAMPLES AND CONFIGURATIONS



5.5 – STREET LIGHTS

High pressure sodium vapor is the recommended source for lighting all vehicular and pedestrian use areas. Light fixture locations will be specified by the City of Orlando and Orlando Utilities Commission. Lamps shall incorporate light cutoff design which limits upward spill of light and directs light downward.

Joint Use Poles

For street intersections and streets with heavy vehicular use, an integrated system that combines lighting, traffic control devices, signs and other elements is recommended.

Heavy Vehicular Traffic Streets

For streets with heavy vehicular use, the light fixture illustrated below should be used. Refer to Section 4.0 for product specifications and installation requirements. Poles and hardware should be painted black.

Period-Style Pedestrian Light Fixture

South of Colonial Drive, Pedestrian Streets will utilize a two-globe “acorn style” light fixture, painted black.



STREET LIGHTS

DESCRIPTION

- A. Install street light pole base and arrange bolt pattern to template-provided by OUC Electric.
- B. Street light poles are to be ordered through OUC, and paid for by Contractor, and installed by OUC Electric. (No credit will be given to Contractor for existing street lights.) New lights are eligible for CRA participation.
- C. Coordinate work with electrical conduit installation.
- D. All designs, materials, methods, and construction are subject to approval of the City Transportation Engineering Division.

PRODUCTS

I. "Period-style" streetlights as follows:

- A. Dual acorn "period style." Light cutoff design is required.
- B. Single acorn "period style." Light cutoff design is required.

III. Conduit System

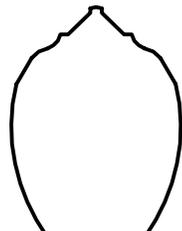
- A. Rigid non-metallic conduit and ell sweep.
- B. Pull wire.
- C. Rigid metallic ells.

EXECUTION

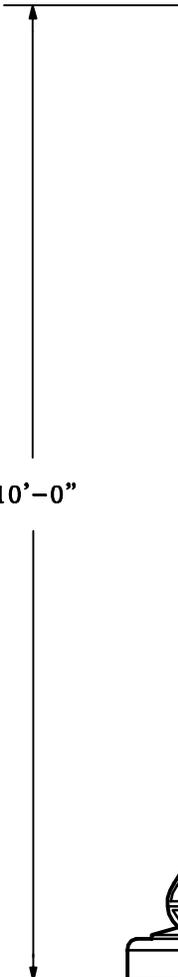
- A. Street light pole foundations are to be installed by Contractor according to applicable Concrete Work sections. Foundation tops should be level so that street light poles can be plumbed. Provide 1" Ø PVC conduit "sweep" from junction bog through top of foundation. Assure installation method is approved by OUC prior to concrete placement.
- B. All streetlight locations should be coordinated with streetscape pavers and should not interfere with pedestrian path.
- C. Street lights are to be installed by OUC Electric in accordance with manufacturer's specifications. Contractor shall notify OUC in advance of construction and coordinate fixture ordering and installation.

(NOTE: Fixture order is by OUC Electric; payment for streetlights is by Developer.)

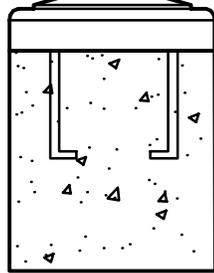
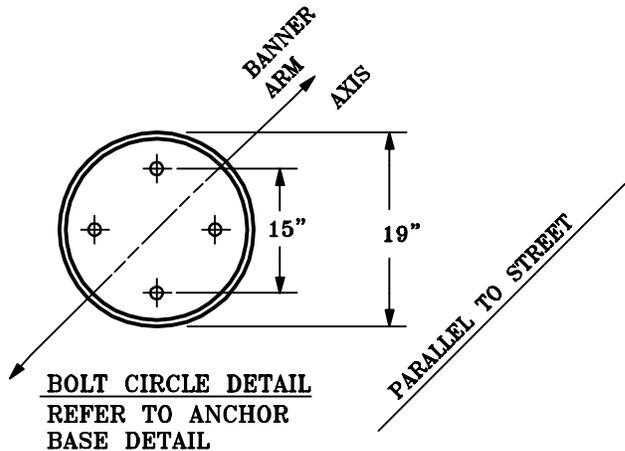
- D. Conduit system - per Section 4.14.



100W HPS DECORATIVE GLASS REFRACTOR ACORN
 HOLOPHANE GRANVILLE #GVU100HPMTB3NNUH
 OUC STOCK NO. 036-23045



10' ALUMINUM FLUTED TAPERED POLE
 HOLOPHANE WADSWORTH #W10F5/19-CA/BK
 OUC STOCK NO. 036-23010



SEE NOTE

NOTE:
 MASONRY GROUT TO
 BE PACKED BETWEEN
 BASE FLANGE AND
 CONCRETE ANCHOR
 BASE.

NOTE:
 REFER TO OUC
 CONSTRUCTION STANDARDS
 FOR OUCONVENIENT LIGHTING

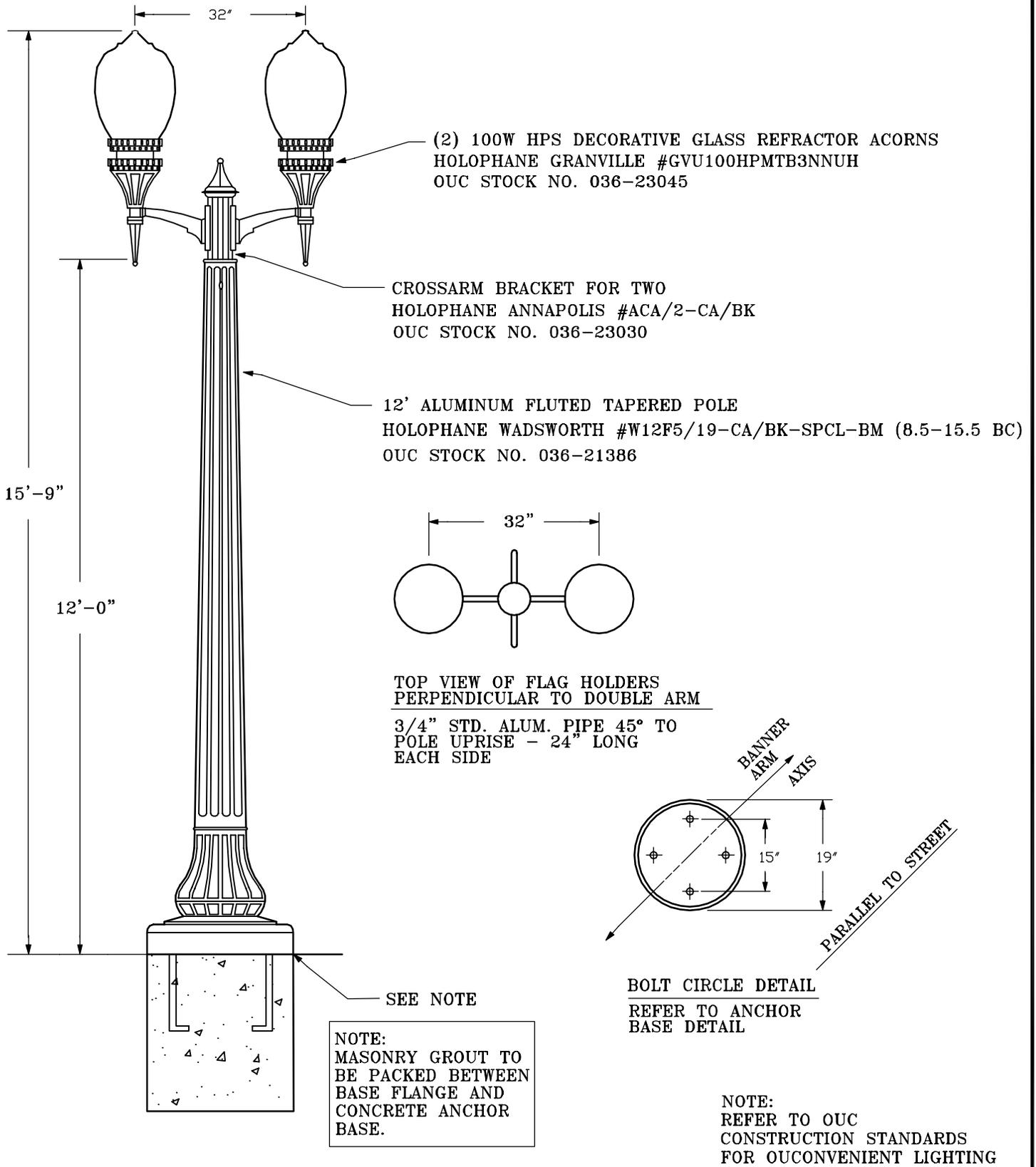


DECORATIVE FIXTURE
 HISTORIC SINGLE GLOBE

ALL TREATMENTS

DETAIL 5.5-A





DECORATIVE FIXTURE
HISTORIC DOUBLE GLOBE

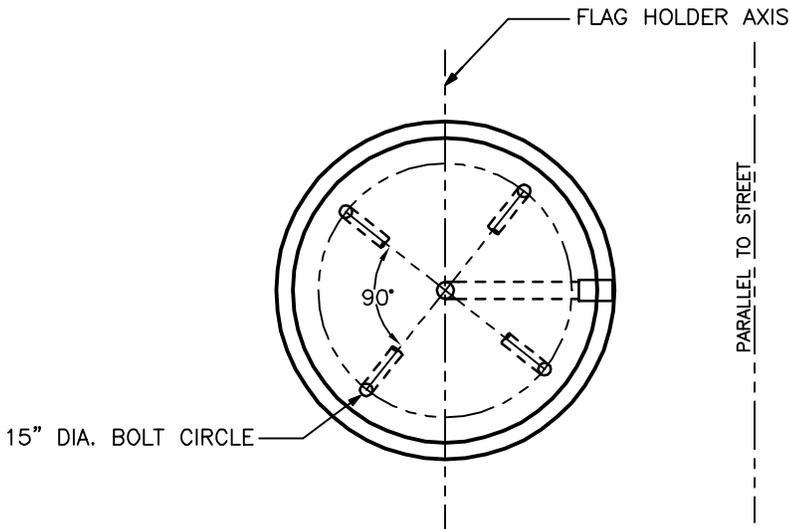
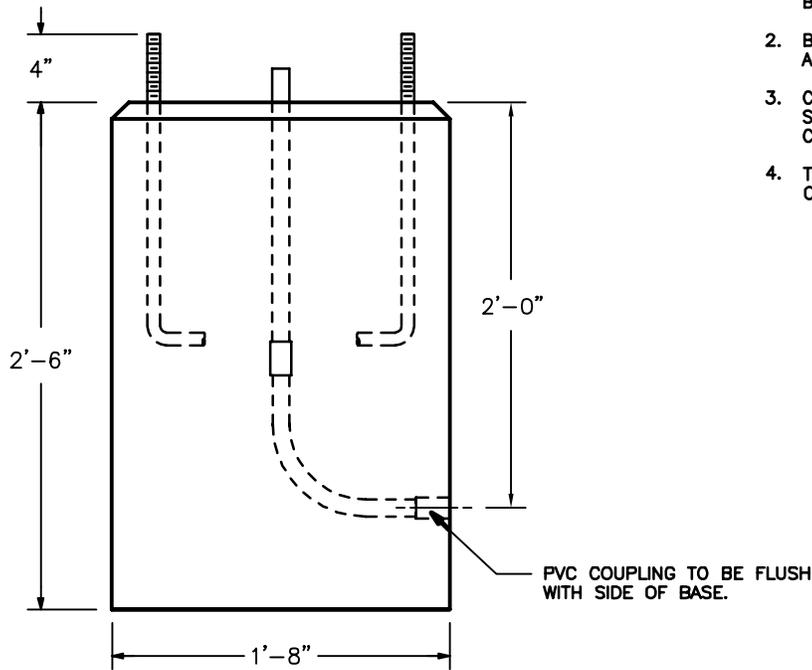
ALL TREATMENTS

DETAIL 5.5-B



NOTES:

1. GALVANIZED 3/4" X 18" X 3" ANCHOR BOLTS SHALL BE SUPPLIED BY CUSTOMER.
2. BOLT HEIGHT AND BOLT CIRCLE AS REQUIRED.
3. CONDUIT SHALL BE 1.0" DIA. PVC SCHEDULE 40 WITH A 90° PVC ELBOW CAST IN PLACE.
4. TOP EDGE OF BASE SHALL HAVE 1" CHAMFER.



NOTE:
REFER TO OUC
CONSTRUCTION STANDARDS
FOR OUCONVENIENT LIGHTING



STREET LIGHT ANCHOR BASE "A" HISTORIC SINGLE GLOBE

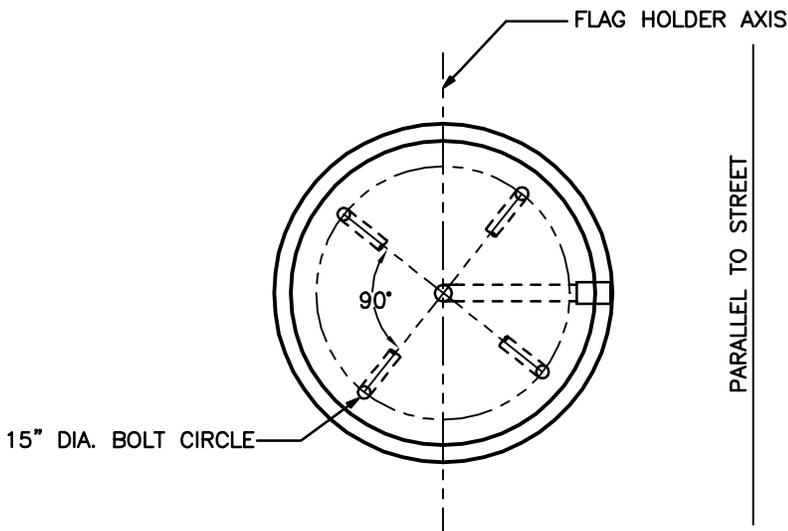
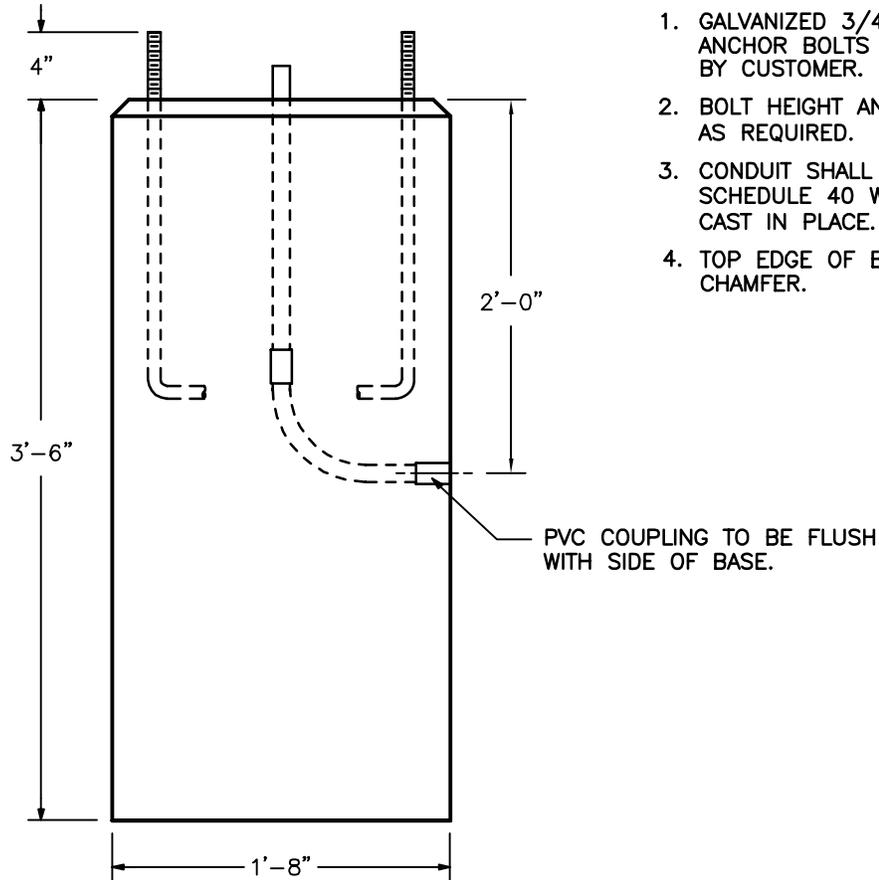
ALL TREATMENTS

DETAIL 5.5-C



NOTES:

1. GALVANIZED 3/4" X 18" X 3" ANCHOR BOLTS SHALL BE SUPPLIED BY CUSTOMER.
2. BOLT HEIGHT AND BOLT CIRCLE AS REQUIRED.
3. CONDUIT SHALL BE 1.0" DIA. PVC SCHEDULE 40 WITH A 90° PVC ELBOW CAST IN PLACE.
4. TOP EDGE OF BASE SHALL HAVE 1" CHAMFER.



NOTE:
REFER TO OUC
CONSTRUCTION STANDARDS
FOR OUCONVENIENT LIGHTING



STREET LIGHT ANCHOR BASE "B" HISTORIC DOUBLE GLOBE

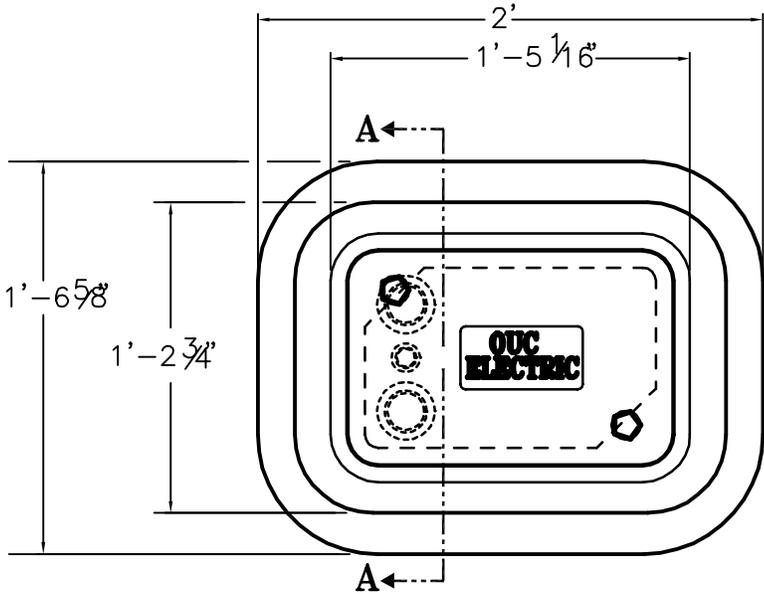
ALL TREATMENTS

DETAIL 5.5-D

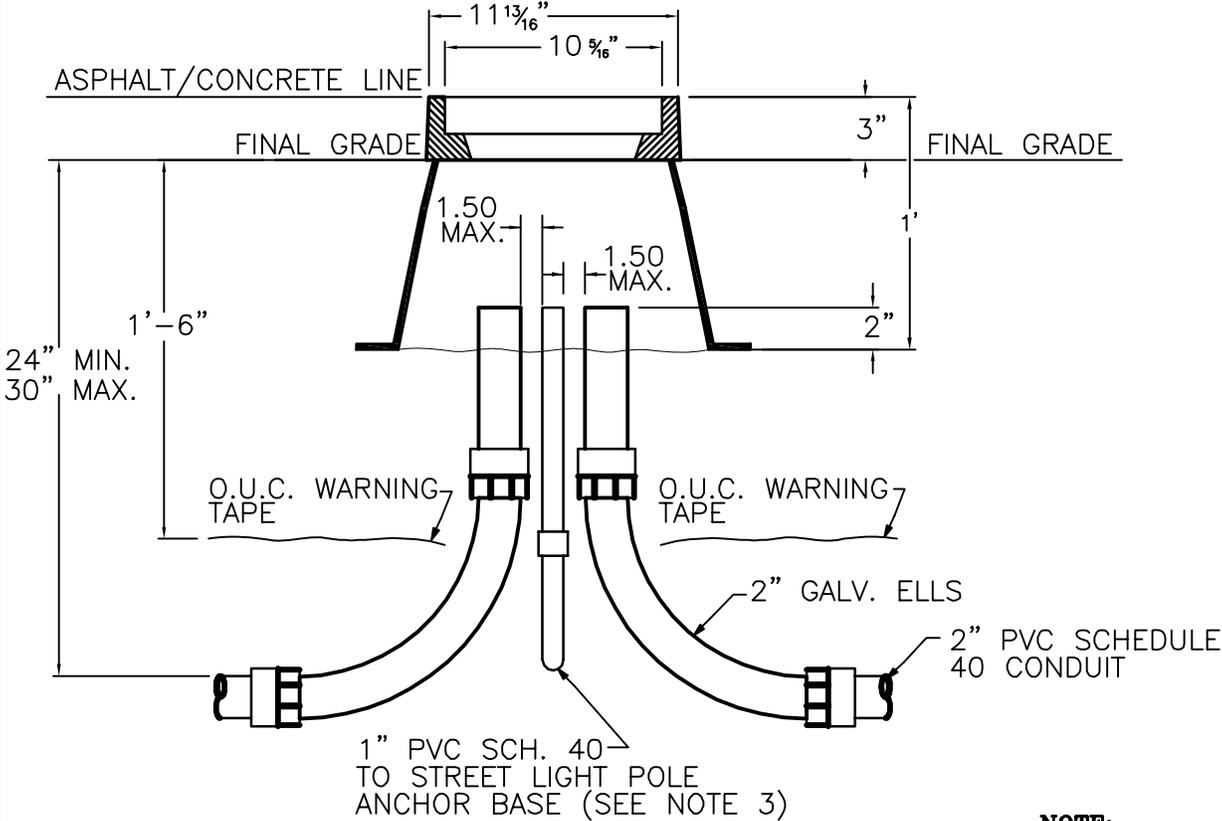


NOTES:

1. BOX AND COVER TO BE OUC STOCK NO. 036-26039
2. IF STREET LIGHT POLE IS 5 OR MORE FEET FROM JUNCTION BOX, THE STREET LIGHT CONDUCTOR MUST BE INSTALLED IN A 1 INCH CONDUIT. IF WIRES UNDER CONCRETE AT ANY POINT BETWEEN BOX & POLE MUST BE IN 1" CONDUIT.
3. ON DIRECT EMBEDMENT POLE INSTALLATIONS USE DIRECT BURY "UF" CONDUCTOR TO POLE.
4. TOP SURFACE OF JUNCTION BOX TO BE 3" ABOVE FINAL GRADE.



PLAN



SECTION A-A

NOTE:
REFER TO OUC
CONSTRUCTION STANDARDS
FOR OUCONVENIENT LIGHTING



**STREET LIGHT
JUNCTION BOX**

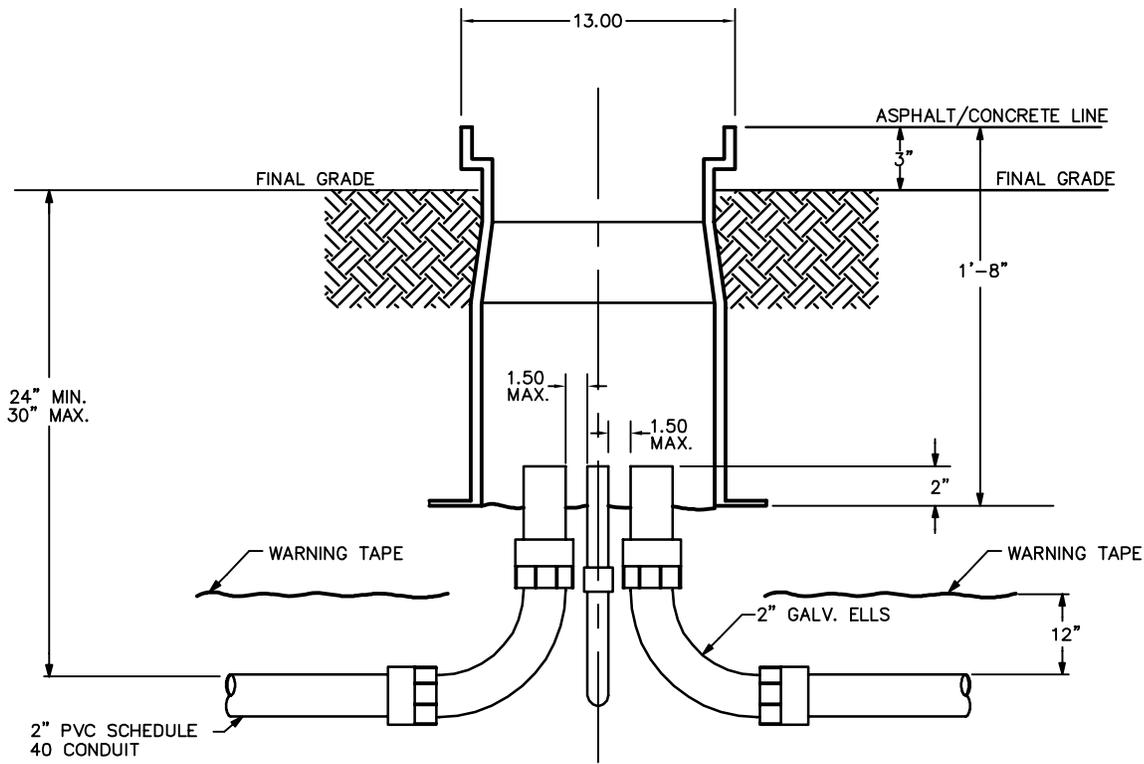
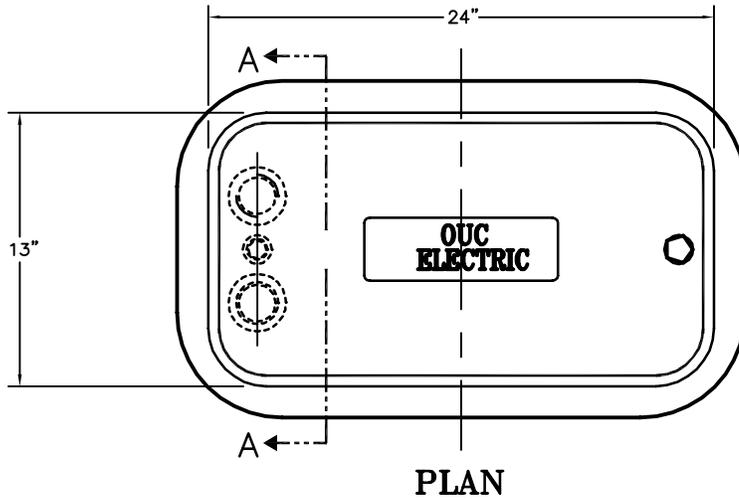
ALL TREATMENTS

DETAIL 5.5-E



NOTES:

1. BOX AND COVER TO BE OUC STOCK NO. 046-08000
2. TOP SURFACE OF JUNCTION BOX TO BE $\pm 3"$ ABOVE FINAL GRADE.
3. ALL CONDUIT SHALL EXTEND $2"$ VERTICALLY ABOVE GROUND.



SECTION A-A

NOTE:
REFER TO OUC
CONSTRUCTION STANDARDS
FOR OUCONVENIENT LIGHTING



**LIGHTING
SECONDARY JUNCTION BOX**

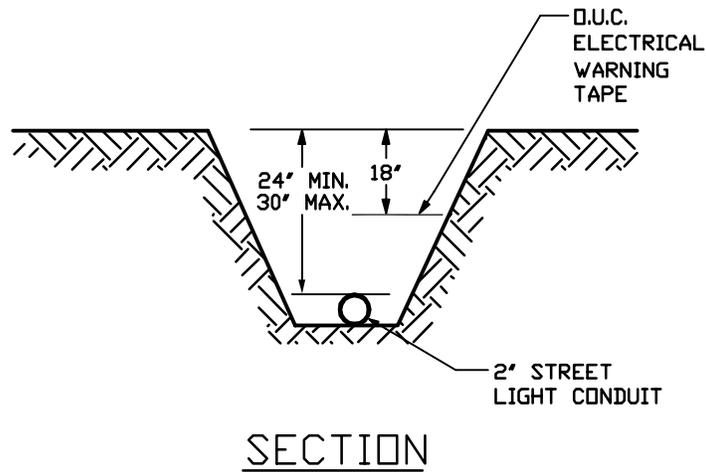
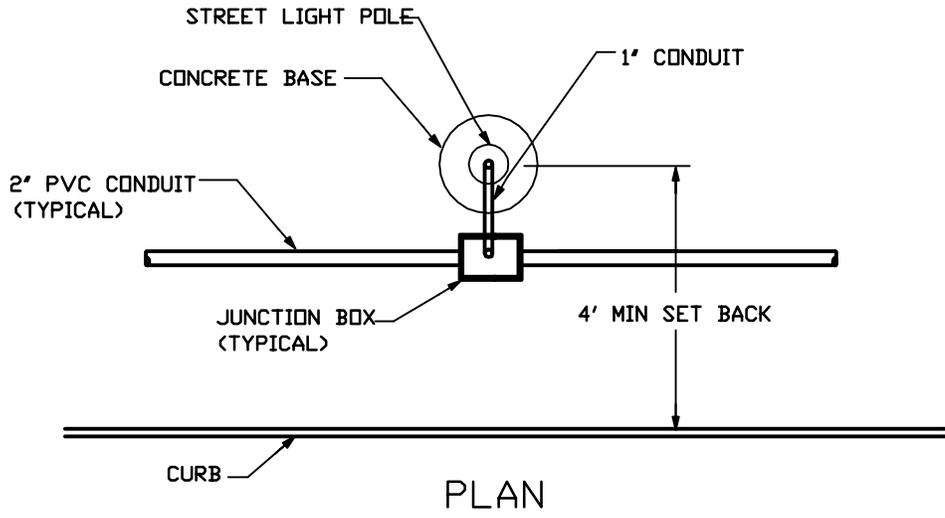
ALL TREATMENTS

DETAIL 5.5-F



NOTE:

1. THE CENTER LINES OF STREET LIGHT POLE AND JUNCTION BOX WILL BE ALIGNED WITHIN 2" UNLESS SPECIFIED BY ENGINEER.



NOTE:
REFER TO OUC
CONSTRUCTION STANDARDS
FOR OUCONVENIENT LIGHTING



TYP. JUNCTION BOX, STREET LIGHT W/ BASE &
ELECTRICAL CONDUIT LOCATION PLACEMENT

ALL TREATMENTS

DETAIL 5.5-G



5.6 – GRANITE CURBS & STREET NAME IDENTIFIERS

Granite curbs and pavers are encouraged as an alternative to the standard treatments included in Section 3.

Where 12" granite curbs are installed, street names shall be sand-blasted and lithochromed in black lettering onto the top surface of the curb. Lettering shall be "Times New Roman", all caps, 4" in height, with 4" space above and below the lettering.

All exposed surfaces of granite curbs and pavers shall be flamed to a non-slip finish. No exposed surface shall have depressions or projections greater than 1/8".

Provide samples of granite for color and texture.

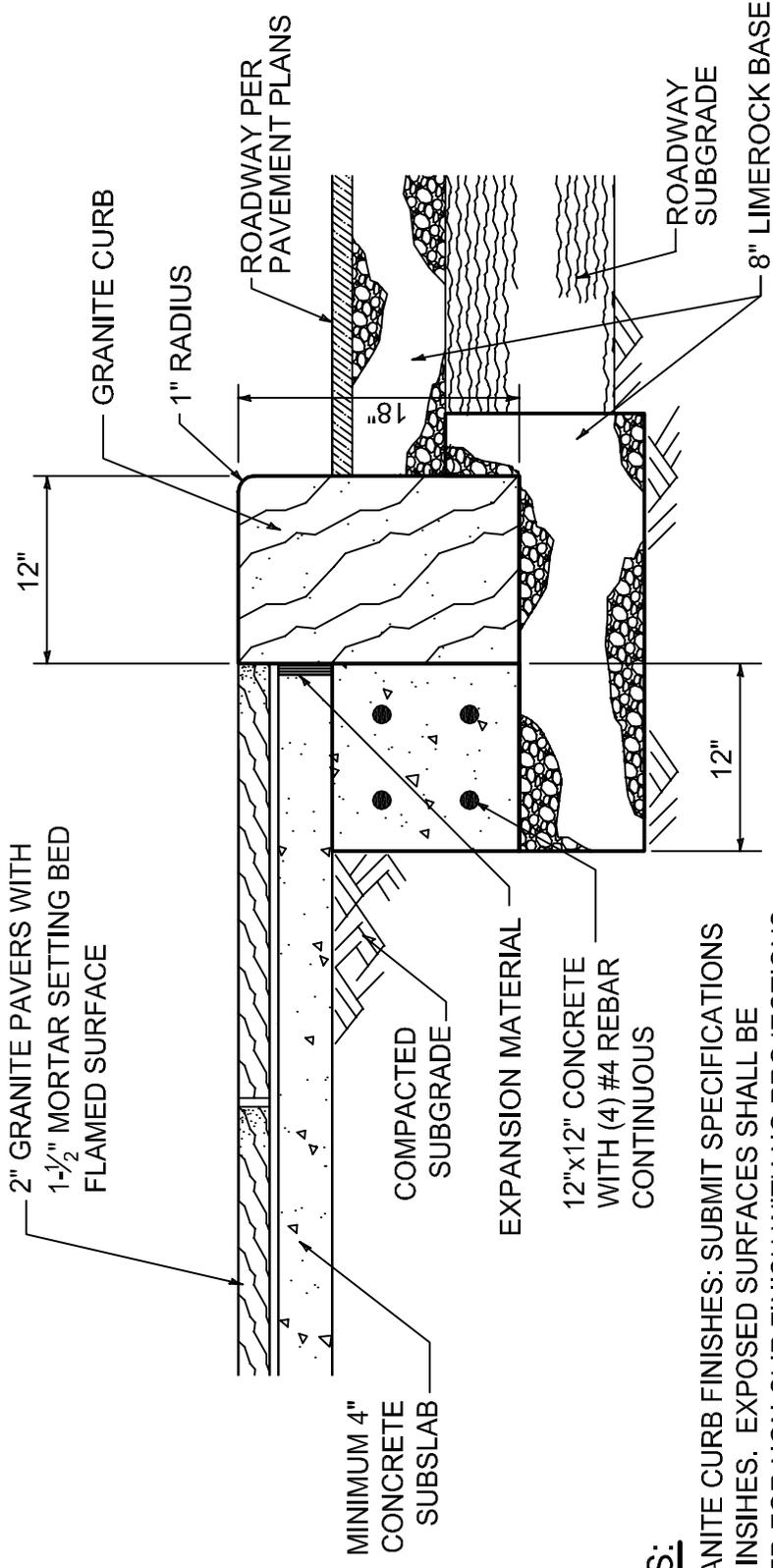
5.7 – CHARACTER AMENITY/COMMUNITY IDENTIFIERS **(Reserved)**

5.8 – BICYCLE RACKS

Bicycle racks shall be DuMor, Inc. Series 125 bicycle rack (or approved equal), powder-coated black finish, minimum 2-7/8" O.D. steel pipe, in-ground mount with concrete footings, all installation per manufacturer's specifications or approved equal.

Alternative bicycle rack designs are encouraged and must be approved by the City Architect.

Placement and orientation of bicycle racks must be such that pedestrian movement is unimpeded or minimal, and must be approved by the City Architect.



SECTION

NOTES:

- 1) GRANITE CURB FINISHES: SUBMIT SPECIFICATIONS FOR FINISHES. EXPOSED SURFACES SHALL BE FLAMED FOR NON-SLIP FINISH WITH NO PROJECTIONS OR DEPRESSIONS GREATER THAN 1/8".
- 2) NO CURBSTONE SHALL BE LESS THAN 4' IN LENGTH OR GREATER THAN 8' IN LENGTH, UNLESS OTHERWISE APPROVED.



GRANITE CURB

SPECIAL TREATMENT

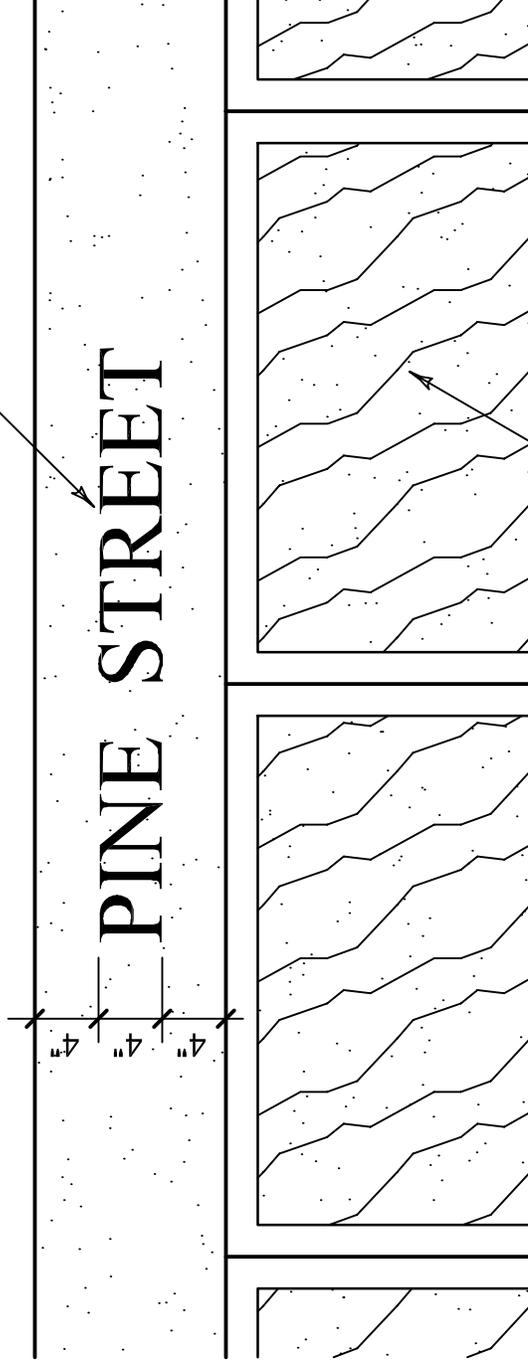
DETAIL 5.6-A

Rev. 07/30/07



↖ STREET
PAVEMENT
PER PLANS ↗

4" HIGH "TIMES NEW ROMAN"
LETTERS, SAND-BLASTED INTO
GRANITE WITH BLACK LITHOCHROME



— GRANITE PAVERS

PLAN



STREET NAME CURB

SPECIAL TREATMENT

DETAIL 5.6-B

Rev. 07/30/07



5.9 – NEWSPAPER STANDS

Newspaper dispensers will be vendor supplied “Sho-Rack” Model K-500 or approved equal and located at intersections in a manner consistent with current streetscape projects. Dispensers will be painted black and will be bolted into the pavement in a manner acceptable to the DDB/CRA. Identification and other graphics will be white only, and no logos or advertisements will be permitted on the dispensers. The location will be submitted to the DDB/CRA for approval.

EXISTING EXAMPLES AND CONFIGURATIONS:



5.10 – BENCHES

DESCRIPTION

When approved by the DDB/CRA, benches may be added to the streetscape.

- A. Supply and install benches and appurtenances as specified herein.

PRODUCTS

- A. Metal 507 Bow Bench (6') as manufactured by Victor Stanley, or approved equal.
 - 1. Concrete Legs = Natural Color; Seat Color = Black
 - 2. Fasteners: High strength stainless steel bolts, nuts, and washers.
 - 3. Dimensions: Length 6'; Weight: 20 lbs/ft + 901bs. for legs.
 - 4. Warranty: 1 full year from date of purchase.

EXECUTION

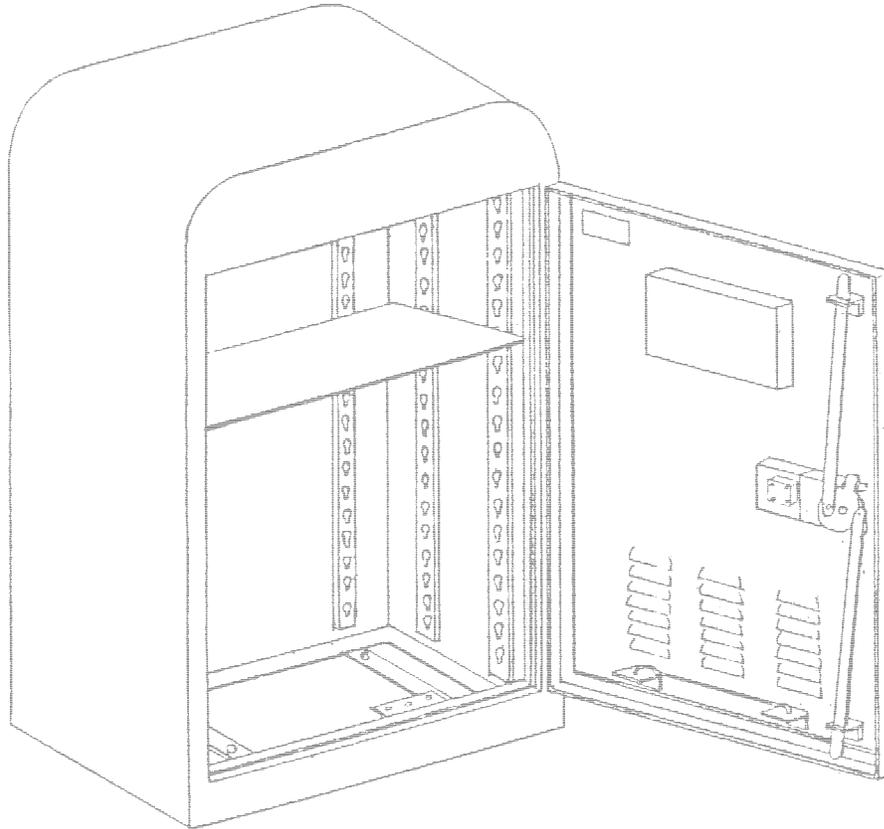
- A. To install benches described above, drill through surface paver and 3" into paver subslab. Epoxy grout high strength S.S. bolt (inserted through bench feet holes) into subslab. Cut anchor bolt flush with finish grade; paint washer to match bench.
- B. Bench locations shall be as determined by the DDB/CRA.
- C. Coordinate bench locations with concrete subslab and 12" banding placement.

5.11 – BOLLARDS **(Reserved)**

5.12 - TRAFFIC SIGNAL CONTROLLER CABINET

The cabinets of traffic signal controllers will be furnished by the City of Orlando. In new building construction, the design shall be coordinated with City Architect and Transportation Department to integrate controller cabinets into building exterior walls. Cabinet sizes may vary according to requirements; all spaces designed to accommodate cabinets shall be designed appropriately and allow adequate ventilation space on all sides. See also Detail 5.12-A.

5.13 – OTHER DROP-OFF BOXES **(Reserved)**



TRAFFIC CONTROLLER CABINET AS MANUFACTURED BY SOUTHERN MANUFACTURING CO. PRODUCTS, ORLANDO, INC. (DWG. #14-0673 A-2) OR APPROVED EQUAL.

PRIME PAINT WITH RUST INHIBITIVE PRIMER; FINISH WITH GLOSSY BLACK PAINT.

NOTE: COORDINATE WITH CITY TRAFFIC ENGINEER PRIOR TO ORDERING CONTROLLER CABINET.



STANDARD TRAFFIC CONTROLLER CABINET

ALL TREATMENTS

DETAIL 5.12-A

Rev. 07/30/07



APPENDIX A

DOWNTOWN DESIGN GUIDELINES
(DDB)

APPENDIX B

**LYNX / LYMMO STANDARDS AND
SPECIFICATIONS**



O R L A N D O

Everyone's Downtown™

DOWNTOWN DESIGN GUIDELINES

FOR

THE DOWNTOWN DEVELOPMENT BOARD

DEVELOPMENT REVIEW COMMITTEE

- I- Introduction**
- II- Context and Compatibility**
- III- Downtown Development Guidelines**
- IV- Signs**
- V- Landscaping**
- VI- Secretary of the Interior Standards**



I - Introduction

A. Purpose

The Design Guidelines are part of the Downtown Orlando design vision intended to promote a desired level of future development quality that will:

1. Contribute to implementing the Downtown Outlook Plan;
2. Stimulate investment in, and strengthen the economic vitality of Downtown Orlando; and
3. Reinforce a positive physical image and identity of Downtown Orlando.

These guidelines acknowledge the prevailing architectural character and development patterns within the Downtown today. The guidelines, therefore, do not seek to impose an overriding style, a limited color palette, or an artificial theme. They seek to promote the positive design characteristics, create a sense of place and preserve the authentic existing architecture throughout Downtown Orlando.

It is not the intent of these design guidelines to eliminate design freedom or discourage innovative design. The design guidelines complement the Development Guidelines contained in the Downtown Outlook (The Plan) Chapter 11, by providing good examples of appropriate design solutions and by providing design interpretations of the various regulations.

Disclaimer- Wherever this document conflicts with the City of Orlando Land Development Code (LDC), the LDC shall take precedence and shall dictate.

B. Content

The design guidelines are organized into the following sections:

1. *Introduction* provides an overview of the purpose, organization, applicability, and other aspects of the design guidelines.
2. *Context and Compatibility* establishes basic "rules of thumb" for integrating new development into the existing urban fabric of Downtown Orlando, and emphasizes the proper treatment of the "edge condition" of existing and proposed development.
3. *Downtown Development Board Guidelines* provides design guidelines, within the Community Redevelopment Area of Orlando. This section provides general design considerations as well as detailed guidance on specific subject areas. It is divided into three categories: 1) infill buildings architectural guidelines; 2) storefront guidelines and 3) building materials palette.



4. *Signs* set forth general and specific guidelines, which intend to enhance the image of Downtown and improve the effectiveness of signs for businesses. These guidelines will compliment the City of Orlando Land Development Code sign standards by Zoning district.
5. *Landscaping* provides a basic landscape design framework, which is to be used in conjunction with new development, and as a helpful tool for property owners interested in upgrading the landscaping of existing development.
6. *Secretary Of The Interiors Guidelines* for rehabilitation of older buildings.

C. Interpretation

To aid in the interpretation of these guidelines, a development applicant should understand the meaning of "should," "encouraged," and "discouraged."

Guidelines, which employ the word "should", are intended to be applied as stated. An alternative measure may be considered, however, if it meets or exceeds the intent of the guideline.

Guidelines using the words "encouraged" or "discouraged" are not mandatory, but express a more or less desirable design solution.

D. Applicability

The provisions of this section are applicable to all development within the Community Redevelopment Agency - Development area. (aka DDB/CRA development area).

These design guidelines are also intended to be used with the Downtown Outlook, which is the Downtown Plan. These guidelines are not intended to supercede or bypass the Land Development Code for the City of Orlando.

Any new building, additions, exterior alterations, signs, and landscaping, should adhere to these Design Guidelines as applicable. It is important to note, however, that these Guidelines do not affect existing buildings that are not proposed for new construction, exterior alterations, signs, landscaping or changes.

The Design Guidelines will be utilized during the Downtown Development Board's Development Review Process (and should be provided to applicants during pre-application conferences) to encourage the highest level of design quality, and at the same time, provide the flexibility necessary to encourage creativity on the part of project designers in response to existing site conditions.



E. Exemptions

If there are questions about the applicability of these Design Guidelines applicants are encouraged to contact the Downtown Development Board office for clarification prior to beginning improvements or construction within the CRA. When in compliance with all City ordinances, the Downtown Outlook and the Downtown Development Board's Vision, the following projects are exempted from all provisions of these Design Guidelines:

1. Construction underground, which will not leave any significant, permanent marks on the surface after completion: utility boxes, pipes, venting and poles shall be considered "significant permanent marks;" Sidewalks and right-of ways shall be restored to the original condition or like new condition after the underground construction is completed;
2. Repair and maintenance work on buildings, landscaping, or grounds (including parking lots), which does not significantly alter the appearance or function of the building, landscaping, or grounds;
3. Interior remodeling work;
4. Landscape maintenance and upkeep, including relatively minor replacement of plants other than trees;
5. Temporary uses and structures as defined by the Land Development Code;
6. Routine roof maintenance and repair. Overall roof reconstruction is subject to these Design Guidelines;
7. Any work not visible from the right-of-way
8. Freestanding single-family residence repainting.

II - Context & Compatibility

The ever-looming quest for "The Orlando Style" continues to be our goal with design. In a similar fashion, as the nation searches for the "American" style of architecture and the resulting styles emerged. (Art Deco, Neo-Classical, and Craftsman). There is not a prevailing style that claims Orlando as a pre-dominant style of architecture. This is Orlando, Florida, not New Orleans, nor Chicago, or San Francisco or other references that do not speak to our region.

Architecture should speak to its surroundings and context, and not turn its back on the community. Orlando was at one point an agronomist community that thrived in the citrus industry. The buildings that were built here were reflective of



that industry. Although we are not mired in that industry today, and our economy has expanded, it is our history and heritage that we must be respectful to preserve.

Existing buildings, streetscape, signs, and landscaping establish the frame of reference for new development. Conversely, regular or blatant disregard of existing patterns disrupts the essential character image, creates voids in the built environment, and compromises the functionality of Downtown.

Generally, to create harmony between the existing urban fabric and new elements introduced into the Downtown, all new structures, additions and uses should be compatible with the prevailing historic architectural character of the surrounding area. Site amenities, such as large mature trees, should be preserved and should become part of any new project or addition, and structures and activities should be located and designed to avoid creating nuisances and hazards for adjoining properties, particularly residential properties.

The concept of "compatible" design is one of the most important concepts to be aware of when using these design guidelines. Compatible designs do not seek to imitate the historic architecture found in Downtown, but do reflect their surroundings in terms of design concepts – mass, scale, rhythm, color, materials, and building arrangement. Compatible designs will be in harmony with the best designs of surrounding developments.

"Rules of Thumb" pertaining to contextualism and compatibility include:

1. All new construction and development should incorporate those characteristics of the Downtown that exhibit a positive distinctive architectural style and/or established functional or landscape patterns.
2. New buildings and additions should be sited in a manner that will complement rather than conflict with existing adjacent buildings, landscape, streetscape, parking, and access.
3. Transitions between existing and new buildings or additions should be gradual. The height and mass of new projects or construction should not create abrupt changes from those of existing buildings
4. Natural amenities, such as mature trees and views, should be preserved and incorporated in the design of Downtown projects where applicable. Buildings should not turn their backs to existing or potential amenities.
5. Buildings should be oriented to connect with high activity areas, such as restaurant dining areas or major pedestrian areas, in order to create connections and linkages.
6. Noise or odor generating activities in general, and loading areas, trash and storage areas, and rooftop equipment in particular should be located as far as possible from adjacent residences and sidewalks. These activities should never be located next to residential properties without fully mitigating their negative effects.



7. Commercial and other nonresidential buildings and associated activity areas should be oriented to avoid significant shading of adjacent residences and compromising residents' privacy.
8. Where high-density buildings are adjacent to residential neighborhoods, these high-density buildings should maintain low profiles and heights that step down to the height of adjacent residential zones, utilizing architectural elements such as gables or hip roofs to reduce building mass.
9. Windows in commercial and other nonresidential buildings should be oriented to preclude a direct line of sight into adjacent residential buildings, or property.
10. All buildings single story and multi-story should be identifiable by its three parts. Base – the portion of building that integrates and anchors the building to the site. Middle (shaft) – the portion of the building that usually has fenestration, verticality and walls that give height to the building. Top (capital) – that portion of the building that crowns the top or terminates the verticality of a building. The top of the building becomes the most visible portion of the building and should always strive to serve as a dominant element on the building. A strong top will serve as a beacon that can become an identifiable element in the Orlando skyline.

Base, middle, and top or base, shaft, and capital are used similar to a column's three parts. These three parts are important and essential to the design of any building. We want all buildings in Orlando to be identifiable through these elements, so that our community has good architecture.

III - Downtown Development Board Guidelines

The construction of new buildings and rehabilitation of existing buildings within the Community Redevelopment Area (CRA) in Downtown Orlando is important for continued economic growth and diversity in the City. It is extremely important that new buildings erected in the Downtown are compatible with existing buildings, which reflect the architectural styles of the region and industry. It is the desire of the City to have buildings in the Community Redevelopment Area conform to architectural styles of this region and geographical area rather than be dictated by contemporary franchises from other places.

A. Infill Buildings Architectural Guidelines

All buildings located within the Community Redevelopment Area are considered Infill Buildings, because they fit within a predetermined pattern or grid. New buildings should not redefine this grid, but conform to it and thus are referred to as Infill Buildings. Whether they physically abut adjacent buildings or are built on the adjacent lot, they become infill structures, which must respect the surrounding context.



The design of an infill building, particularly its front facade, should be influenced by the other facades on the street but should not attempt to copy them. The infill structure should be sympathetic and compatible with surrounding buildings in terms of mass, scale, height, facade rhythm, placement of doors and windows, storefront design, color, setback and use of materials.

Since good infill design responds directly to its surroundings, it is not possible to develop specific guidelines, which apply in every case. There are, however, several general design principles, which should govern the visual ties between a new infill building, and its neighboring structures found in Downtown Orlando.

1. Facade Proportion

- a. The characteristic proportion (relationship of height to width) of existing facades should be respected in relation to new infill development.
- b. Whenever an infill building is proposed, that is much "wider" than the existing characteristic facades on the street, the infill facades should be broken down into a series of appropriately proportioned "structural bays," storefronts, or components typically segmented by a series of columns or masonry piers which frame window, door, and bulkhead components.
- c. An infill building on an established block face should not be much higher than the height of the adjacent structures.
- d. New buildings being built adjacent to existing or historic structures (physically abutting) should consider a recess from the existing building face to exhibit a level of respect for the existing to reduce the impact of not matching or duplication.

2. Proportion Of Openings

- a. Maintain the predominant difference between upper story openings and street level storefront openings (windows and doors). Usually, there is a much greater window area at the storefront level for pedestrians to have a better view of the merchandise displayed behind, as opposed to upper stories that have smaller window openings.
- b. Whenever an infill building is proposed which has two adjacent commercial structures, attempt to maintain the characteristic rhythm, proportion and spacing of existing door and window openings.

3. Horizontal Rhythms

- a. Whenever an infill building is proposed, identify the common horizontal elements (e.g. cornice line, window height/width, and spacing) found among local historic structures and develop the infill design utilizing a similar rhythm or alignment.
- b. If maintaining a horizontal rhythm or alignment in an infill building is very difficult or otherwise impossible, the use of fabric canopies or awnings is strongly encouraged to establish a shared horizontal storefront rhythm.

4. Wall Articulation

- a. Long, blank, unarticulated street wall facades without window or door openings are prohibited and should be divided into a series of structural bays (e.g. characterized by masonry piers which frame window and door elements).
- b. Monolithic street wall facades should be "broken" by vertical and horizontal articulation (e.g. sculpted, carved or penetrated wall surface defined by recesses and reveals) characterized by: (a) breaks (reveals, recesses) in the surface of the wall itself; (b) placement of window and door openings; or (c) the placement of balconies, awnings, and canopies.
- c. Avoid large unbroken facade surfaces at the storefront level. This can be achieved in a number of ways including: (a) dividing the facade into a series of display windows with smaller panes of glass; (b) constructing the facade with small human scale materials such as brick or decorative tile along bulkheads; (c) providing traditional recessed entries; (d) careful sizing, placement, and overall design of signage; and (e) providing consistent door and window reveals.
- d. Designers should also be familiar with the Land Development Code, which encourages and mandates the ground floor retail. Also referred to the Downtown Outlook, Chapter 11 for Development Guidelines, which are applicable to this area.

5. Roofs

- a. Roofs may be flat or sloped consistent with surrounding buildings.
- b. Several of the most appropriate building designs in downtown exhibit full roofs with the gable ends facing the street. The visible portion of sloped roofs should be sheathed with a roofing material complementary to the architectural style of the building and other surrounding buildings.
- c. Cornice lines of new buildings (horizontal rhythm element) should be aligned with buildings on adjacent properties to avoid divergent clashes in building height.
- d. Radical roof pitches, which create overly prominent or out-of-character buildings, such as A-frames, massive mansards, geodesic domes, quonset hut roofs, or chalet style buildings are strongly discouraged.
- e. The use of decorative parapets is encouraged if they have substantial visual interest, which incorporates vertical articulation.

6. Mechanical Equipment Screening

It is strongly encouraged that any mechanical or utility equipment, whether on the roof, side of building, or ground be screened. The method of screening shall be architecturally integrated with the structure in terms of materials, color, shape and size. Where freestanding mechanical equipment is provided, a continuous solid screen is desirable. On-roof mechanical equipment should be screened by solid building elements



(e.g. parapet wall or roof well) instead of after-the-fact add-on screening (e.g. wood or metal slats).

7. Setbacks And "Build To" Lines

- a. The first floor of any new infill building shall be built at the front property line. If a building proposes to have a plaza area located between its front and the front property line, this may be allowed on a case-by-case basis. In no event will surface parking be allowed between the building and front property line.
- b. Canopies, trellises and other accessory structures, which are relatively open and do not restrict pedestrian or vehicular movement may project over the right-of-way with City or ODOT encroachment approval.

8. Street Orientation

- a. It is strongly encouraged that the front building facade be oriented parallel to the street.
- b. Storefronts should be designed to orient to the major street frontage. While side or rear entries may be desirable, the predominant major building entry shall be oriented toward the major street.

9. Parking Lot and Garages

- a. Parking lots shall be located to the rear or sides of buildings.
- b. Locating parking lots between the front property line and the building storefront is prohibited.
- c. Rear parking lots shall be designed and located contiguous to each other so that vehicles can travel from one private parking lot to the other (reciprocal access) without having to enter the street.
- d. Private parking lots with side street frontage should be attractively landscaped with trees and shrubs in order to continue the linear street frontage created by the existing flanking buildings and to screen parked vehicles. Low masonry garden walls or landscaping (3 feet maximum height) at the setback line are also encouraged to screen parking from the side street.
- e. Garages and elevated structures that accommodate vehicles shall address the streets which they abut similar to buildings. All garages shall be designed to not have a "back of house" on any side. Where fire separation and no fenestration is allowed, provisions should be made for public art in the form of murals etc.
- f. Where garages have elevated or protruding stair towers or elevator shafts and these elements are adjacent to the outside edge of the structure, they should be considered an important design opportunity and used to bring excitement to the garage. This type of "less is more" approach is encouraged.



- g. Parking garages should have an open stairwell to allow visibility and enhance the safety of the public, wherever possible.
- h. Crime Prevention Through Environmental Design (CPTED) principals shall be used in the design of garages to increase the level safety within the CRA.
- i. In high-rise developments, where parking garages are incorporated; the refuse container should be internalized, vented, etc with a roll-off container which can be located internal to the parking garage to reduce the visual effect of this necessary service. When parking structures are stand-alone, consideration should be given to upsizing the refuse container to provide service for adjacent businesses.

B. Storefront Design

Building facades, including the storefront, are the most important visual elements of commercial structures. Facades also experience significant change during a building's life and hold the most potential for creative alterations affecting both the characters of the building and the streetscape. In an effort to promote quality design for new infill buildings, and the rehabilitation of existing buildings, the following specific storefront and facade.

1. Entries/Doorways

Commercial storefront entries are typically recessed and/or sheltered by a covered arcade structure, canopy or awning. This provides more area for display space, a sheltered transition area to the interior of the store and emphasizes the entrance. Recessed entries should be retained and are strongly encouraged in new storefront construction.

2. Facade Color

- a. The use of light, subdued or neutral (earth tone) colors and natural building materials, such as brick, wood or stone are encouraged.
- b. Adjacent buildings should be painted different, but complementary colors.
- c. Different trim colors are encouraged, but it is not recommended to exceed three different colors.
- d. Different window frame and sash colors are encouraged but should complement the main color of the building.
- e. Primary colors are discouraged on facade exteriors.
- f. Stripes, polka dots, checkerboard patterns and other distracting paint combinations are discouraged.

3. Awnings And Canopies

- a. Awnings are encouraged and should have a single color or two-color stripes. Lettering and trim, utilizing other colors is allowed but will be considered as sign area.



- b. Awning shape should relate to the window or door opening. Barrel shaped awnings should be used to complement arched windows while rectangular awnings should be used on rectangular windows.
- c. All awnings should be well maintained, washed regularly, and replaced when faded or torn.
- d. When there are several businesses in one building, awnings of the same color should be used with simple signs on the valance flap that may vary in type style and color to differentiate the individual businesses within the building.

4. Doors And Window Design

- a. Accentuate the door with simple details such as handsome brass door pull, brass kickplate or an attractive painted sign.
- b. Doors to retail shops should contain a high percentage of glass in order to view the retail contents.
- c. When considering new window fenestration (window size, size of windowpanes, mullion type, window materials), it is important that the new design be sympathetic and compatible with the facade theme of the whole block (streetscape).
- d. Use of clear glass (88% light transmission) on the first floor is strongly recommended.
- e. Storefront windows should be as large as possible and no closer than 18" from the ground if not tempered and laminated. By limiting the stem wall height, the visibility to the storefront displays and retail interior is maximized. Maximum heights for new construction shall be 36", with a preferred height of 18" to maximize visibility.
- f. Discourage introducing or changing the location or size of windows or other openings that alter the architectural rhythm, alignment or character of the original building.

5. Window Replacement

- a. If a window has deteriorated beyond repair or is missing, the replacement should match the original window in terms of design and materials. Replacement windows should always fill the entire existing opening and duplicate the original window pattern. For example, a double-hung sash window should, not be replaced by a single fixed pane of glass.
- b. Avoid the use of windows and shutters that are not in keeping with the original style of the building.
- c. Whenever a window is broken or removed, the opening shall be made secure immediately and a replacement installed within 48-hours.

6. Door Replacement

Every effort should be made to maintain and repair an original door, if possible. Whenever this is not possible the opening shall be made secure and a permanent replacement shall be installed within 48-hours

C. Building Material Palette

Building materials to be used on buildings are to be consistent with the materials used on significant adjacent buildings. The following tables presents recommended and discouraged building materials for construction.

Recommended Materials (Not Including Existing Unimproved Buildings)

Building Walls:

- Clear glass, glass block (storefront only)
- Glass block (transom)
- Exterior plaster (smooth trowled)
- New or used face-brick
- precast concrete
- Cut limestone
- granite, slate and other cut stones
- Concrete masonry units
- The building base should anchor the building to the ground plane by adding texture or a contrasting material that provides strong definition of the interface between the vertical and horizontal planes.

Roofs (where visible):

- Standing seam metal roofs
- Class "A" composition shingles (limited to refurbishment of residential structures)
- Tile of neutral color

Discouraged Materials (Not Including Existing Buildings)

Building Walls:

- Reflective or opaque glass
- Imitation stone or flagstone parquet
- Rough sawn or "natural" (unfinished) wood
- "pecky" cedar
- Used brick with no fired face (salvaged from interior walls)
- Vertical wood siding (Board & Batten)
- Coarsely finished "rough-sawn" on rustic materials (e.g. wood shakes, barn wood, board and batten or T-111 siding)
- Plastic panels
- Steel or metal siding



Roofs (where visible):

- Crushed stone
- Shake
- Brightly colored tile (orange, blue, etc.)
- Corrugated fiberglass
- Asphalt sheeting

IV - Signs

Signs in Downtown Orlando should advertise a place of business or provide directions and information. An effective sign and graphics system functions not as a separate entity but as an integral part of the built environment. Carefully planned, signs communicate essential information, while also ordering and enhancing the architectural character of Downtown. A sign's use of color, size, shape placement, and selection of lettering can attract or detract from its effectiveness. An effectively designed sign should:

1. Be compatible with the surrounding physical and visual character of the area;
2. Promote the "individuality" of establishments;
3. Identify the business clearly and attractively;
4. Enhance the building on which it is located; and
5. Reduce the amount of visual clutter caused by excessive and poorly placed signage.

The City of Orlando Land Development Code, Chapter 64, SIGNS, has regulations to control the size, location, and number of signs, but code restrictions alone may not be enough. Design criteria are needed to encourage and coordinate well-designed signs. Sign copy area shall also be regulated by the Land Development Code to indicate the maximum area.

The following sign guidelines are intended to assure the local merchant that all other Downtown commercial establishments are similarly regulated.

A. Preferred Sign Types

While many sign types are permitted in Downtown, the following sign types are preferred.

1. Under canopy signs;
2. Business wall-mounted ID signs in sign board area at upper portion of first story;
3. Awning signs;



4. Projecting signs;
5. Murals and super graphics not advertising a business (painted on a wall surface or window blocking the transparency);
6. Permanent painted window signs, first floor limited to 25% of the window area;
7. Building signs containing the name of the business at rear entrances used by customers; and
8. Signs made of carved or sandblasted painted wood or metal;
9. Neon lettered signs.

Note: Moving signs or signs with motion are prohibited by the Land Development Code.

B. General Design Guidelines

1. Clear Sign Message

- a. Use a brief message. The fewer the words, the more effective the sign. A sign with a brief, succinct message is simpler and faster to read, looks cleaner and is more attractive.
- b. Avoid hard-to-read, overly intricate typefaces. These typefaces are difficult to read and reduce the sign's ability to communicate.
- c. Lettering should be in proportion to the size of the sign. As a rule of thumb, the recommended size of letters is between one-third (1/3) to one-half (1/2) the height of the sign.
- d. Avoid signs with strange shapes. Signs that are unnecessarily narrow, oddly shaped, or unrelated to the products or services being provided on site can restrict the legibility of the message. If an unusual shape is not symbolic, it is probably confusing.
- e. Use logos rather than printed text whenever possible.
- f. Make signs smaller if they are oriented to pedestrians. The pedestrian-oriented sign is usually read from a distance of fifteen to twenty feet; the vehicle-oriented sign is viewed from a much greater distance. The closer a sign's viewing distance, the smaller the sign needs to be.
- g. Lettering on painted window signs shall be limited to the name of the business only.

2. Sign Color

- a. Colors should be selected to contribute to legibility and design integrity of signage. Even the most carefully thought out sign may be unattractive and a poor communicator because of poor color selection.



- b. A substantial contrast should be provided between the color and material of the background and the letters or symbols to make the sign easier to read in both day and night.
- c. Limit colors to three on a single sign. Color is most effective when used simply. Too many colors, particularly accent colors, may distract the reader, reduce legibility, and make the sign less effective.
- d. Vertical or horizontal wooden signs can be effectively utilized in a variety of different ways on windows, building surfaces or as accent bands. A wooden wall sign can be painted or stained and sealed for a more natural look, depending upon the appearance of the surrounding structures. Lettering can consist of metal or raised wood and when placed within a sign band, will serve to unify the building facade. Carved or sandblasted wood signs are also appropriate.
- e. Metal sign panels can utilize raised lettering on metal bands. Printing and lettering can also be applied directly to a flat metal sign band with letters consisting of wood, acrylic or metal.
- f. All high-rise signs should be white unless this color is prohibits the message from being read.

3. Sign Architectural Compatibility

- a. Signs should make a positive contribution to the general appearance of the street and neighborhood in which they are located.
- b. Sign size should be proportionate. The size and shape of a sign should be proportionate with the scale of the structure.
- c. Signs should be an appropriate scale with the building on which they are placed and should not overwhelm the architecture of the building and the character of the neighborhood.
- d. Place wall signs to establish facade rhythm, scale, and proportion where facade rhythm doesn't exist. In many buildings that have a monolithic or plain facade, signs can establish or continue appropriate design rhythm, scale, and proportion.
- e. As an alternative to an attached sign, lettering may be painted directly on the building facade. This method resembles a wooden or metal band but does not require the introduction of another material.

C. Wall Mounted Signs

Wall mounted signs consist of signs at the pedestrian level and high-rise signs on buildings. The Land Development Code shall regulate the size, location, and existence. General sign design guidelines should be applied when and wherever possible.

D. Awning Signs

An awning is a roof-like covering or shelter, which is usually constructed of canvas or other fabric extending over a pedestrian walkway. Awnings provide shelter from weather, provide scale to the building architecture, and add color and liveliness to the pedestrian path and street.

1. An awning is permanently attached to a building or can be raised or retracted to a position against the building when not in use. An awning sign is a message painted, printed, sewn, or stained onto the awning or awning flap.
2. The sign on awnings may be allowed on the shed portion of the awning, but is preferred on the valance flap. The flap should be at least eight (8) inches in height so that the letters and symbols are big enough to read easily.
3. The color of an awning sign should be compatible with and complementary to the color and material of the building to which it is attached.

E. Banner Sign

A banner sign is a logo or design placed on a lightweight material that can move with the wind. Banner signs should not be confused with flags or pennants. A banner sign is intended to add liveliness, color, and a sense of movement to a pedestrian-oriented street and sidewalk.

1. Banners are encouraged along pedestrian-oriented streets, in plazas, and in commercial centers.
2. Banners should not extend more than five (5) feet from the building or one-third (1/3) the width of a public sidewalk, whichever is less. In addition, banners should be measured eight (8) feet above ground at its lowest point.
3. Banners along the same block of a street should be set at generally the same angle from the buildings.
4. Banners should reflect the informality and excitement of color and movement.
5. Banner signage shall be limited in use on commercial, advertising situations. However it is encouraged at art galleries, museums, theatres, cinemas, and colleges/universities and for advertising of approved events sponsored by the City of Orlando.

F. Hanging Sign

A hanging sign is a sign suspended from a support and/or projects from the building wall. Similar to awning signs and banners, a hanging sign can add interest and vitality to a street. Hanging signs can include pictorial images, logos, and symbols.



A hanging sign is generally intended to be read by pedestrians along a sidewalk or arcade, and motorists in slow-moving vehicles.

1. The size of a hanging sign should be proportional to the building facade to which it is attached and typically, should not exceed ten (10) square feet.
2. A hanging sign should be hung perpendicular to and should not project more than four (4) feet from the face of the building.
3. To minimize visual clutter, hanging signs should not be located within close proximity to other hanging signs or projecting signs, preferably at least twenty-five (25) feet from each other.
4. The placement of a hanging sign should not impede the safe movement of people or vehicles within a public right-of-way and should be properly secured to a building in a structurally sound manner.

G. Window Sign

A window sign is a permanent sign painted on or attached to the inside of a window and is designed to be viewed principally from outside the business by pedestrians and motorists using the adjoining street.

1. To minimize clutter, window signs should not occupy more than twenty-five (25) percent of the total area of the window in which they are displayed.
2. The sign copy of window signs should be proportional to the glass surface area.
3. Signs should be restricted to ground floor windows facing the primary street frontage or adjoining parking lot.
4. Temporary window signs should be allowed to identify special events and sales provided they are removed immediately following the event.

H. Monument Signs (Freestanding Sign)

While monument signs would seem inappropriate in Downtown Orlando due to the sidewalk adjacent storefronts. There are a number of existing properties, which employ the use of a monument or sign. These guidelines address those instances.

A monument sign is a freestanding sign of a human scale and is at ground level. Generally, monument signs are of a higher architectural quality than other freestanding signs.

1. A minimum of 10 percent of the sign area of a monument sign should be dedicated to the identification of the street address. Multi-store



- developments in the Downtown should display the range of store addresses for that development on their sign.
2. Monument signs are recommended to be placed perpendicular to the street and should be located to ensure that vehicular and pedestrian sight distances at entry driveways and sidewalks are not impaired.
 3. Monument signs should be setback from the public right-of-way in accordance with the Land Development Code regulations.
 4. Monument signs should be a maximum of six (6) feet in height.
 5. Monument signs should be constructed of a solid architectural base and side, of durable, long-lasting materials. Each sign should incorporate a base, which is a minimum of 12 inches in height. The materials used should match an architectural element(s) of the development itself. Each monument sign should incorporate sides or flanking pilasters, which have a minimum dimension of 12 inches by 12 inches, extending at least to the top of the sign.
 6. Monument signs should be located and constructed to allow for natural surveillance on all sides and to prevent opportunities for hiding places.
 7. Pole signs are prohibited in Downtown Orlando.

I. A-Frame and Portable Signs

A portable sign is any sign or advertising device, which rests on the ground and is not designed to be permanently attached to a building or permanently anchored to the ground. A-frame signs in Downtown are for attracting pedestrians, not passing motorists.

1. No existing business should be allowed to have more than one A-frame sign.
2. A-Frame signs should have a maximum sign area of six (6) square feet. The maximum height, from ground level, should be three (3) feet, and the maximum width should be two (2) feet.
3. A-Frame signs should only be located on private property or within the public right-of-way, provided they do not interfere with vehicle access, pedestrian movement or wheelchair access to, through, and around the site. A minimum access width of five (5) feet should be maintained along all sidewalks and building entrances accessible to the public.
4. A-Frame signs should be utilized only during regular business hours and should be removed during non-business hours.
5. Materials for portable signs should be of a permanent nature and not be subject to fading or damage from weather. The use of paper or cloth is not permitted unless located within a glass or plastic enclosure.
6. Portable signs should be designed in an attractive manner and present an image of quality and creativity.
7. Portable signs should be maintained in a neat, orderly fashion so as not to constitute an unsightly appearance or a public nuisance in downtown.



8. A-Frame signs are allowed only at the front of the business during hours of operation.
9. Trailer mounted signs are not allowed within the CRA

V - Landscaping

Landscaping in Downtown Orlando shall achieve three specific ends: 1) to beautify Downtown 2) to soften commercial development; and 3) to unify the area as a pleasant environment for residents and visitors alike. These three ends will be accomplished by a recognizable use of local indigenous plant materials. Consistency and continuity within the street right-of-way and building setback areas is extremely important.

A. General Design Guidelines

All development is encouraged to follow these general landscape guidelines:

1. Save existing mature trees, whenever possible.
2. Use specimen trees (boxed trees) for immediate effect and accent.
3. Use of varieties, which require low maintenance in public and commercial areas, especially in large landscape areas.
4. Use potted plants in concrete planter pots, especially for enhancement of sidewalk shops. The color of the containers shall be subject to approval by the City.
5. Trees should be planted using industry-accepted methods.
6. Landscaping should not obstruct the sightlines of motorists or pedestrians, especially at pedestrian crosswalks.
7. Trees and shrubbery should not be located so that they interfere with the effectiveness of parking lot and street lighting.
8. All commercial projects should provide complete automatic sprinkler or drip irrigation systems.
9. Keep all plants healthy and growing, with all planting areas free of weeds and debris.

The following list represents Street Trees to be grown within the tree well planting areas throughout Downtown:

- Canopy Trees:
- 1) Highrise Live Oak, *Quercus Virginiana* 'QVTIA' pp #11219 Highrise
 - 2) Bosque Elm, *Ulmus Parvifolia* 'UPMTF' pp #11295 Bosque
 - 3) Drake Elem, *Ulmus Parvifolia* 'Drake'
 - 4) Bald Cypress, *Taxodium Distichum*



- Medium, Small Trees:
- 1) Magnolia Alta, Magnolia Grandiflora 'TMGH' pp #11612 Alta
 - 2) Indian Hawthorn Standards, Rhapsodylepis Indica, Rhapsodylepis Majestic Beauty™ pp #3349
 - 3) Yellow Tabebuia, Tabebuia Caraiba
 - 4) Pink Tabebuia, Tabebuia Heterophylla
 - 5) Crape Myrtle, Lagerstroemia Indica Cultivars

- Palms:
- 1) Desert Fan Palm, Washingtonia Filifera
 - 2) Wild Date Palm, Phoenix Sylvestris
 - 3) Cabbage Palm, Sabal Palmetto

VI - Secretary of the Interior's Standards for Rehabilitation

Every reasonable effort shall be made to provide a compatible use for a property, which requires minimal alteration of the building, structure, or site and its environment, or to use a property for its originally intended purpose.

1. The distinguishing original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material of distinctive architectural features should be avoided when possible.
2. All buildings, structures, and sites shall be recognized as products of their own time. Alterations that have no historical basis and which seek to create an earlier appearance shall be discouraged.
3. Changes, which may have taken place in the course of time, are evidence of the history and development of a building, structure, or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.
4. Distinctive stylistic features or examples of skilled craftsmanship, which characterize a building, structure, or site, shall be treated with sensitivity.
5. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new materials should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historic, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other buildings or structures.
6. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.
7. Every reasonable effort shall be made to protect and preserve archeological resources affected by, or adjacent to, any project.



8. Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant historical, architectural, or cultural material, and character of the property, neighborhood, or environment.

Whenever possible, new additions or alterations to structures shall be done in such a manner that if such additions or alterations were to be removed in the future, the essential form and integrity of the structure would be unimpaired.

END OF DOCUMENT

APPENDIX C

SIDEWALK CAFÉ STANDARDS

APPENDIX D

CITY OF ORLANDO CADD STANDARDS

APPENDIX E

SIGNAGE STANDARDS AND DETAILS
(Reserved)

APPENDIX F

**MISCELLANEOUS UTILITY AND
CONSTRUCTION STANDARDS
(Reserved)**