

# Site Design Specifications

48" BARRIER FENCING

FIRMLY DRIVEN METAL "T" BAR  
40x40x3x250mm (1 1/2"x1 1/2"  
OR EQUAL @ 200 mm (6'-0")  
--EXTEND STAKES TO DRIPLINE

EXISTING GRADE

1/3 BURIAL OF OVERALL POST

November 2012



CITY OF COLLEGE STATION  
*Home of Texas A&M University®*



CITY OF BRYAN  
*The Good Life, Texas Style.™*

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# Introduction

## **Applicability**

The following site design specifications shall be used in the development and redevelopment of all sites in the BioCorridor.

No development approval shall be granted, nor building permit issued, for a development that does not meet the minimum requirements of these Design Specifications, except as provided herein.

## **Purpose and Intent**

The purpose of the BioCorridor Site Design Specifications is to establish and provide the minimum standards to be adhered to in the design and construction of all private improvements. It is the intent to obtain high quality construction throughout, with the completed work complying with the Site Design Specifications.

If required by the BioCorridor Review Committee, the Contractor shall furnish satisfactory evidence (including reports or tests) as to the kind and quality of materials to be used.

## **Waiver to the Specifications**

A waiver to the specifications may be approved by the BioCorridor Review Committee if it is demonstrated that the materials and design are equal or superior to the requirements stated herein.

# Pavement and Surfacing Standards

## Pavement and Surfacing

Except as otherwise provided, all off-street parking areas, including drive aisles, driveways and parking stalls, shall be constructed with a minimum allowable parking lot pavement of one of the following options:

- **Asphalt** - a minimum of one and one-half inches (1.5") of asphalt pavement on top of six inches (6") of limestone base.
- **Concrete** - a minimum of five inches (5") thick; reinforcement within the concrete section shall consist of number four (#4) bars on eighteen inch (18") centers, centered within the pavement thickness.

All off-street parking areas shall be installed graded to drain and shall be maintained so as to dispose of surface water accumulated within the area. Parking spaces shall be arranged and marked so as to provide for the safe and orderly parking of vehicles.

Non-Public, All-Weather drive surfaces, whether temporary or permanent, that are required for emergency access or turnaround for emergency vehicles must be constructed to function under all weather conditions. To accommodate a project during construction, phasing, or permanent installation, drive surfaces that do not meet the requirements for permanent pavement surfaces may be allowed at the discretion of the City's Administrator for the specific conditions stated below:

- **Temporary All-Weather Surface (During Construction):** A structure under construction must be accessible by an all-weather drive surface. This surface may consist of the permanent pavement as described above, or may consist of four inches (4") of limestone base with a one-course seal coat as specified in the Texas Department of Transportation Standard Specifications for Construction of Highways, Streets and Bridges, 1993 Edition, Item 316. This temporary all-weather surface must be reworked or replaced to meet the permanent pavement standard as described above prior to issuance of a Certificate of Occupancy.
- **Semi-Permanent All-Weather Surface (During Phasing):** In cases during phasing of a large project, emergency access and turnarounds often must be added as a temporary measure until additional phases are constructed. These emergency access areas may consist of permanent pavement surface as described above, or may consist of six inches (6") of limestone base with one-course seal coat as specified in the Texas Department of Transportation Standard Specifications for Construction of Highways, Streets and Bridges, 1993 Edition, Item 316. If the semi-permanent surface is used, the six-inch (6") curb is not required, and these areas must be gated or protected from public usage and signed for emergency access only. When the additional phase is constructed these areas must be removed or reworked to meet the permanent pavement standards as described above.
- **Permanent All-Weather Surface (Permanent):** In some development scenarios, an emergency access or turnaround must be constructed to meet emergency access purposes and is not required for public traffic, service vehicles or sanitation vehicles. In these cases, the area required for emergency access only may consist of permanent pavement surface as specified above, or may consist of

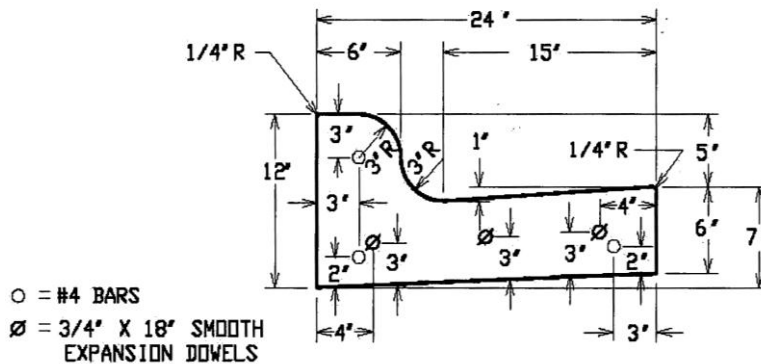
# Pavement and Surfacing Standards

six inches (6") of limestone base with a two-course seal coat as specified in the Texas Department of Transportation Standard Specifications for Construction of Highways, Streets and Bridges, 1993 Edition, Item 316. If the seal coat surface is used, a six-inch (6") curb is not required, and these areas must be gated or protected from public usage and signed for emergency access only.

## Curbs

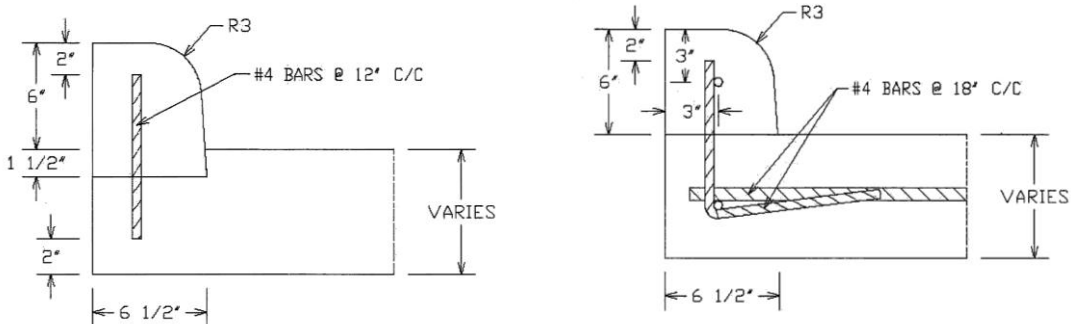
A six inch (6") raised monolithic concrete curb shall be required around the entire perimeter of all paved areas, including all parking islands. Design of the combined curb and gutter section must meet minimum standards as shown in the diagram below:

NOTE:  
 TYPE 'G' EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 60' APART AND AT ALL RADIUS POINTS, P. T. 'S AND P. C. 'S, TYPE 'B' CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART.



## Temporary Curbing

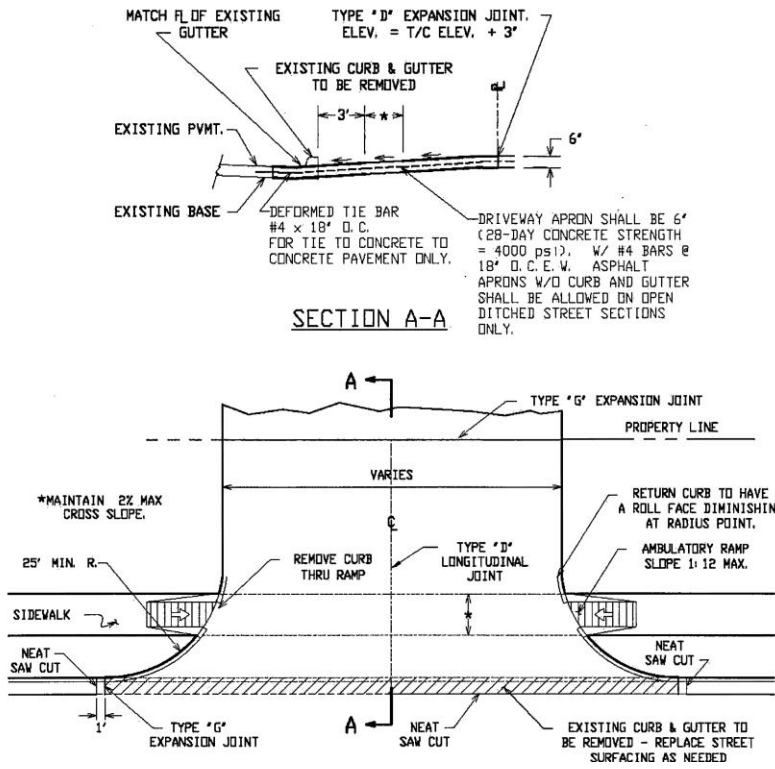
A temporary six inch (6") raised concrete curb may be permitted in lieu of the minimum standard stated above, at the discretion of the Administrator, when a project is phased in such a way that a permanent, monolithic curb may preclude development of future phases or limit access to a recorded private or public access easement adjoining properties. Wheel stops shall not be permitted as temporary curbing. Temporary curbing must have the appearance of permanent curbing and shall be temporarily attached to the pavement surfacing below and meet the minimum standards for dowelled in curbs as shown in the diagrams below:



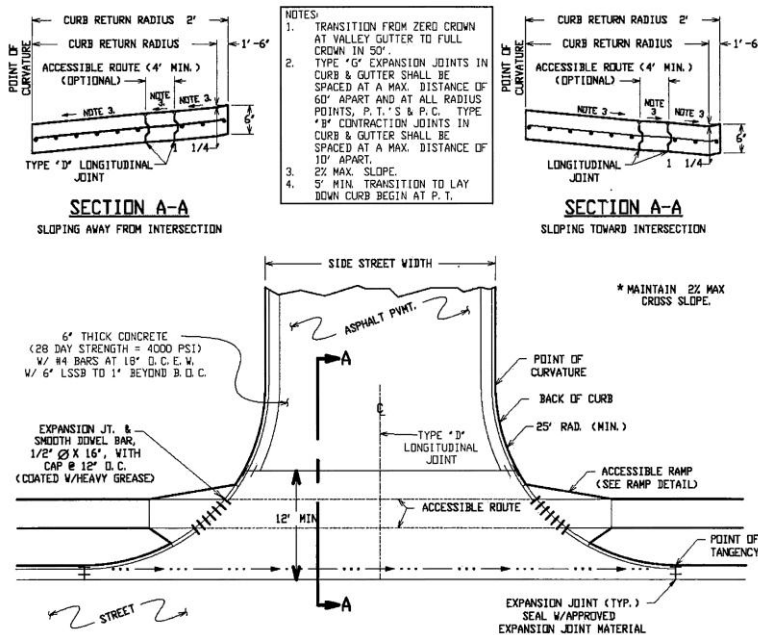
# Pavement and Surfacing Standards

## Driveway Requirements

Commercial Driveways shall be constructed to the standard shown in the detail below:



Detail of a typical Concrete Driveway Apron:



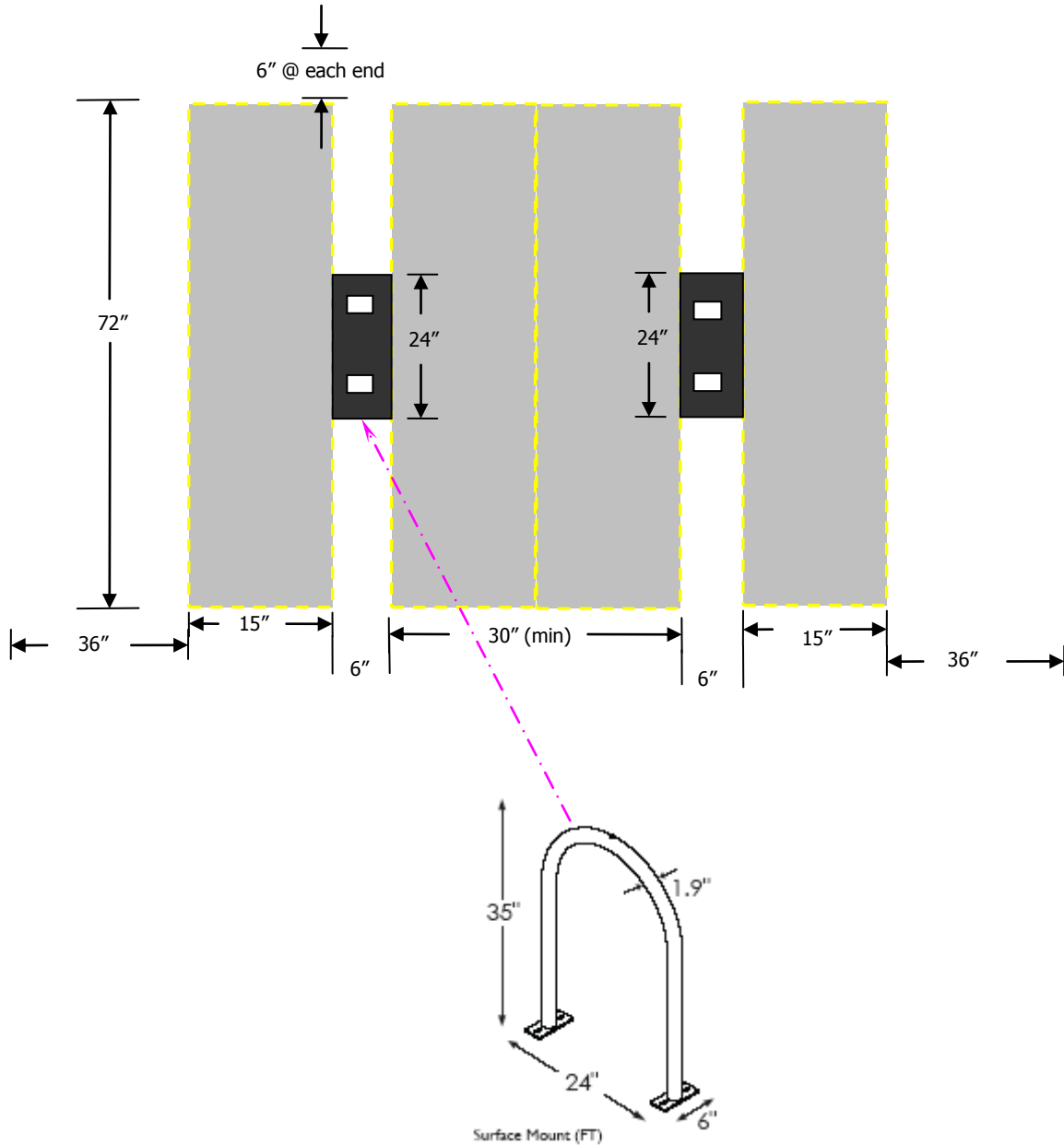
# Bicycle Parking Standards

## Bicycle Parking

Each building shall provide a facility capable of storing a minimum of four (4) bicycles. The area provided for such a facility shall be approximately 55 square feet in area, approximately nine feet by six feet (9' X 6'), or as approved by the BioCorridor Review Committee.

Approved bicycle facilities shall utilize the design and dimensions shown below.

Bicycle Parking Space Layout:



DRAWING NOT TO SCALE

# Fire Service Standards

All fire service features, including, but not limited to, apparatus access roadways, fire flows, and fire hydrant locations and distribution must meet the International Fire Code, as adopted and amended.

## Fire Hydrants

Fire hydrants must be placed along an approved fire lane. Hydrants shall be located so that no part of any structure, above ground tanks or fueling stations shall be more than three hundred feet (300') from a fire hydrant as measured along an approved fire lane as the fire hose is laid off the fire truck. In no case shall this distance be measured across grass, wooded or landscaped areas, over curbs, through fences, through ditches or across paved areas which are not designed and maintained as fire lanes.

No part of any commercial structure shall be located outside the limits of a one hundred fifty foot (150') arc from a point where fire apparatus can operate.

Fire hydrants must be located on the same side of a public street as the structures it is intended to serve, and must be accessible at all times. Parking stalls are not permitted to be located between the fire hydrant and the fire apparatus access road. A three foot (3') clear space is required on all sides of the fire hydrant.

The number and spacing of fire hydrants shall not be less than shown in the following chart.

NUMBER AND DISTRIBUTION OF FIRE HYDRANTS

FIRE-FLOW REQUIREMENT (gpm)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS <sup>a, b, c</sup> (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT <sup>d</sup>
1,750 or less	1	500	250
2,000-2,250	2	450	225
2,500	3	450	225
3,000	3	400	225
3,500-4,000	4	350	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more <sup>e</sup>	200	120

For SI: 1 foot = 304.8 mm, 1 gallon per minute = 3.785 L/m.

a. Reduce by 100 feet for dead-end streets or roads.

b. Where streets are provided with median dividers which can be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis up to a fire-flow requirement of 7,000 gallons per minute and 400 feet for higher fire-flow requirements.

c. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.

d. Reduce by 50 feet for dead-end streets or roads.

e. One hydrant for each 1,000 gallons per minute or fraction thereof.



# Fire Service Standards

## Fire Department Connection (FDC)

All buildings, or portions of buildings, 12,000 square feet in area or larger, per the International Building Code, as amended, and/or all structures exceeding two stories in height, regardless of area, are required to utilize an automatic sprinkler system throughout the building. Portions of buildings that are separated by fire walls without openings, constructed in accordance with the International Building Code, may not require an automatic sprinkler system if smaller than 12,000 square feet in area. Some assembly uses intended for food and/or drink consumption including, but not limited to banquet halls, night clubs, restaurants, taverns, and bars that exceed 5,000 square feet in area shall require an automatic sprinkler system. A Fire Department Connection (FDC) is required for all buildings utilizing an automatic sprinkler system. The FDC must be located within 150 feet of a fire hydrant.

## Fire Flow Requirements

In general, the calculation area for fire flow requirements is based on the total gross area of the structure, including any area under the horizontal projections of the roof of the structure. Portions of the building that are separated by fire walls without openings and constructed in accordance with the International Building Code, may be considered as separate areas for the purposes of fire flow calculations. For type IA and type IB construction, the calculation shall be based on the area of the three largest successive floors.

MINIMUM REQUIRED FIRE FLOW AND FLOW DURATION FOR BUILDINGS<sup>a</sup>

FIRE-FLOW CALCULATION AREA (square feet)					FIRE FLOW (gallons per minute) <sup>c</sup>	FLOW DURATION (hours)
Type IA and IB <sup>b</sup>	Type IIA and IIIA <sup>b</sup>	Type IV and V-A <sup>b</sup>	Type IIB and IIIB <sup>b</sup>	Type V-B <sup>b</sup>		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600	1,500	2
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800	1,750	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200	2,000	
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700	2,250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400	2,500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300	2,750	3
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3,000	
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-183,400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4,500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	
—	—	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
—	—	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
—	—	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
—	—	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
—	—	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
—	—	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
—	—	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
—	—	191,401-Greater	138,301-Greater	85,101-Greater	8,000	

For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

- a. The minimum required fire flow shall be permitted to be reduced by 25 percent for Group R.
- b. Types of construction are based on the *International Building Code*.
- c. Measured at 20 psi.

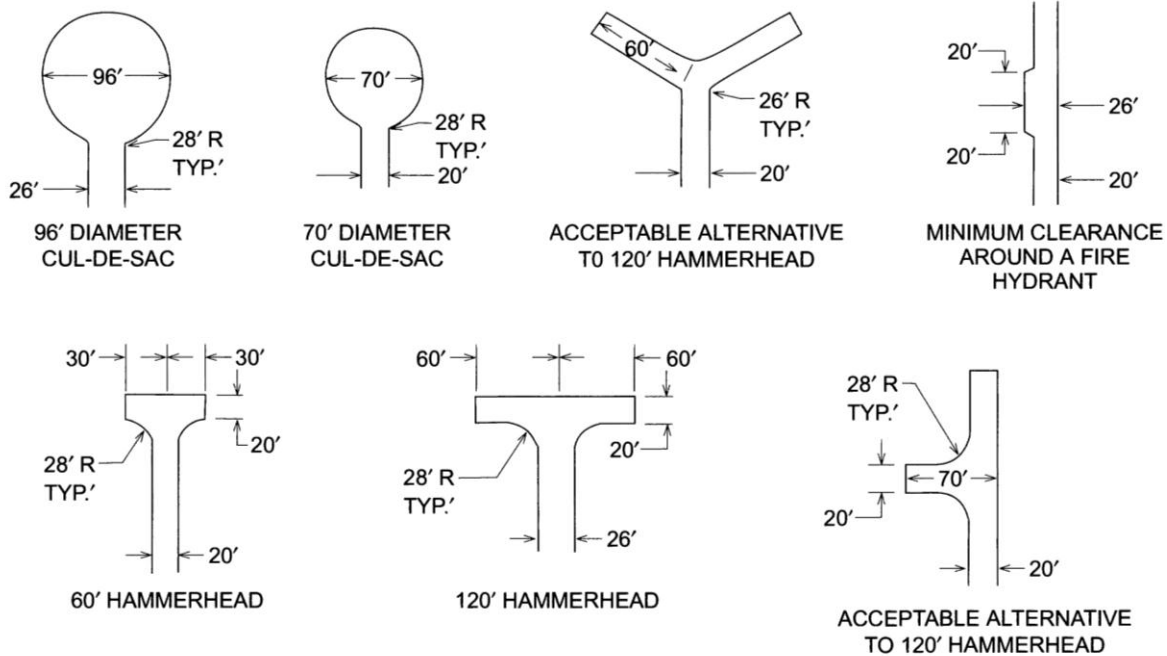
# Fire Service Standards

## Fire Apparatus Access Roads (Fire Lanes)

All fire lanes shall be constructed using the following minimum standards or equivalent, as approved by the BioCorridor Review Committee:

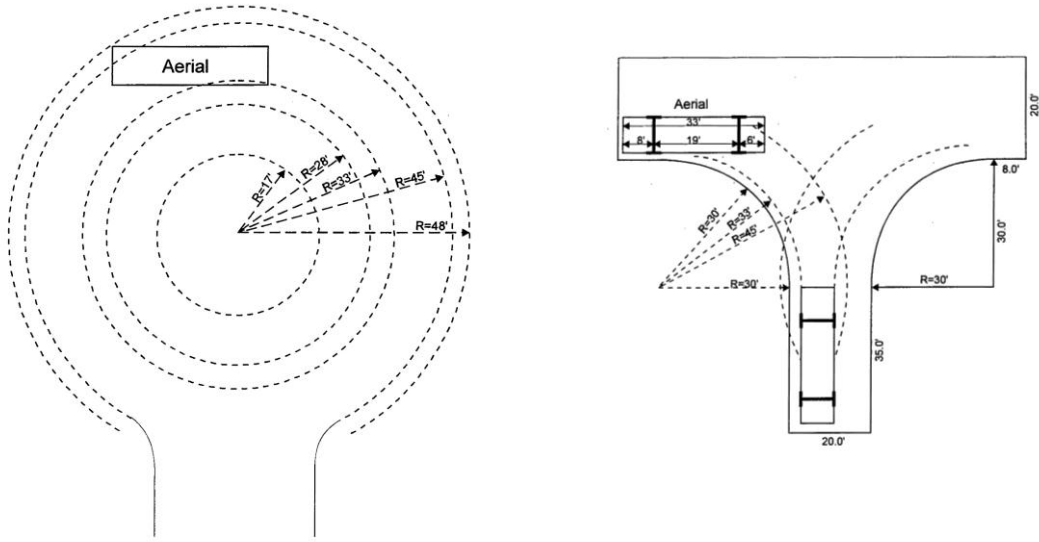
- **Asphalt** - a minimum of one and one-half inches (1.5") of asphalt pavement on top of six inches (6") of limestone base.
- **Concrete** - a minimum of six inches (6") thick, the reinforcement within the concrete section shall consist of number four (#4) bars on eighteen inch (18") centers, centered within the pavement thickness.

Fire lanes shall be a minimum of 20 feet (20') in width and have a minimum unobstructed height of fourteen feet (14'). Fire lanes in excess of 100 feet shall provide a turn around as provided for in the following table and graphics.



# Fire Service Standards

All fire lanes shall meet the following turning radii for an aerial truck:



## Aerial Fire Apparatus Access Roads

For all structures or portions of structures, including parapets and other obstructions to the roof of the building, exceeding 30 feet in height, an aerial fire apparatus access road shall be required parallel to one entire side of the building to provide access to the roof of the structure. Aerial fire apparatus access roads shall be a minimum of 26 feet in width and be located within a minimum of 15 feet and a maximum of 30 feet from the building. Overhead utilities shall not be located within an aerial fire apparatus access road.

## Fire Lane Markings

All curbs and curb ends shall be painted red with four inch (4") white lettering stating "FIRE LANE - NO PARKING - TOW AWAY ZONE". Wording may not be spaced more than fifteen feet (15') apart.

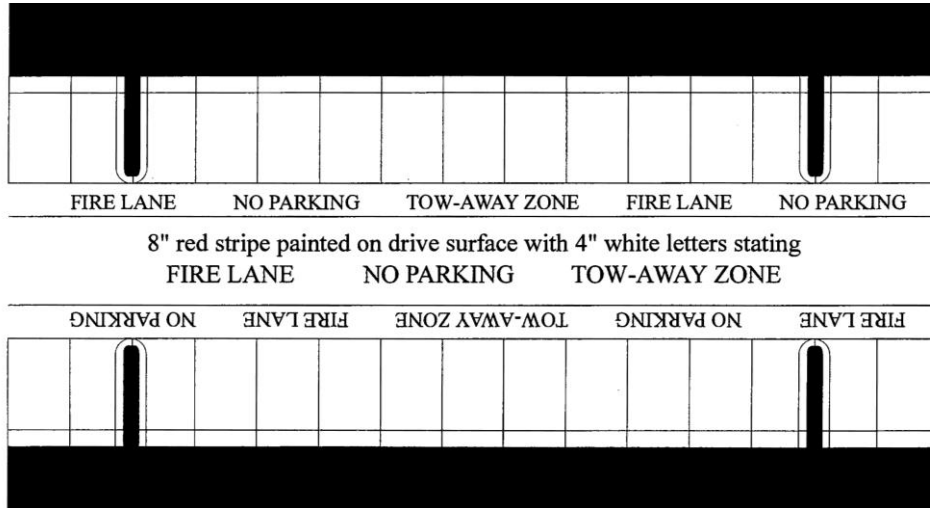
In areas where fire lanes are required, but no continuous curb is available, one of the following methods shall be used in conjunction with the curb markings to indicate that the fire lane is continuous:

**Option 1:** A sign twelve inches (12") wide and eighteen inches (18") in height shall be mounted in a conspicuous location at each entrance to the property. Such signs shall be twelve inches (12") wide and eighteen inches (18") high, with a companion sign twelve inches (12") wide and six inches (6") high stating "Tow-Away Zone". Such signs shall be painted on a white background with symbols, letters and border in red.



# Fire Service Standards

**Option 2:** From the point the fire lane begins to the point the fire lane ends, including behind all parking spaces which adjoin a fire lane, shall be marked with one continuous eight inch (8") red stripe painted on the drive surface behind the parking spaces. All curbing adjoining a fire lane must be painted red. Red stripes and curbs will contain the wording "FIRE LANE - NO PARKING - TOW AWAY ZONE", painted in four inch (4") white letters.



In those cases where curb markings are not possible or where signs would, in the City's Fire Marshal's opinion, work more effectively, the City's Fire Marshal may require signs in lieu of curb markings.

## Fire Apparatus Access Road Gates

Gates obstructing a fire lane must have a minimum width of 20 feet and utilize either swinging or sliding gates. All security gates must have a Knox key box and manual operation must be able to be by one person. Gates may not be locked with a pad lock or chain.

## Access to Multi-Family Developments

Mixed-use developments with 100 multi-family dwelling units or greater require a second point of ingress / egress from the development to the public right-of-way. In the case that the units have an approved fire suppression system, the number of dwelling units requiring a second point of ingress / egress is 200.

# Solid Waste Standards

Requirements pertaining to the type and number of solid waste containers or frequency of collection are based on the type of commercial activity at the location, and the size of the development itself.

## Dimensions of the Containers

- A 300-gallon side-loading automated container is 52 inches in diameter and 48 inches tall.
- A 4-yard front-end-loading dumpster is 4 feet wide by 6 feet long and 5 feet tall
- An 8-yard front-end-loading dumpster is 6 feet wide by 6 feet long and 6 feet 6 inches tall.
- A 30-yard roll-off compactor is 8 feet wide by 24 feet long.

## Pavement Standards

All sanitation service routes on site shall be constructed with the following minimum standards:

- **Asphalt** - a minimum of one and one-half inches (1.5") of asphalt pavement on top of six inches (6") of limestone base.
- **Concrete** - a minimum of six inches (6") thick, the reinforcement within the concrete section shall consist of number four (#4) bars on eighteen inch (18") centers, centered within the pavement thickness.

All required container and dumpster pads shall be constructed of concrete six inches (6") thick. The reinforcement within the concrete section shall consist of number four (#4) bars on 18-inch centers, centered within the pavement thickness.

## Required Screening

All containers are required to be screened from the right-of-way and all adjacent properties by a six foot high opaque screen. A gate is required when opening is in view of the public right-of-way, except for 300-gallon side-loading automated containers. Gates shall have a minimal width of 12 feet when open, shall swing 180 degrees from the closed position, and shall utilize a positive-locking mechanism while in the open position.

The 300-gallon side-loading automated container enclosure shall be open on the side facing the collection point. The open side cannot be facing the public right-of-way.

Enclosures shall not be placed in drainage flow areas.

It is the City's preference that screening structures be located outside of any public easement. If maintenance of City utilities requires the removal of a screening structure, it must be replaced at the property owner's expense.

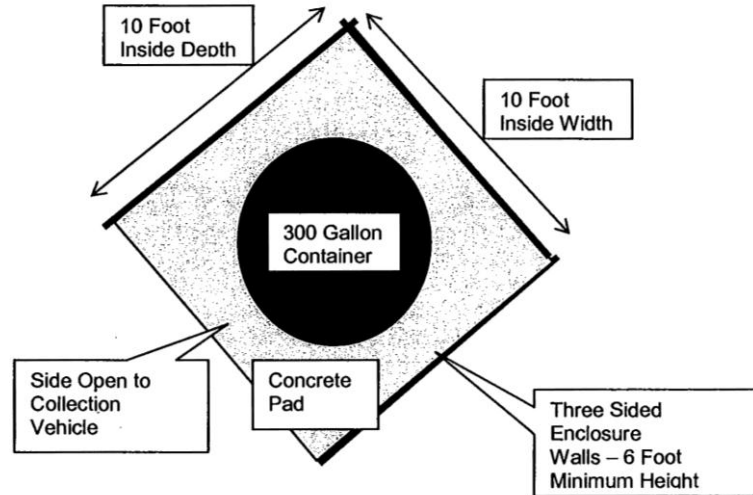
# Solid Waste Site Standards

## Minimum Dimensions for Enclosures:

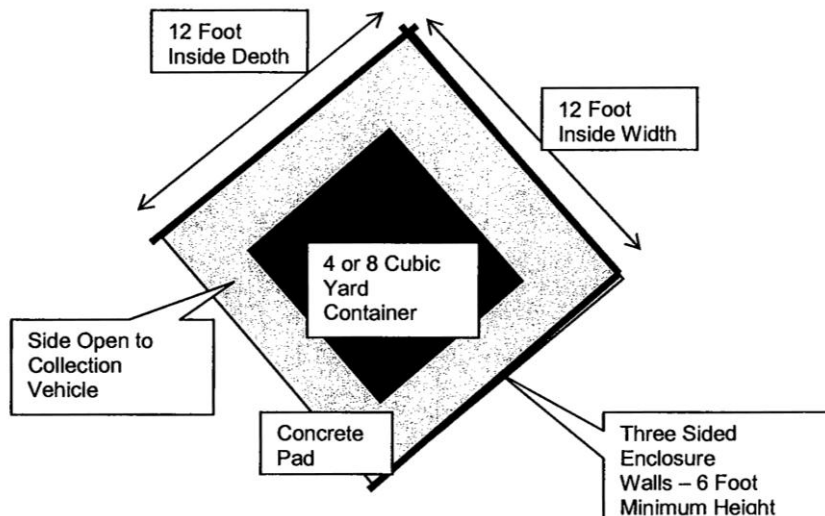
Bollards and other such obstructions shall not be set within the minimum dimensions for enclosures.

Interior clearance (inside the screen) dimensions for a:

- Single 300-gallon container (side-loading) enclosure shall be ten feet deep x ten feet wide (10' x 10').



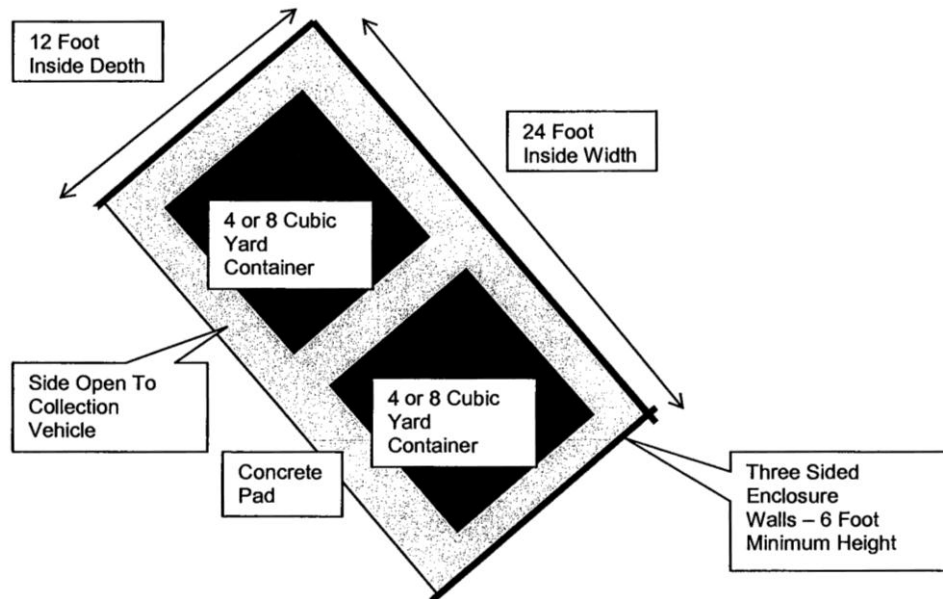
- Single (one four-yard or one eight-yard) dumpster enclosure shall be 12 feet deep x 12 feet wide. The minimum width of the gate or doors shall be no less than 12 feet.





## Solid Waste Site Standards

- Double (two four-yard or two eight-yard) dumpster enclosure shall be 12 feet deep x 24 feet wide. The minimum width of the gate or doors shall be no less than 24 feet.



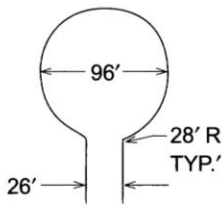
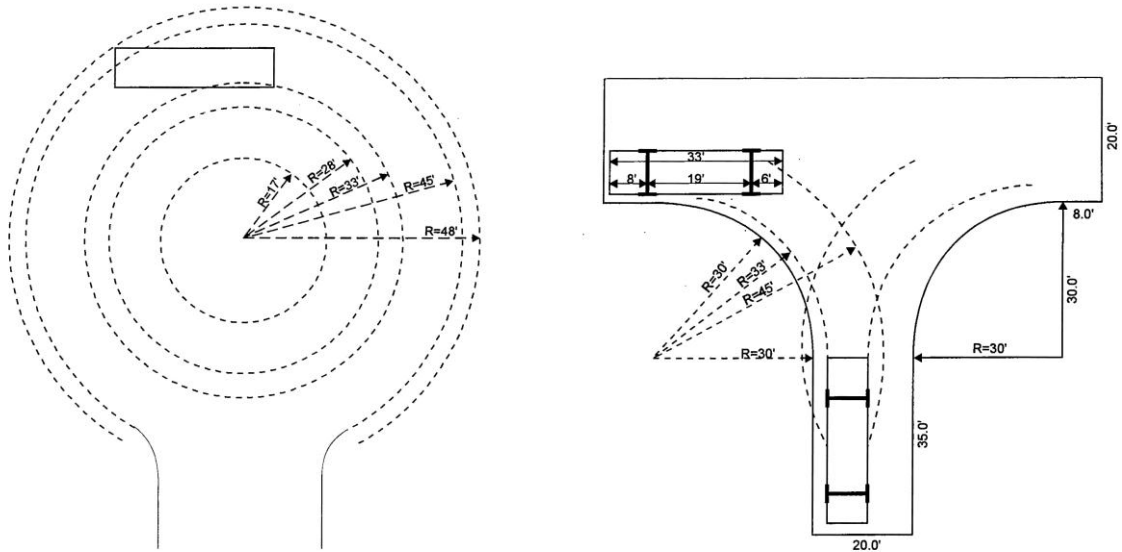
- Triple (three eight-yard) dumpster enclosure shall be 12 feet deep x 36 feet wide. The minimal width of the gate or doors shall be no less than 36 feet.
- A 30-yard roll-off compactor enclosure shall be 29 feet deep x 16 feet wide. The minimal width of the gate or doors shall be no less than 12 feet.

# Solid Waste Site Standards

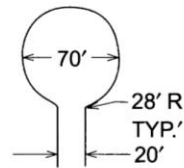
## Access

Access areas shall be a minimum of 20 feet in width and have a minimum unobstructed height of 14 feet. Outside turning radii in these areas shall be a minimum of 45 feet.

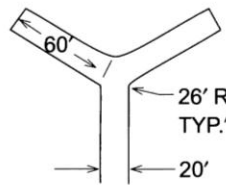
At no time shall the collection vehicle be required to back more than 100 feet while on the property, or be required to back out into or from a public right-of-way. In such cases, a tee or circle turnaround that meets the minimum fire lane standards, as shown below, will be required.



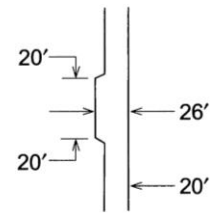
96' DIAMETER  
CUL-DE-SAC



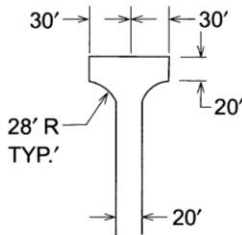
70' DIAMETER  
CUL-DE-SAC



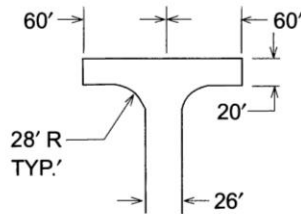
ACCEPTABLE ALTERNATIVE  
TO 120' HAMMERHEAD



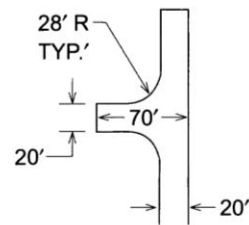
MINIMUM CLEARANCE  
AROUND A FIRE  
HYDRANT



60' HAMMERHEAD



120' HAMMERHEAD



ACCEPTABLE ALTERNATIVE  
TO 120' HAMMERHEAD

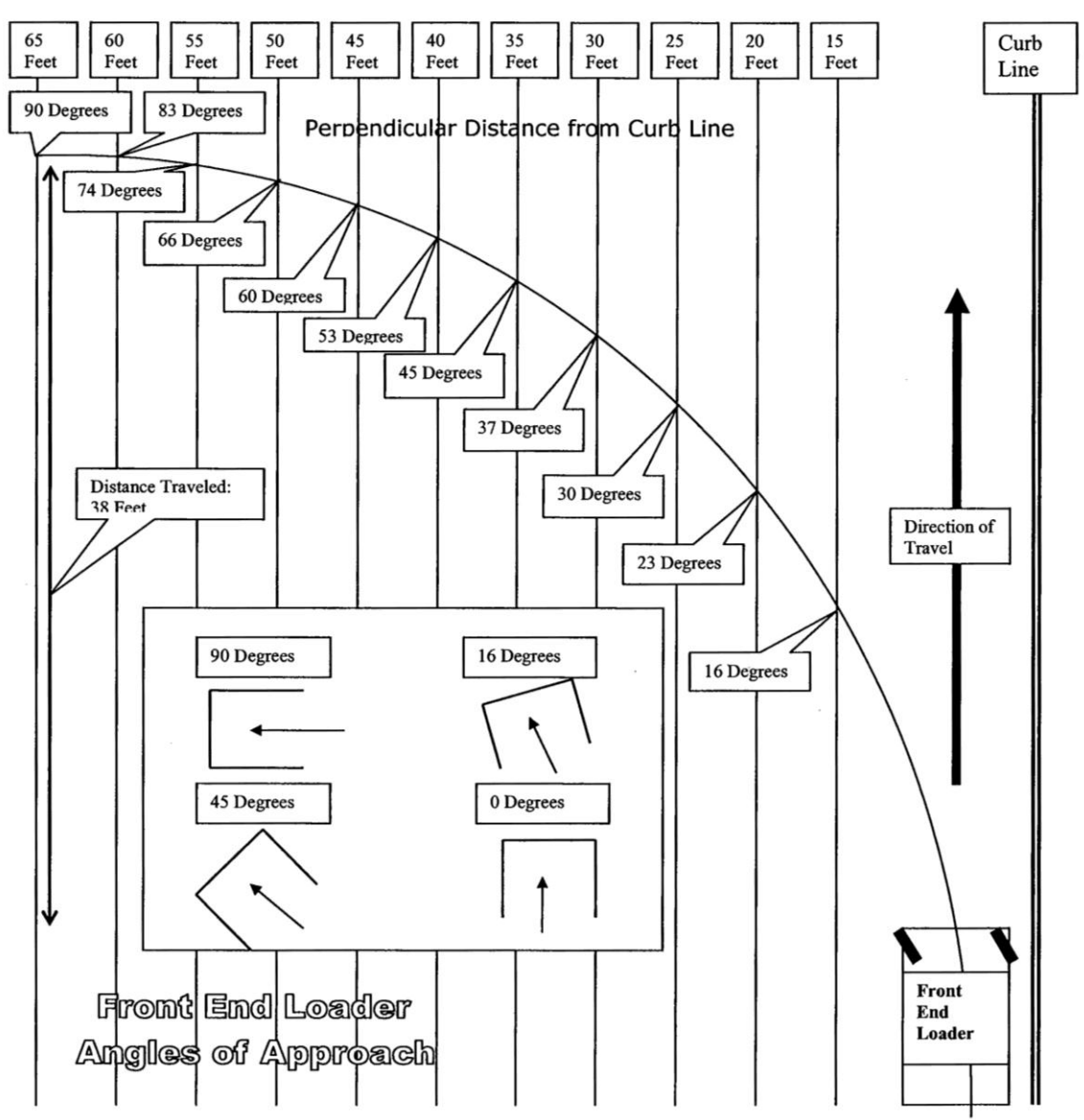


# Solid Waste Site Standards

In all cases, approach design should facilitate a looping or circle ingress / egress path that avoids the necessity of the collection vehicle having to conduct backing maneuvers as much as possible.

## Dimensions for Maneuvering

Depending on the angle of the enclosure from the access path, a clear maneuvering area of up to 65 feet in front of the container, as shown below, will be required. No parking will be allowed in the maneuvering area.



# Sign Standards

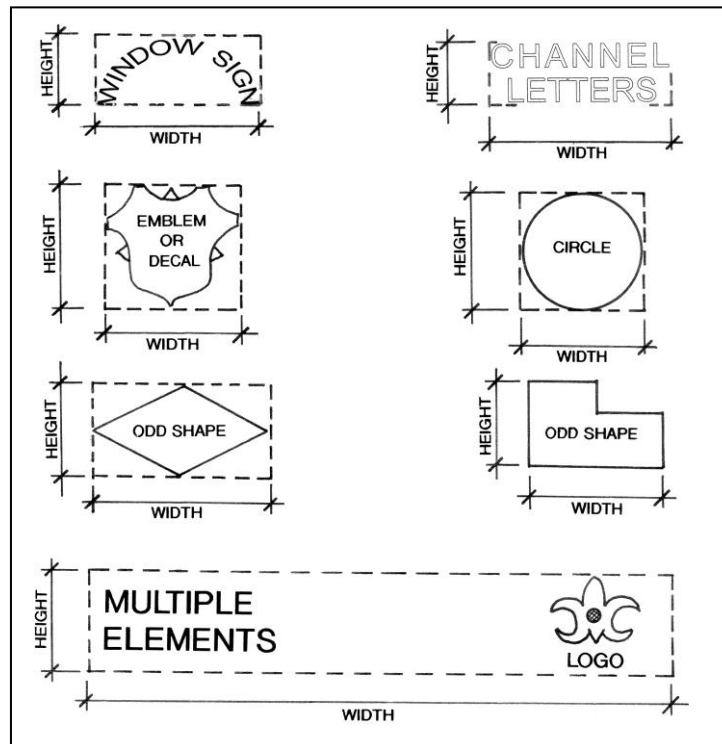
## Sign Visibility

The BioCorridor Review Committee has the authority to determine what is "not easily identified" or visible, as measured from any applicable property line or rights-of-way. The following chart shall be used when making this interpretation.

Distance from Property Line	Height of Copy or Logo
100'	2" or less
150'	3" or less
200'	5" or less
350'	7" or less
400'	8" or less
450'	9" or less
525'	11" or less
600'	12" or less

## Determining Sign Area

The area of a sign is the area enclosed by the minimum imaginary rectangle or vertical and horizontal lines that fully contains all extremities, exclusive of supports.



# Landscape & Streetscape Standards

## Submittal Requirement

All landscape and streetscape submittals shall provide a legend including information such as species, size, quantity, point value of plantings, and overall point totals.

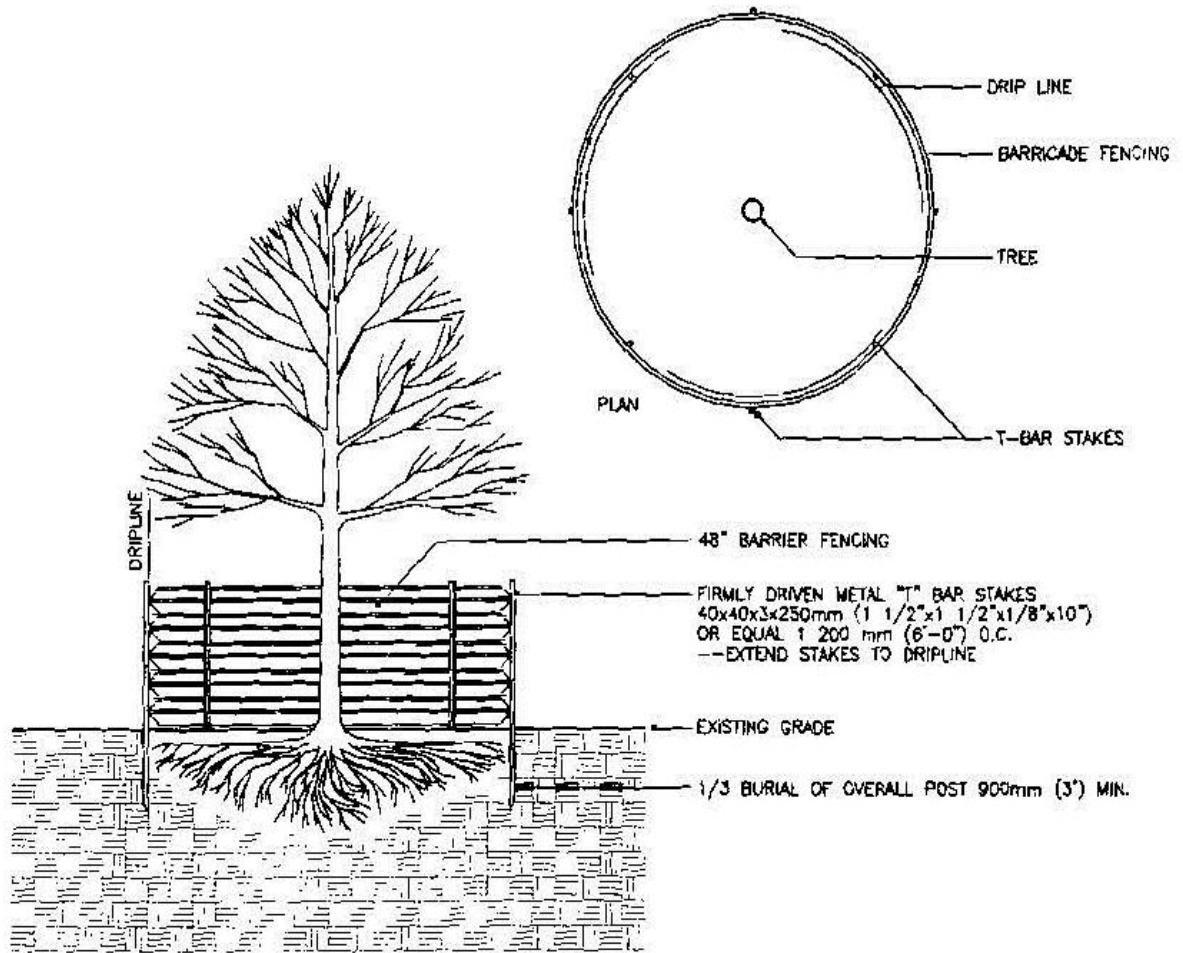
Project Name SAMPLE LEGEND LANDSCAPING POINT CALCULATIONS					
SYMBOL	SIZE	NAME & TYPE	QUANTITY	POINT VALUE	POINT
	8" AND LARGER EXISTING W/BARRICADE	LIVE OAK TREE (Quercus virginiana) Canopy tree	2	300	600
	4" TO 8" EXISTING W/BARRICADE	LIVE OAK TREE (Quercus virginiana) Canopy tree	13	200	2600
	2" TO 14.5" CALIPER EXISTING W/O BARRICADE	LIVE OAK TREE (Quercus virginiana) Canopy tree	8	35	280
	1.25" CALIPER AND LARGER	TREE CREPE MYRTLE (Lagera tomentosa indica) Noncanopy tree	5 (N/A)	40	240
	5 GAL	WAX LEAF LIGUSTRUM (Ligustrum texanum) Shrub	45 (N/A)	10	450
<small>NOTE: Symbols are for reference. Any symbols used must be distinguishable at any scale.</small>					
BARRICADE FOR INDICATED TREES TO BE CONSTRUCTED WITH 48" HIGH ORANGE PLASTIC CONSTRUCTION NETTING AND SECURED TO STEEL-POSTS. BARRICADE TO BE PLACED IN A CIRCLE AROUND INDICATED TREES AT RADIAL DISTANCE OF 1' FOR EVERY 1" CALIPER OF TREE. BARRICADE MUST BE IN PLACE PRIOR TO ANY DEVELOPMENT ACTIVITY AS WELL AS THROUGHOUT THE CONSTRUCTION PROCESS.					
STREETScape: $(136.57 / 50) \times 300 \text{ PTS} = 820 \text{ PTS}$ $(136.57 / 25) = 6 \text{ CANOPY TREES}$ POINTS PER PROJECT AREA: 26,416.3 SQUARE FEET OF SITE AREA $26,416.3 / 1,000 = 26.42$ $26.42 \times 30 = 792.6 = 793 \text{ POINTS}$ TOTAL POINTS REQUIRED: 1,613					
				TOTAL POINTS PROPOSED: 4,180	

## Tree Preservation

To receive barricaded points for existing trees, they must be barricaded one foot per caliper inch. A barricade detail must be provided on the landscape plan. Barricades must be in place prior to any activity on the property including, but not limited to, grading. If in any event the required barricades are not in place prior to any activity and maintained during construction, barricaded points will be forfeited.

# Landscape & Streetscape Standards

Barricade Detail shown below:



# Landscape & Streetscape Standards

## Planting List

This list recommends several species that do well in the College Station/Bryan area. Not every species will perform well in all locations, and some species have detriments that need to be considered. Careful evaluation of the site, soils, available growing area, and climate needs to be exercised when selecting species. The legend below indicates how certain plantings may be utilized within a landscape plan. In addition, this legend also shares information regarding other specific attributes.

## Qualifications Legend

### **\*Recommended by Texas Forest Service for Brazos County**

**1=streetscape planting**

**2=screening**

**3=salt tolerant**

**4=evergreen**

**5=low water usage/drought tolerant**

**6=high water usage**

**7=native to Texas**

## Canopy Trees (40'+ canopy)

<b>Common Name</b>	<b>Scientific Name</b>	<b>Qualifications</b>
*American Elm	(Ulmus Americana)	1, 3, 5, 7
*Bald Cypress	(Taxodium distichum)	1, 3, 5, 7
*Bur Oak	(Quercus macrocarpa)	1, 3, 5, 7
*Cedar Elm	(Ulmus crassifolia)	1, 3, 5, 7
*Live Oak	(Quercus virginia)	1, 3, 4, 5, 7
*Pecan	(Carya illinoensis)	1, 3, 5, 7
*River Birch	(Betula Niagra)	1, 3, 7
*Shumard Red Oak	(Quercus shumardii) or (Q. texana)	1, 3, 5, 7
*Water Oak	(Quercus nigra)	1, 3, 7
*Western Soapberry	(Sapindus drummondii)	1, 5, 7
*Willow Oak	(Quercus phellow)	1, 3, 5, 7
American Sycamore	(Platanus occidentalis)	3, 5, 7
Chinese Pistache	(Pistacia chinensis)	1, 5
Chinkapin Oak 7	(Quercus muehlenbergii)	1, 5, 7
Drake Elm	(Ulmus parvifolia 'Drake')	1, 4
Lacey Oak 7	(Quercus glaucoides)	5, 7
Leyland Cypress	(Cupressocyparis leylandii)	3, 4(semi)
Post Oak- existing only	(Quercus stellata)	7, 8

# Landscape & Streetscape Standards

## Canopy Trees continued...

Texas Ash	(Frazinus texensis)	1, 3, 5, 7
Texas Pistache 8	(Pistachia texana)	1, 4, 5, 7
Winged Elm 6	(Ulmus alata)	1

## Non-Canopy Trees

<b>Common Name</b>	<b>Scientific Name</b>	<b>Qualifications</b>
*American Holly	(Ilex opaca) partial to shade	1, 3, 4, 5, 7
*Carolina Cherry Laurel	(Prunus caroliniana)	1, 3, 4, 5, 7
*Chaste Tree	(Vitex Negundo)	1, 3, 5
*Crepe Myrtle	(Lagerstroemia indica)	1, 3, 5
*Eastern Red Cedar	(Juniperus virginiana)	1, 3, 4, 5, 7
*Eve's Necklace tree	(Sophora affinis)	1, 5, 7
*Goldenrain Tree	(Koelreuteria paniculata)	1, 3, 5
*Japanese Black Pine	(Pinus thunbergiana)	1, 3, 4, 5
*Lacebark Elm	(Ulmus parvifolia) similar to Siberian Elm	1, 3, 5
*Mexican White Oak	(Quercus polymorpha)	1, 4(semi), 5, 7
*Mexican Plum	(Prunus mexicana)	1, 4(semi), 5, 7
*Possumhaw Holly	(Ilex decidua)	1, 5, 7
*Prairie Flameleaf Sumac	(Rhus lanceolata)	1, 5, 7
*Texas Red Bud	(Cercis canadensis)	1, 5, 7
*Tree Yaupon	(Ilex vomitoria)	1, 3, 4, 5, 7
Bradford Pear	(Pyrus species)	1, 5
Chinese Fringe tree	(Chionanthus retusus)	5
Coppertone Loquat	(Eriobotrya japonica)*	4
Italian Cypress	(Cupressus sempervirens) *	3, 5
Rusty Blackhaw Viburnum	(Viburnum rufidulum)	1
Shining Sumac	(Rhus copalina)	1, 5, 7
Texas Kidneywood	(Eysenhardtia texana)	5, 7
Texas Mountain Laurel	(Sophora secundiflora)	1, 3, 4, 5
Texas Persimmon	(Diospyros texana)	1, 5, 7
Wax Myrtle Tree	(Myrica cerifera)	1, 4, 5, 7

## Landscape & Streetscape Standards

**Shrubs** (Please be aware that dwarf species are not permitted in required screening areas or in required buffer areas.) **(grasses must be a perennial)**

Common Name	Scientific Name	Qualifications
Adam's Needle Yucca	(Yucca filamentosa)	3, 4, 5
Abelia	(Abelia grandiflora)	2, 5
Althea	(Hibiscus syriacus)	2,3, 5
Agrito	(Berberis trifoliolata)	2, 4
American Beautyberry	(Callicarpa americana)	3, 5
Aromatic Sumac	(Rhus aromatic)	3, 5
Belinda's Dream Rose	(Rose 'Belinda's Dream')	2, 5, 7
Boxwood	(buxus) multiple varieties	2, 4, 5
Carolina Buckthorn	(Rhamnus caroliniana)	5
Carolina Laurel Cherry	(Prunus caroliniana 'Bright 'n Tight')	2, 3, 4, 5, 7
	Pruned properly for screening, not height	
Cast Iron plant	(Aspidistra elatior) – needs shade	5
Clyera	(Ternstroemia gymnanthera)	2, 4, 5
Elaeagnus	(Elaeagnus macrophylla)	2, 3, 5
Acanthus	(Anisacanthus quadrifidus var 'wrightii')	5
Fountain grass	(Pennisetum setaceum)	5
Gold Dust Aucuba	(Aucuba japonica)*	2, 4, 6
Golden Euonymus	(Euonymus japonica 'Aureo-marginata')	2, 3, 4, 5
Gold Star Esperanza	(Tecoma stans 'Gold Star')	3, 5, 7
Grandma's Yellow Rose	(Rose 'Nacogdoches')	5, 7
Gulf Muhly grass	(Muhlenbergia capillaries)	5
Hicks Yew	(Taxus x medua 'Hicksii')	2, 4, 5(semi)
Holly, upright	(zone appropriate species)	2, 3, 4, 5
Indian Hawthorn	(Raphiolepis indica)	2, 3, 4, 5
Juniper species, upright	(Juniperus species)	2, 3, 4, 5
	There are many varieties of Junipers but be careful to avoid the ones with bagworm susceptibility	
Knock-Out Rose	(Rose 'Radrazz')*	5
Maiden grass	(Miscanthus sinensis)	2, 3, 5
Mexican Bush Sage	(Salvia leucantha)	2, 5
Nandina	(Nandina domestica 'compacta')	2, 3, 4, 5
	or others if zone appropriate	

# Landscape & Streetscape Standards

## Shrubs continued...

Oleander	(Nerium oleander sp.) red or white are the hardiest	2, 3, 4, 5
Pampas Grass	(Cortaderia selloana sp.)	3, 4(semi)
Photinia Species	(Photinia x fraseri)	2, 4
Pineapple Guava	(Feijoa sellowiana)	2, 3, 4, 6
Pittosporum Species	(Pittosporum tovara)	2, 3
Primrose Jasmine	(Jasminum mesnyi) (J. primulinum)	2, 4, 6
Pyracantha	(Pyracantha species)	2, 4
Rosemary, upright	(Rosmarinus officinalis)	2, 4, 5
Russian Sage	(Perovskia longifolia)	3, 5
Sago Palm	(Cycas revolute)	3, 4
Soft Leaf Yucca	(Yucca recurvifolia)*	3, 5
Spirea	(Spirea species)	2, 5
Texas Firecracker Bush	(Hamelia patens)	3, 5
Texas sage	(Leucophyllum frutescens) (‘Greencloud’ or sp.)	2, 3, 4, 7
Viburnum species	(Leatherleaf, Walter’s(3) Viburnum macrophyllum or sp.)	2, 3, 4
Waxleaf Ligustrum	(ligustrum japonicum)	2, 3, 5
Wax Myrtle	(Myrica pusilla)	2, 3, 4, 5
Whitebrush	(Aloysia gratissima)	2, 5, 7
Yaupon	(Ilex vomitoria 'nana')	2, 3, 5

## Groundcovers and Vines (grasses must be a perennial)

<b>Common Name</b>	<b>Scientific Name</b>	<b>Qualifications</b>
Asparagus Fern	(Asparagus densiflorus)	3
Algerian Ivy	(Hedera canariensis)	4, 6
Asian Jasmine	(Trachelospermum asiaticum)	4(semi),5(semi)
Baby Sun Coreopsis	(Coreopsis g. 'baby sun')	5
Big Blue Lily Turf	(Liriope Muscari)	4, 5
Carolina Jessamine	(Gelsemium sempervirens)	4, 6
Creeping Juniper	(Juniperus horizontalis)	4, 5
Daylilly	(Hemerocallis)	3
Dwarf Pampas Grass	(Cortaderia selloana 'Pumila')	3, 4(semi)
English Ivy	(Hedera helix)	3



# Landscape & Streetscape Standards

## Groundcover and Vines continued...

Star Jasmine	(Trachelospermum jasminoides)	4
Gregg Salvia	(Salvia Greggii)	4, 5
Henry Duelberg Salvia	(Salvia farinacea 'Henry Duelberg')	5, 7
Monkey Grass	(Ophiopogon japonicum)	4, 6
Mexican Feather Grass	(Nassella tenuissima)	5
Ribbon Grass	(Phalaris arundinacea)	5
Sage	(Salvia Farinacea)	2, 3, 4
Small-leaf Spiderwort	Tradescantia fluminensis)	4, 5
Texas Lantana	(Lantana horrida)	3, 7
Turk's Cap	(Malvaviscus arboreus 'drummondii')	4(semi), 7
Vinca	(Vinca major and V. minor)	4, 6

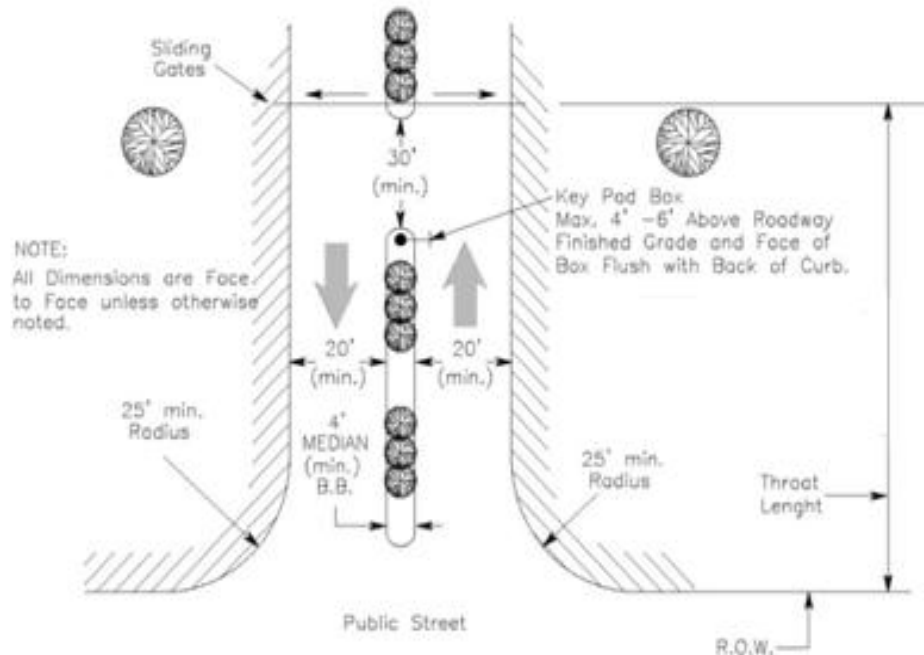
## Turfgrasses

<b>Common Name</b>	<b>Scientific Name</b>	<b>Qualifications</b>
Buffalo grass	(Anthoxanthum odoratum)	5, 7
Common Bermuda	(Cynodon dactylon)	3, 5 (semi)
Tifway 419 Bermuda	(Cynodon 'TIFF 419')	5 (semi)
St. Augustine	( <i>Stenotaphrum secundatum</i> )	3, 6
Zoysia	(Zoysia species)	3, 5

# Gated Entry Standards

## Gated Entry Geometric Standards

- The gate(s) may not be placed on a public right-of-way or easement.
- All gate mechanical or manual operating functions shall meet the City's Fire Department requirements and provide passage with unobstructed vertical clearance.
- The throat depth for a gated entry way shall be a minimum of one-hundred feet (100') (Ref. Figure 1).



- Gated entry ways shall provide adequate access for pedestrians and bicycles.
- Gated entry ways shall provide adequate turnaround areas for vehicles that are denied access in order to prevent backing into a public street. (Ref. Figure 1 above)
- The gated entry way driveway pavement widths, for both egress and ingress, shall be a minimum of twenty feet (20') per driveway and are required to provide a minimum four feet (4') center median. (Ref. Figure 1 above)
- The gated area shall provide a minimum unobstructed vertical clearance of fourteen feet and six inches (14'-6") from finished roadway surface over the entire width of the entry roadway.
- Public safety elements and signing shall be included in the gated entry way design.

## General Site Plan Notes

The following General Notes should be included on the Site Plan:

- "All roof and ground-mounted mechanical equipment shall be screened from view or isolated so as not to be visible from any public right-of-way, measured from a point five feet above grade. Such screening shall be coordinated with the building architecture and scale to maintain a unified appearance."
- "100% coverage of groundcover, decorative paving, decorative rock, or a perennial grass is required in parking lot islands, swales and drainage areas, the parking lot setback, rights-of-way, and adjacent property disturbed during construction."
- "Irrigation system will be protected by either a Pressure Vacuum Breaker, a Reduced Pressure Principle Back Flow Device, or a Double-Check Back Flow Device, and installed as per adopted City building code."
- "All back flow devices will be installed and tested upon installation as per adopted City Building Code."