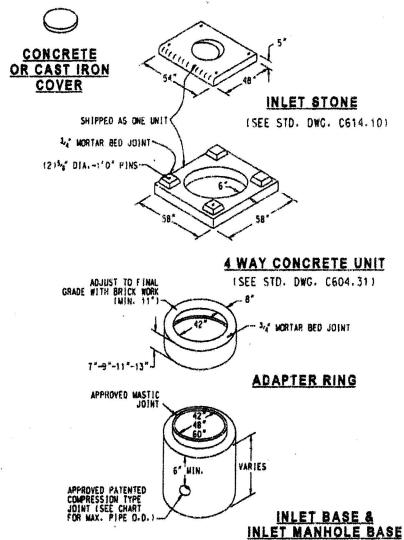
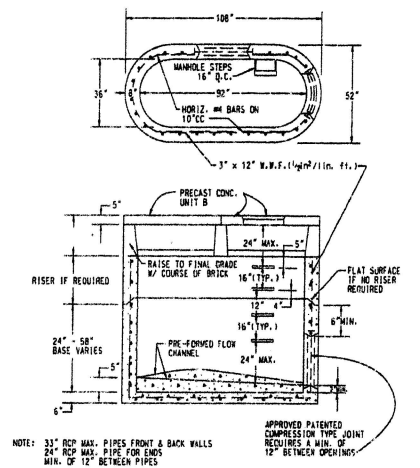


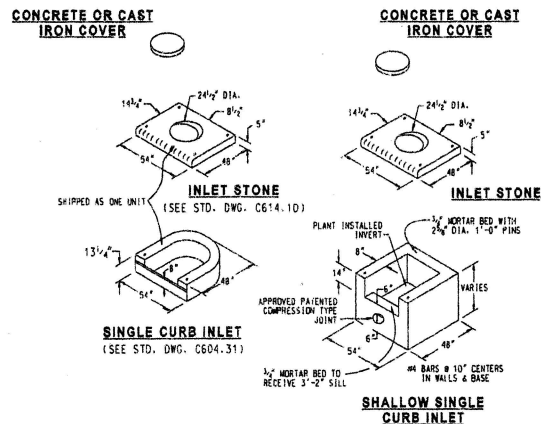
**PRE-CAST CONCRETE UNIT
2 GRATE INLETS**



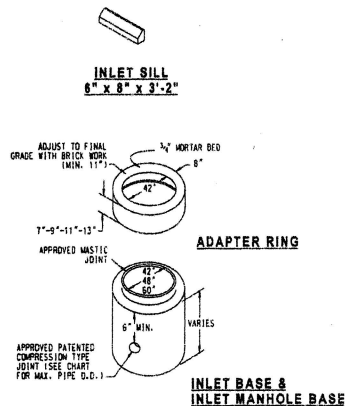
**PRE-CAST CONCRETE UNIT
AREA INLET**



**PRE-CAST CONCRETE UNIT
DOUBLE UNTRAPPED STREET INLET**



PRE-CAST CONCRETE UNIT - SINGLE STREET INLETS



PRECAST CONCRETE STORMWATER STRUCTURES
MINIMUM DISTANCE FLOWLINE TO TOP OF STONE OR GRATE

PIPE ID INCHES	4" DIA. INLET			6" DIA. INLET			8" DIA. INLET			12" DIA. INLET		
	4"	6"	8"	4"	6"	8"	4"	6"	8"	4"	6"	8"
12"	45"	50"	55"	38"	43"	48"	31"	36"	41"	24"	29"	34"
15"	48"	53"	58"	41"	46"	51"	34"	39"	44"	27"	32"	37"
18"	52"	57"	62"	45"	50"	55"	38"	43"	48"	31"	36"	41"
21"	55"	60"	65"	48"	53"	58"	41"	46"	51"	34"	39"	44"
24"	58"	63"	68"	51"	56"	61"	44"	49"	54"	37"	42"	47"
27"	61"	66"	71"	54"	59"	64"	47"	52"	57"	40"	45"	50"
30"	64"	69"	74"	57"	62"	67"	50"	55"	60"	43"	48"	53"
33"	67"	72"	77"	60"	65"	70"	53"	58"	63"	46"	51"	56"

NOTE: 1. 48" DIA. BASE REQUIRES 1" HIGH TRANSITION SECTION TO 42" DIA., SIMILAR TO "ADAPTER RING".

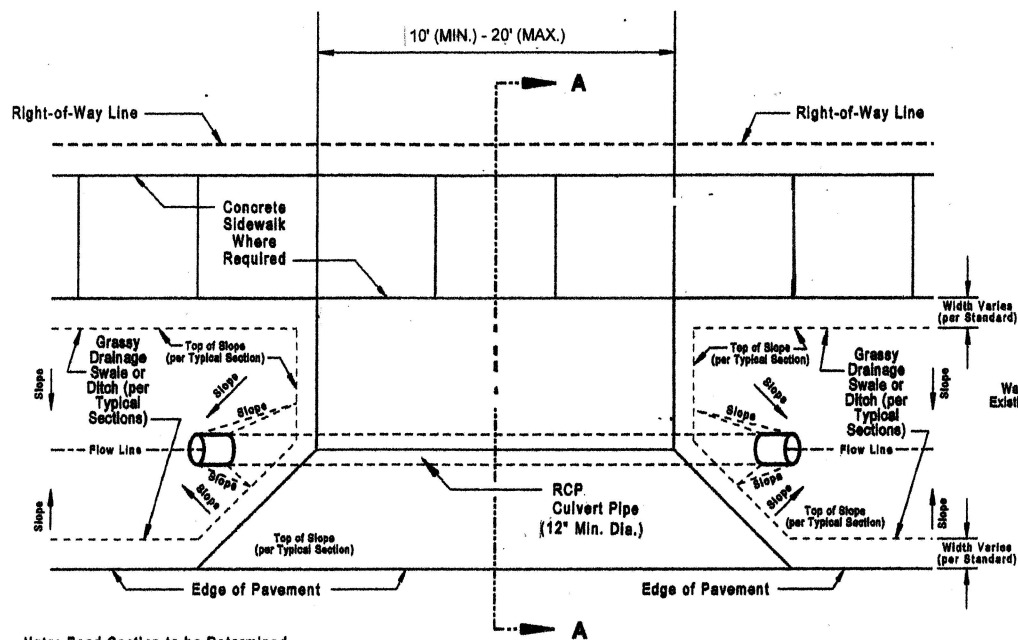
2. 60" DIA. BASE REQUIRES 24" HIGH CONCENTRIC REDUCER TRANSITION TO 42" DIA., SIMILAR TO "ADAPTER RING".

GENERAL NOTES

- Do not scale drawing. Follow dimensions.
- The details shown are adapted from the "Revised Standard Construction Details for Sewer and Drainage Facilities" of The Metropolitan St. Louis Sewer District dated 2000.
- The standard specification section noted refer to the "Standard Construction Specifications for Sewers and Drainage Facilities" of The Metropolitan St. Louis Sewer District dated 2000.
- Class A concrete refers to The Metropolitan St. Louis Sewer District requirements.

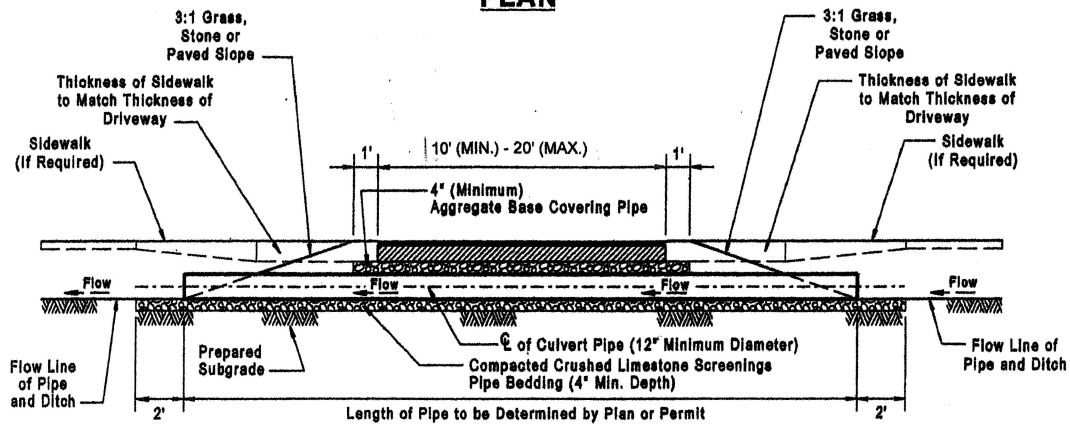
MOSCOW MILLS

**PRECAST CONCRETE
STORMWATER
STRUCTURES**



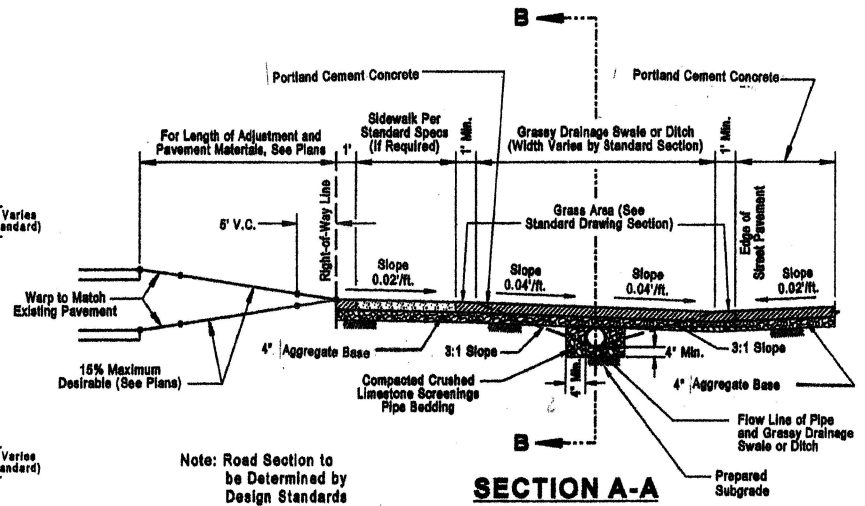
Note: Road Section to be Determined by Design Standards

PLAN



SECTION B-B

Direction of Flow Determined by Slope of Ground



Note: Road Section to be Determined by Design Standards

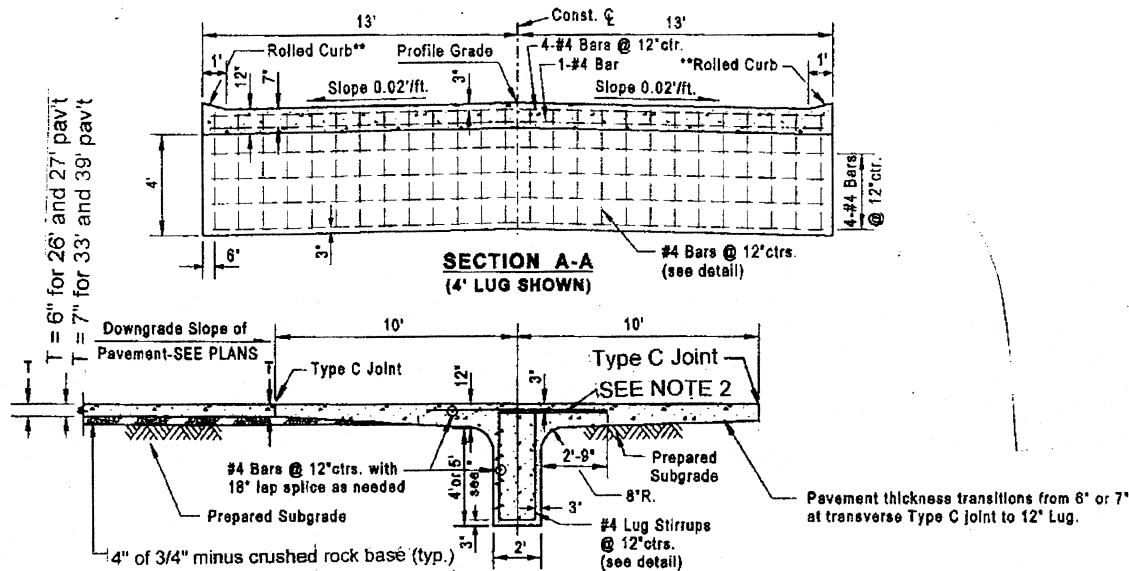
SECTION A-A

GENERAL NOTES

- 1) Do not scale drawing, follow dimensions.

MOSCOW MILLS

**RESIDENTIAL DRIVEWAY
CULVERT DETAILS**

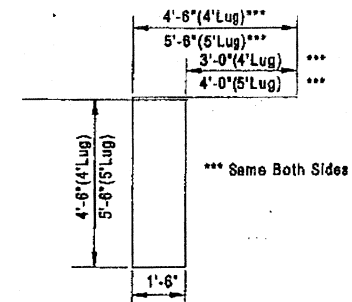


GENERAL NOTES

- 1) Pavement Lugs shown are for a 26' wide pavement. When required on pavement narrower or wider than 26', details are similar.
- 2) Lug Stirrups to be shop bent. 90° bends per CRSI standards. Field bending will not be permitted.
- 3) Lug Stirrups to be supported on chairs or concrete bricks to ensure proper placement of the steel.

* 4' Lug shall be required for street grades of 6% to 11.9%.
5' Lug shall be required for street grades 12% and above.

** Vertical Curb may be required. See Plans.



LUG STIRRUP BENDING DIAGRAM

MOSCOW MILLS

PAVEMENT LUG DETAILS

PLAN

**MOSCOW MILLS
STREET AND SIDEWALK
CONSTRUCTION STANDARDS**

Appendix “B”

**Design Guidelines
for
Permeable Pavements**

City of Moscow Mills Design Guidelines for Permeable Pavements

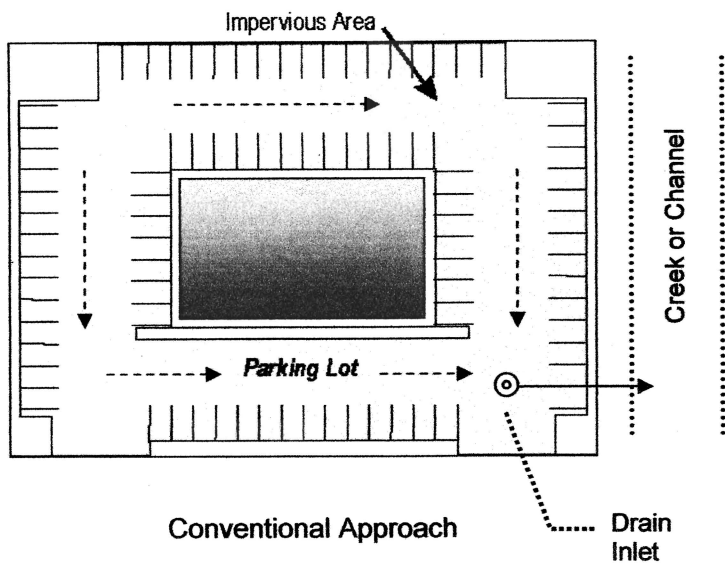
GENERAL

- A. The attached chart is a guideline for general permeability of pavement materials. Permeability depends on various site-specific factors, including soil type, sediment deposition potential, rainfall intensity, and site slope. These estimates are only approximate and should not be used for flood control sizing. The percentages assume that the materials have been properly installed and will be properly maintained according to recommended practices*.
- B. Design and maintenance specifications (i.e., subgrade and base composition) are detailed in various sources such as "Start at the Source". Final permeability ratios allocated to each material will be determined by the City Engineering Department based on the variable factors, site circumstances, and manufactures specifications.
- C. Permeable paving systems may only be used in private streets and parking areas, subject to City Engineer's approval.

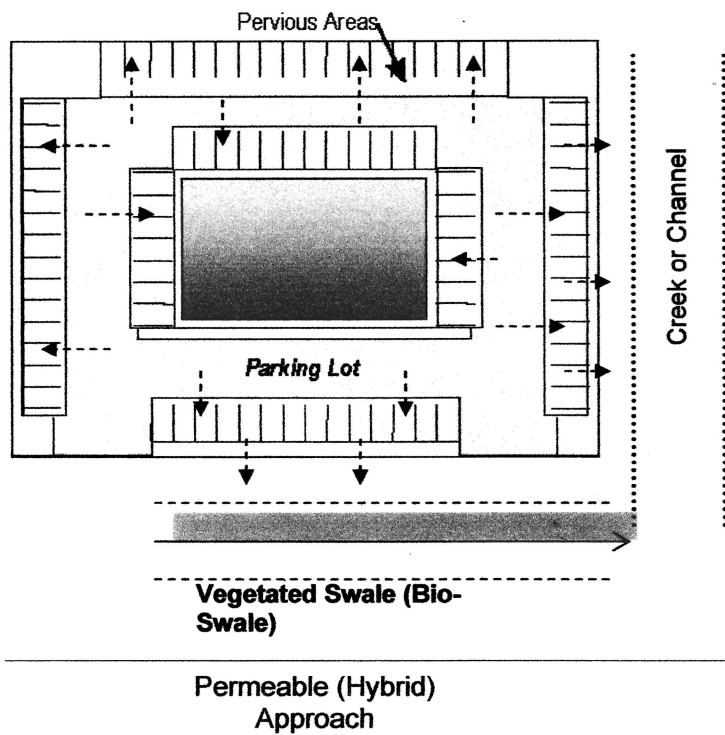
Permeable Pavements

- A. Permeable Pavements include the following:
 - 1. Poured-in-place materials (pervious concrete, porous asphalt)
 - 2. Unit pavers-on-sand (turf block, brick, natural stone)
 - 3. Granular materials (crushed aggregate/gravel and cobbles)
- B. Permeable pavements reduce impervious land coverage while simultaneously providing a stable load-bearing surface. While forming a surface suitable for walking and driving, permeable pavements also contain sufficient void space to infiltrate runoff into soil. By making pavements permeable, impervious surface coverage can be reduced without sacrificing intensity of use.
- C. A typical component of permeable pavements is a reservoir base course. This base course provides a stable load-bearing surface as well as an underground reservoir for water storage. The base course must meet two requirements:
 - 1. It must be open graded, crushed stone (not pea gravel), meaning that the particles are of a limited size range, with no fines, so that small particles do not choke the voids between large particles. Open-graded crushed stone of all sizes has a 38 to 40% void space, allowing for substantial subsurface water storage.
 - 2. Rounded river gravel (pea gravel) is not recommended due to movement and deformation. The angular sides of the crushed stone will form an interlocking matrix, keeping the surface stable.
 - 3. Permeable pavements must be laid on a relatively flat slope, generally 5% or flatter. If permeable pavements are laid on steep slopes, the underlying base course tends to migrate downhill, causing the surface to deform.
- D. **TO TAKE ADVANTAGE OF PERMEABLE PAVEMENTS, PLAN THE SLOPE OF PARKING LOTS SO THAT PERIMETER PARKING RECEIVES THE RUNOFF FORM THE MORE PERVIOUS AREAS. IN COMBINATION WITH PLANTER STRIPS, THE PERVIOUS AREAS CAN ACT AS A FITTER MEDIUM AS WELL**

* Generally derived from "Start at the Source: Design Guidance Manual for Stormwater Quality Protection" (1999 edition)



The conventional approach to parking lot design uses impermeable paving (asphalt or concrete) and directs runoff to drains that transport the drainage to the stormwater system or to a discharge point at a creek or other channel.



An alternative (permeable) approach to parking lot design directs runoff to pervious pavement, landscape or vegetated swales for infiltration, and disperses drainage prior to discharge to a creek or other channel.