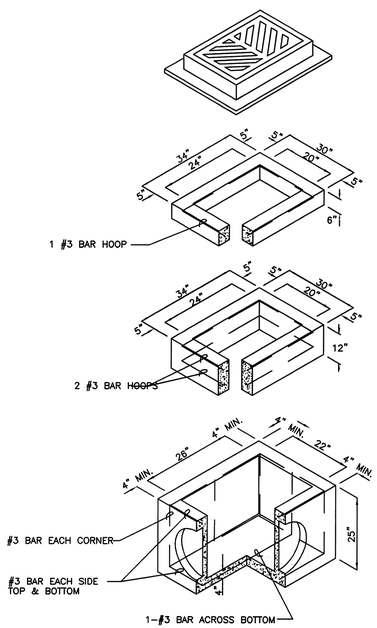
A PORTION OF THE SE1/4, SE1/4, SEC 12, NE1/4, NE1/4, SEC 13, TWP 26N, RGE 4E, W.M. KING COUNTY

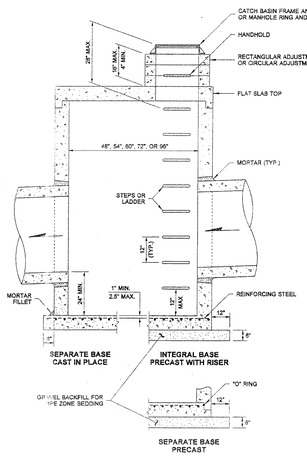


CURB INLET

N.T.S.

NOTES:

1. CURB INLET TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497. WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CURB INLET WALL THICKNESS.
6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES WITH MAX. DIAM. OF 17".
7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
9. CONCRETE INLET FRAME AND GRATES SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY OTHER COVER POSITION.
10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.



NOTES

1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. Frame and grate may be installed with flange down or cast into adjustment section.
4. Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum. Provide a 1.5" minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with Std. Spec. 9-04.3.

CATCH BASIN DIMENSIONS

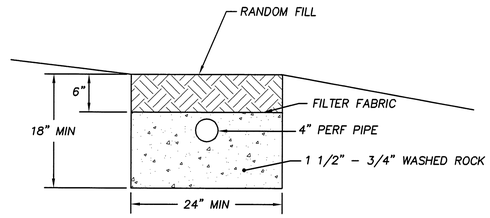
CATCH BASIN DIAMETER	WALL THICKNESS	BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL in^2/ft IN EACH DIRECTION	
					INTEGRAL	SEPARATE
48"	4"	6"	36"	8"	0.15	0.23
54"	4.5"	8"	42"	8"	0.19	0.19
60"	5"	8"	48"	8"	0.25	0.25
72"	6"	8"	60"	12"	0.24	0.35
96"	8"	12"	84"	12"	0.29	0.39

PIPE ALLOWANCES

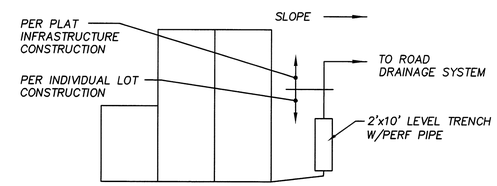
CATCH BASIN DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSSP ①	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	24"	30"	24"	27"	30"
54"	30"	36"	30"	27"	36"
60"	36"	42"	36"	36"	42"
72"	42"	54"	42"	36"	48"
96"	60"	72"	60"	36"	48"

TYPE II - 48"ϕ CATCHBASIN

N.T.S.



TRENCH X-SECTION



PLAN VIEW OF ROOF

A *perforated stub-out connection* is a length of perforated pipe within a gravel-filled trench that is placed between roof downspouts and a stub-out to the local drainage system. Figure 5.1.3.A (p. 5-12) details a perforated stub-out connection. These systems are intended to provide some infiltration during drier months; during the wet winter months, they may provide little or no flow control, and hence no reduction in a flow control facility is allowed when perforated stub-outs are used.

In **single family subdivision projects** subject to Core Requirement #3 (see Section 1.2.3), perforated stub-out connections are allowed only when downspout infiltration or dispersion is not feasible per the criteria in Sections 5.1.1 and 5.1.2. For projects proposing to apply roof downspout controls as flow control BMPs, a perforated stub-out connection is allowed only as specified in Section 5.2 (p. 5-13).

Location of the connection should be selected to allow a maximum amount of runoff to infiltrate into the ground (ideally a dry location on the site that is relatively well drained). Perforated stub-out connections shall consist of **at least 10 feet of perforated pipe** laid in a level, 2-foot wide trench backfilled with washed drain rock. The drain rock shall extend to a depth of at least 8 inches below the bottom of the pipe and shall cover the pipe. The pipe shall be laid level, and the rock trench shall be covered with filter fabric and 6 inches of random fill (see Figure 5.1.3.A). **Setbacks** shall be the same as for infiltration trenches.

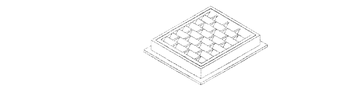
The **approved plans for single family subdivision projects** shall include perforated stub-out details (if applicable) and details of "typical" lots depicting the approximate locations of perforated stub-out connections.

If the project is a subdivision, the following **note** conditioning single family residential building permits on compliance with the approved stub-out systems shall be recorded with the plat or short plat:

"Single family residences constructed on lots created by this subdivision must provide perforated stub-out connections according to the details shown on the approved plans."

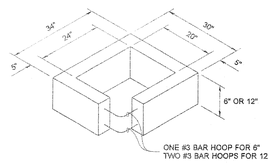
PERFORATED DOWNSPOUT STUB-OUT DETAIL

NTS

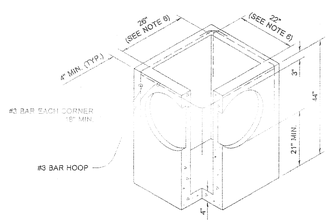


NOTES

1. AS AN ACCEPTABLE ALTERNATE TO REBAR, WIRE MESH HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WIRE MESH SHALL NOT BE PLACED IN KNOCKOUTS.
2. THE KNOCKOUT DIAMETER SHALL NOT BE GREATER THAN 20". KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM TO 2.5" MAXIMUM. PROVIDE A 1.5" MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR IN ACCORDANCE WITH STANDARD SPECIFICATION 9-04.3.
3. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT SHALL BE 5'.
4. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO ADJUSTMENT SECTION.
5. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.
6. OPENING SHALL BE MEASURED AT THE TOP OF THE PRECAST BASE SECTION.



RECTANGULAR ADJUSTMENT SECTION



PRECAST BASE SECTION

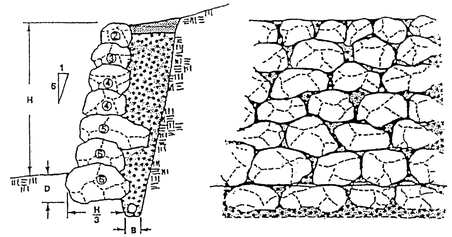
PIPE ALLOWANCES

PIPE MATERIAL	MAXIMUM INSIDE DIAMETER
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPSSP * (STD. SPEC. 9-05.20)	12"
SOLID WALL PVC (STD. SPEC. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. 9-05.12(2))	15"

* CORRUGATED POLYETHYLENE STORM SEWER PIPE

TYPE I CATCHBASIN

N.T.S.



g. A. ROCKERY SECTION

Fig. B. ROCKERY ELEVATION

SCHEMATIC ONLY — NOT TO SCALE
NOT A CONSTRUCTION DRAWING

NOTES:
Rockery construction is a craft and depends largely on the skill and experience of the builder.
A rockery is a protective system which helps retard the weathering and erosion process on an exposed soil face. While by its nature (mass, size and shape of the rocks) it will provide some degree of retention, it is not a designed or engineered system in the sense a reinforced concrete retaining wall would be considered designed or engineered.
The degree of retention achieved is dependent on the size of the rock used; that is, the mass or weight, and the height of the wall being constructed. The larger the rock, the more competent the rockery should be.
Rockeries should be considered maintenance items that will require periodic inspection and repair. They should be located so that they can be reached by a contractor if repairs become necessary.
Maximum inclination of the slopes above and behind rockeries should be 2:1 (Horizontal:Vertical).
Minimum thickness of rock filter layer B = 12 inches.
Minimum embedment D = 12 inches undisturbed native soil or compacted fill placed in accordance with report recommendations.
Maximum rockery height H = 10 feet.
Rockeries greater than 8 feet in height to be installed under periodic or full time observation of the geotechnical engineer.
Unless otherwise specified in writing by the rockery "designer," all rocks placed in the lower two-thirds of the wall should be 5 to 6 man rock, 4000 lbs. or larger. Rocks placed above this level should gradually decrease in size with increasing wall height using 3 to 5 man rock, 700 to 6000 lbs.

The long dimension of the rocks should extend back towards the cut or fill fence to provide maximum stability.
Rocks should be placed to avoid continuous joint planes in vertical or lateral directions. Each rock should bear on two or more rocks below it, with good flat-to-flat contact.
All rockeries over 4 feet in height should be constructed on basis of wall mass, not square footage of face.

Size	Approximate Weight - lbs.	Approximate Diameter
1 Man	50-200	12-18"
2 Man	200-700	18-28"
3 Man	700-2000	28-36"
4 Man	2000-4000	36-48"
5 Man	4000-6000	48-54"
6 Man	6000-8000	54-60"

Reference: Local quarry weight study using average weights of no less than six rocks of each man size conducted in January, 1988.

LEGEND:

- Drainage materials to consist of clean angular well-graded quarry spalls, with 4-inch maximum size, or other material approved by the geotechnical engineer.
- Surface seal; may consist of impervious soil or a fine free draining granular material.
- Undisturbed firm Native Soil.
- Drain pipe; 4-inch minimum diameter, perforated or slotted rigid plastic ADS pipe laid with a positive gradient to discharge under control well away from the wall.

Figure 6
Site Plan Typical Rockery Detail
Native Cut, Any Height Over 4 Ft.

REFERENCE: *Association of Rockery Contractors*

ROCKERY IN CUT

N.T.S.

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Civil Engineering and Planning Consultants

GREG A. DIERKS — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER
07/31/06
EXPIRES: MAY 6, 2007

NORTHSHORE RIDGE
KENMORE, WA

FOR:
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PROJECT NO.: 04094
DRAWN BY: TLR
ISSUE DATE: 01-28-05
SHEET REV.: 07-31-06

DETAILS

04094DT03-C09.DWG

C09

SHEET 9 OF 10