

City of Pullman
**STANDARD CONSTRUCTION
SPECIFICATIONS
2016 EDITION**

Adopted by City Council

**June 14, 2016
Ordinance No. 16-6**

CITY OF PULLMAN STANDARD CONSTRUCTION SPECIFICATIONS

2016 Edition

Adopted by Ordinance #16-6

SECTION A: DEFINITIONS

1. "City of Pullman Standard Construction Specifications" means the 2016 Standard Specifications for Road, Bridge, and Municipal Construction published by the Washington State Department of Transportation as they are amended in Section C: Supplemental Specifications below and the City of Pullman Standard Drawings.

SECTION B: HOW TO OBTAIN COPIES

1. The *2016 Standard Specifications* can be purchased from the Washington State Department of Printing website at www.myPRINT.wa.gov.
2. The *2016 Standard Specifications* can be also downloaded, free of charge, from the following web page at www.wsdot.wa.gov/publications/manuals/m41-10.htm.
3. Copies of the Supplemental Specifications and Standard Drawings may be obtained from the Public Works Dept. office in Pullman City Hall, 325 S.E. Paradise Street, Pullman, WA 99163 or from the following web page at <http://www.pullman-wa.gov/departments/public-works/engineering/formsapplicationsinformation>.

SECTION C: SUPPLEMENTAL SPECIFICATIONS

1. Division 1 of the Standard Specifications is revised and augmented as follows:
 - (a) Amend the definition of "contracting agency" in Section 1-01.3 as follows:

"Contracting Agency" is the City of Pullman.
 - (b) Delete the following phrase from the first sentence of the first paragraph of Section 1-02.6
"or electronic forms that the bidder has been authorized to access"
 - (c) Delete the third sentence of Section 1-02.7 and replace the first sentence of Section 1-02.7 Bid Deposit with the following:

When bids are anticipated to exceed \$100,000, or \$200,000 for multi-craft or trade projects, as estimated by the Engineer, a deposit of at least five percent (5%) of the total bid shall accompany each bid.
 - (d) Delete the fourth paragraph of Section 1-02.9
 - (e) Replace the second sentence of the second paragraph and the third and fourth paragraphs of Section 1-02.10 with the following:

Faxed and e-mailed requests to revise or supplement a Bid Proposal will not be accepted.

- (f) Insert the following as a new second paragraph to 1-05.10 Guarantees:

The Contractor shall indemnify and hold the City of Pullman harmless from any damage or expense by reason of failure of performance as specified in said contract or from defects appearing or developing in the material or workmanship provided or performed under said contract within a period of one year after its acceptance thereof by the City of Pullman.

- (g) Delete Section 1-06.1(4).

- (h) Add the following to Section 1-07.7(1) Load Limits:

When the gross vehicle weight of a truck delivering material to the job site exceeds the gross vehicle load limit for which the vehicle is licensed by more than 1000 pounds, as determined by scale tickets, the City will not pay for that material which exceeds the load limit.

- (i) Replace the last paragraph of Section 1-07.14 Responsibility for Damage with the following:

Indemnification / Hold Harmless

The Contractor shall defend, indemnify and hold the City, its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising out of or in connection with the performance of this contract, except for injuries and damages caused by the sole negligence of the City.

Should a court of competent jurisdiction determine that this contract is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Contractor and the City, its officers, officials, employees, and volunteers, the Contractor's liability hereunder shall be only to the extent of the Contractor's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes the Contractor's waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of this contract.

- (j) Add the following to Section 1-07.17 Utilities and Similar Facilities:

The Northwest Utility Notification Center provides a one call number for requesting location of underground utilities. The number is 1-800-424-5555, (or 811).

- (k) Replace Section 1-07.18 Public Liability and Property Damage Insurance with the following:

1.07.18 Insurance Requirements For Contractors

BIDDERS' ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW. IT IS HIGHLY RECOMMENDED THAT BIDDERS CONFER WITH THEIR RESPECTIVE INSURANCE CARRIERS OR BROKERS TO DETERMINE IN ADVANCE OF BID SUBMISSION THE AVAILABILITY OF INSURANCE

CERTIFICATES AND ENDORSEMENTS AS PRESCRIBED AND PROVIDED HEREIN. IF AN APPARENT LOW BIDDER FAILS TO COMPLY STRICTLY WITH THE INSURANCE REQUIREMENTS, THAT BIDDER MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, their agents, representatives, employees or subcontractors. The cost of such insurance shall be included in the Contractor's bid.

No Limitation.

Contractor's maintenance of insurance, its scope of coverage, and limits as required herein shall not be construed to limit the liability of the Contractor to the coverage provided by such insurance, or otherwise limit the City's recourse to any remedy available at law or in equity.

(1) **Minimum Scope of Insurance**

Contractor shall obtain insurance of the types and coverage described below:

- (aa) Automobile Liability insurance covering all owned, non-owned, hired and leased vehicles. Coverage shall be written on Insurance Services Office (ISO) form CA 00 01 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage.
- (bb) Commercial General Liability insurance shall be written on ISO occurrence form CG 00 01 and shall cover liability arising from premises, operations, stop gap liability, independent contractors, products-completed operations, personal injury and advertising injury, and liability assumed under an insured contract. The Commercial General Liability insurance shall be endorsed to provide a per project general aggregate limit using Endorsement ISO form CG 25 03 05 09 or an equivalent endorsement. There shall be no exclusion for liability arising from explosion, collapse or underground property damage. The City shall be named as an additional insured under the Contractor's Commercial General Liability insurance policy with respect to the work performed for the City using ISO Additional Insured Endorsement CG 20 10 10 01 and Additional Insured-Completed Operations Endorsement CG 20 37 10 01 or substitute endorsements providing at least as broad coverage.
- (cc) Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington.

(2) **Minimum Amounts of Insurance**

Contractor shall maintain the following insurance limits:

- (aa) Automobile Liability insurance with a minimum combined single limit for bodily injury and property damage of \$1,000,000 per accident.
- (bb) Commercial General Liability insurance shall be written with limits no less than \$1,000,000 each occurrence, \$2,000,000 general aggregate and a \$2,000,000 products-completed operations aggregate limit.

(3) Full Availability of Contractor Limits

If the Contractor maintains higher insurance limits than the minimums shown above, the City shall be insured for the full available limits of Commercial General and Excess or Umbrella liability maintained by the Contractor, irrespective of whether such limits maintained by the Contractor are greater than those required by this contract or whether any certificate of insurance furnished to the City evidences limits of liability lower than those maintained by the Contractor.

(4) Other Insurance Provisions

The Contractor's Automobile Liability and Commercial General Liability insurance policies are to contain, or be endorsed to contain that they shall be primary insurance as respect the City. Any insurance, self-insurance, or self-insured pool coverage maintained by the City shall be excess of the Contractor's insurance shall not contribute with it.

(5) Contractor's Insurance for Other Losses

The Contractor shall assume full responsibility for all loss or damage from any cause whatsoever to any tools, Contractor's employee owned tools, machinery, equipment, or motor vehicles owned or rented by the Contractor, or the Contractor's agents, suppliers or contractors as well as to any temporary structure, scaffolding and protective fences.

(6) Waiver of Subrogation

The Contractor and the City waive all rights against each other, any of their Subcontractors, Sub-subcontractors, agents and employees, each of the other, for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to the Insurance Requirements Section of this Contract or other insurance applicable to the work. The policies shall provide such waivers by endorsement or otherwise.

(7) Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best rating of not less than A:VII.

(8) Verification of Coverage

Contractor shall furnish the City with original certificates and a copy of the amendatory endorsements, including but not necessarily limited to the additional insured endorsement, evidencing the Automobile Liability and Commercial

General Liability insurance of the Contractor before commencement of the work. A completed Insurance Coverage Questionnaire shall be attached to the Certificate of Insurance. Upon request by the City, the Contractor shall furnish certified copies of all required insurance policies, including endorsements, required in this contract and evidence of all subcontractors' coverage.

(9) Subcontractors

The Contractor shall cause each and every Subcontractor to provide insurance coverage that complies with all applicable requirements of the Contractor-provided insurance as set forth herein, except the Contractor shall have sole responsibility for determining the limits of coverage required to be obtained by Subcontractors. The Contractor shall ensure that the City is an additional insured on each and every Subcontractor's Commercial General liability insurance policy using an endorsement at least as broad as ISO Additional Insured endorsement CG 20 38 04 13.

(10) Notice of Cancellation

The Contractor shall provide the City and all Additional Insureds for this work with written notice of any policy cancellation, within two business days of their receipt of such notice.

(11) Failure to Maintain Insurance

Failure on the part of the Contractor to maintain the insurance as required shall constitute a material breach of contract, upon which the City may, after giving five business days notice to the Contractor to correct the breach, immediately terminate the contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, with any sums so expended to be repaid to the City on demand, or at the sole discretion of the City, offset against funds due the Contractor from the City.

- (l) Insert the following before the first sentence of the third paragraph in Section 1-09.6(3) Force Account for Equipment:

Rental rates for equipment that is locally available shall be established at prevailing local rates.

- (m) Insert the following after the second sentence in Section 1-09.6(5) Force Account Mobilization:

The City will pay mobilization and demobilization to the nearest piece of equipment available from any source. If the Contractor chooses to bring in his own equipment from a greater distance, mobilization-demobilization shall be compensated based on the distance to the nearest equipment available.

- (n) In Section 1-09.11(3) replace "State of Washington" and "State" with "City of Pullman" and replace "Thurston County" with "Whitman County".

- (o) Replace Section 1-09.13 with the following:

Claims submitted in accordance with Section 1-09.11 not resolved through negotiation shall be resolved through litigation with venue in Whitman County.

- (p) Insert the following initial sentence to 1-10.2(1)B:

This section shall apply only when included by the Contract Special Provisions

2. Division 2 of the Standard Specifications is revised and augmented as follows:

- (a) The compaction requirements of Sections 2-03.3(14)C; 2-03.3(14)I; 2-06.3 and 2-09.3 shall be amended as follows:

Earth embankments and backfill of excavations not under pavement or other structures shall be compacted to 80 percent of maximum density as provided in Section 2-03.3(14)D Amended.

Earth embankments and backfill of all excavations under pavements or other structures shall be compacted to 90 percent of maximum density as provided in Section 2-03.3(14)D Amended to 6 inches below subgrade. The zone from subgrade to 6 inches below subgrade shall be compacted to 95 percent of maximum density as provided in 2-03.3(14)D Amended.

All base materials above subgrade shall be compacted to 95 percent of maximum density as provided in Section 2-03.3(14)D Amended.

In-place density and moisture content shall be determined by nuclear densometer.

- (b) Replace Section 2-03.3(14)D Compaction and Moisture Control Tests with the following:

Maximum density and optimum moisture content will be determined using ASTM test method D1557 (modified proctor).

- (c) Add new Section 2-07.2 Construction Water as follows:

The Contractor may obtain water from a City fire hydrant (at no cost on City funded projects), by requesting a special hydrant outlet a minimum of 48 hours in advance. The outlet shall be used only by the Contractor and only for the project specified. The Contractor shall not operate the fire hydrant. Flow control shall be accomplished by means of the outlet valve provided. The Contractor shall furnish hoses and other transport equipment.

- (d) Replace the text of “Controlled Density Fill (CDF) or Controlled Low-Strength Material (CLSM) in Section 2-09.3(1)E Backfilling with the following:

Controlled density fill shall meet the following requirements:

<u>Ingredients</u>	<u>Amount Per Cubic Yard</u>
Portland cement	94 pounds
Aggregate class 1 or 2	3,000 pounds

Entrained air
Water

8 percent minimum
40 gallons maximum

3. Division 3 of the Standard Specifications is revised and augmented as follows:

(a) Replace the first three paragraphs of Section 3-01.5 Measurement with the following:

For payment purposes, all crushed, screened, or naturally occurring materials that are to be paid for by the ton shall be measured in accordance with Section 4-04.4.

4. Division 4 of the Standard Specifications is revised and augmented as follows:

(a) Replace the first paragraph of Section 4-04.4 Measurement with the following:

Crushed surfacing top course, base course, ballast, and gravel base, when processed at a central plant, will be measured by the ton.

5. Division 5 of the Standard Specifications is revised and augmented as follows:

(a) Add the following to Section 5-04.3 Construction Requirements:

Hot mix asphalt shall be ½" Commercial mix unless specified otherwise in the contract.

An approved paving contractor shall perform all asphalt paving and patching. Utility covers, except for survey monuments, located in the pavement shall be adjusted to final grade before the final lift of pavement is placed.

(b) Delete the second paragraph of 5-04.3(3).

(c) Delete 5-04.3(3)A.

(d) Add the following to Section 5-04.3(12) Joints:

At the end of the workday, there shall be no longitudinal joint in the wearing course with an exposed length in excess of 25 feet.

(e) Add the following to Section 5-05.3 Construction Requirements:

An approved paving contractor shall perform all concrete paving and patching.

(f) Replace Section 5-05.3(13) Curing with the following:

Immediately after finishing operations have been completed and as soon as marring of the concrete will not occur, the entire surface of the newly placed concrete shall be coated with a cure and seal product as specified in 6-02.3(11) as amended herein.

6. Division 6 of the Standard Specifications is revised and augmented as follows:

(a) Replace Section 6-02.3(2)B Commercial Concrete with the following:

Commercial concrete shall meet the following requirements:

Coarse aggregate grading #5
564 pounds per cubic yard minimum cement content
0.49 maximum water/cement ratio
4-inch maximum slump
5 – 8 percent entrained air measured at the job site
3,000 psi minimum 28-day compressive strength

The Contractor may add up to 75 pounds per cubic yard of fly ash to the mix. Fly ash shall not be substituted for Portland cement. The Contractor shall provide a mix design to the Engineer for approval a minimum of 7 days prior to proposed use.

- (b) Replace Section 6-02.3(11) Curing Concrete with the following:

Immediately after finishing and/or the disappearance of the “sheen” of surface water, concrete surfaces shall be uniformly and completely coated with an approved, clear, acrylic copolymer curing and sealing compound such as Rez-Seal 800 (14% solids minimum) manufactured by Euclid Chemical Co. in accordance with manufacturer’s recommendations. To be approved, alternate products shall be the same product type and provide the same deposition of solids and performance.

7. Division 7 of the Standard Specifications is revised and augmented as follows:

- (a) The compaction requirements of Division 7 shall be amended pursuant to Section C:2.(a) of these Standard Construction Specifications.

- (b) Replace the last three paragraphs of Section 7-01.2 Materials with the following:

Drainpipes up to 27 inches in diameter shall be solid wall PVC pipe that meets the requirements of 9-05.12(1), unless specifically approved otherwise by the Engineer. Larger diameter pipes shall be as specified by the Engineer.

- (c) Add the following to Section 7-09.2 Materials:

Pipe for water mains shall be ductile iron or PVC conforming to Sections 9-30.1(1) and 9-30.1(5), respectively, unless specifically approved otherwise by the Engineer. Restrained joints shall be used only with approval by the Engineer.

- (d) Replace the last sentence of the first paragraph of Section 7-09.3(23) Hydrostatic Pressure Test with the following:

The City will provide necessary labor, test pump, gauges and water to perform pressure tests of all water pipelines. The Contractor shall provide excavations, thrust blocking, test plugs, pump and air relief connections, traffic control and all other items needed to meet the requirements of this section. The Contractor shall have all pipe, fittings, and thrust block installation sufficiently complete to allow the testing to occur, prior to calling out the Engineer to perform the pressure test. The Contractor shall request pipe testing a minimum of 48 hours in advance.

- (e) Add the following after the second sentence of the eleventh paragraph of Section 7-09.3(23) Hydrostatic Pressure Test:

If the utility pipeline being tested fails the initial pressure test, the Contractor shall reimburse the City for labor, material, and equipment costs for additional pressure testing and additional flushing of water pipelines on a time and material basis.

- (f) Replace Section 7-09.3(24) Disinfection of Water Mains with the following:

7-09.3(24) Disinfection of Water Mains

New water lines and extensions of water lines in excess of 20 feet in length shall satisfactorily pass bacteriological tests before the new mains or extensions are connected to the existing water system. Main extensions shorter than 20 feet and sections of pipe and fittings used to connect new water mains to the existing water system shall be soaked 24 hours in a 50 mg/l chlorine solution. In addition the connecting pipe and fittings shall be swabbed with a calcium hypochlorite paste immediately before they are installed.

The Contractor shall dose all lengths of pipe with dry, high test calcium hypochlorite (65-70% chlorine) as the pipeline is constructed. The dosage rate in grams of 65% test calcium hypochlorite per 20 foot length of pipe equals

$$0.008431 \times d^2$$

in which "d" is the diameter in inches.

The Contractor shall request pipe testing a minimum of 48 hours in advance. The City will provide necessary equipment and labor, water and materials to flush and perform bacteriological tests of all water pipelines. Disinfection, flushing and testing shall be performed as recommended by the American Water Works Association. The Contractor shall provide excavations, thrust blocking, traffic control, plugs, caps, fittings, and the other items needed to meet the requirements of this section. The Contractor shall provide a tank truck to receive and dispose of flushing water if a sanitary sewer is not readily available.

If the utility pipeline being tested fails the initial bacteriological test, the Contractor shall reimburse the City for labor, material, and equipment costs for additional bacteriological testing and additional flushing of water pipelines on a time and material basis. The Engineer may order a second bacteriological test at his discretion 48 hours after final connections are made and before the new line is placed in service. The City will pay the cost of this test. If this test fails, costs of flushing and additional tests shall be the responsibility of the Contractor.

- (g) Delete Sections 7-09.3(24)A through 7-09.3(24)O.

- (h) Replace the first paragraph of Section 7-17.2 Materials with the following:

Pipe for sewer mains shall be ductile iron sewer pipe or solid wall PVC pipe conforming to Sections 9-05.13 and 9-05.12, respectively, unless specifically approved otherwise by the Engineer.

8. Division 9 of the Standard Specifications is revised and augmented as follows:

- (a) The requirements of Sections 9-02.2(1) and 9-02.2(2) are waived on non-federally funded projects using less than 3000 tons of asphalt concrete pavement.
- (b) The gradation for Top Course and Keystone in Section 9-03.9(3) Crushed Surfacing is replaced with the following:

<u>Sieve Size</u>	<u>Percent Passing</u>
1"	100
3/4"	94-100
1/4" square	55-75
U.S. No. 40	8-24
U.S. No. 200	10.0 max.
% Fracture	75 min.
Sand Equivalent	35 min.

- (c) Replace Section 9-03.12(3) Gravel Backfill for Pipe Zone Bedding with the following:

Gravel backfill for pipe bedding shall meet the requirements for crushed surfacing top course in Section 9-03.9(3) Amended.
- (d) Replace Section 9-05.1(5) PVC Drain Pipe, Couplings and Fittings with the following:

PVC pipe for drains shall meet the requirements of Section 9-05.12.
- (e) Add the following sentence to 9-30.2(1) Ductile Iron Pipe:

All fittings and valves shall be mechanical joint unless otherwise shown on the construction drawings.
- (f) Replace the last sentence of 9-30.3(8) with the following:

Tapping sleeves shall be stainless steel.
- (g) Replace the last paragraph of section 9-30.6(4) Service Fittings with the following:

Fittings used for polyethylene tubing shall be compression type with stainless steel liners.

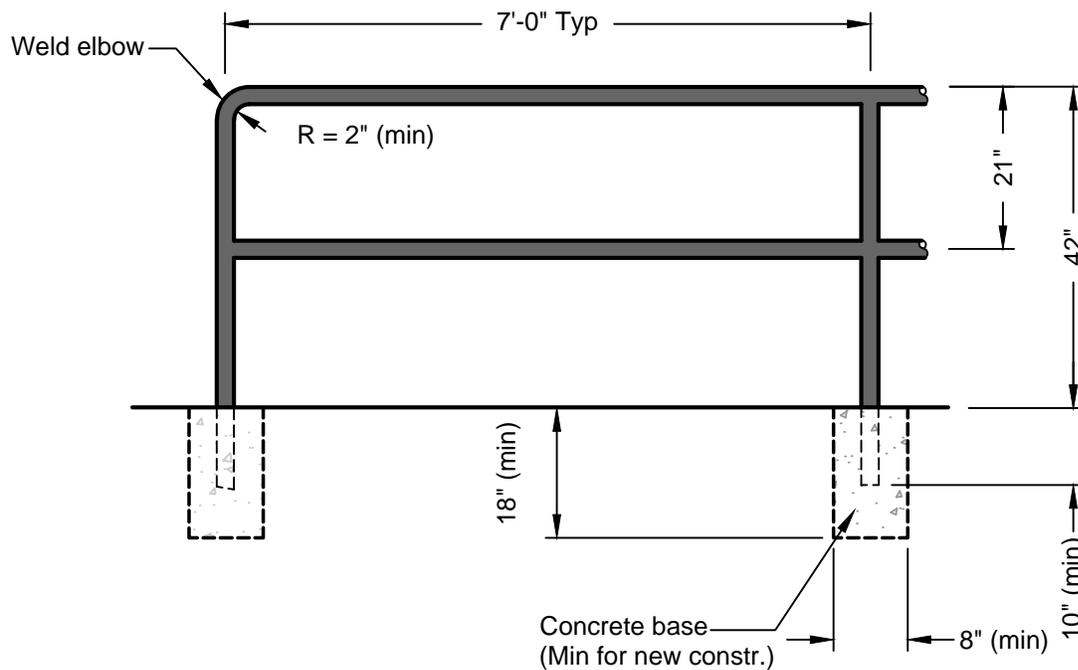
**CITY OF PULLMAN
STANDARD ABBREVIATIONS**

@	at	L.S.	lump sum
A.C.	asphalt concrete	Lt.	left
ACP	asphalt concrete pavement	Max.	maximum
Aggr.	aggregate	MH	manhole
Asph.	asphalt	Min.	minimum
Bldg.	building	N	north
BM	benchmark	No.	number
Bng.	bearing	Pavt.	pavement
CL	centerline	PC	point of curvature
CAP	corrugated aluminum pipe	PCC	portland cement concrete
C.B.	catch basin	PI	point of intersection
C.F.	cubic foot	PT	point of tangency
Cl.	class	Rt.	right
CI.	cast iron	S	south
CMP	corrugated metal pipe	San.	sanitary
Conc.	concrete	S.D.	storm drain
Const.	Construct, construction	Sdwk.	sidewalk
CSTC	crushed surfacing top course	S.F.	square foot
CSBC	crushed surfacing base course	Sht.	sheet
C.Y.	cubic yard	Spec.	specifications
Dr.	drive	St.	street
Drwy.	driveway	Sta	station
Dwg.	drawing	Std.	Standard
E	east	S.Y.	square yard
Ea.	each	T.	ton
Elev.	elevation	Typ.	typical
EOP	edge of pavement	VC	vertical curve
Exc., Excav.	excavate; excavation	W	west
Exist.	existing	Yd.	Yard
FH	fire hydrant		
Fin.	finish; finished		
Ft.	foot		
HMA	hot mix asphalt		
In.	inch		
Inv.	invert		
Jt.	joint		
Lb.	pound		
L.F.	linear foot		

STANDARD CONSTRUCTION DRAWINGS

CONTENTS

1. PEDESTRIAN RAILING
2. ASPHALT SECTION FOR RESIDENTIAL STREETS
3. CONCRETE SECTION FOR RESIDENTIAL STREETS
4. CONCRETE PAVEMENT JOINT ALTERNATIVES
5. CURB AND GUTTER
6. STANDING CURB
7. ROLLED CURB AND GUTTER
8. CURB AND SIDEWALK LAYOUT
 - 8A. DRIVEWAY CROSSINGS - A
 - 8B. DRIVEWAY CROSSINGS - B
 - 8C. DRIVEWAY CROSSINGS - C
 - 8D. DRIVEWAY CROSSINGS - D
9. CURB RAMP DETAILS
10. MANHOLE FRAME AND COVER
11. VALVE BOX AND COVER
12. MONUMENT DETAILS
13. CATCH BASIN FRAME AND GRATE
14. FIRE HYDRANT
15. SADDLE BLOCK
16. AIR VALVE
17. BLOWOFF ASSEMBLY
18. GRAVITY THRUST BLOCK DESIGN
19. BEARING THRUST BLOCK DESIGN
20. MANHOLE, 48 INCH DIAMETER
21. STANDARD UTILITY TRENCH AND PIPELINE PLACEMENT
22. CATCH BASIN
23. UTILITY COVER ADJUSTMENT
24. SIDE SEWER INSTALLATION
25. DROP MANHOLE
26. SEWER TAP OPTIONS FOR EXISTING MAINS
27. PROPERTY PINS & MONUMENTS INSTALLATION
28. VALLEY GUTTER
29. SILT FENCE
30. STRAW BALE BARRIER
31. EXAMPLE EROSION CONTROL PLAN MAP
32. SILT TRAP SACK
33. EROSION CHECK DAMS
34. Blank Sheet
35. CONSTRUCTION ENTRANCE



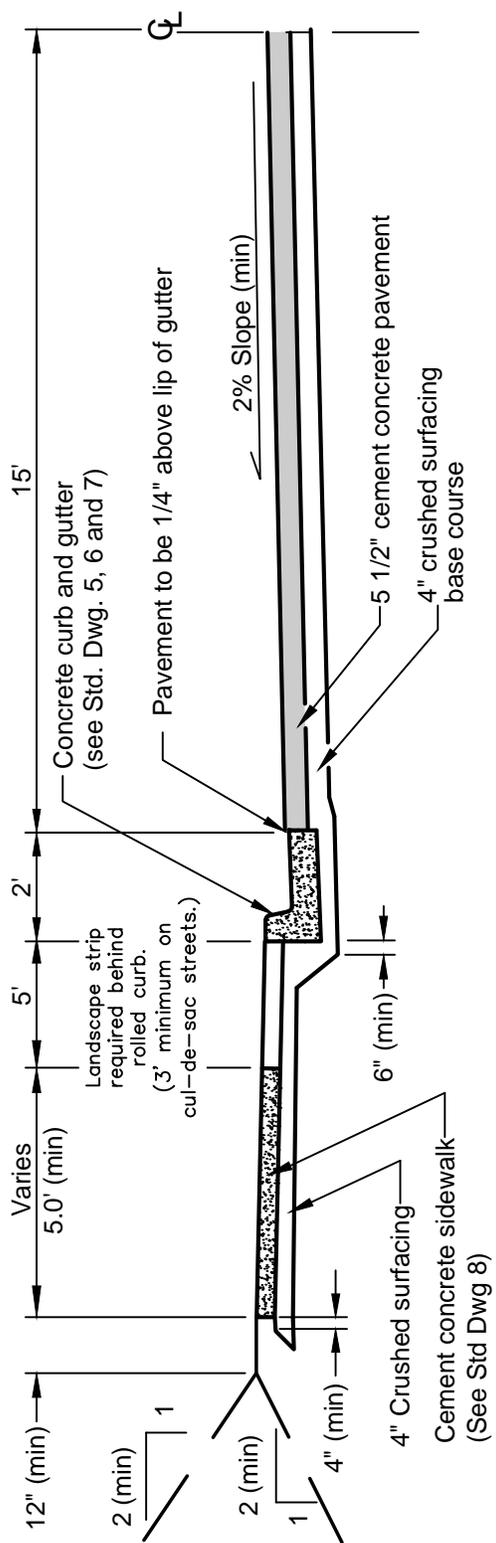
NOTES:

1. Top railing shall be 2 inch schedule 40 clean black steel pipe. Stanchions and intermediate rails shall be 1-1/2 inch (min) schedule 40 clean black steel pipe.
2. Weld pipe joints. Remove all sharp edges and burrs.
3. Stanchions shall be welded, bolted, grouted, or otherwise firmly set to prevent movement of the rail. Stanchions for new construction shall be set in concrete as shown above.
4. Stanchions shall be vertical regardless of the slope of the wall, sidewalk, or ground surface.
5. The installed railing shall be solvent-cleaned, made free of rust or other contaminants, and coated with gloss black Sherwin-Williams Kem-400 coating # F75B401, or Sher-Kem coating # 6016-49349387, or approved equal.
6. Total dry paint film thickness shall be no less than 4.5 mils.
7. Alternate materials may be used with the prior approval of the engineer.

PEDESTRIAN RAILING

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TYPICAL HALF-SECTION

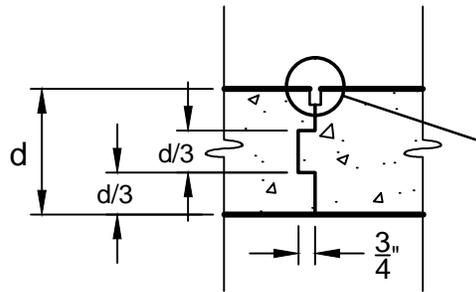
NOTES:

1. Section as drawn is symmetrical about the centerline.
2. All thickness dimensions are minimums.
3. In solid rock, the cut slope may be steepened from 2 : 1 to 1/2 : 1.
4. In cuts greater than 6 feet in height, acceptable side slopes will be determined by the Engineer based on engineering analysis.
5. Curb and gutter may be cast integrally with the pavement.
6. Compact the top 6 inches of subgrade to 95% (min) of maximum theoretical density per ASTM D1557 (Modified Proctor Method).

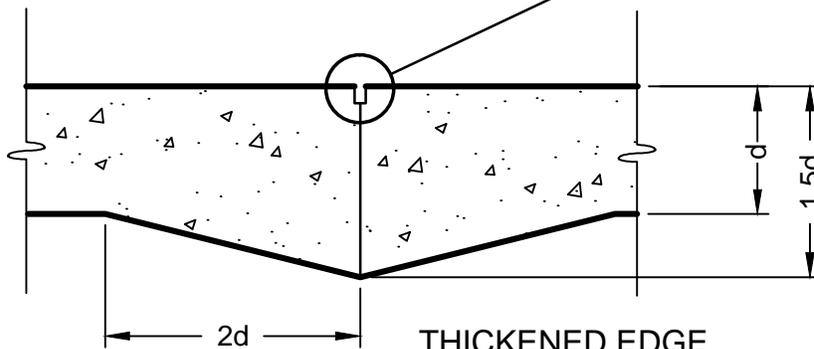
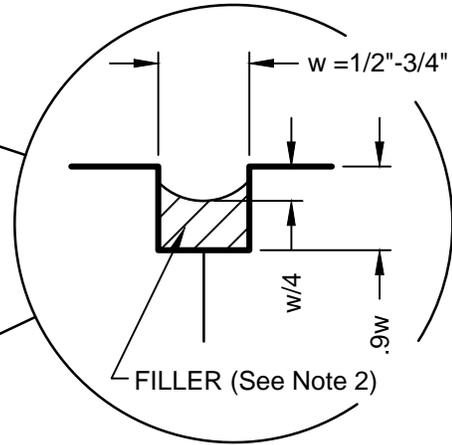
CONCRETE SECTION FOR RESIDENTIAL STREETS

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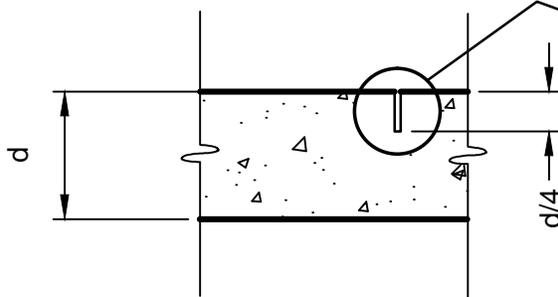


KEYED CONSTRUCTION JOINT

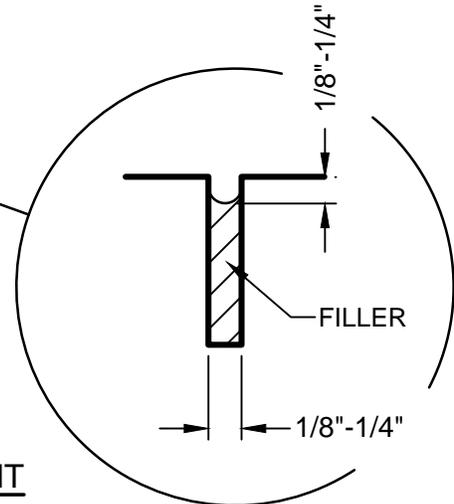


THICKENED EDGE CONSTRUCTION JOINT

d = Depth of Concrete



CONTROL JOINT



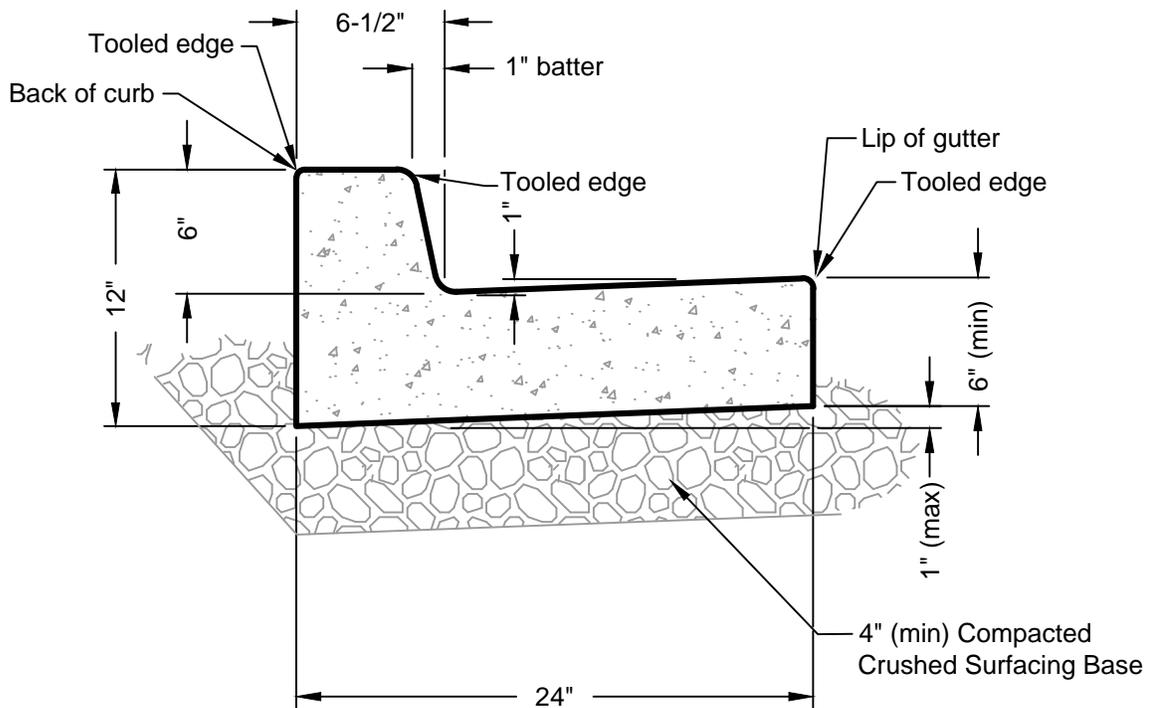
NOTES:

1. Control joints may be tooled, impressed, or sawn.
2. Sawn or open tooled joints shall be filled with approved elastomeric filler.

CONCRETE PAVEMENT JOINT ALTERNATIVES

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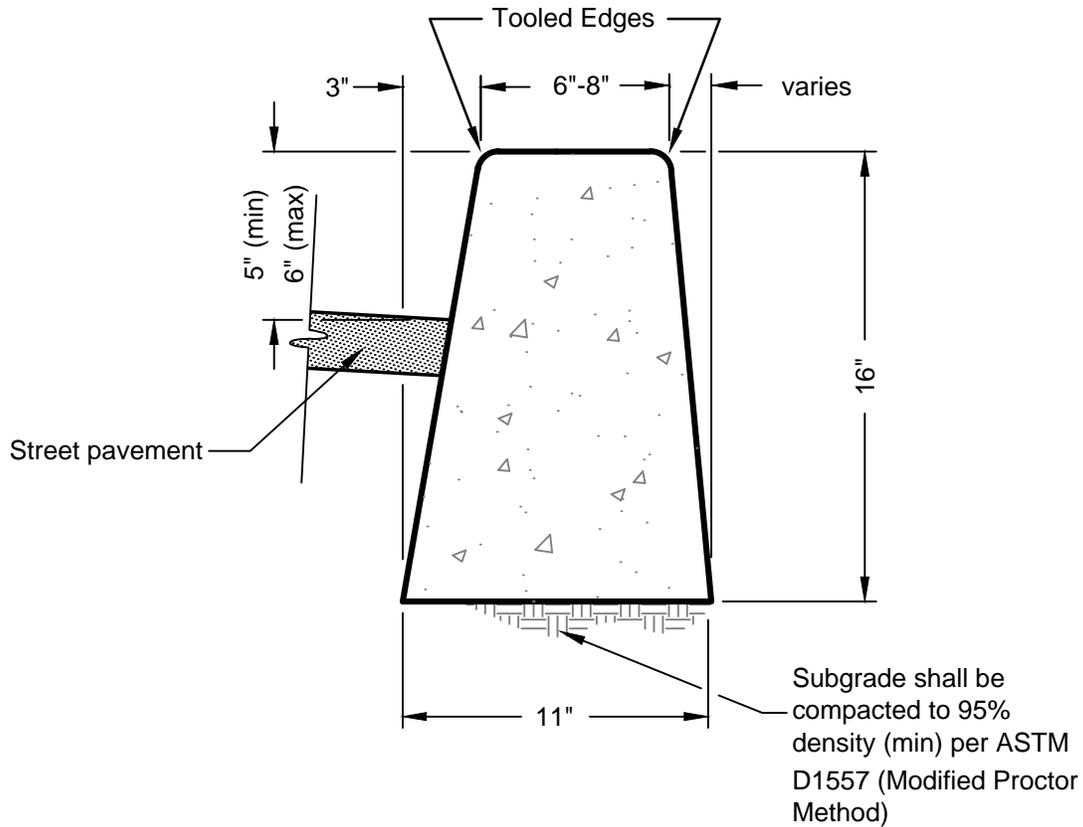
4



TYPICAL SECTION

NOTES:

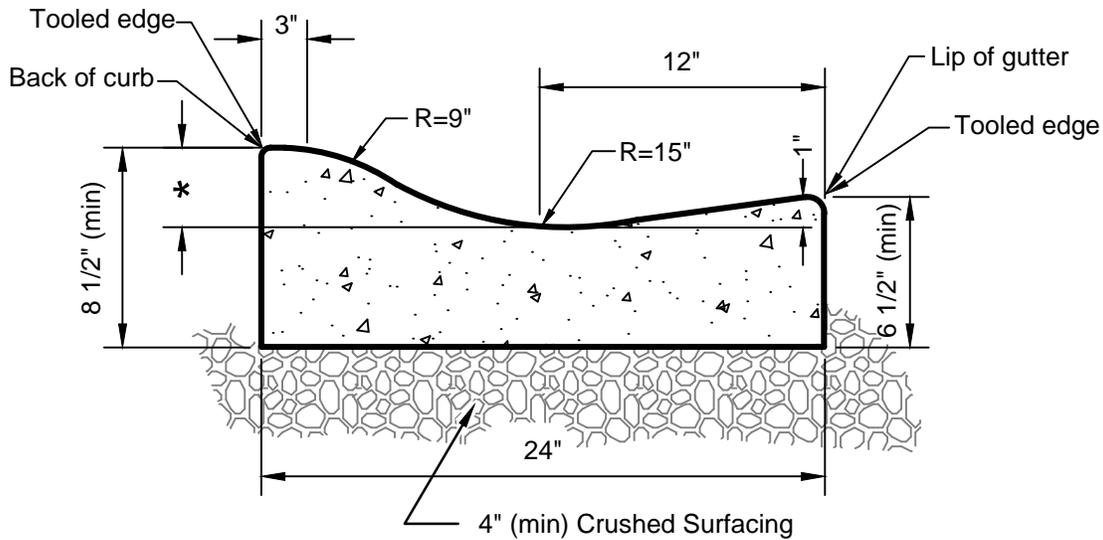
1. Control joints with tooled edges shall be cut 1/4 to 1/3 the section depth at 10-foot intervals or as directed by the Engineer. Curb joints shall match street joints when adjacent to concrete pavement. Curb joints shall match adjacent sidewalk joints.
2. Through joints and full form plates shall not be used except where specifically approved by the Engineer.
3. All exposed corners shall be tooled to a 1/2-inch (min) radius.
4. Do not use expansion joints.
5. Construction stakes shall establish the back of curb for horizontal control and lip of gutter for vertical control.



TYPICAL SECTION

NOTES:

1. Control joints with tooled edges shall be cut 1/4 to 1/3 of the section depth at 10 foot intervals. Curb joints shall match street joints when adjacent to concrete street pavement. Curb joints shall match adjacent sidewalk joints.
2. Through joints and full form plates shall not be used except where specifically approved by the engineer.
3. All exposed corners shall be finished to a 1/2 inch minimum radius.
4. Do not use expansion joints
5. Construction stakes shall establish the top back of curb for horizontal and vertical control.
6. Standing curb shall be used only where the existing curb is predominantly standing curb and will require the City Inspector's approval.



* 2 1/2" (min), 3 1/2" (max)

TYPICAL SECTION

NOTES:

1. Rolled curb and gutter shall not be used:
 - A. On streets in commercial and industrial zoned areas.
 - B. On streets with longitudinal (lengthwise) grades in excess of 10 percent.
 - C. On any arterial.
 - D. Without prior approval of the Engineer.
2. Changes from standard curb and gutter to rolled curb require a smooth transition of 30 inches minimum length.
3. Joint spacing, base rock, and materials shall be as for standard curb and gutter.
4. Control joints with tooled edges shall be cut 1/4 to 1/3 of the section depth at 10-foot intervals, or as directed by the Engineer. Curb joints shall match street joints when adjacent to concrete pavement.
5. All exposed edges shall be tooled to a 1/2-inch radius (min).
6. Catch basins in rolled curb and gutter shall be similar in material and dimensions to standard frames and grates, but with no hood, and with a cross section approximating that of the rolled curb and gutter. Use East Jordan Iron Works 7711 Series, D&L I-4444-01 or approved equal.
7. Standard curb ramps are required in rolled curb.
8. Do not use expansion joints.
9. Construction stakes shall establish the back of curb for horizontal control and the lip of gutter for vertical control.
10. Sidewalk adjacent to rolled curb requires a 5-foot-wide landscape strip between the back of curb and the sidewalk; 3-foot minimum on cul-de-sac streets.

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ZGS

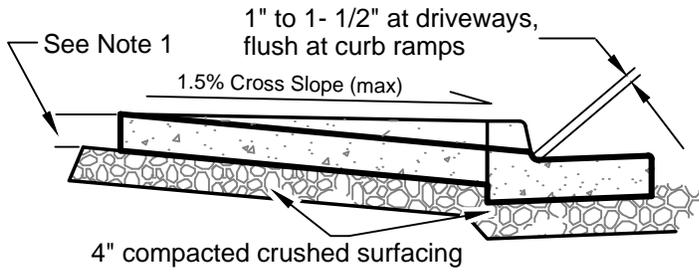
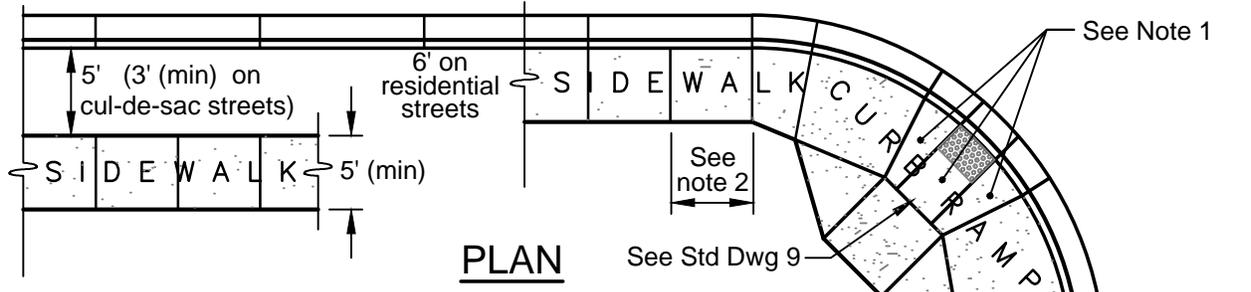
ROLLED CURB AND GUTTER

PAGE NO:

7

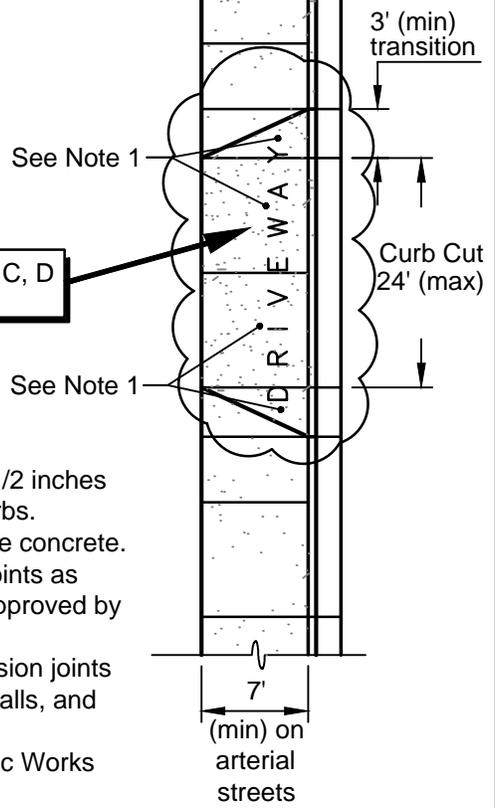
ROLLED CURB

CURB & GUTTER



SECTION AT CURB CUT

See Std. Dwg. Sheet 8-A , B, C, D for Example Layouts



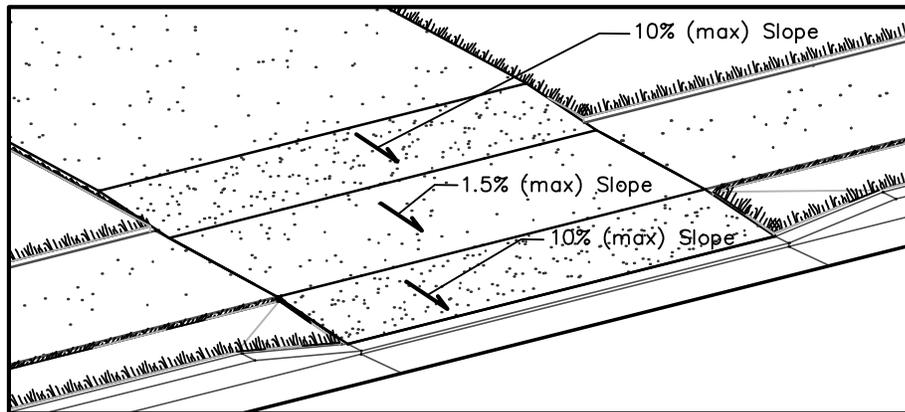
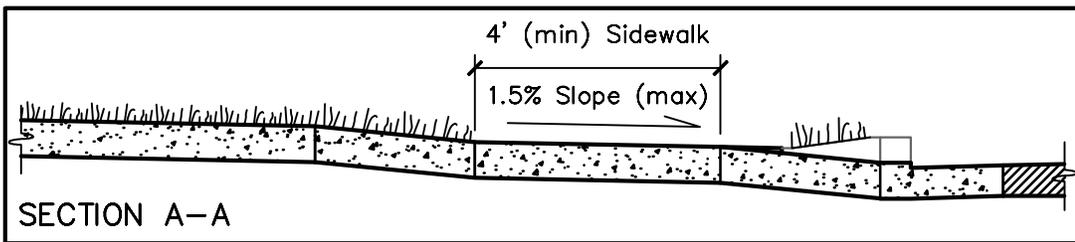
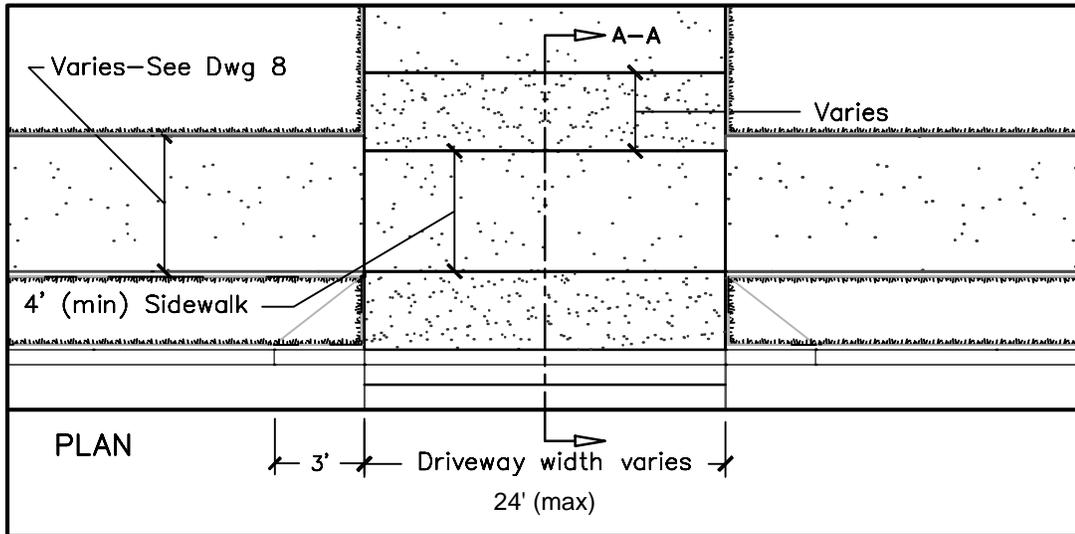
NOTES:

1. Sidewalks shall be 4 inches thick, except that they shall be 5-1/2 inches thick at curb cuts, curb ramps and where adjacent to rolled curbs.
2. Control joint depth shall measure 1/4 the thickness (min) of the concrete. Joint spacing shall be 5 feet on center, and shall match curb joints as shown. Joints shall continue through curb cuts at a spacing approved by the City Inspector.
3. Expansion joints are not allowed except where 3/8-inch expansion joints are required between sidewalk and structures. (Sign posts, Walls, and Hydrants for example)
4. Curb cuts wider than 24 feet require prior approval of the Public Works Director.
5. Driveways shall be constructed to provide a 4-foot minimum walkway with 2% maximum cross-slope through the driveway. The maximum slope for driveway ramps from the curb to the walkway is 10%. See Standard Drawing Sheets 8-A, 8-B, 8-C, and 8-D for Example Layouts.
6. Planter strips shall be a minimum 30 inches wide where used with standard curb and gutter, and 5 feet wide where used with rolled curb. Planter strips for cul-de-sac streets with rolled curb shall be a minimum 3 feet wide.

CURB AND SIDEWALK LAYOUT

PAGE NO:

8



NOTES:

1. Sidewalks shall be 4 inches thick, except that they shall be 5-1/2 inches thick at curb cuts, curb ramps and where adjacent to rolled curbs.

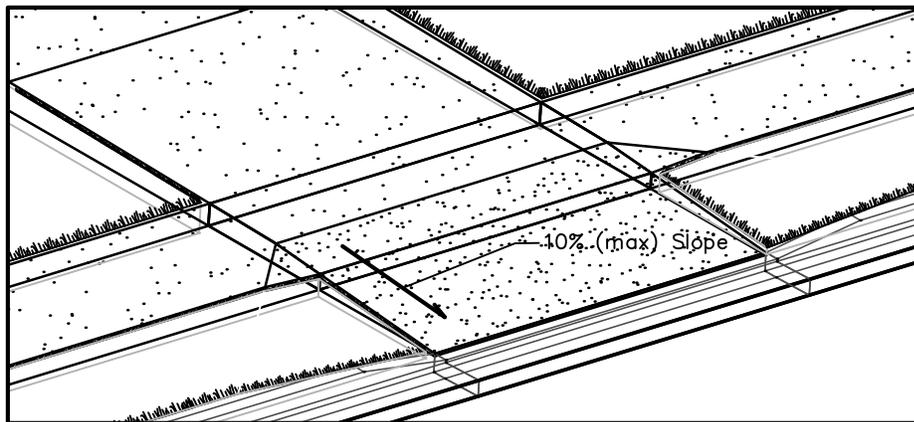
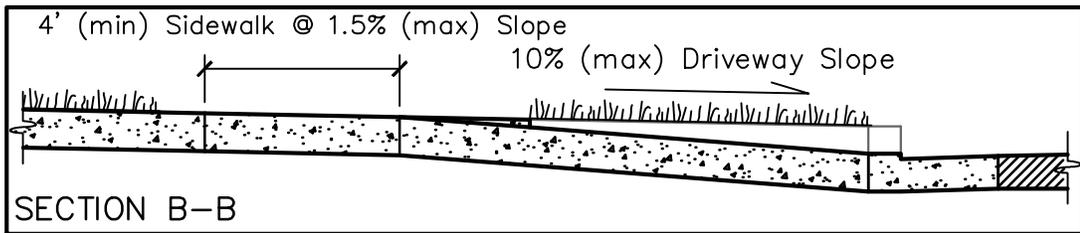
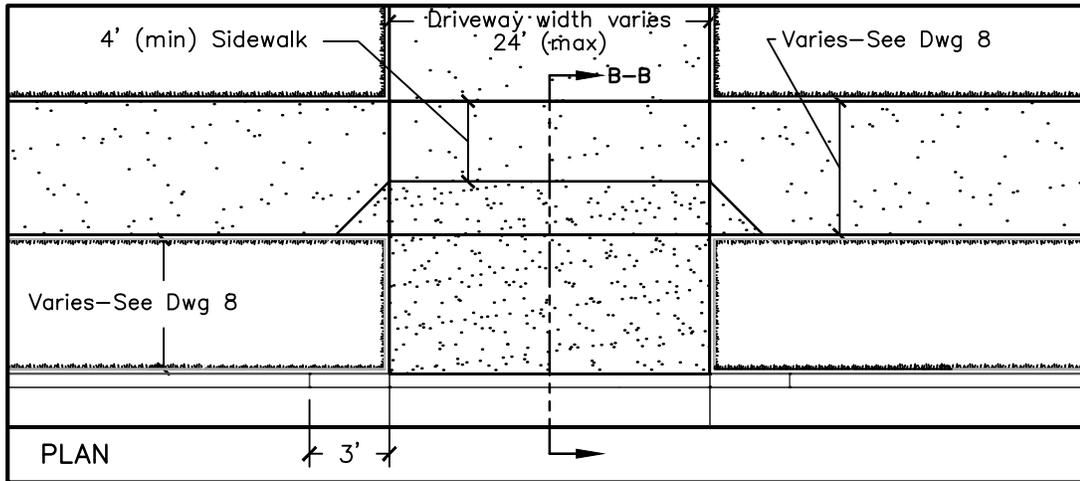
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nj-06

DRIVEWAY CROSSINGS - A
SPLIT APRON SIDEWALK

PAGE NO:

8A



NOTES:

1. Sidewalks shall be 4 inches thick, except that they shall be 5-1/2 inches thick at curb cuts, curb ramps and where adjacent to rolled curbs.

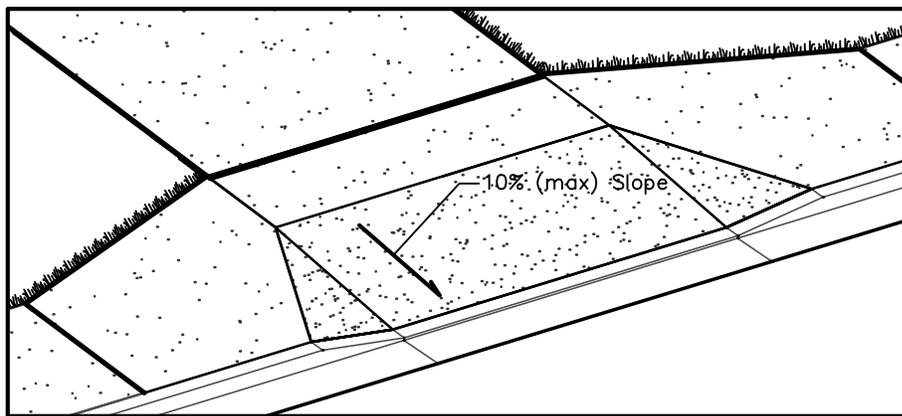
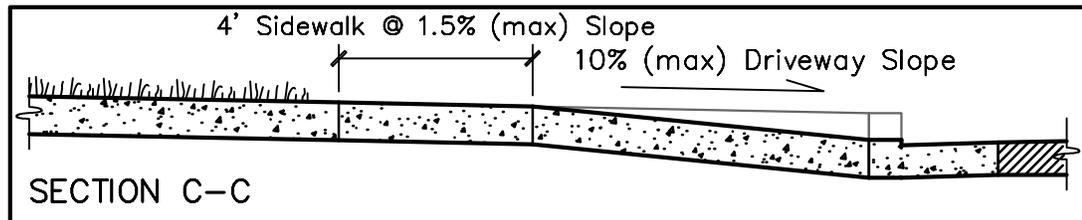
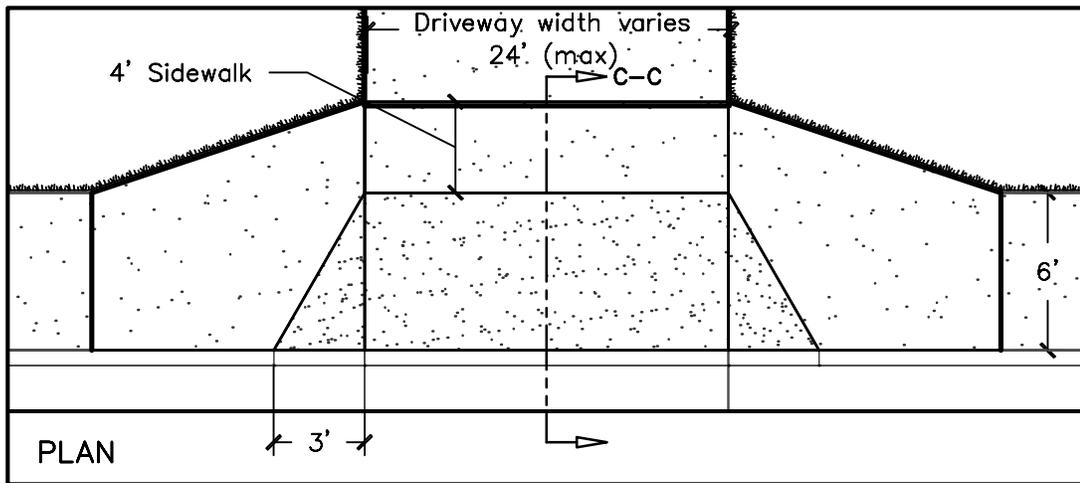
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DRIVEWAY CROSSINGS - B

PLANTING STRIP SIDEWALK

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8B



NOTES:

1. Sidewalks shall be 4 inches thick, except that they shall be 5-1/2 inches thick at curb cuts, curb ramps and where adjacent to rolled curbs.

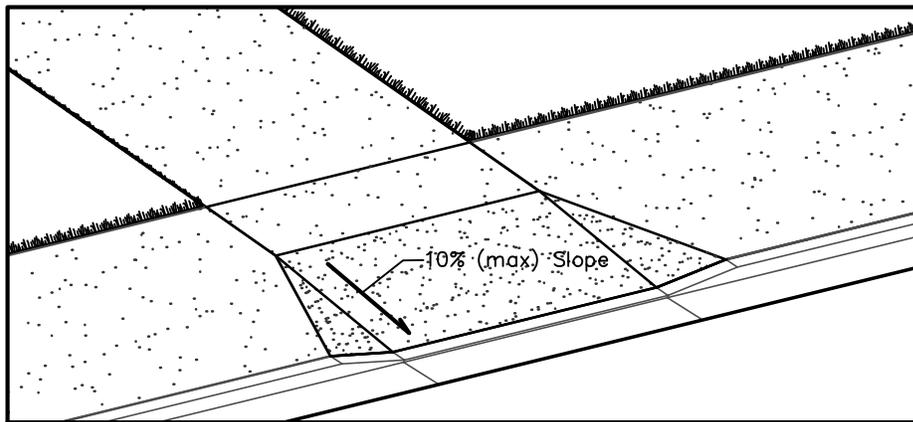
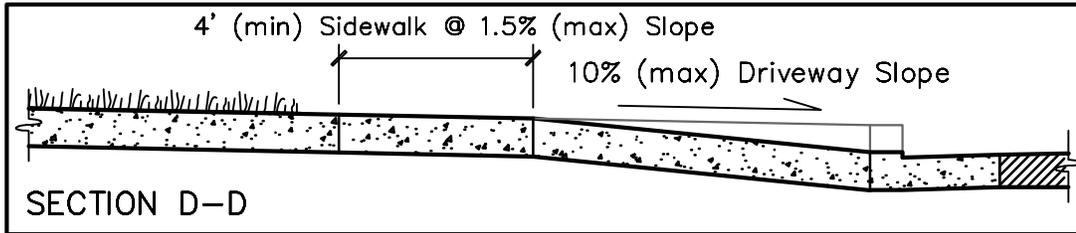
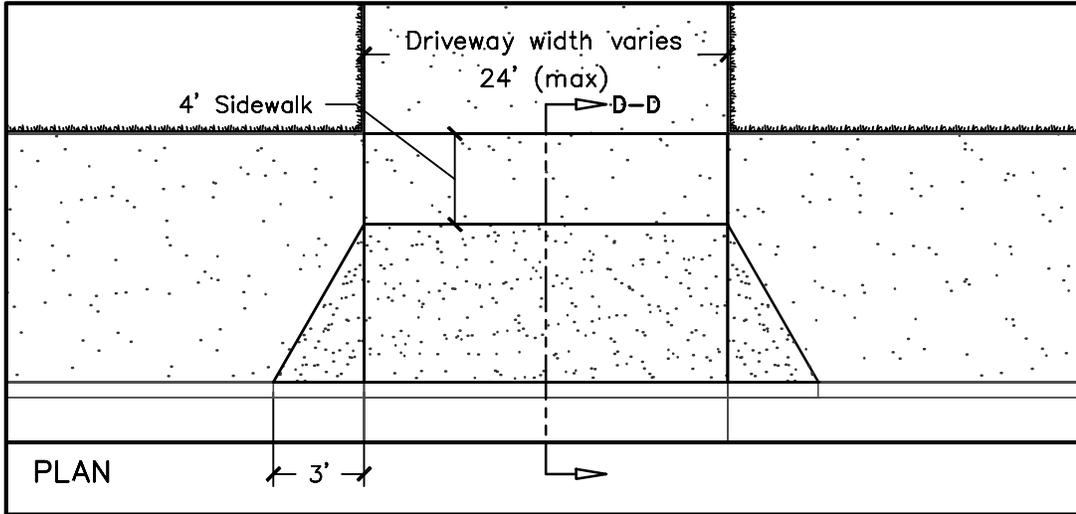
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DRIVEWAY CROSSINGS - C
JOGGED SIDEWALK

PAGE NO:

8C



NOTES:

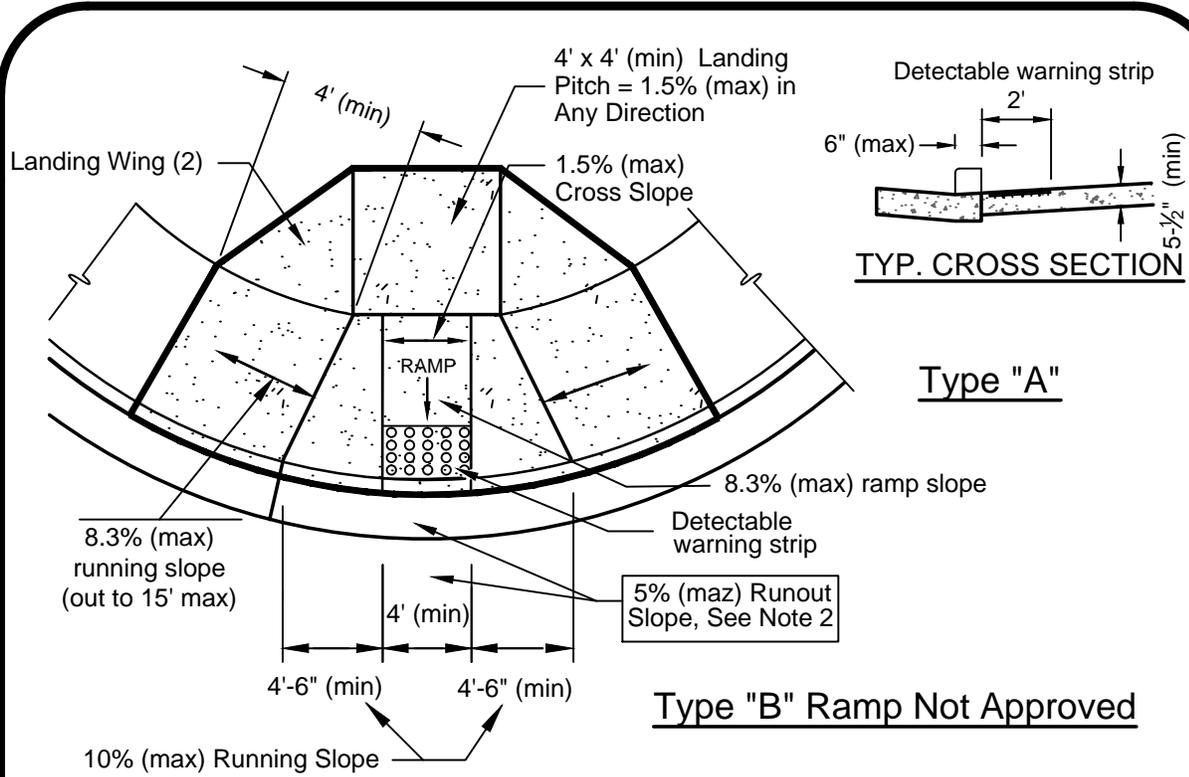
1. Sidewalks shall be 4 inches thick, except that they shall be 5-1/2 inches thick at curb cuts, curb ramps and where adjacent to rolled curbs.

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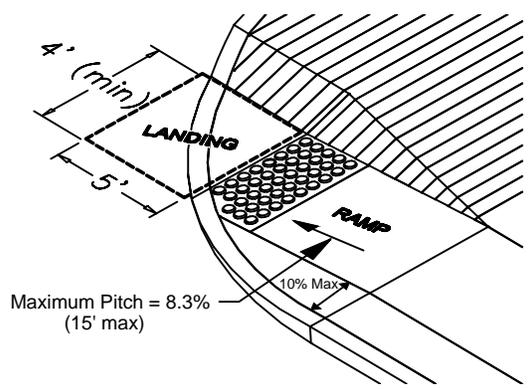
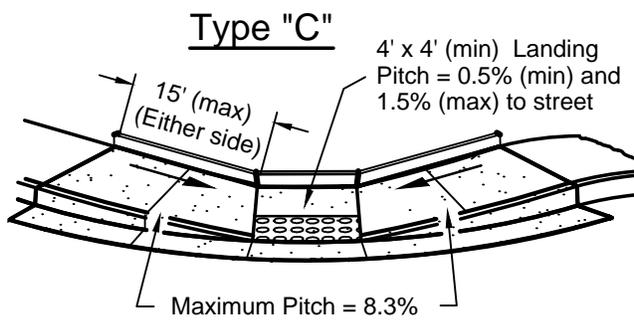
DRIVEWAY CROSSINGS - D
WIDE SIDEWALK

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8D



Type "B" Ramp Not Approved



NOTES:

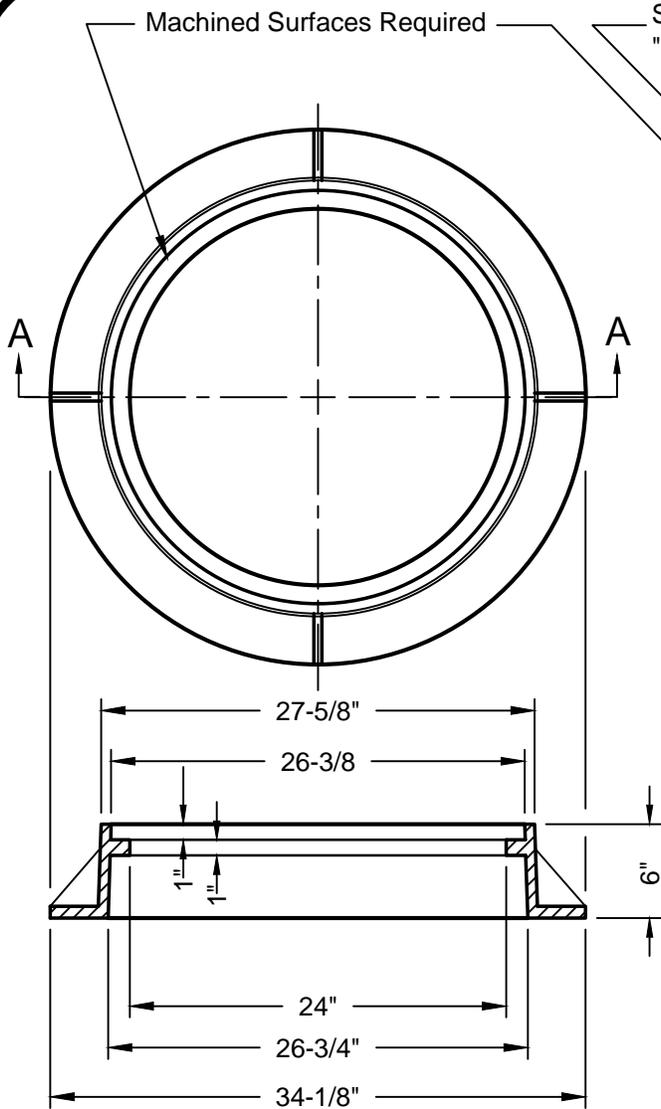
1. Ramp cross slopes and landing slopes shall not exceed 1.5%.
2. Ramps shall be flush with the gutter flow line. Maintain 5% (max) gutter slope at ramp.
3. Curb Ramps are required with all curb types.
4. Detectable warning strips shall consist of a 24" x [Ramp Width] truncated-dome style surface installed full width of ramp (at least one corner of leading edge shall be within 6" of the face of curb, but no other point on the leading edge of the warning strip shall be greater than 5' from back of curb). Color shall be Federal Yellow.
5. Construction of Type C ramps is allowed only where site conditions prevent construction of Type A ramps; obtain Engineer's approval before constructing Type C ramps.

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CURB RAMP DETAILS

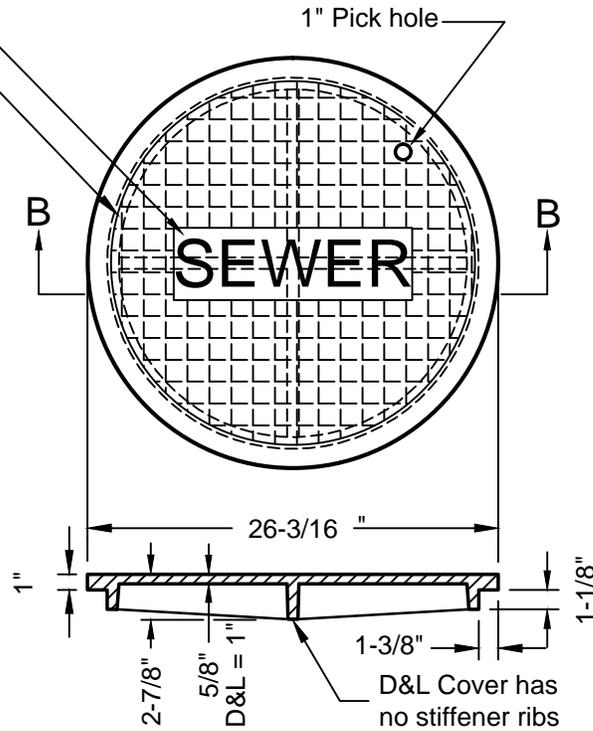
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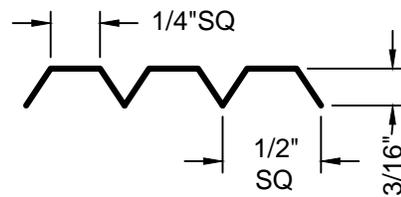


SECTION A-A

Specify appropriate lettering:
"SEWER", "STORM", OR "WATER".



SECTION B-B



**COVER ANTISKID
DESIGN DETAIL**

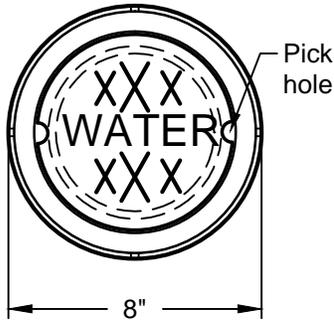
NOTES:

1. See Section 7-05 of the Standard Specifications for additional details.
2. Use East Jordan Iron Works B-25 Type 2 Lid, D & L A-2004-01(Sewer) / A-2004-04(Storm) / (Water), or approved equal;
Lid Material: ASTM A536 Class 80-55-06 ductile iron.
Frame shall be D & L A-2004, or approved equal;
Frame Material: ASTM A48 CI 35B grey iron
3. The Engineer may approve shorter frames down to 4 inch (min) where shallow sewers limit adjustments above standard cones.
4. Adjust frame to grade so that top of lid is 1/4 inch to 3/8 inch below finished grade.

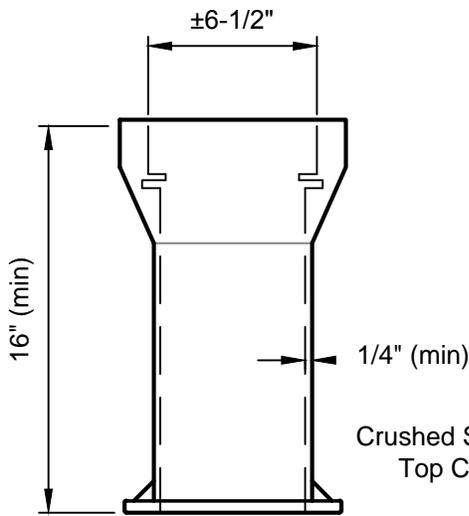
**MANHOLE FRAME
AND COVER**

PAGE NO:

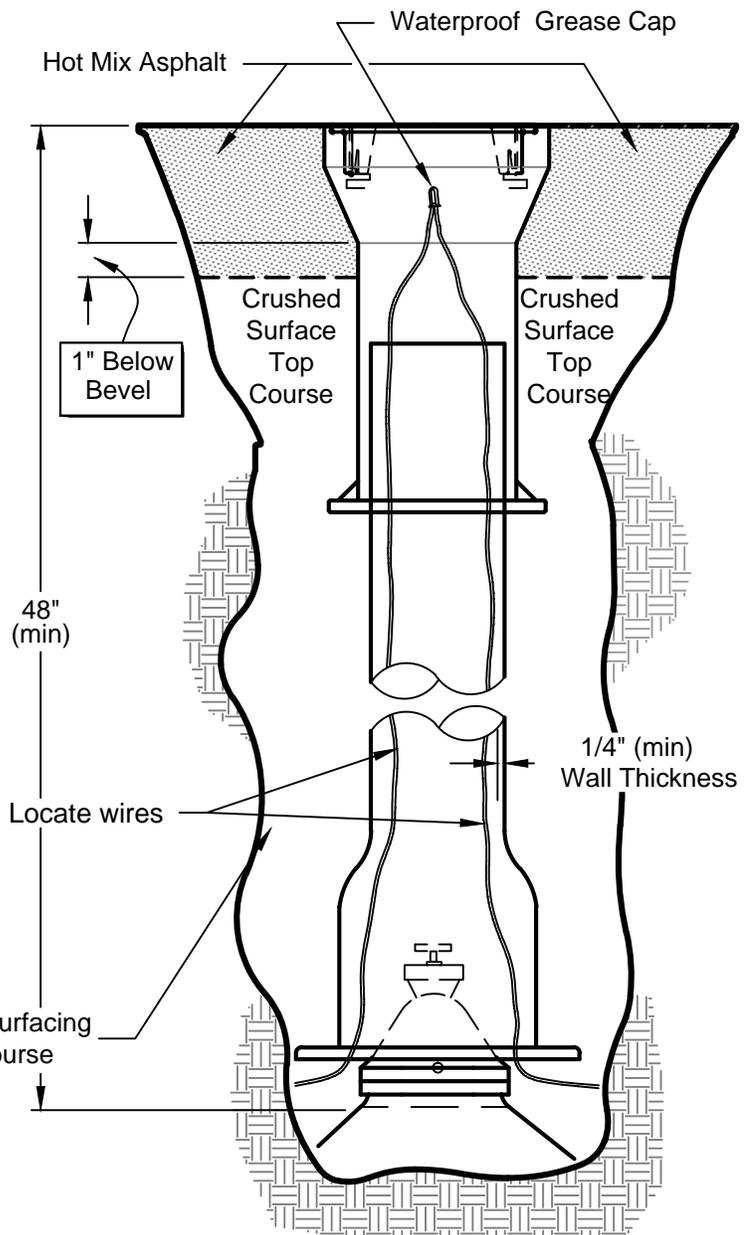
10



PLAN



SIDE VIEW



TYPICAL
INSTALLATION

Notes:

1. Valve box and cover shall be ASTM Class 30 grey iron.
2. Use with matching gate valve box extension pipe.
3. See utility cover adjustment, Standard Drawing 23. Use TYLER ® Series 6855, East Jordan Series 8555, or approved equal.
4. Compact hot mix asphalt patch in no greater than 3-inch lifts.

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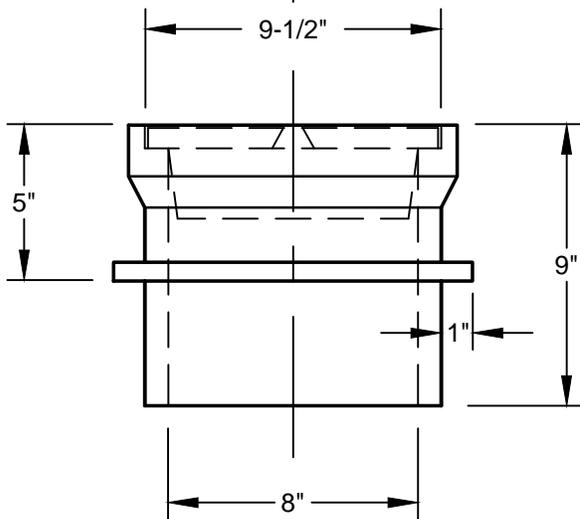
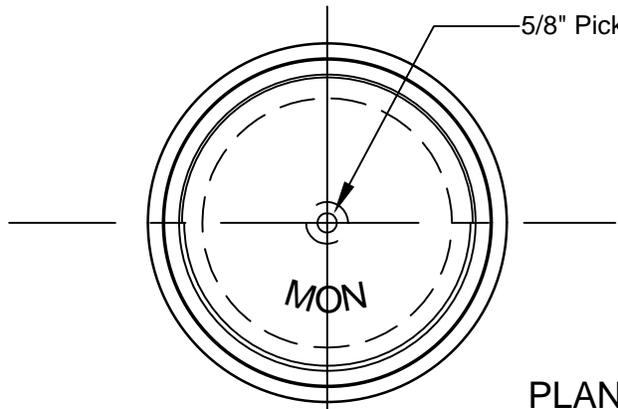
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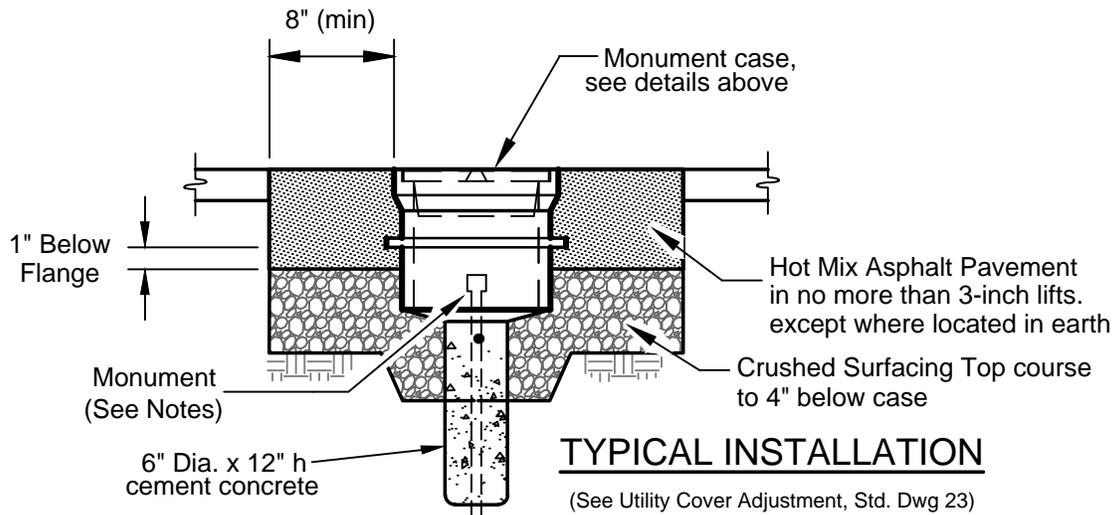
VALVE BOX AND COVER

11



NOTES:

1. Monument case shall be ASTM class 30 gray iron or better.
2. Monument shall be installed in the case by a licensed surveyor after completion of road construction.
3. Monument shall consist of a 5/8-inch diameter by 24-inch long rebar and a cap marked with the Surveyors license number and name/company name. The cap shall have a distinct punch mark for the monuments exact position.
4. Monument case must not touch the pin or concrete. Separate with 2" (min) crushed surfacing top course or a sand layer.



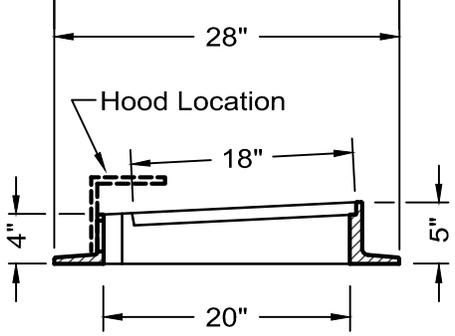
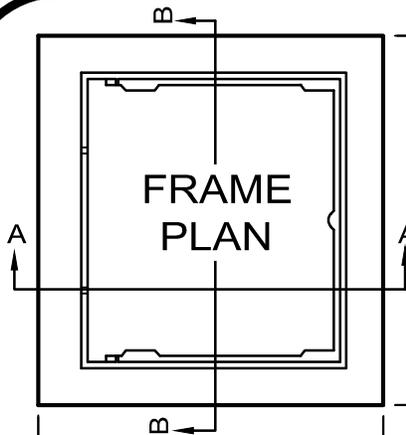
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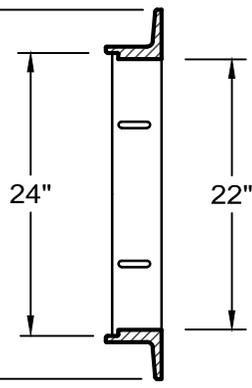
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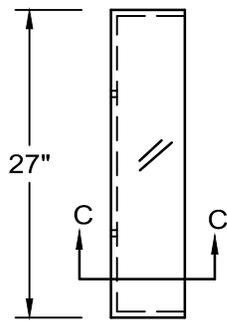
MONUMENT DETAILS



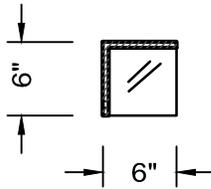
SECTION A-A



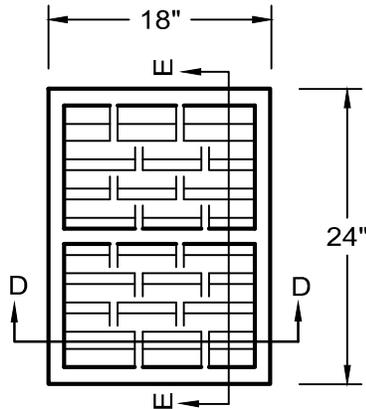
SECTION B-B



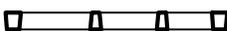
SECTION C-C
IMBEDDED HOOD



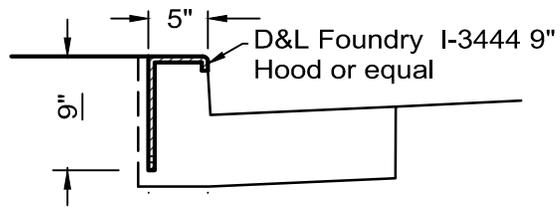
SECTION E-E



GRATE PLAN



SECTION D-D



ALT. SECTION C-C

HOOD FLUSH WITH
TOP & FACE OF CURB

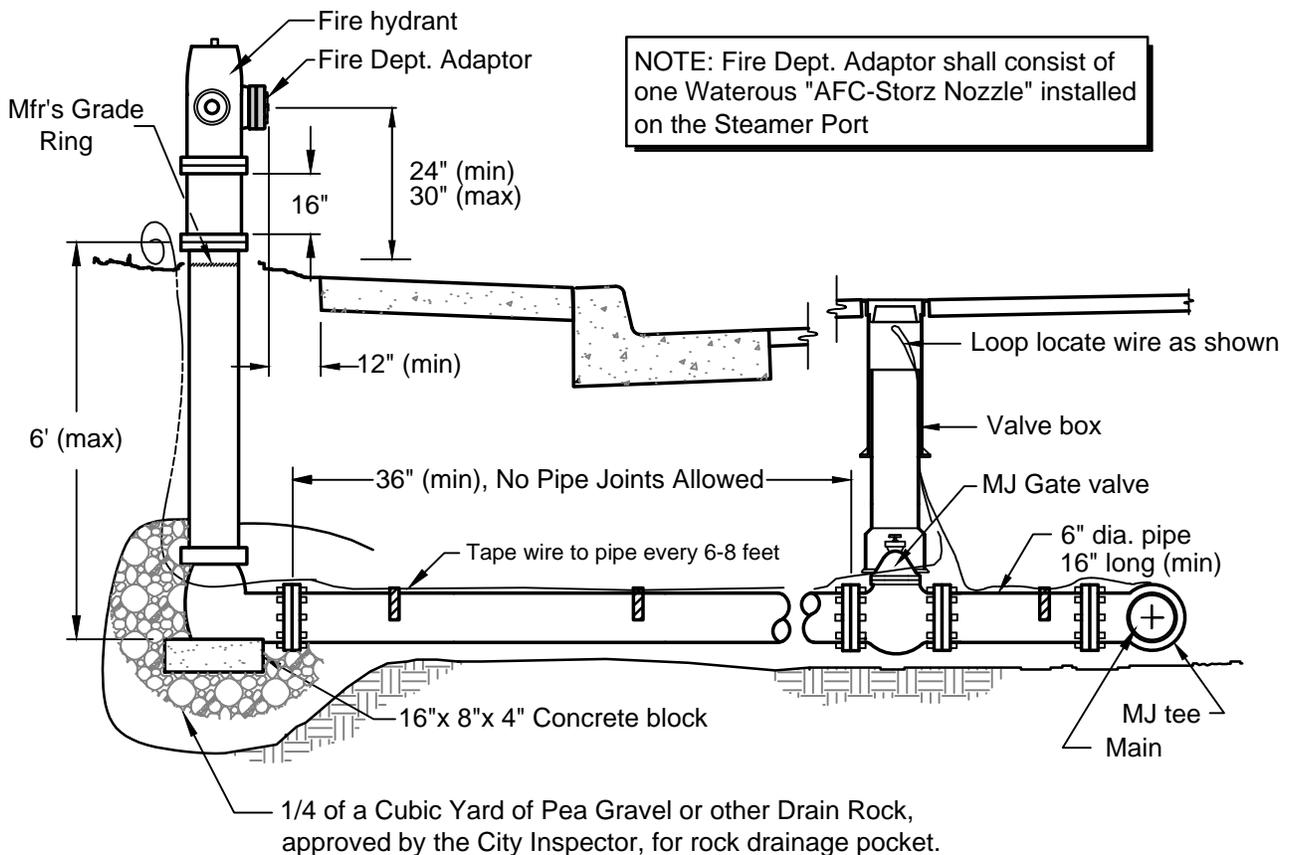
NOTES:

1. Frames to be ASTM A48 class 30 grey iron.
2. Grate castings to be ASTM class 80-55-06 ductile iron.
3. Lids and frames shall be machine ground to prevent rocking.
4. See Standard Drawing # 7 for rolled curb frame and grate.
5. Use East Jordan Iron Works # 7701 frame with Type B hood, D&L Foundry grate and frame No. I-4431 and I-4434, or equal. Use style D2 grate (shown) at low points. Otherwise, use style D1 (one-way) grate, with vanes pointing against flow.

CATCH BASIN FRAME AND GRATE

PAGE NO:

13



TYPICAL INSTALLATION

NOTES:

1. Hydrant shall be mechanical joint "Waterous Pacer Model WB-67-90-16" with two 2-1/2" NST nozzles and one 4-1/2" pumper connection, National Standard operating nut and caps, left-hand opening direction, and 5-1/4" valve opening.
2. If the distance from the hydrant to the tee exceeds 18 feet, restrain the pipe per Std. Dwg. 15.
3. All joints shall be mechanical joints restrained with Romac Grip Rings or Foster connectors, unless otherwise approved by the Engineer.
4. Final grading in a 3-foot radius around the hydrant shall be between 24" and 30" below the center of the hydrant ports.
5. Place hydrant so that the manufacturer's grade ring is 2" above sidewalk, curb, or adjacent ground level.

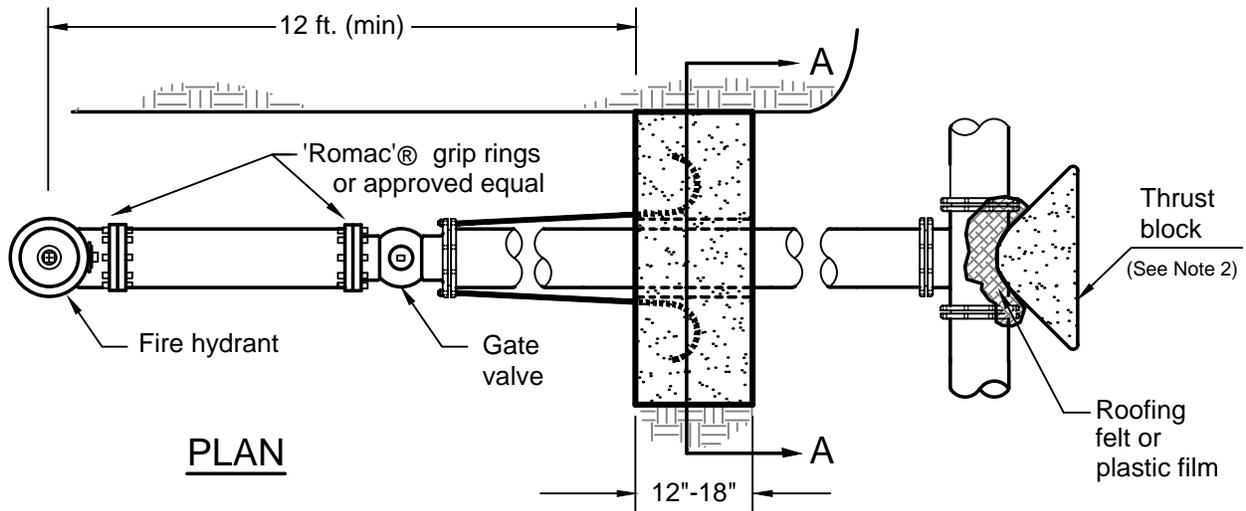
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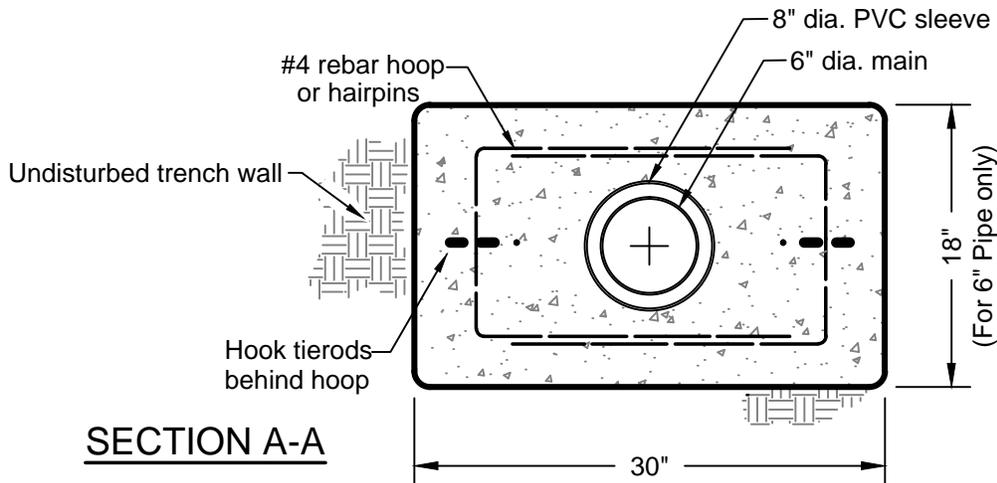
PAGE NO:

FIRE HYDRANT

14



PLAN



SECTION A-A

NOTES :

1. Make threaded and bolted 3/4" diameter tierod connections to fitting with approved ductile lugs or 90° eye bolts.
2. Use 5-sack cement concrete. Calcium additive not allowed.
3. Wrap fittings with 6-mil plastic sheet. Concrete must not interfere with flange bolt removal.
4. Tierods are not allowed between the hydrant and its gate valve.
5. Restraining glands such as the "mega-lug" brand that impose point loading on the pipe are not allowed.

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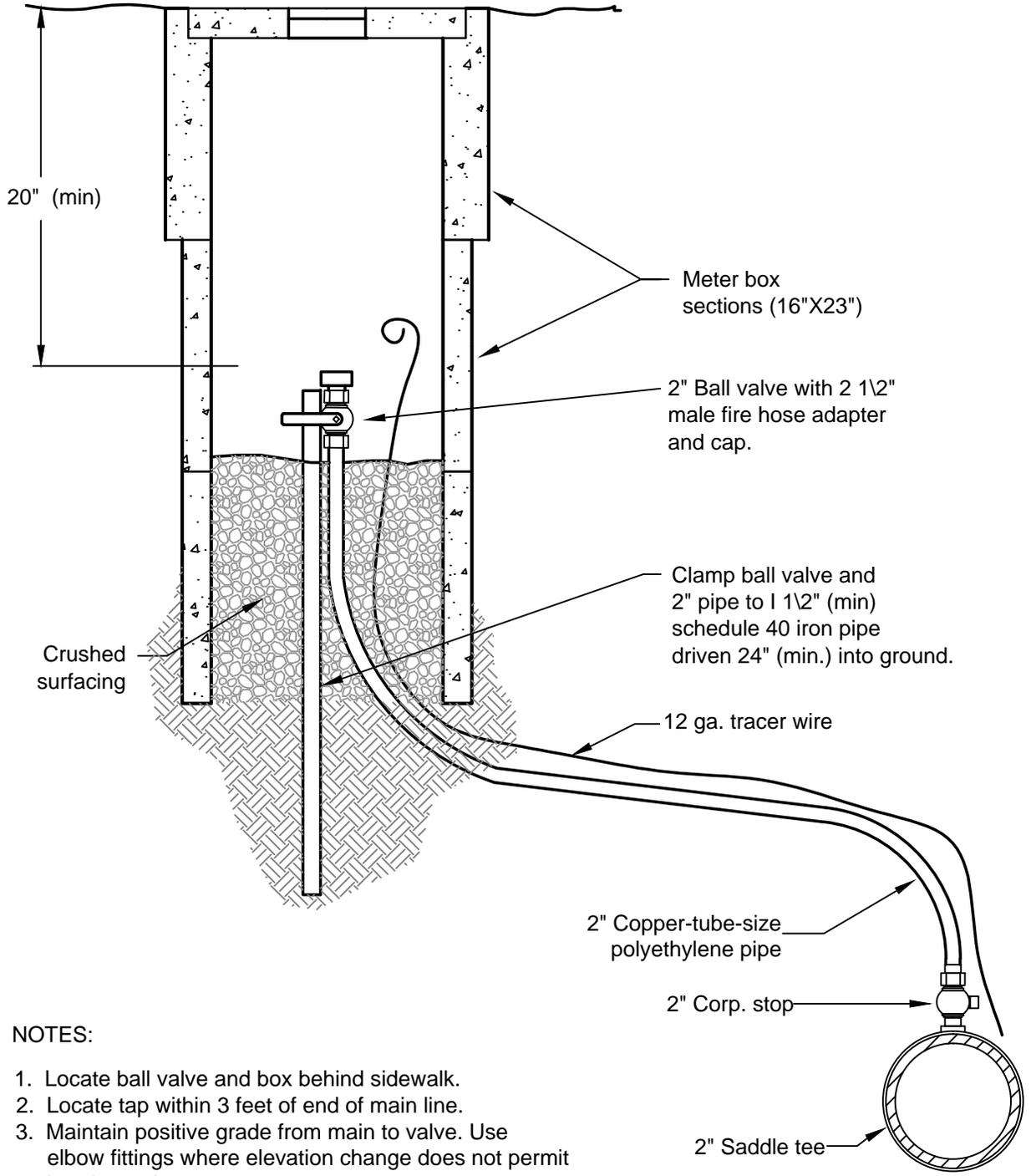
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15

SADDLE BLOCK



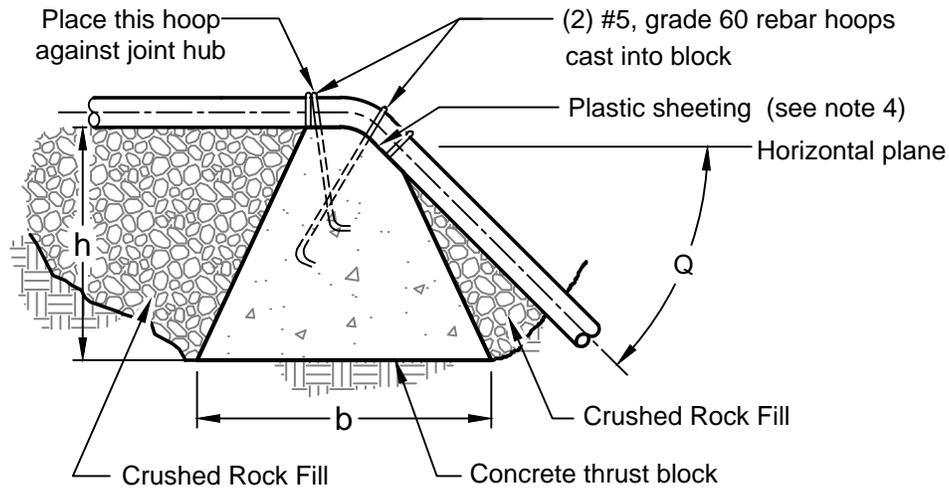
- NOTES:
1. Locate ball valve and box behind sidewalk.
 2. Locate tap within 3 feet of end of main line.
 3. Maintain positive grade from main to valve. Use elbow fittings where elevation change does not permit bends as shown.

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BLOWOFF ASSEMBLY

PAGE NO:
17



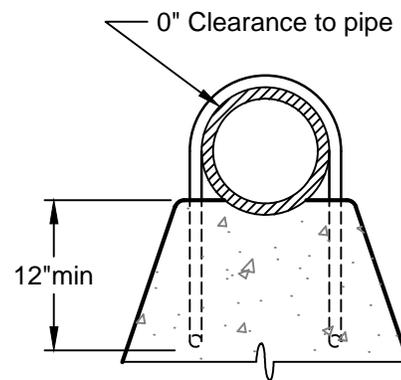
SIDE VIEW

NOTES:

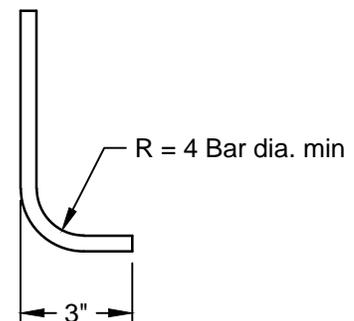
1. Base dimensions (b) and height (h) to be approximately equal.
2. Use 5-sack cement concrete. Calcium chloride admixture not allowed.
3. Do not exceed calculated block size by more than 10%.
4. Wrap fittings in 6-mil plastic sheeting. Concrete shall not interfere with flange bolt removal.
5. Block size determined by $B_v = T/W_c$

Where :

- B_v = Volume in cubic feet
- T = Vertical force element = $PA \sin Q$
- W_c = Weight per cubic foot of concrete (150 lb./cu. ft.)
- P = Test pressure at block elevation (psi)
- A = Cross-sectional area of pipe (sq. in.) =
- Q = Fitting Angle Q = 45 degrees, or Q = 22.5 degrees.



HOOP DETAILS

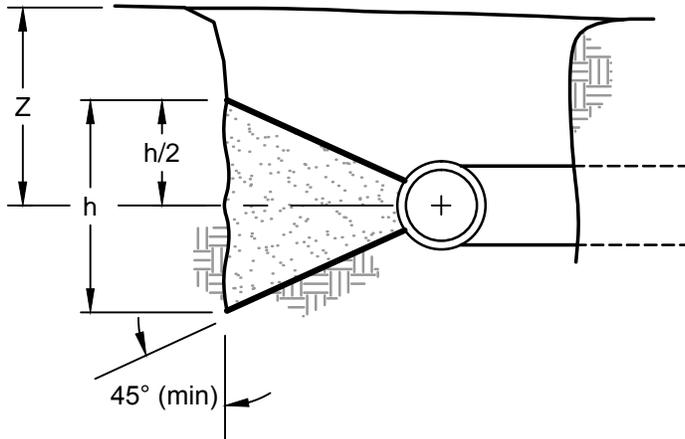


BAR BENDING DIAGRAM

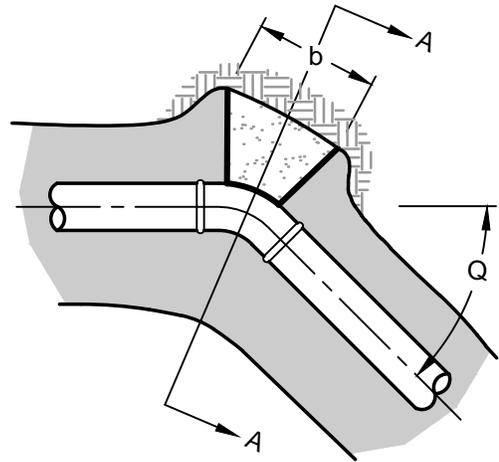
GRAVITY THRUST BLOCK DESIGN

PAGE NO:

18



SECTION A-A



PLAN

NOTES:

1. Use 5-sack (min) concrete; 2% calcium (max).
2. Do not exceed the calculated block dimensions by more than 10% .
3. Protect fitting with 6-mil plastic before pouring thrust block.
Concrete shall not interfere with flange bolt removal.
4. Determine block dimensions as follows :

$$\text{Block Bearing Area} = hb = \text{Thrust} / \text{Passive soil pressure} = T / P_p$$

$$\text{Thrust (lbs)} = 2PA \sin(Q / 2) \quad \text{or} \quad T = PA \text{ for ends and tees}$$

$$A = \text{Cross-sectional area of pipe (Square Inches)}$$

Where: $P = \text{Test pressure at fitting (psi)}$

$Q = \text{Fitting angle}$

$P_p = \text{Passive soil pressure (lbs/Sq. Ft) .}$

$P_p \text{ for saturated clay} = gZ + 2C$

$P_p \text{ for Palouse Loess at optimum moisture content} = gZ \tan^2(45^\circ + F / 2) + 2C \tan(45^\circ + F / 2)$

$P_p \text{ for granular material} = gZ \tan(45^\circ + F / 2)$

Where : $g = \text{Weight per cubic foot of soil}$

$Z = \text{Depth in feet from ground surface to center of pipe}$

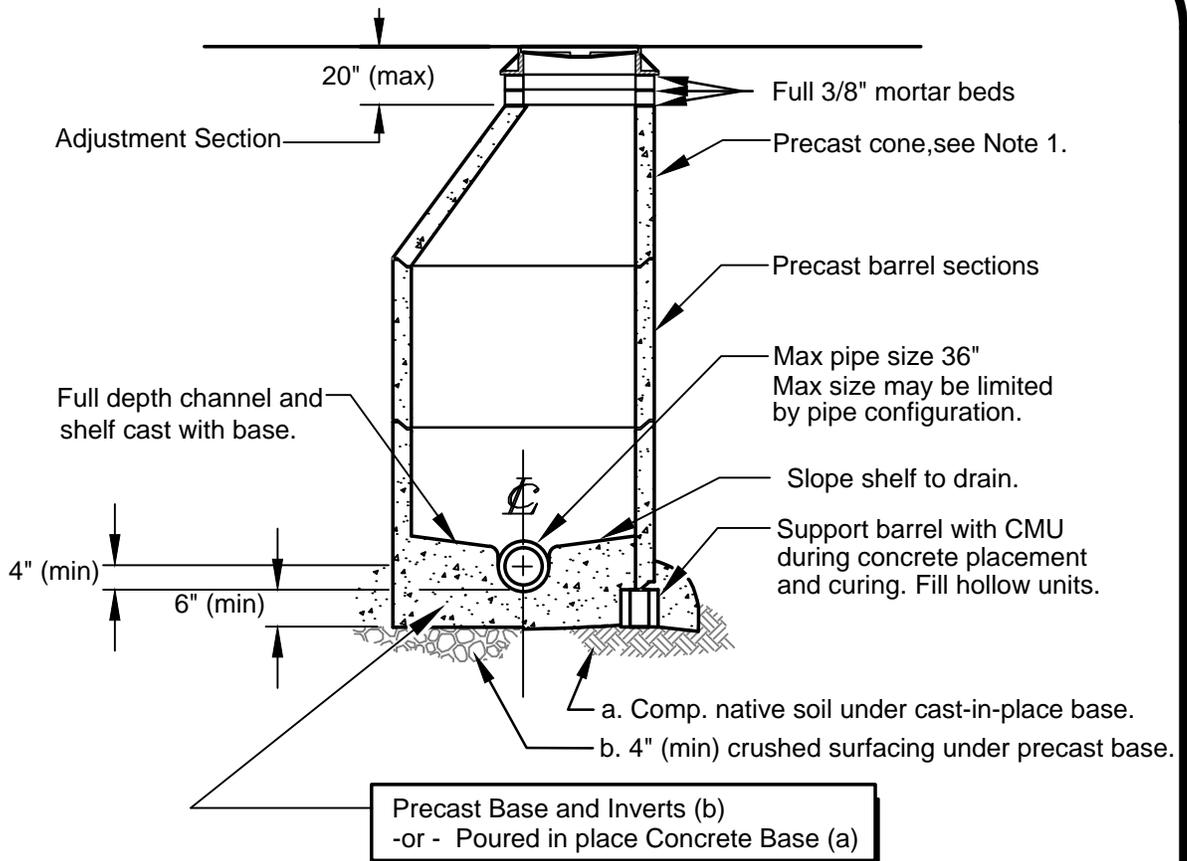
$C = \text{Cohesion factor} = 200 \text{ psf for Palouse Loess}$

$F = \text{Internal friction angle of soil. Use } 28^\circ \text{ for Palouse Loess, and } 42^\circ \text{ for granular material}$

BEARING THRUST BLOCK DESIGN

PAGE NO:

19



NOTES:

1. Use eccentric cones except when otherwise specifically approved by the City Inspector. Place the cone entry hole above the outlet pipe. Flat-topped barrels are not allowed.
2. Provide precast barrel sections and cones that meet the requirements of the current Washington Standard Specifications. Precast base and invert sections with integral seals may be used.
3. Provide manhole cones and barrel sections without steps or rungs.
4. A minimum of 8 inches of wall shall remain between holes.
5. Where manholes are located out of the street improvement area, install an 6-foot (min) steel fence post within 3 feet of the manhole extending 3-1/2 feet above grade.
6. Manhole shall be water tight to prevent infiltration of ground water into the manhole structure.

AutoCAD: Manhole - Std 48 inch

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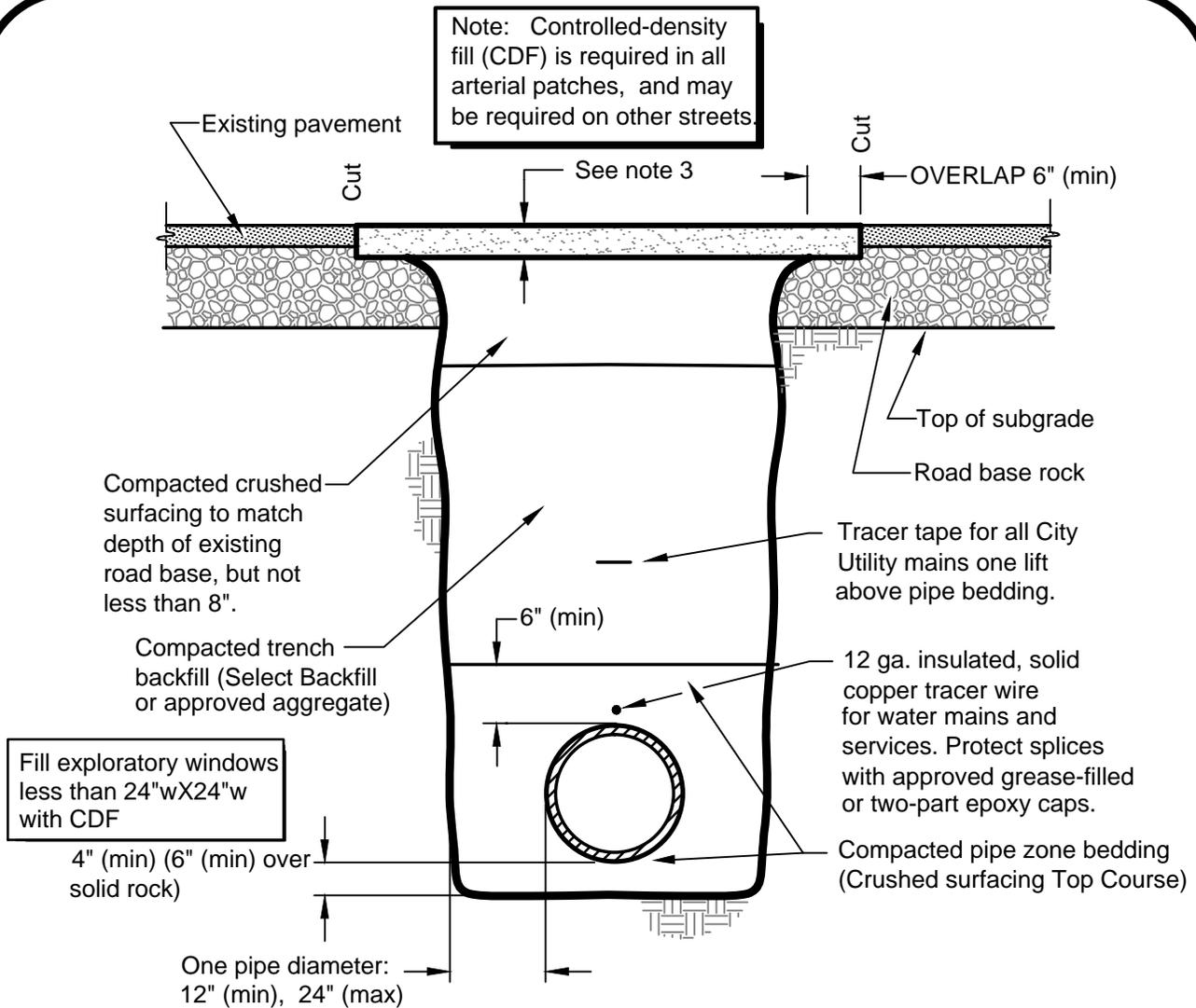
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MANHOLE, 48 INCH DIAMETER

PAGE NO:

20



NOTES:

1. Cut pavement with a neat, vertical edge at a minimum of 6 inches from the trench edge.
2. Construct cement concrete patches as directed by the Engineer.
3. Patches shall be as thick as existing pavement, but no less than 3 inches on arterial streets, and no less than 2 inches on other streets.
4. Tape the tracer wire to top of water pipe. Splice wire with sealed direct-bury wire nuts. Terminate wire at hydrants, valve boxes, and other surface appurtenances.
5. Compact bedding and backfill per ASTM D1557 (Modified Proctor method) as follows :
 - A. Bedding zone : 90% (min)
 - B. Trench backfill : 90% (min) in 6-inch lifts, 95% for top 6 inches, under street zones; 85% (min) outside street zones.
6. Minimum depth of bury shall be from finished grade to top of pipe :
 - A. Storm sewer : 24 inches
 - B. Sanitary sewer : 36 inches
 - C. Water pipeline : 48 inches

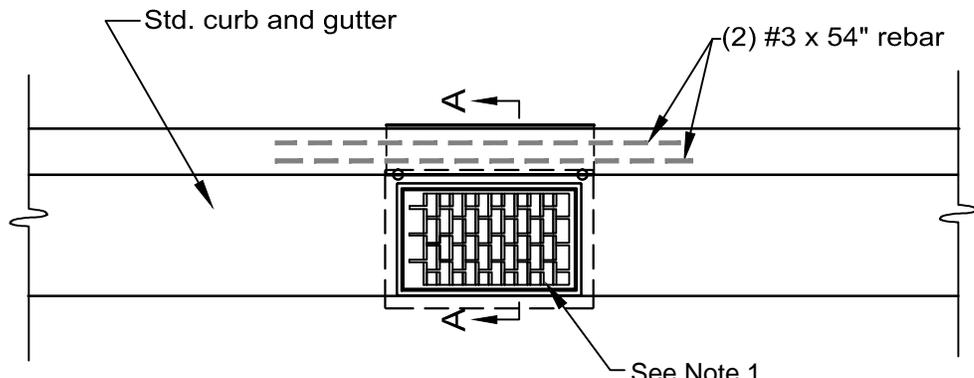
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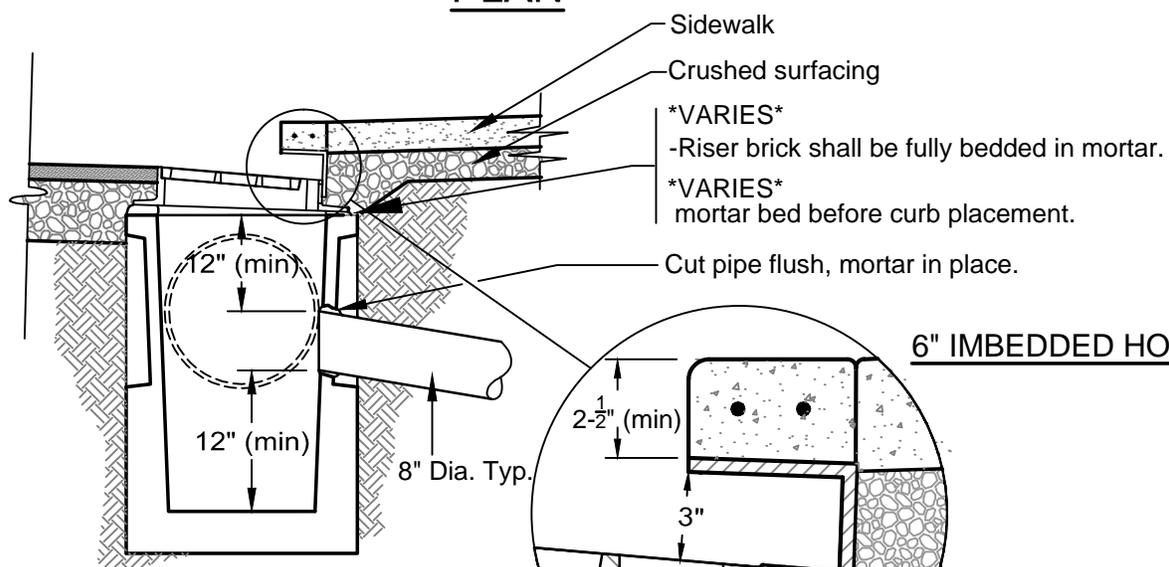
STANDARD UTILITY TRENCH and Pipeline Placement

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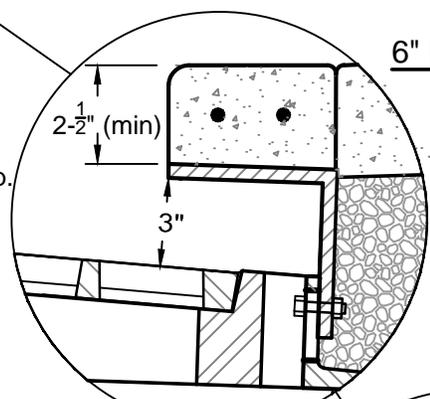
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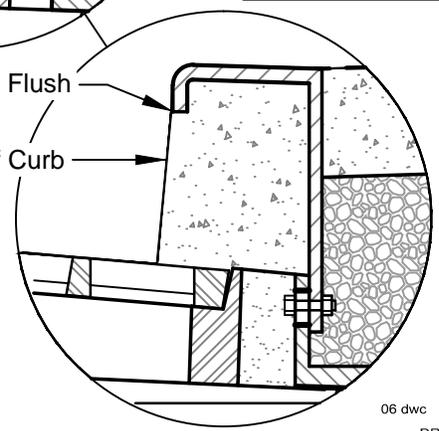
PLAN



SECTION A-A



6" IMBEDDED HOOD



ALT. 9" HOOD

NOTES:

1. Frame and grate per Standard Drawing No. 13.
2. Depress back of lid 1 inch at flowline to provide a 2 - inch fall across the grate. Gutter lip and top of curb are not depressed.
3. Use WSDOT Type 1 precast catch basin box.
4. Set the catch basin box on 2 inches (min) of crushed surfacing leveling course.
5. Set frame to provide 90% (min) clear drainage opening with reference to the box opening.
6. Storm drain catch basin leaders shall be installed with no less than 2 feet of cover as measured from finished grade at the catch basin.

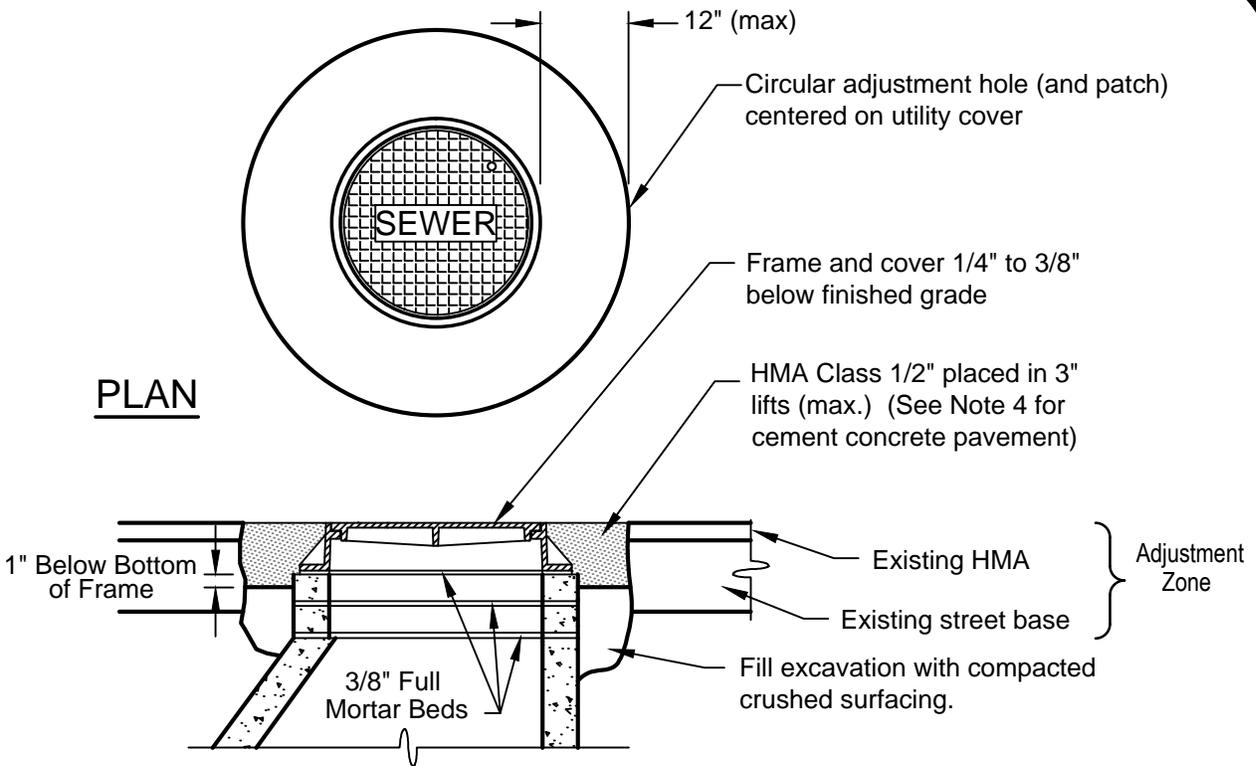
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CATCH BASIN

PAGE NO:

22



TYPICAL SECTION THROUGH MANHOLE

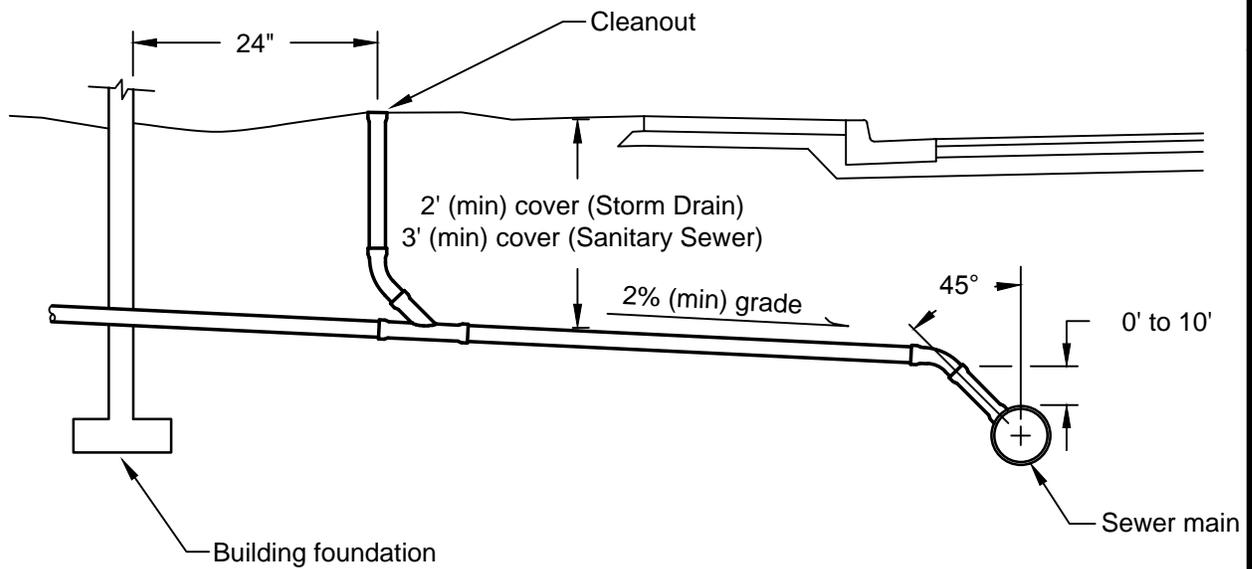
NOTES:

1. Keep the excavation to the minimum depth required to adjust the cover.
2. Place crushed surfacing in 6-inch lifts. Compact to 95% of maximum theoretical density per ASTM D 1557 (Modified Proctor method) from the bottom of the excavation to 1-inch below the bottom of the frame. Place, compact HMA, Class 1/2" in 3-inch lifts to finished grade. All compaction shall utilize approved methods.
3. Place manhole adjustment rings and frames on a full bed of Type S mortar to ensure full bearing. (In unpaved areas outside of street zones, place manhole frames on a full bed of manhole barrel mastic).
4. Cement concrete pavement :
 - A. New construction : Provide a circular adjustment hole as shown.
 - B. Existing pavement : Provide a diamond-shaped hole as directed by the Engineer.
 - C. Patch the hole with 7 sack (3/4") Portland cement concrete as thick as the existing pavement, but not less than 5-1/2 inches thick.

**UTILITY COVER
ADJUSTMENT**

PAGE NO:

23



TYPICAL SECTION

NOTES:

1. Pipe diameter shall be 4 inches or greater. See specifications for acceptable materials.
2. Pipes stubbed out for future building connections shall be plugged with a fitting approved by the manufacturer.
3. Maximum distance between cleanouts shall be 100 feet. The maximum aggregate change in direction between cleanouts shall be 135°. Construct additional cleanouts as necessary.
4. A water service and a sewer service may be placed in the same trench if the water service is placed on an undisturbed earth shelf 12 inches (min) above the side sewer.
5. Abandoned sewer services shall be plugged within 5 feet of the property line with a fitting approved by the manufacturer or a minimum 2-foot long poured concrete plug.
6. Pipe material shall be PVC SDR 35 unless otherwise approved by the city inspector.

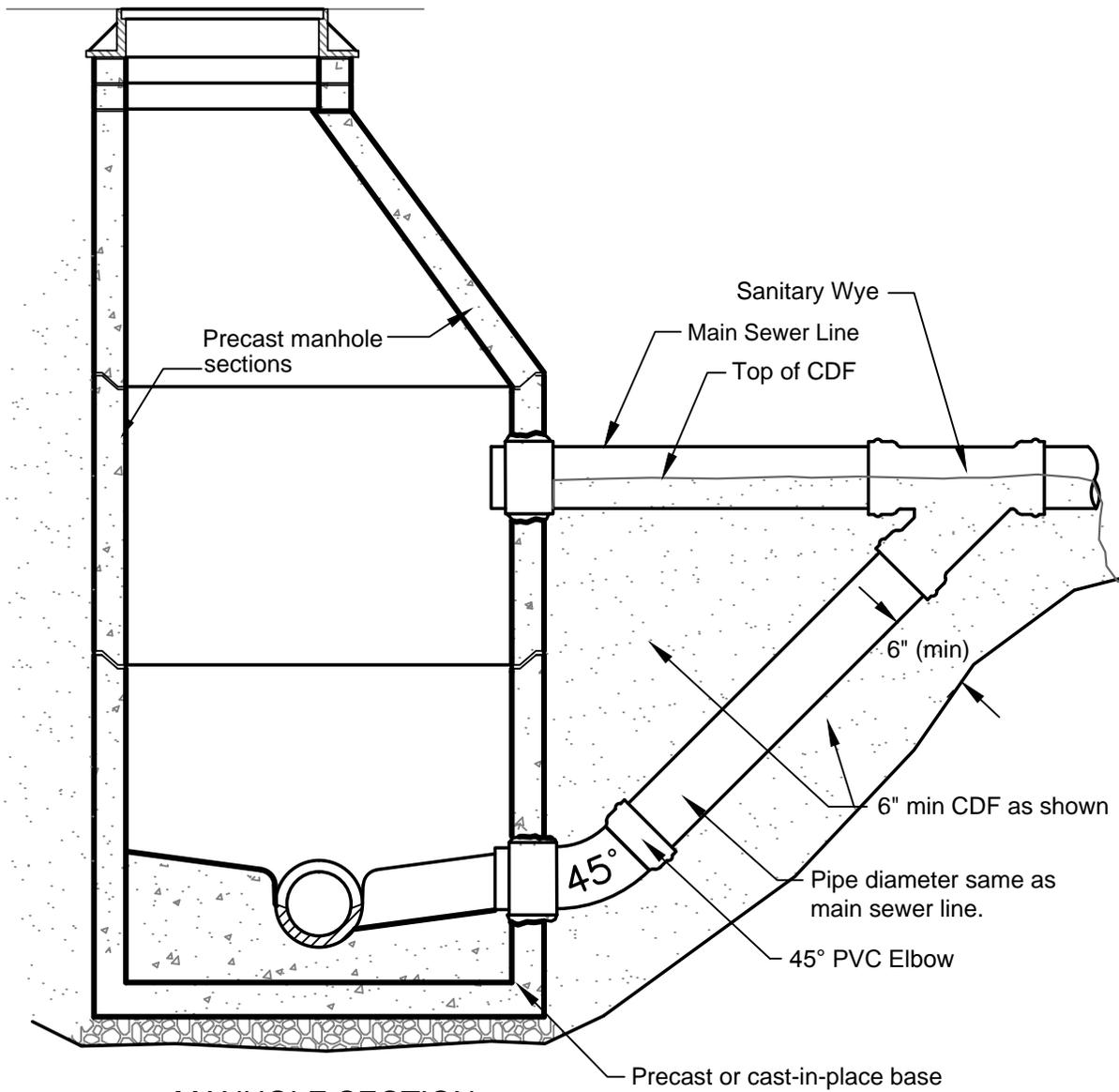
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SIDE SEWER INSTALLATION (Storm and Sanitary Sewer)

PAGE NO:

24



MANHOLE SECTION

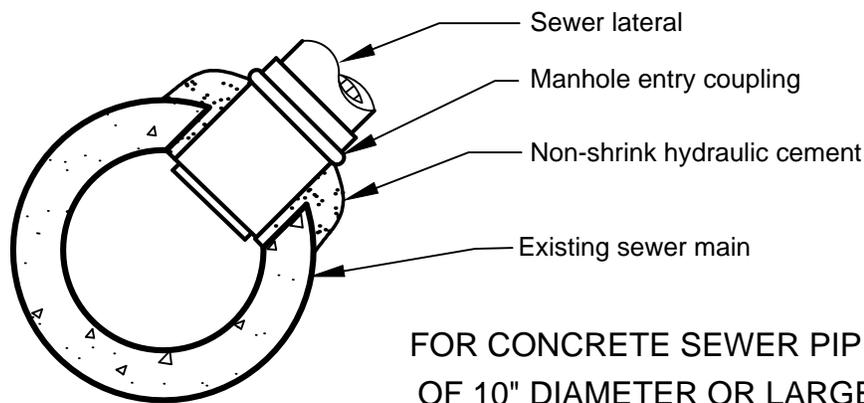
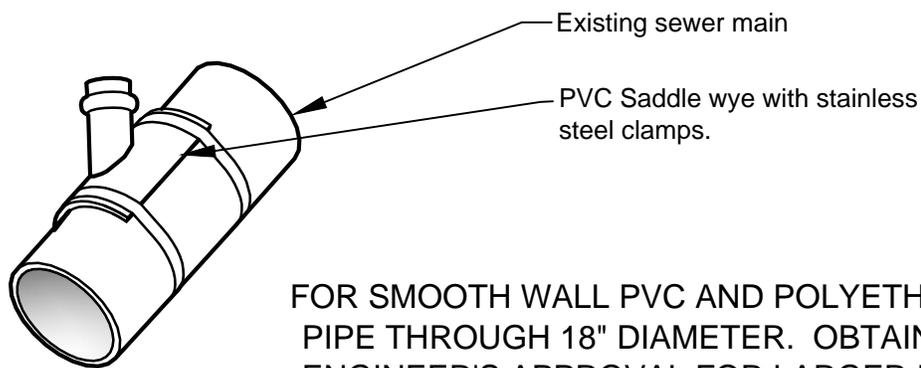
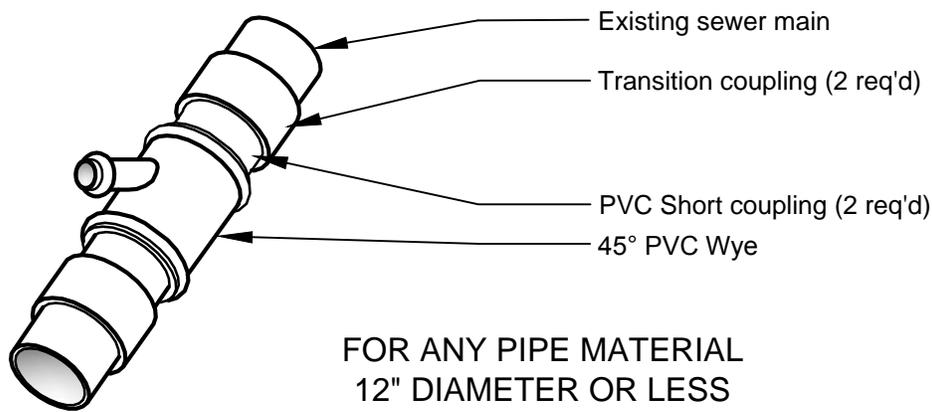
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PAGE NO:

DROP MANHOLE

25



NOTES:

1. For clay, cement concrete, or asbestos concrete pipe of 12-inch diameter and larger use 'Romac' ® Style "CB" sewer saddle.
2. Tap opening shall be in the top half of the tapped pipe. Tap shall intersect the main at approximately 45 degrees.
3. For clay pipe of 6-inch diameter, cut in short section of pipe with wye and solid sleeves on each end.

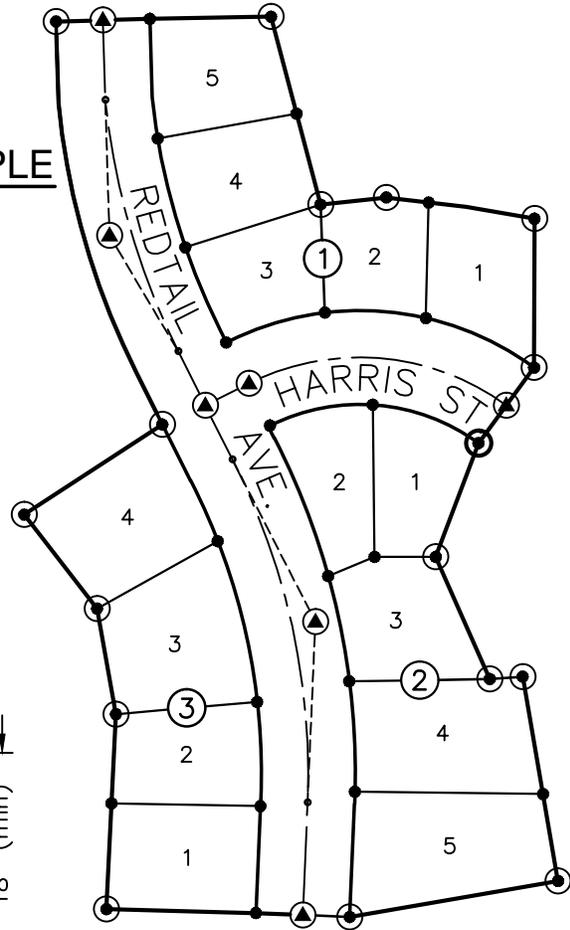
**SEWER TAP OPTIONS
 FOR EXISTING MAINS**

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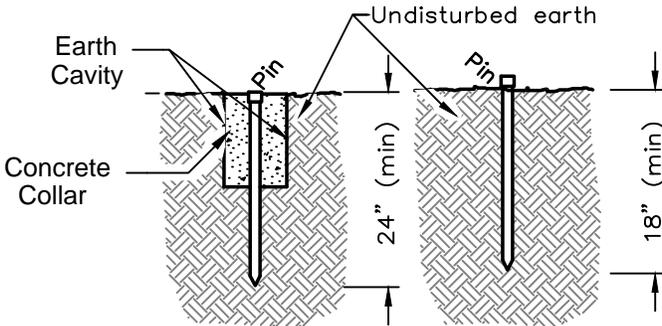
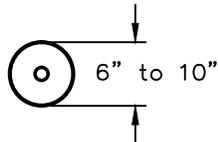
26

SUBDIVISION PLAT EXAMPLE

NOTE: During the Plat review process, certain concreted pin locations may be waived by the Public Works Director.



PLAN



SUBDIVISION CORNER LOT CORNER

CORNER PIN DETAIL

NOTES:

1. Set Subdivision corners at Subdivision boundary angle points as shown.
2. Set street centerline monuments where shown on this drawing.
3. Set Curve Monuments at the PI of their tangent lines if located within the paved area. (See Standard Drawing No. 12)
4. "Pin" shall be 5/8"x 24" steel rod.
5. Construct a 6" (min) to 10" (max) diameter by 12" high concrete collar against undisturbed earth.

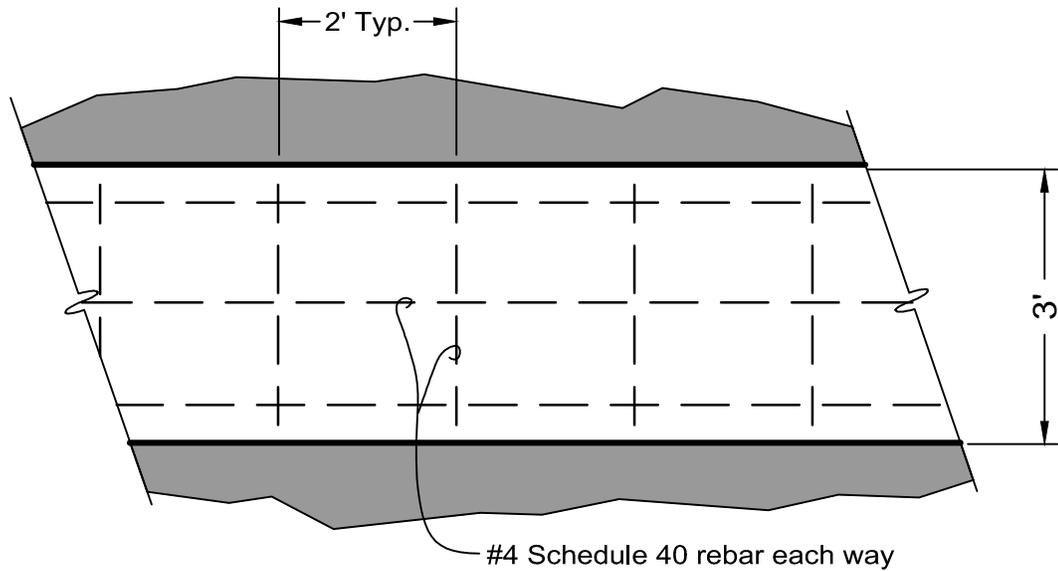
LEGEND

- Lot corner in earth
- ⊙ Subdivision corner pin set in concrete
- ▲ Street centerline monument (See Standard Drawing No. 12)

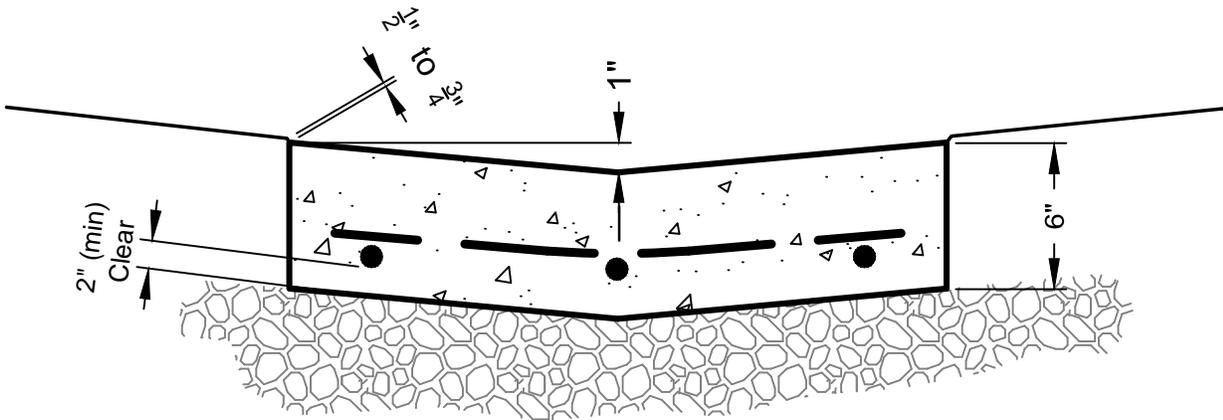
Property Pin & Monument Installation

PAGE NO:

27



PLAN

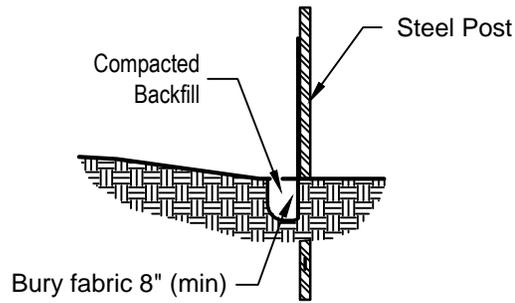


TYPICAL SECTION

VALLEY GUTTER

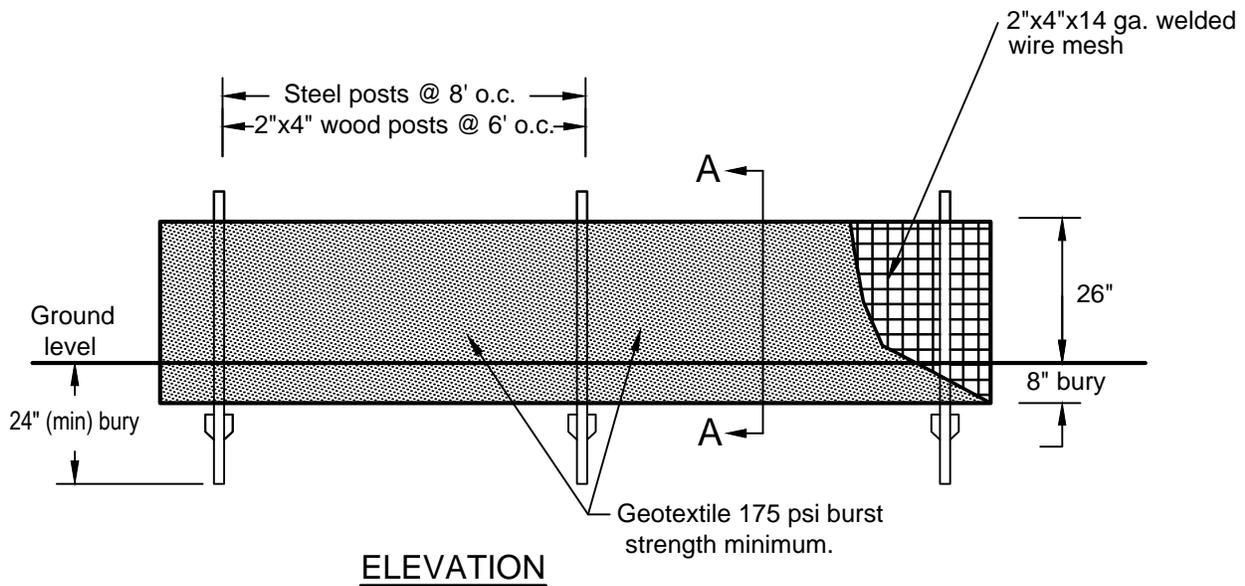
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28



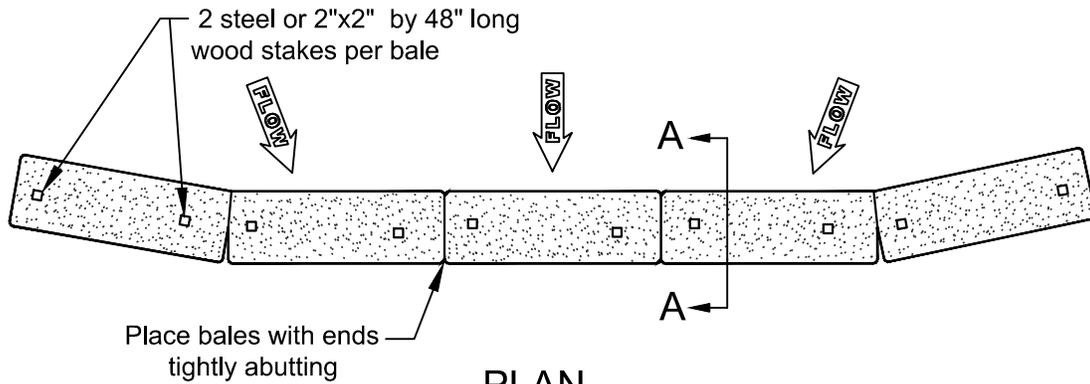
Fence with 2'x2' pre-installed posts are not allowed.

SECTION A-A

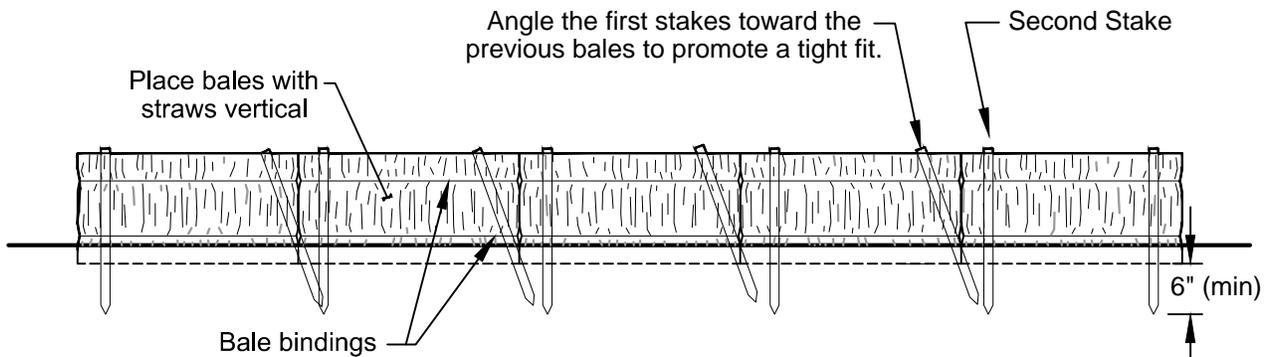


SILT FENCE NOTES:

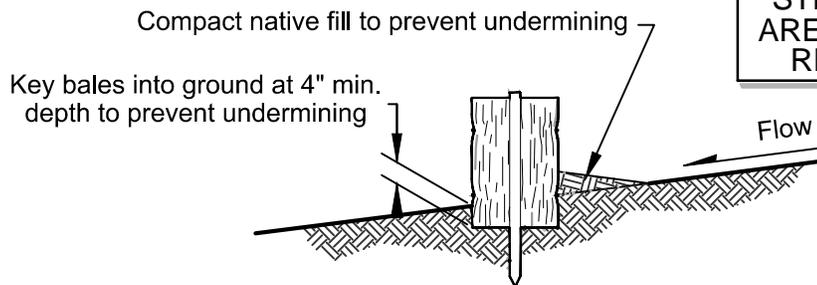
1. Attach wire mesh to posts with approved metal devices.
2. Attach geotextile fabric to the up-slope side of the posts and wire mesh top and bottom with approved metal fasteners @ 24" o.c. maximum spacing.
3. Geotextile fabric top edge shall be 26" minimum above ground.
4. Overlap vertical silt fence splices 8' minimum (post to post). See elevation, above.
Avoid sumps and other low points.



PLAN



ELEVATION



SECTION A

NOTES:

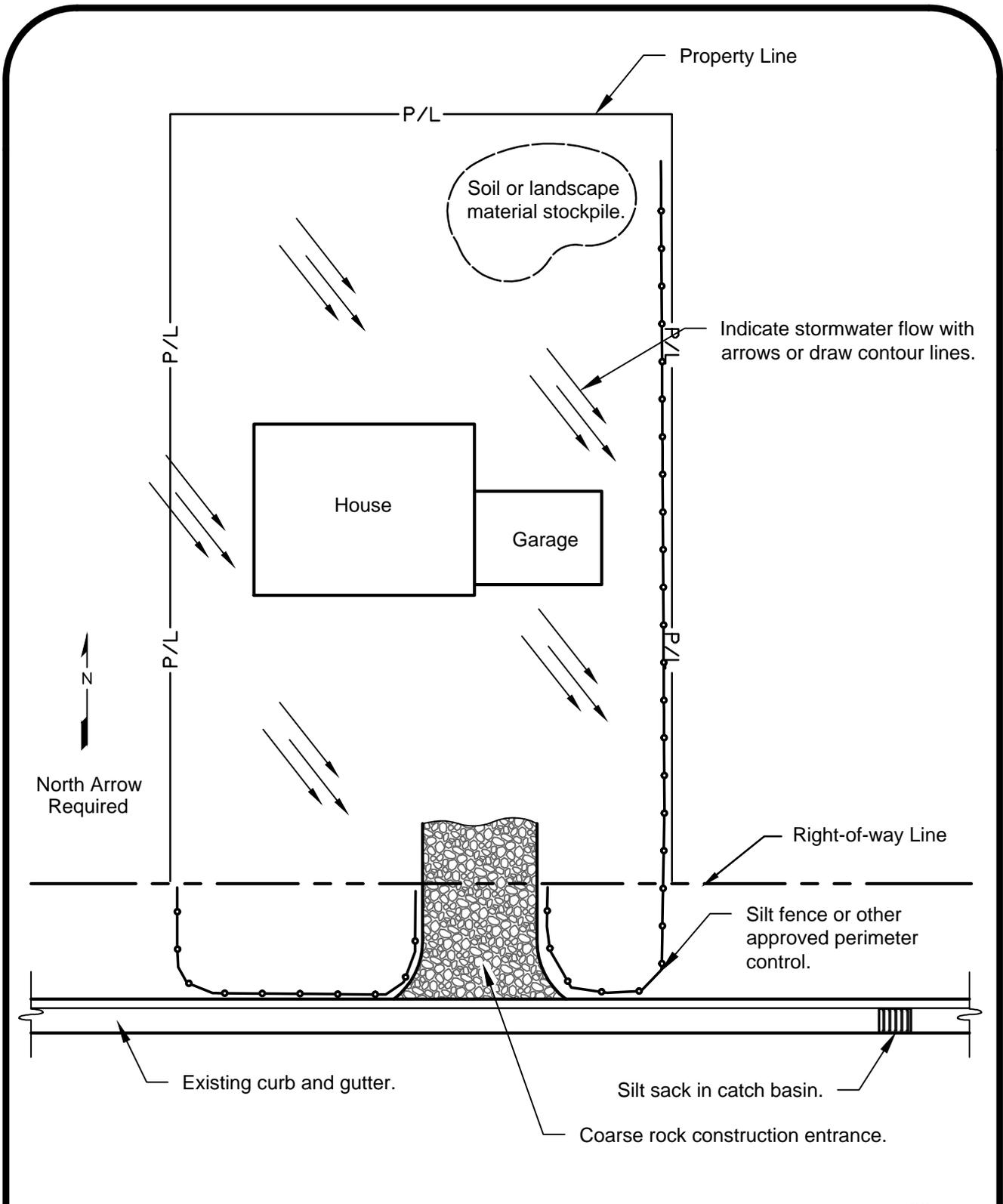
1. Use Straw Bales to slow and control runoff on slopes and gullies.
2. Do not use Straw Bales to replace required perimeter control.
3. Straw Bale erosion control is for short term use only. Remove within 1 year of their placement.

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STRAW BALE BARRIER

PAGE NO:

30



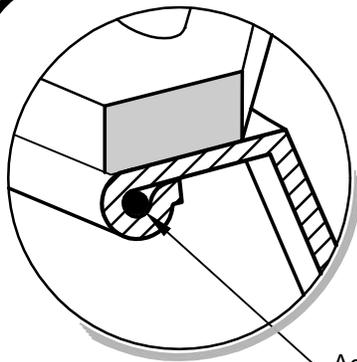
P:\Engr & CAD\STANDARD DWGS - ALL YEARS\Std Dwgs 2016\31 Erosion Map

2011 drr

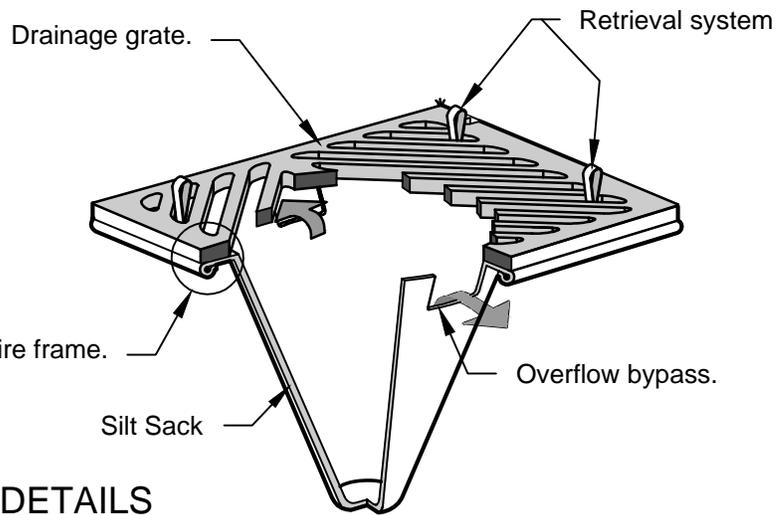
EXAMPLE EROSION CONTROL PLAN MAP

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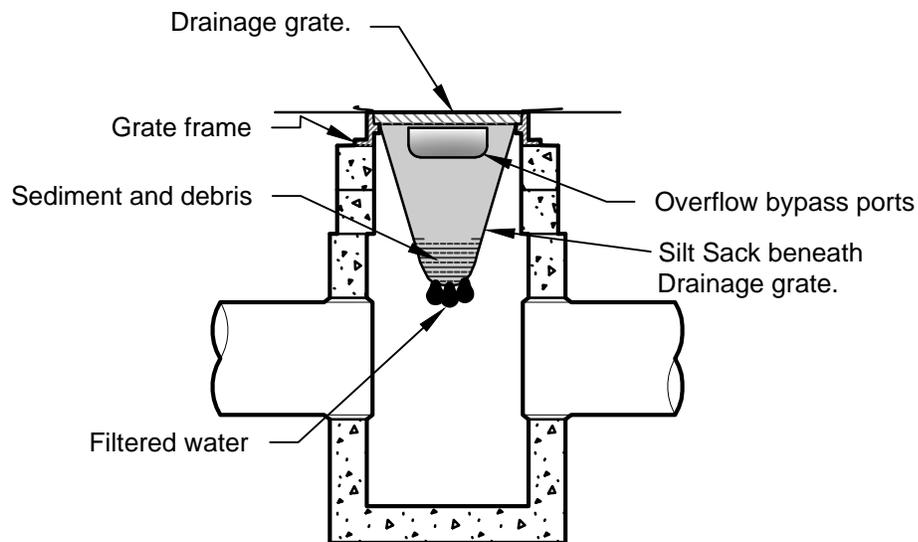
31



Adjustable wire frame.



DETAILS

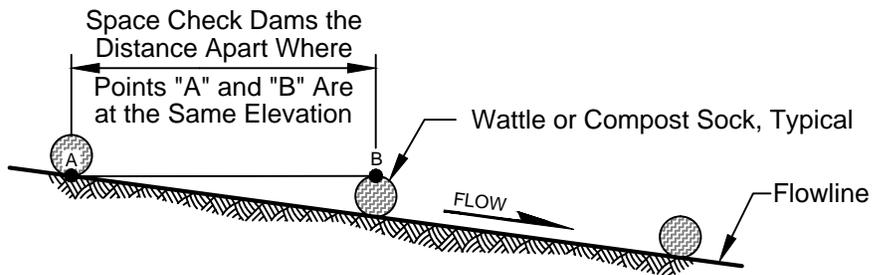


SECTION

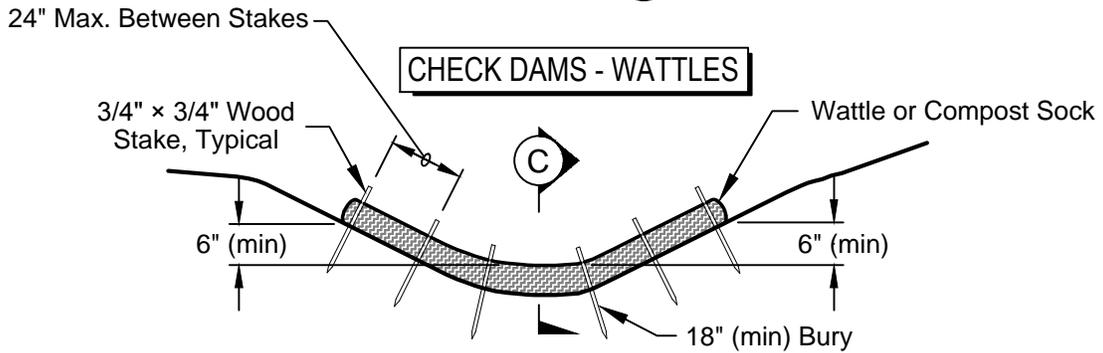
NOT TO SCALE

NOTES:

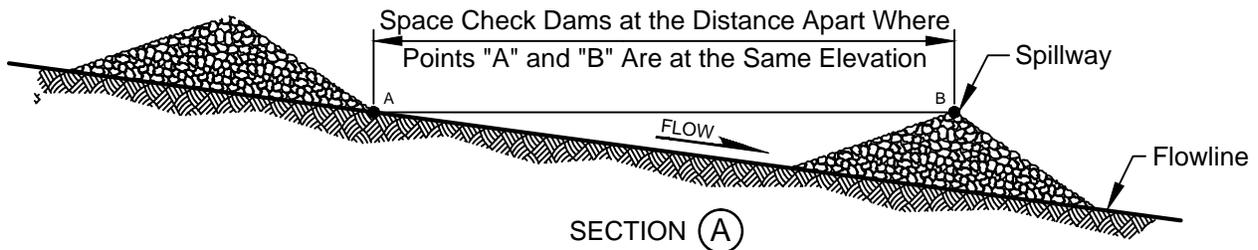
1. Size and shape of the silt sack must fit the storm structure it will service (rectangular or round).
2. The silt sack shall have a built-in high-flow relief system (overflow bypass).
3. The silt sack assembly must allow removal without spilling the collected material.
4. Empty silt sack and dispose of sediment and debris before the sack is half-full.
5. Ensure the silt sack assembly does not spill or fall into the storm structure. If sediment is spilled into the storm structure, remove the spilled material by suction hose or other approved method.
6. Provide protection for catch basin hoods (wattles, 2"x4" lumber, and so forth).



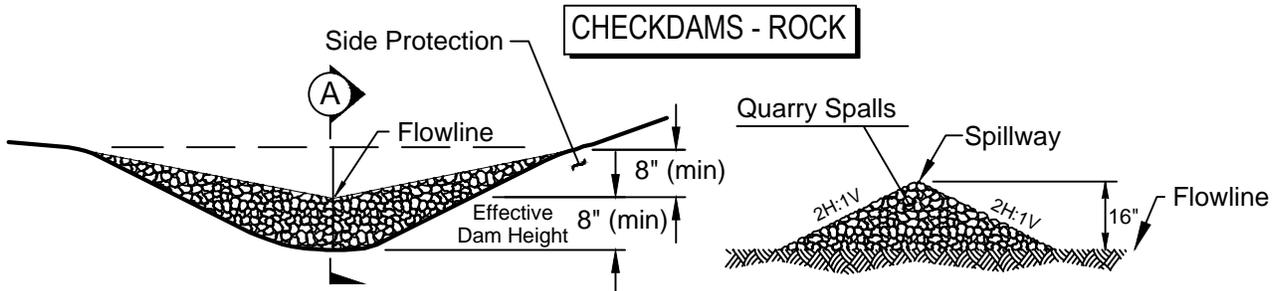
SECTION (C)



TYPICAL CROSS SECTION



SECTION (A)



DAM DETAIL (A)

ROCK CHECK DAMS SHALL BE PLACED OUTSIDE OF THE CLEAR ZONE, OR BEHIND TRAFFIC BARRIER.

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EROSION CHECK DAMS

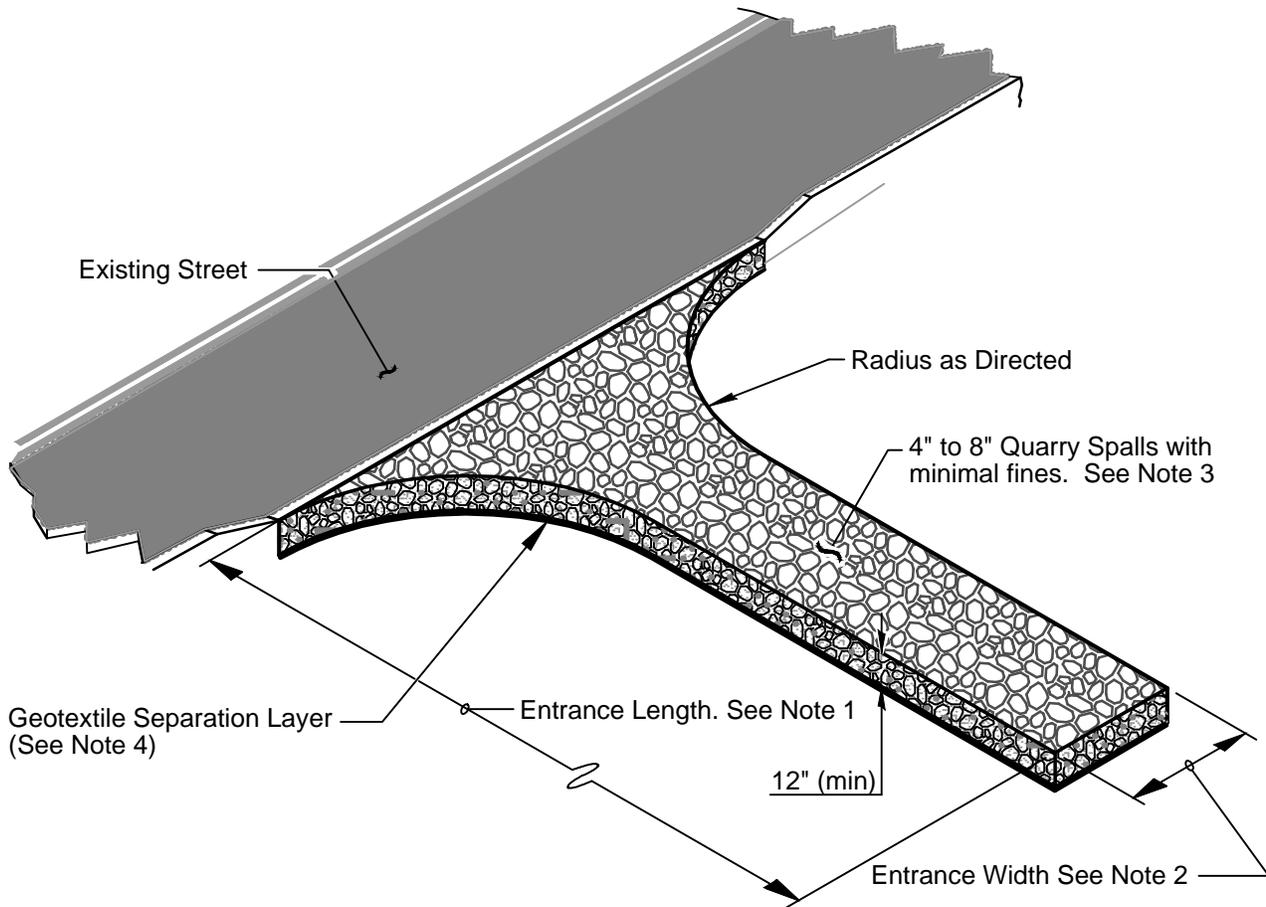
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33

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34



NOTES:

1. Entry width shall be as required, with a 50-foot minimum length. Entry length may be reduced to 25-foot minimum for sites containing less than one acre of exposed soil. (See Note 2)
2. Install full depth of rock for the full width of the entrance: 15-foot minimum.
3. Smaller crushed rock such as base course with minimal fines may be used on projects less than 1 acre in size.
4. Separation geotextile shall be placed under spalls on projects 1 acre and greater in size.

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CONSTRUCTION ENTRANCE

PAGE NO:

35